64 00 ... Information on using cleaning agent/paints (personal protection equipment)



Warning!

Use of cleaning agents/paints not compliant with instructions can cause serious injuries or burns!

Handling cleaning agents/paints can trigger allergic skin and respiratory reactions!



Important!

Observe following instructions:

- Store cleaning agents/paints only in a secure cabinet.
- Keep cleaning agents/paints away from naked flames and other sources of ignition.
- Protect cleaning agents/paints from high temperatures and direct sunlight.
- Always keep an eye douche on hand, change the water regularly (once a month).



Important!

Observe following instructions before use:

- Manufacturer's instructions (on container/packaging)
- Hazard warnings (on container/packaging)
- Manufacturer's instructions on package insert
- Material safety data sheet of manufacturer
- Product information in EPC
- National market regulations



Important!

Observe following instructions during use:

- Do not eat, drink or smoke while working with these products.
- Avoid direct contact with skin and eyes.
- Wear personal protective clothing/equipment.
- Ensure that all enclosed areas are well ventilated or extract fumes directly.
- Immediately change working clothes soiled with cleaning agent/paint.
- After finishing work, wash your hands and apply protective skin cream.



Important!

Follow hazard warnings and wear personal protection equipment!

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First Aid:

- If product comes in contact with eyes, immediately flush with running water for about 10 - 15 minutes. Seek the advice of eye specialist.
- In the event of skin contact and where applicable an allergic skin reaction, clean the affected areas immediately with soap and water and then apply silicone-free skin cream. Seek advice of physician.
- If an adhesive product is swallowed, rinse mouth/parts of mouth thoroughly with running water. Drink 1-2 glasses of water. Do not induce vomiting. Consult a doctor.
- After inhaling vapours ensure ample supply of fresh air. Keep calm, keep respiratory tracks clear and call doctor.



Recycling:

Dispose of cleaning agents/paints in a professional manner!

Observe national/country-specific disposal regulations.

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64 00 ... Overview of A/C service station

The following table shows an overview of the currently offered A/C service station depending on the refrigerant.*Note:*

> The different refrigerant connections for C2H2F4 and R1234yf play no role during flushing, as the A/C service station is connected with the refrigerant circuit of the vehicle via the refrigerant line from the air conditioning compressor.

Description	Order number	Refrigerant		Flushing of Refrigerant circuit		Accessories for flushing
		R134a	R1234yf	Yes	No	Order number
Beissbarth 4100a	81 34 2 286 739	x		x		81 34 2 286 908
760R	81 34 2 289 569	x		x		81 34 2 289 571
WAECO AirCon Service Center	81 34 2 147 235	x		x		81 34 2 286 909
WAECO 2500 Low Emission	81 34 2 286 807	x		x		81 34 2 286 909
TEXA 770S	81 34 2 286 318		x		x	
BEISSBARTH 5100yf	81 34 2 286 325		x		x	
WAECO BMW 5000 Low Emission	81 34 2 286 324		x		x	

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64 00 ... Overview of refrigerant oil to be filled

The following table shows an overview of which refrigerant oil may be added to which vehicle.*Note:*

The refrigerant oil to be filled can be found on the type plate on current vehicles.

Depending on the version and country, it may happen that the following table specifies a different refrigerant oil than the factory-filled refrigerant oil. This is permissible in certain cases. Observe notes on the refrigerant and refrigerant oil.

Model series		R134a	R1234yf	ND-8	Sanden SP-A2
E	All vehicles with combustion engines	x		x	
	E72 Hybrid	x		x	
F (BMW and MINI)	All vehicles with combustion engines	x		x	
	All vehicles with combustion engines		x		x
	Hybrid	x		x	
	Hybrid		x	x	
	PHEV	x			x
	PHEV		x		x
G	All vehicles with combustion engines	x			x
	All vehicles with combustion engines		x		x
	PHEV	x			x
	PHEV		x		x
I	All	x			x
	All		x		x
R (MINI)	All vehicles with combustion engines	x		x	
	All vehicles with combustion engines		x		x
RR	RR1, RR2, RR3 before model facelift	x		x	
	RR4 with optional rear air conditioning	x		x	
	All other vehicles	x			x
	All other vehicles		x		x

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



Warning!

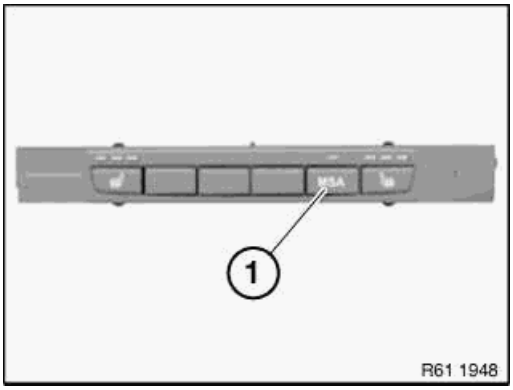
If the engine hood/bonnet contact is pulled upwards (workshop mode), the information "switch closed" is output. The automatic engine start-stop function is active.

An automatic engine start is possible.

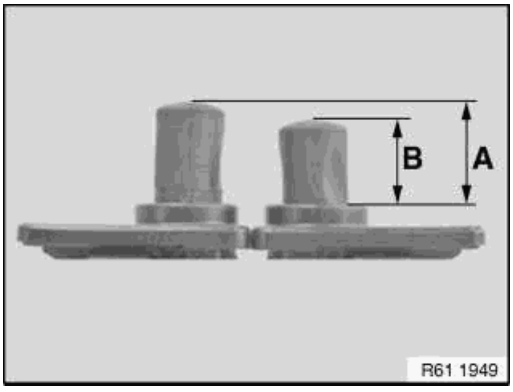
Observe safety precautions when working on MSA vehicles.

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

MSA function is deactivated by:



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



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

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

    B = 7 mm

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



When working with diagnosis tools:

- Observe instructions in diagnosis tool

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

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

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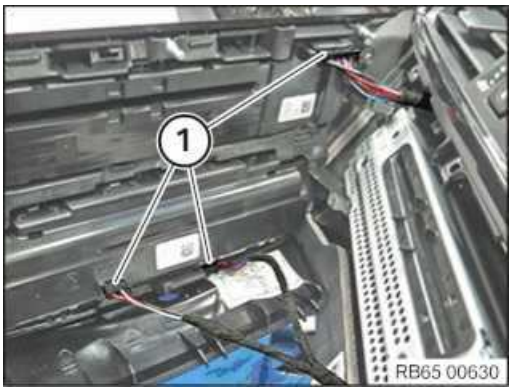
64 11 376 Removing and installing the control panel of the heating and air conditioning system (with cover)

PRELIMINARY WORK

1 – Removing the audio operating unit and the air conditioning control panel



- Unclip the trim (1) using special tool **2 298 505**.

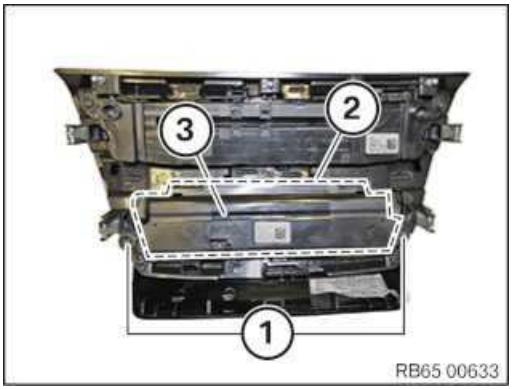


- Unlock plug connection (1) and disconnect.
- Remove the audio operating unit and the air conditioning control panel.

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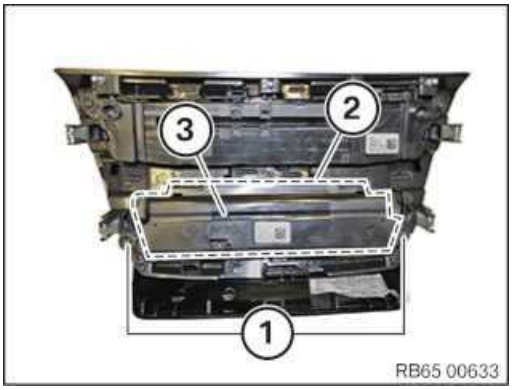
MAIN WORK

2 – Remove control panel for heating and air conditioning



- Loosen screws (1).
- Unlock the latch mechanisms in the highlighted area (2) and remove the control panel of the heating and air conditioning system (3).

3 – Install control panel for heating and air conditioning system



- Correctly position the control panel of the heating and air conditioning system (3) and engage it with the latch mechanisms (2).
- Tighten the screws (1).

Control panel for air conditioning on trim

Screw		Tightening torque	2,5 Nm

POSTPROCESSES

4 – Installing the audio operating unit trim



- Correctly position trim (1) and clip it into the instrument panel (2).

Additional Information

Overview of Tightening Torques

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Overview of Tightening Torques

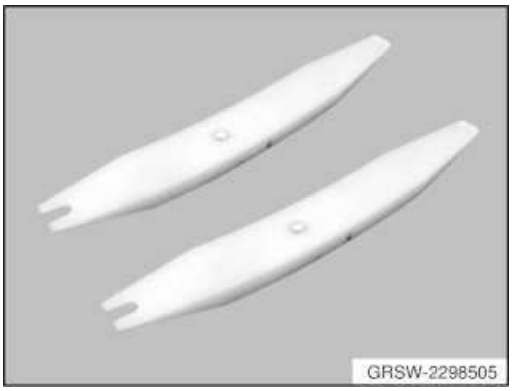
Control panel for air conditioning on trim

Used in step 3

Screw		Tightening torque	2,5 Nm

Overview of Special Tools

2 298 505 Wedge



Common

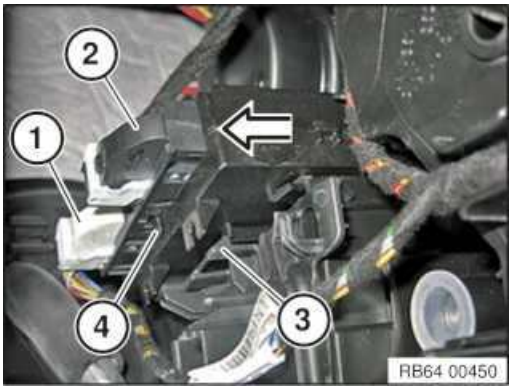
Used in step 1

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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64 11 379 Removing and installing the heating/air conditioning control unit

1 – Removing the air conditioning control unit

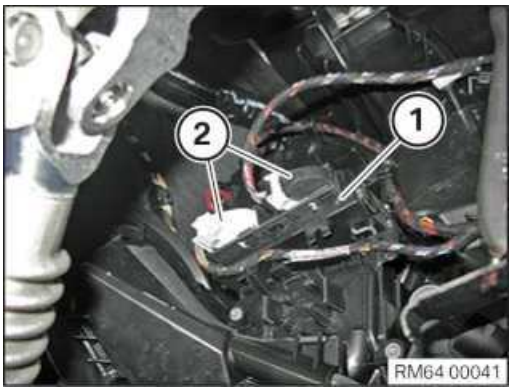


- Unlock and disconnect the plug connections (1) and (2).

Note: The control unit for the air conditioning system is located in the footwell on the left next to the air conditioning unit.

- Unlock the latch mechanism (3) towards the bottom.
- Pull out the control unit (4) in the direction of arrow and remove it.

2 – Install control unit for heating and air conditioning system



- Install the control unit (1) and position it correctly.
- Lock the control unit (1).
- Connect connectors (2) and lock.

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3 – Encode/program control unit(s)

Prerequisite

Replacement of the control unit.

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.
Exception:
BMW I01: Note Product and Measures Management Aftersales measure 55176388.

- 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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64 11 205 Removing and installing/renewing heating unit

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.
- For additional batteries: Detach all battery earth leads from additional batteries.

RISK OF DAMAGE

Scratches.

Tools and sharp-edged components can cause scratches.

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

PRELIMINARY WORK

1 – Drawing off the air conditioning

- See additional information.

2 – Disconnecting all battery earth leads

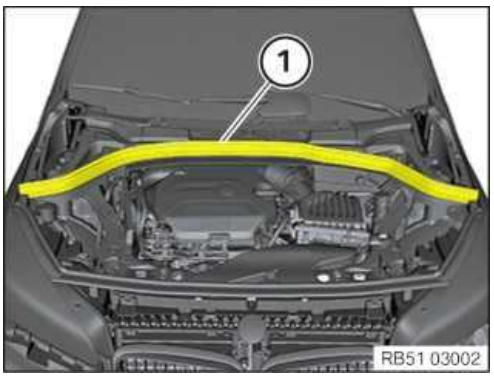


- See additional information.

3 – Remove the seal for the rear bonnet

NOTICE

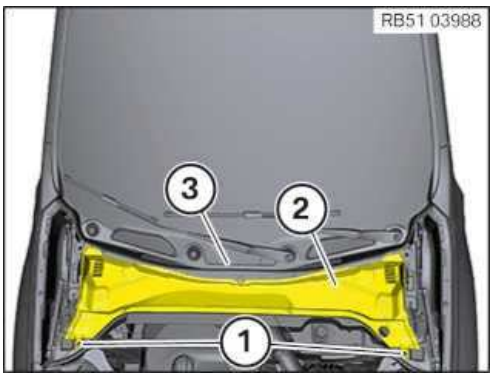
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull off rear bonnet seal (1) towards the top and remove.

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4 – Removing front cowl panel cover

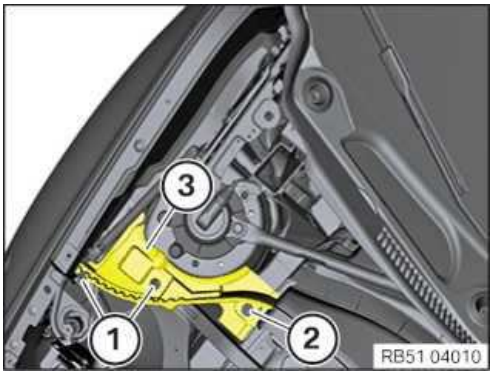


- Loosen the expanding rivet (1).
- Feed out and remove front cowl panel cover (2) from the rear cowl panel cover(3).

5 – Remove suspension cross-brace

TECHNICAL INFORMATION

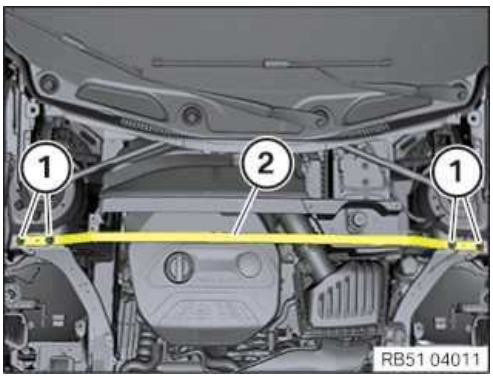
Driving without the strut brace/front end or tension strut is not permitted.



NOTICE

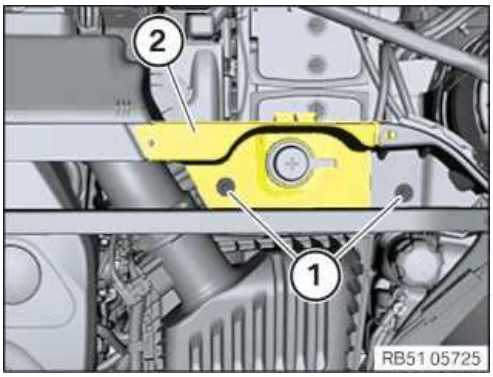
Description is for right component only. The procedure on the left side is identical.

- Loosen expanding rivet (1).
- Loosen screw (2).
- Remove the cover (3).



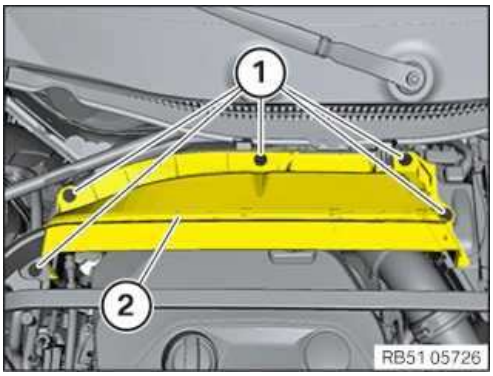
- Loosen screws (1).
- Remove strut brace (2).

6 – Removing the upper bulkhead cover



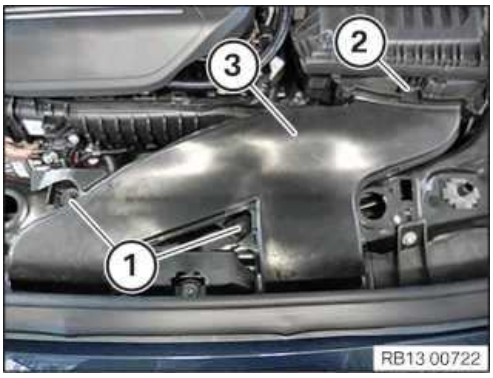
- Loosen screws (1).
- Guide out and remove the cover (2).

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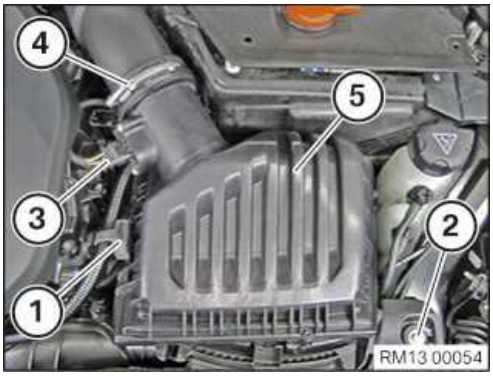
- Loosen screws (1).
- Feed out and remove the upper bulkhead cover (2).

7 – Remove the intake neck for intake silencer housing



- Loosen nuts (1).
- Loosen the lock (2).
- Guide the intake neck (3) out and remove it.

8 – Removing intake silencer housing



- Loosen the holder (1).
- Loosen screw (2).
- Unlock and loosen connector (3).
- Unfasten clamp (4).
- Pull out and remove the intake silencer housing (5) from the rubber mounts towards the top.

9 – Remove electronics box

Prerequisite

Battery earth lead is disconnected.

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 Information on electrostatic discharge (ESD) protection.

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RISK OF DAMAGE

Damage to wires when disconnecting connectors and plug connections.

Sheared wires can cause a short circuit.

- Do not pull on the wires when disconnecting connectors and plug connections.

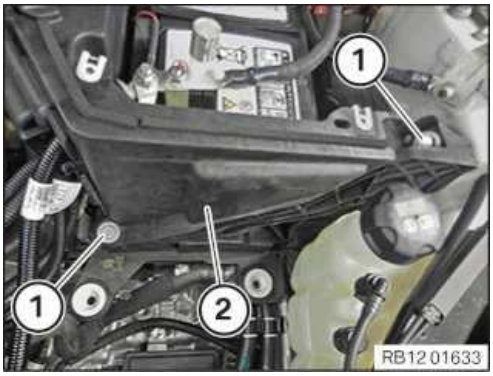
TECHNICAL INFORMATION

Follow instructions for removing and installing control units.

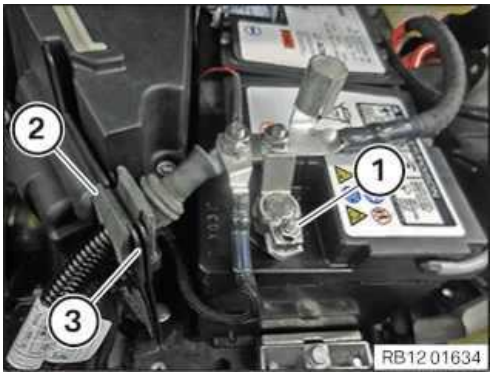
For additional information see: 12 00 ... Notes on removal and installation of control units

TECHNICAL INFORMATION

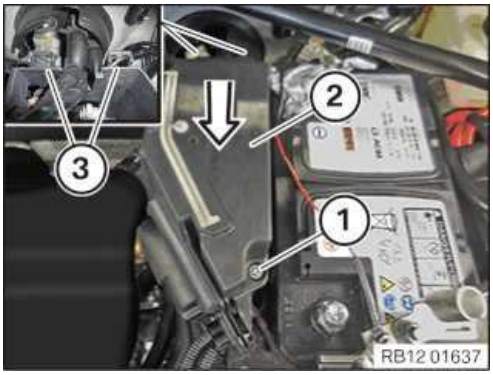
Disconnecting control units may cause fault code entries and functional limitations. Fault code entries must be read out and deleted if necessary.



- Loosen screws (1).
- Guide out the tension strut (2) toward the top and remove it.

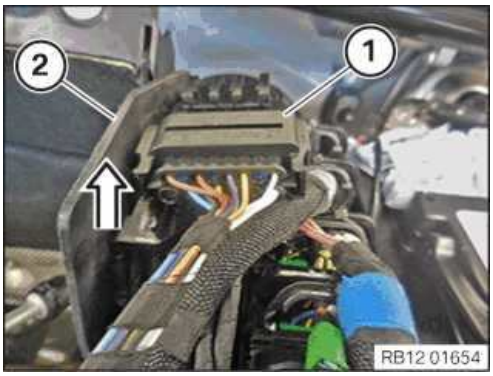


- Undo positive battery terminal (1).
- Feed out positive battery terminal (1) and set aside.
- Guide the positive battery cable (2) out of the holder (3) and lay to one side.

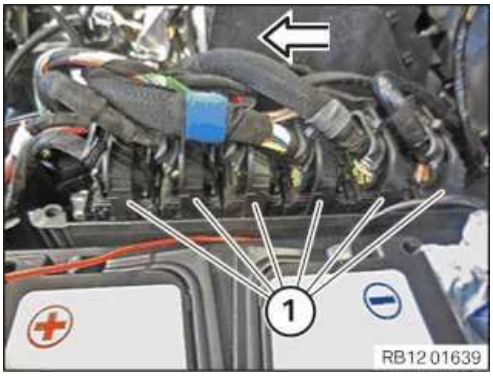


- Loosen screw (1).
- Unlock cover (2) and feed out and remove from the guides (3) in the direction of arrow.

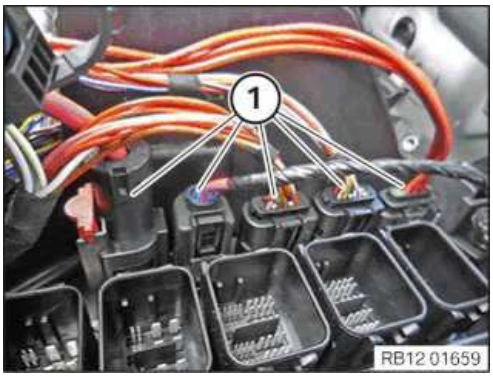
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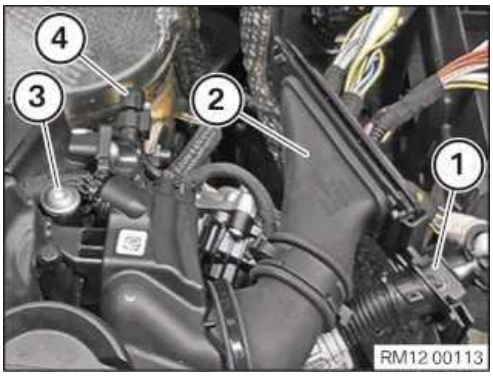
- Feed out connector (1) from the electronics box (2) and remove in the direction of arrow.
- Unlock and loosen connector (1).



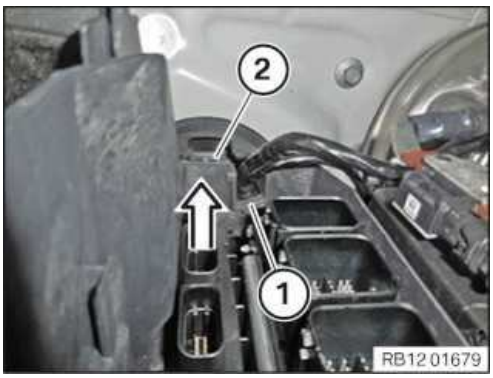
- Unlock and remove the connector (1) in the direction of the arrow.
- Feed out connector (1) and place to one side.



- Unlock and loosen connector (1).

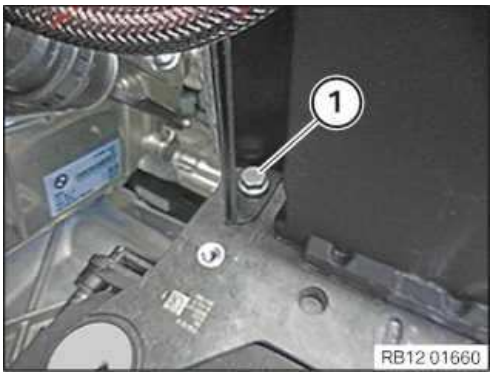


- Detach the wiring harness (1) from the electronics box.
- Detach the wiring harnesses (2) from electronics box.
- Loosen screw (3).
- Set wiring harnesses (1) and (2) aside.
- Unlock the connector (4) and disconnect it from the differential pressure sensor.

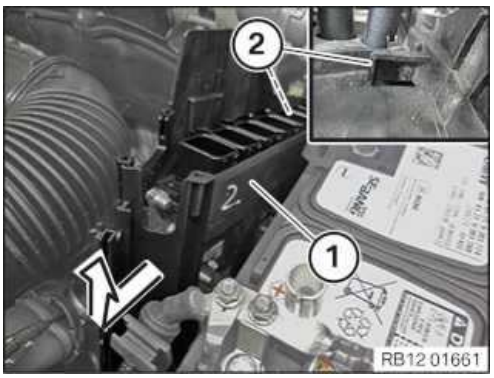


- Unlock and loosen holder (1).
- Guide the holder (1) out of the electronics box (2) in direction of arrow and set it aside.

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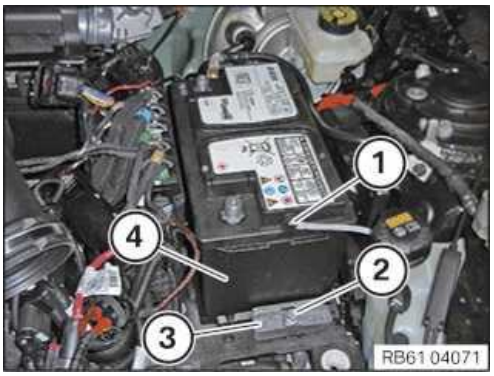


- Loosen screw (1).



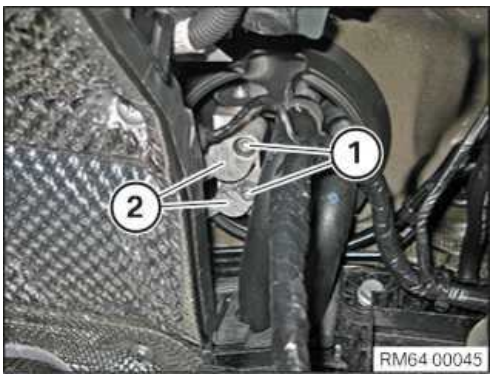
- Guide the electronics box (1) out of the guide (2) in direction of arrow and remove.

10 – Partially remove vehicle battery

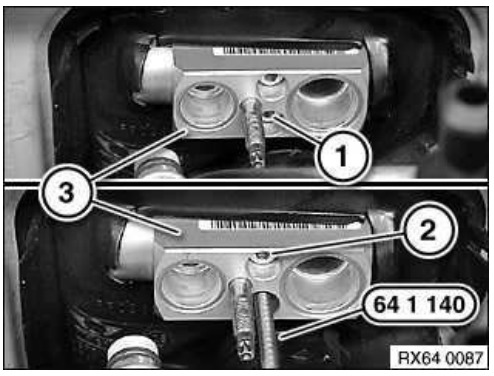


- Pull off the vent hose (1).
- Unscrew the screw (2) and remove the holder (3).
- Remove vehicle battery (4).

11 – Remove expansion valve



- Loosen screws (1).
- Take off refrigerant line (2).



- Loosen screw (1) and screw the special tool **0 495 815 (64 1 140)** in.
- Loosen screw (2) then slide the expansion valve (3) forwards and remove.

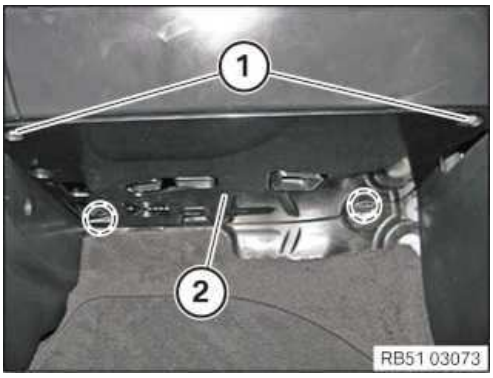
12 – Adjust the steering column position

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- Adjust the length of the steering column to the maximum length in the direction of arrow (1).
- Move the steering column to the lowest steering column position in the direction of arrow (2).

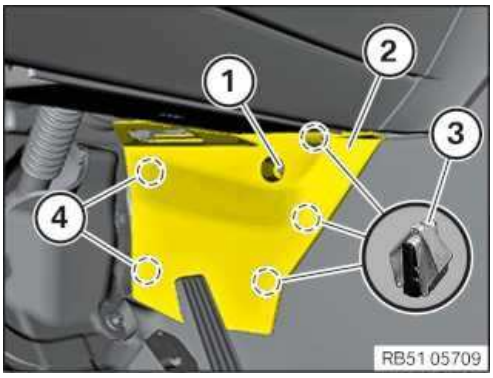
13 – Removing the instrument panel trim at bottom right



- Loosen nuts (1).
- Lower the instrument panel trim slightly at the bottom right (2) and disconnect the plug connection behind it.
- Guide the instrument panel trim at the bottom right (2) from the front guides and remove it.

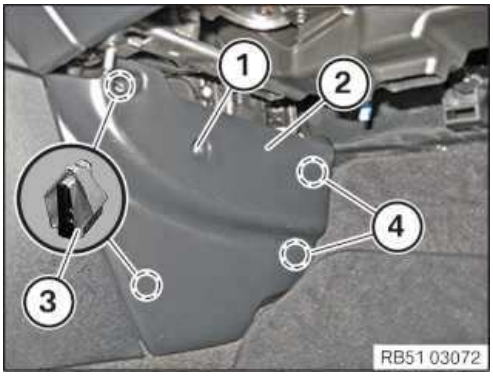
14 – Removing the side trim panel for the left and right centre console

► **Removing side trim panel for the left centre console**



- Loosen screw (1).
- Release side trim panel (2) for the centre console from retaining clips (3).
- Remove side trim panel (2) for the centre console from guides (4) and remove it.

► **Removing side trim panel for the centre console on the right side**



- Loosen screw (1).
- Release the side trim panel for centre console (2) from retaining clips (3).
- Remove the side trim panel for centre console (2) from guides (4) and remove it.

15 – Remove gearshift lever cover

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- Use wedges (1) to unclip the gaiter and pull it off upward.



- Remove the gearshift lever knob and the gaiter by means of a powerful jolt vertically upwards.

  In doing so, the tie rod must not be bent or damaged.
- Ensure that the gearshift lever knob is not twisted when removing, otherwise the anti-twist lock in the gearshift lever knob will be sheared off.

16 – Remove the decorative trim from the centre console

RISK OF DAMAGE

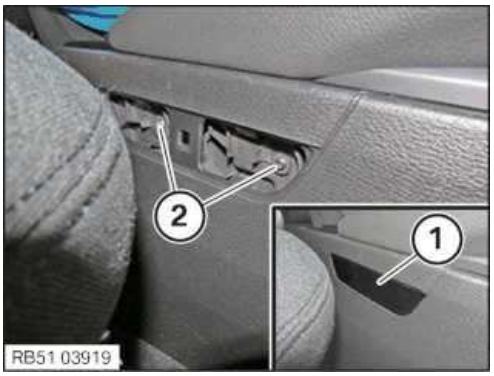
Scratches.

Tools and sharp-edged components can cause scratches.

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

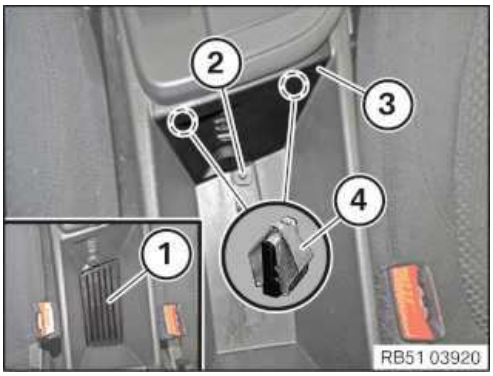


- Lever out and remove cover (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screws (2).



- Lever out and remove cover (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screws (2).

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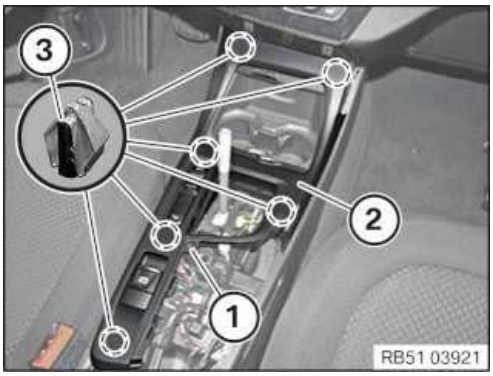


- Remove insert (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screw (2).
- Lever out trim (3) from clamps (4) towards the rear with the special tool **0 496 571 (00 9 327)**.
- Unfasten plug connection.
- Remove the trim (3).

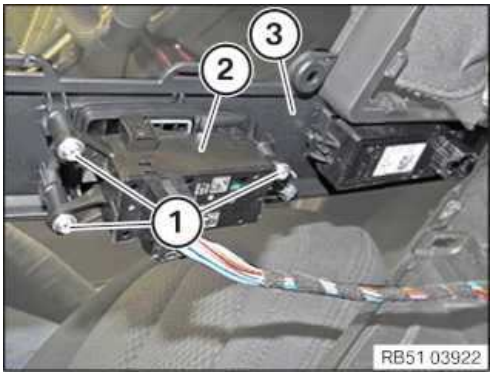


- Loosen screw (1).
- Remove decorative trim (2) and disconnect all the plug connections.
- Remove decorative trim (2).

17 – Remove the centre console trim



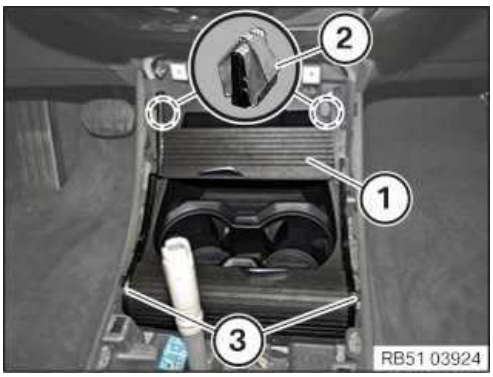
- Loosen screw (1).
- Release centre console trim (2) from clamps (3) with the special tool **0 496 569 (00 9 325)**.
- Lift centre console trim (2).



- Loosen screws (1).
- Remove parking brake button (2) from centre console trim (3) and place it down.

  The plug connection must not be disconnected.
- Disconnect the remaining plug connections and remove centre console trim (3).

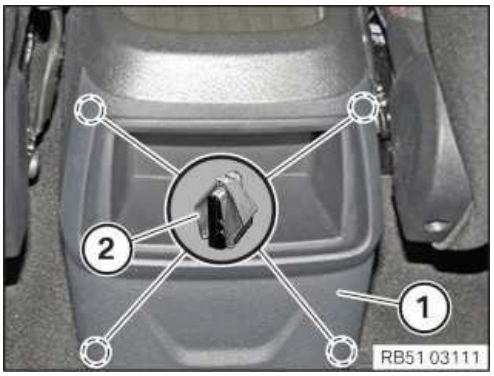
18 – Removing the front storage compartment



- Lever storage compartment (1) at top from the clamps (2).
- Fold storage compartment (1) so far back that it can be lifted from the guides (3).
- Disconnect plug connections and remove the storage compartment (1).

19 – Removing the rear centre console trim

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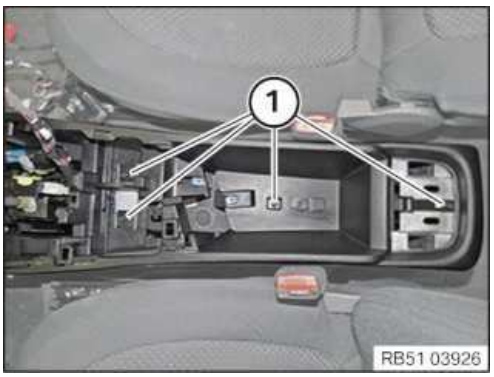
- Lever out and remove centre console trim (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2).

20 – Removing centre console fully with centre armrest

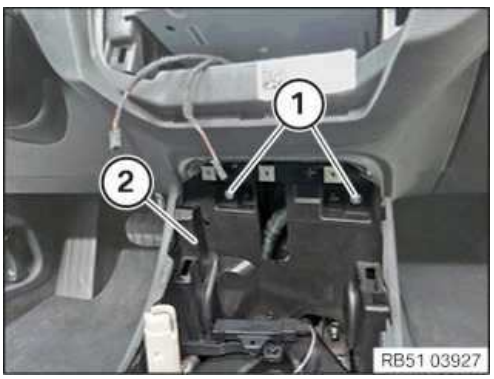
▶ **Removing the centre armrest**



- Release nuts (1) and remove centre armrest upwards.



- Loosen screws (1).



- Loosen screws (1).
- Lift the rear centre console (2) and in this process, disconnect all plug connections.
- Guide out the wiring harness and remove centre console (2) from the vehicle.

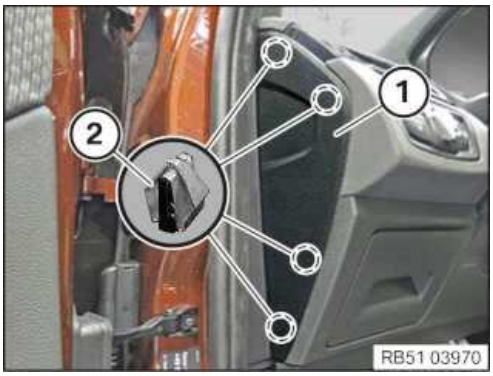
21 – Remove the side panel on the left and right of the instrument panel

NOTICE

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

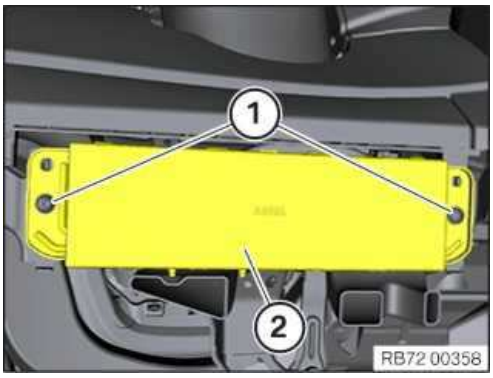
▶ **Remove side panel on the instrument panel**

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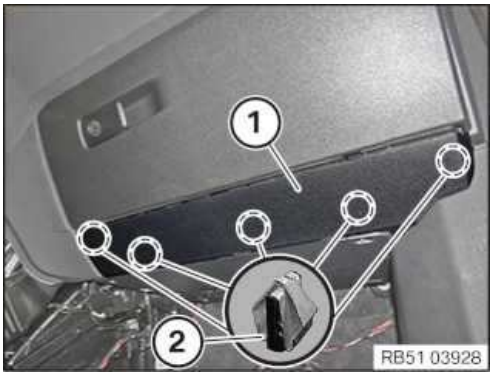
- Lift out the side panel (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2) and slide it out to the rear at an angle.

22 – Removing knee airbag

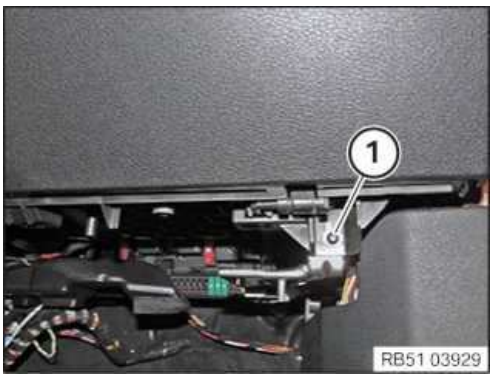


- Unlock plug connection on knee airbag (2) and disconnect.
- Loosen screws (1).
- Remove knee airbag (2).

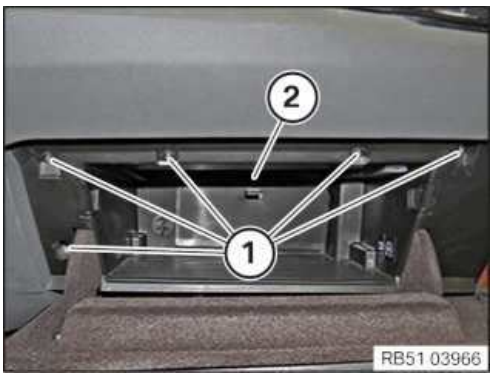
23 – Remove right glove box



- Release the trim (1) with the special tool **0 496 569 (00 9 325)** toward the bottom from the clamps (2) and remove.



- Loosen screw (1).



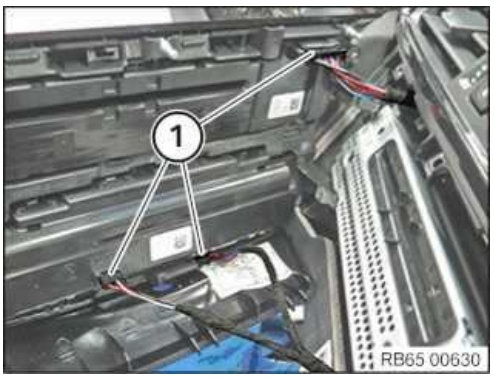
- Loosen screws (1).
- Remove glove box (2) to the inside and disconnect associated plug connections.

24 – Removing the audio operating unit and the air conditioning control panel

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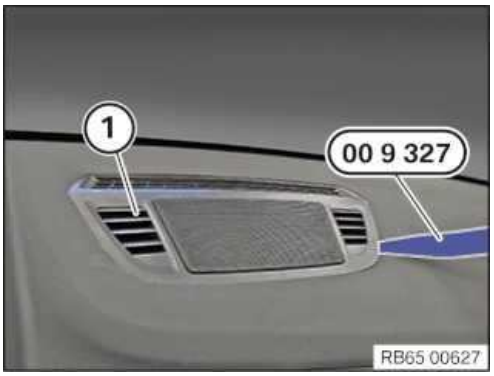


- Unclip the trim (1) using special tool **2 298 505**.

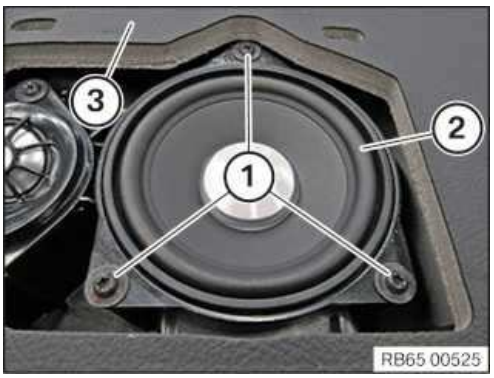


- Unlock plug connection (1) and disconnect.
- Remove the audio operating unit and the air conditioning control panel.

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



- Unclip the speaker cover (1) using the special tool **0 496 571 (00 9 327)** and remove upwards.



- Loosen screws (1).
- Disconnect plug connection underneath.
- Guide the mid-range speaker (2) out of the instrument panel (3) and remove it.

26 – Remove Head Unit High (HU-H)

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RISK OF DAMAGE

Electrostatic discharge.

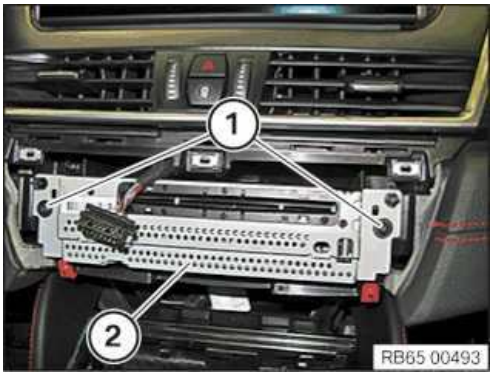
Damage to or destruction of electrical components.

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



- Remove the wiring harness (1).

  In the factory, the wiring harness (1)is routed such that not enough excess length exists to remove the head unit.

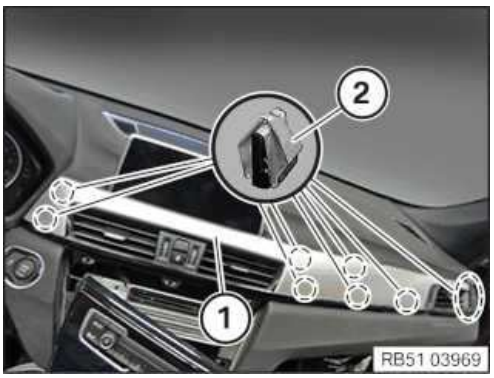


- Loosen screws (1).
- Pull out the head unit (2) a bit.



- Unlock and disconnect all connectors in the marked area.
- Remove head unit (1).

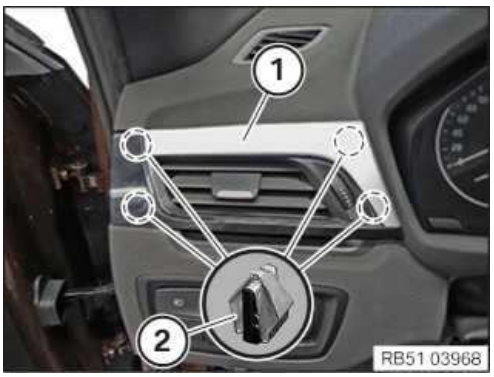
27 – Remove the finisher on the right instrument panel



- Carefully release the decorative strip (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2) starting from the side.
- Lift up the decorative strip (1) and disconnect the plug connections behind it.
- Remove the decorative strip (1).

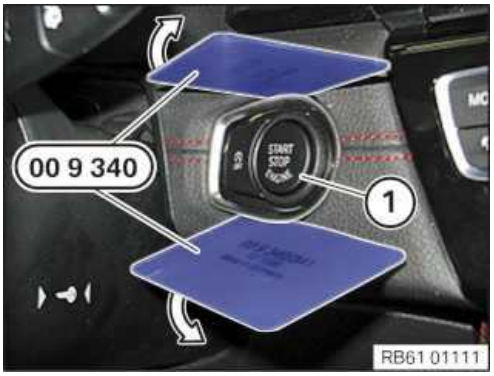
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28 – Remove decorative strip from instrument panel

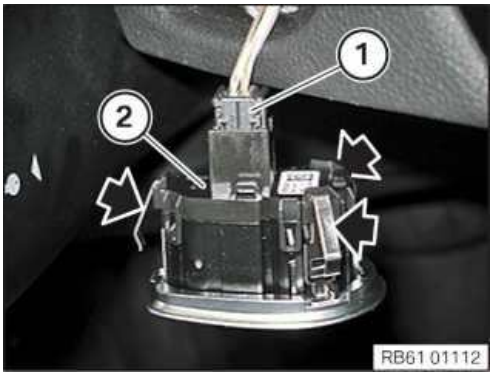


- Release the decorative strip (1) using the special tool **0 496 569 (00 9 325)** from the clamps (2) and remove.

29 – Removing the START-STOP button



- Remove START-STOP button (1) using the special tool **0 493 687 (00 9 340)**.



- Disconnect the connector (1) and remove the START-STOP button (2).

30 – Removing the light operating unit



- Unclip the light operating unit (1) in the marked area.
- Unlock and disconnect associated connector.

31 – Removing the left and right A-pillar trim panels

NOTICE

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

▸ **Remove the A-pillar trim panel**

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WARNING

Airbag unit.

Danger! Life-threatening injuries!

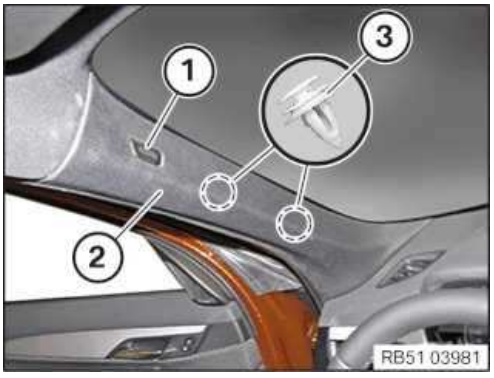
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

WARNING

Pyrotechnic components.

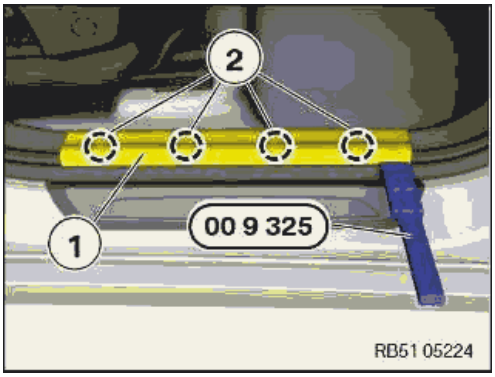
Danger! Life-threatening injuries!

- 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.

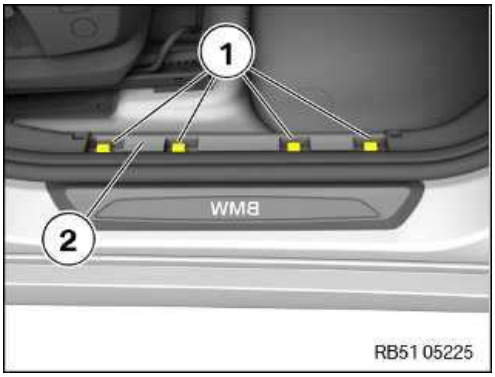


- Unclip cover (1) and unscrew the screw below it.
- Release the A-pillar trim panel (2) from the clips (3) and guide out upwards.

32 – Remove front entrance cover strip



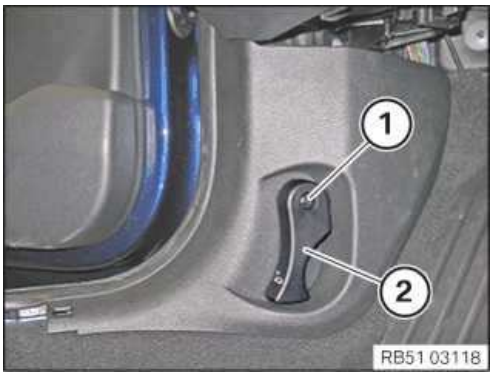
- Unclip the door sill cover strip (1) at the clips **0 496 569 (00 9 325)** using special tool (2) starting from the rear.



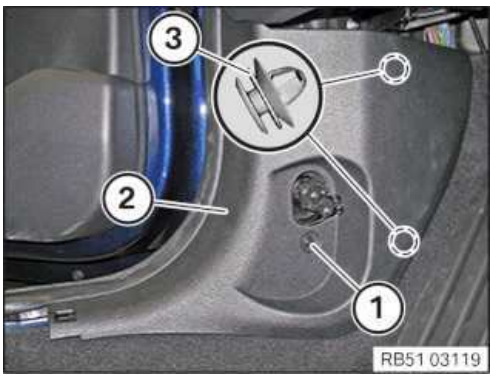
- If applicable, loosen clips (1) from floor panel (2) and mount on the door sill cover strip.

33 – Removing the side trim panel in the footwell at the A-pillar

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- Loosen screw (1).
- Remove bonnet release lever (2).

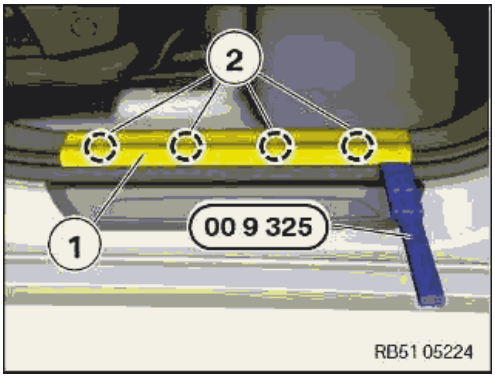


- Loosen screw (1).
- Unclip side trim panel (2) from the clips (3) and remove.

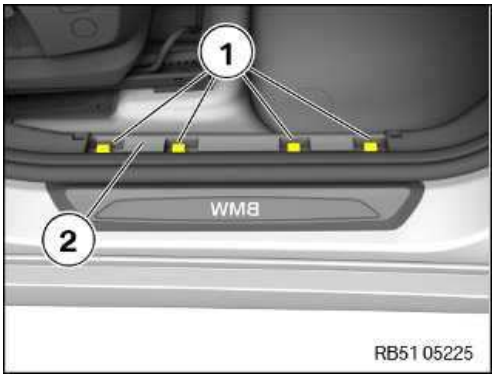
34 – Remove front right door sill cover strip

NOTICE

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



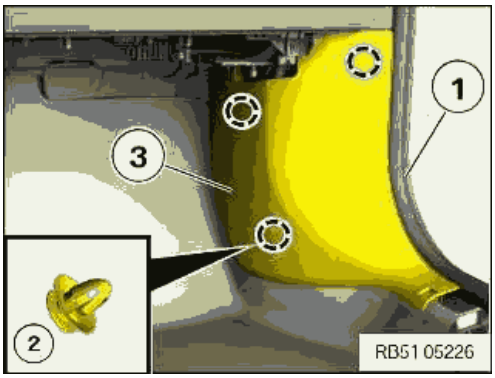
- Unclip the door sill cover strip (1) at the clips **0 496 569 (00 9 325)** using special tool (2) starting from the rear.



- If applicable, release clips (1) from floor panel (2) and mount on the door sill cover strip.

35 – Removing the side trim panel in the footwell at the right-hand A-pillar

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- Guide side trim panel (3) under the sealing lip out of the edge protection (1).
- Unclip and remove the side trim panel (3) at the clips (2).

36 – Removing airbag unit of the steering wheel/sports steering wheel

WARNING

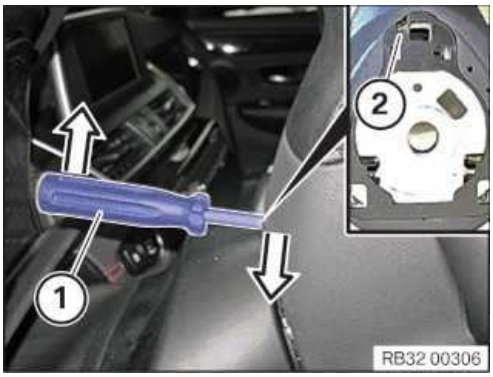
Airbag unit.

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



- Turn the steering wheel (1) through 180° from the "straight-ahead driving position".



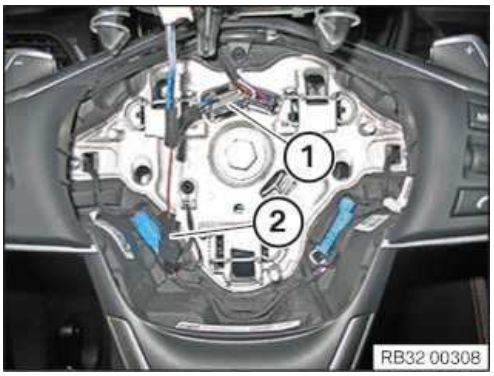
- Insert the slotted screwdriver (1) into the elongated hole on the rear side on the steering wheel.
- Push the slotted screwdriver (1) up and thereby push the retaining spring down (2).

  The airbag unit is unlocked.



- (1) Push unlocked airbag unit up.
- (2) At the same time, pull off the top airbag unit in the opposite direction of travel.

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- Unlock and disconnect the plug connections (1) and (2).
- Remove airbag unit.

37 – Removing steering wheel/sports steering wheel



- Move the steering wheel/sports steering wheels to the straight-ahead position.
- **Unlock plug connection and disconnect.**
- Release the screw (1) and remove the steering wheel/sports steering wheel.

38 – Removing steering column shroud upper section



NOTICE

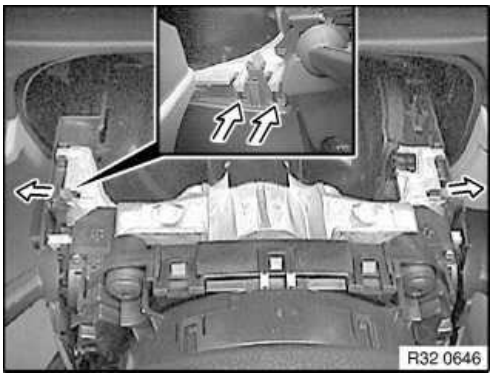
Perform the operations on the left and right side.

- Unclip the steering column shroud upper section (1) with the special tool **2 298 504** in area (2).
- Fold the steering column shroud upper section (1) up.



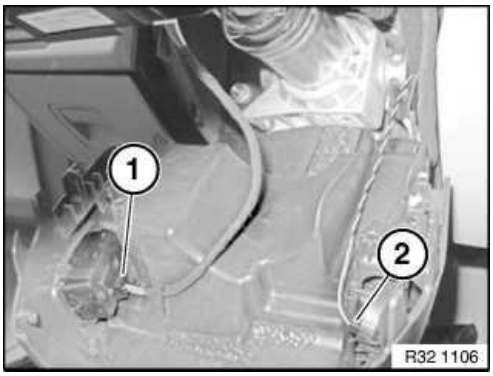
- Release the gap cover of the steering column (1) from the brackets (arrows) of the steering column shroud upper section.
- Remove steering column shroud upper section.

39 – Removing steering column shroud lower section



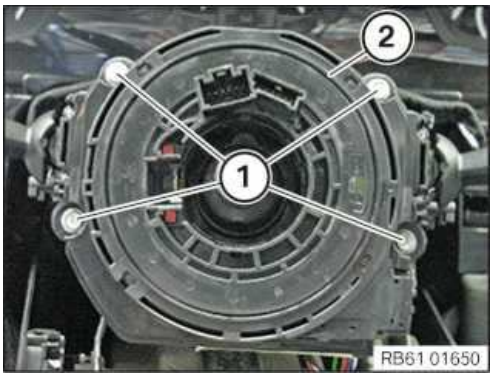
- Press the retaining lugs (arrows) a little outwards and unclip the steering column shroud lower section in a downward direction.

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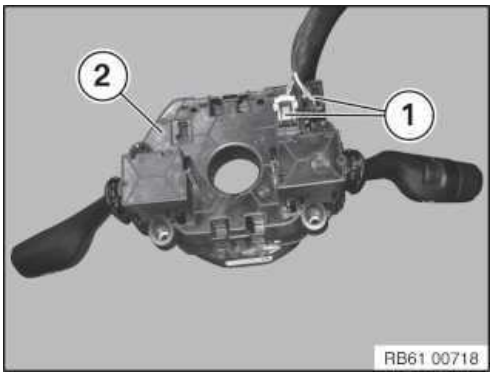


- Tilt steering column shroud lower section in downward direction.
- Unlock and disconnect the plug connections (1) and (2).
- Remove steering column shroud lower section.

40 – Removing the steering column switch cluster (SZL)



- Loosen screws (1).
- Remove the steering column switch cluster (SZL) (2).



- Unlock and disconnect the connector (1) on the steering column switch cluster (SZL) (2).

41 – Removing the instrument cluster (KOMBI)

RISK OF DAMAGE

Scratches.

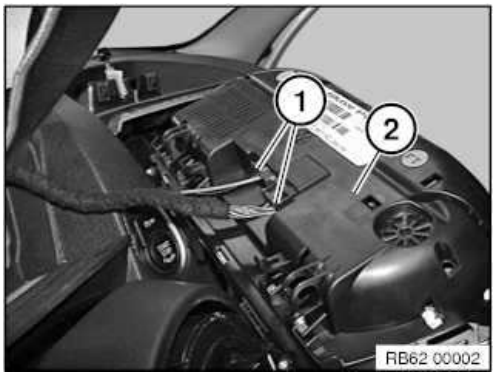
Tools and sharp-edged components can cause scratches.

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



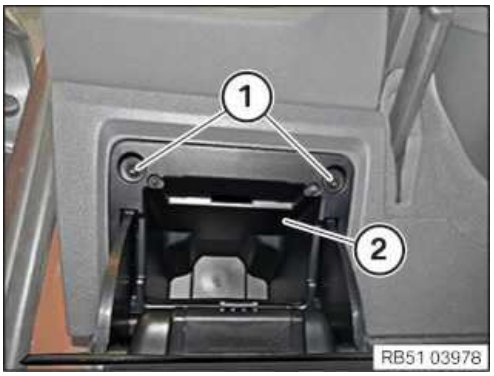
- Loosen both screws (1).
- Thread out instrument cluster (KOMBI) in direction of arrow.

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- Disconnect all plug connections (1).
- Removing the instrument cluster (KOMBI) (2).

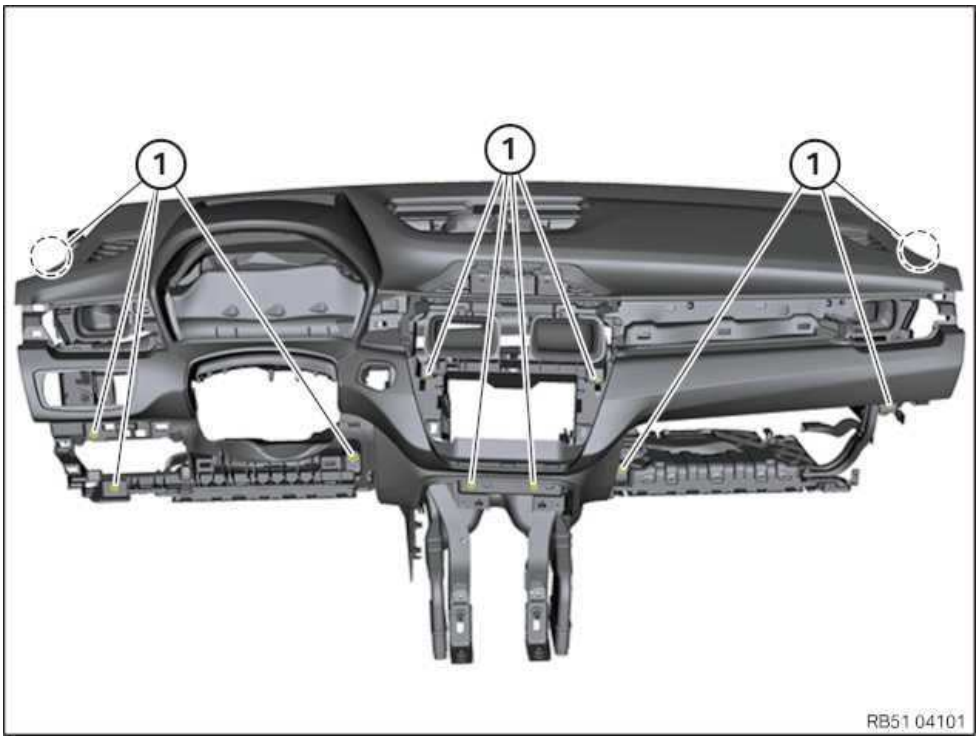
42 – Removing the left fold-down compartment



- Loosen screws (1).
- Guide out and remove the fold-down compartment (2) downward from the instrument panel.

43 – Remove instrument panel trim

Instrument panel



TECHNICAL INFORMATION

Notes on unlocking/locking airbag plug connections form the basis for these repair instructions and must be observed without fail.

For additional information see: 72 00 ... Notes on unlocking/locking airbag plug connections

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- Loosen screws (1).
- Unlock and disconnect the plug connection of the front passenger airbag.
- Guide out the instrument panel trim with the help of an auxiliary person and unlock and disconnect all the plug connections.
- Release the wiring harness from the instrument panel trim.
- Guide out the instrument panel trim through the door aperture from the vehicle.

44 – Removing the support for the instrument panel

▶ **Disconnect positive battery cable**

Prerequisite

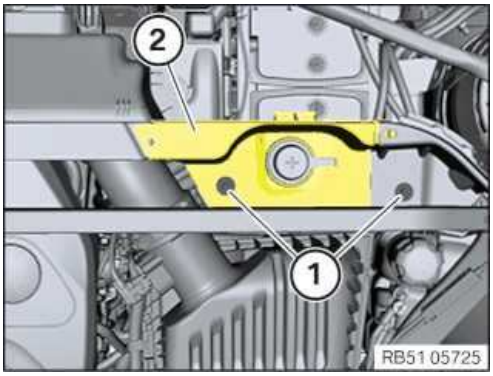
Ignition is switched off.

WARNING

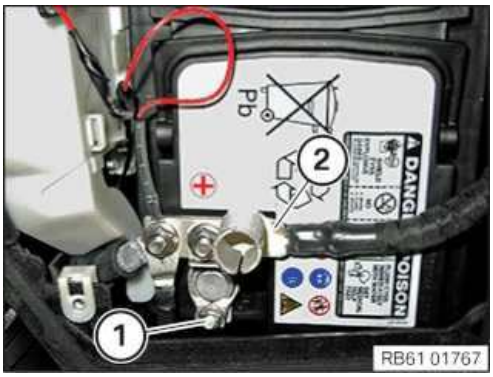
Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.
- For additional batteries: Detach all battery earth leads from additional batteries.



- Loosen screws (1).
- Guide out and remove the cover (2).



- Slacken nut (1).
- Remove positive battery cable (2).

WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Fasten positive battery cable (2) laterally.

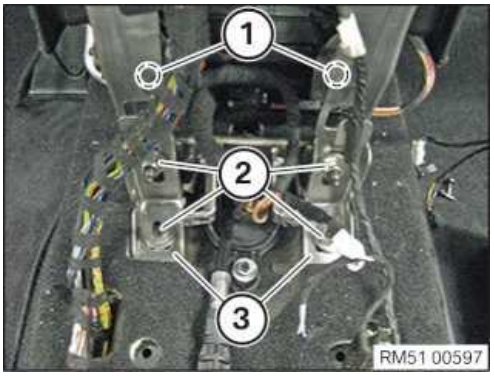


- Release the screw (1) on bulkhead.

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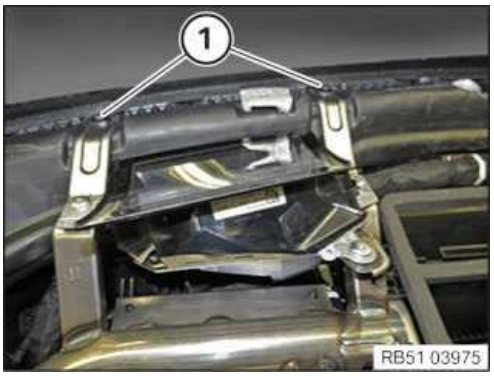
- Release the clamping bolt (1) of steering shaft on the steering column.
- Pull the steering shaft off of the steering column.



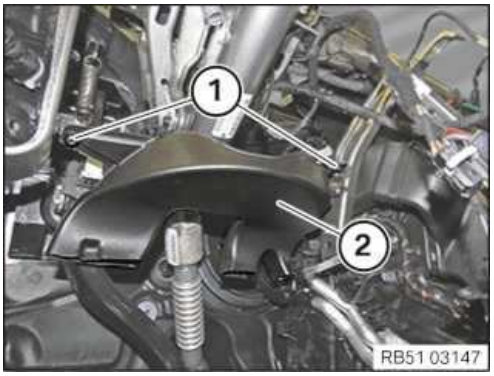
- Loosen nuts (2).
- Remove retaining bracket (3).
- Loosen screws (1).



- Loosen the nuts (1) on the left and right.

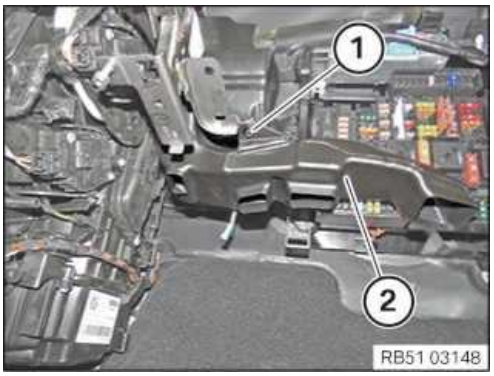


- Loosen screws (1).

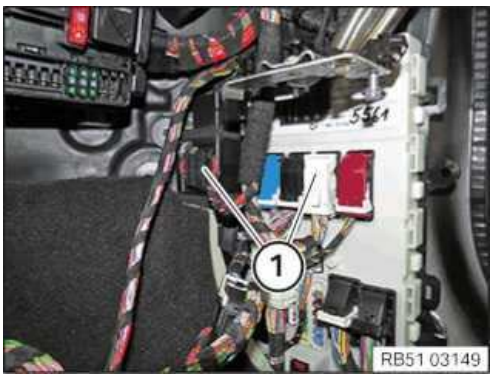


- Loosen screws (1).
- Remove the air duct (2).

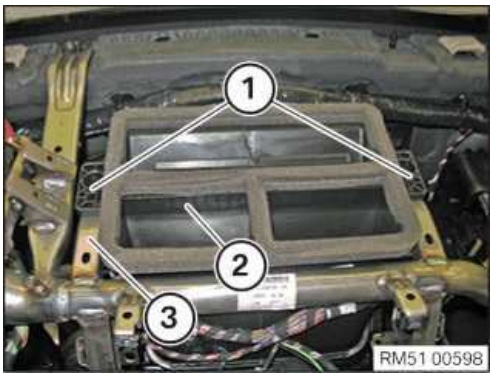
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- Loosen screw (1).
- Remove the air duct (2).



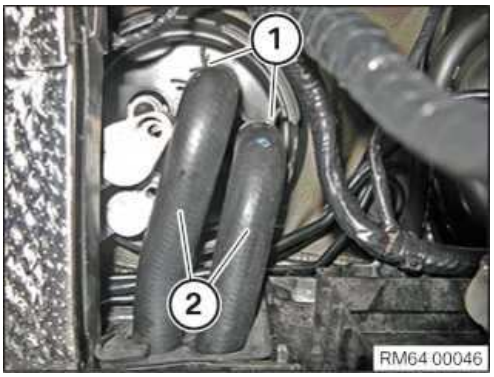
- Unlock and disconnect plug connections (1).



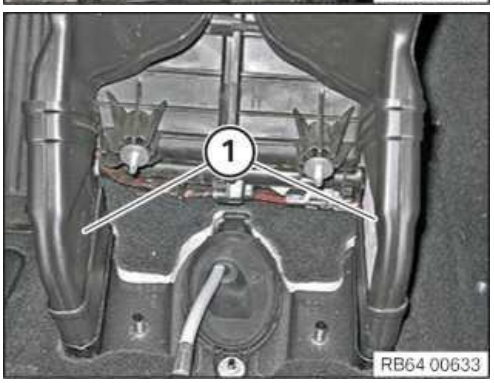
- Loosen screws (1).
- Raise heating and air-conditioning unit (2) slightly and guide out the support (3) towards rear.
- If necessary, release additional cables and all cable clips and remove support (3).

MAIN WORK

45 – Removing the heating and air-conditioning unit

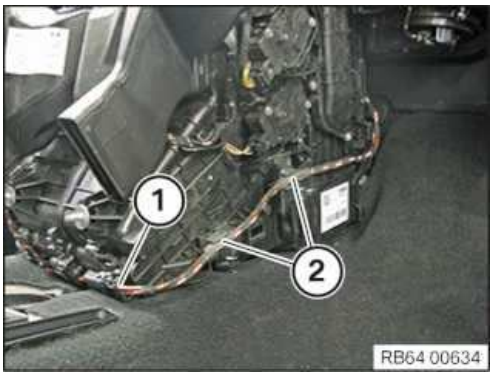


- Mark the coolant hoses (2) before removing.
- Release the hose clamps (1) using special tool and pull off the coolant hoses (2).

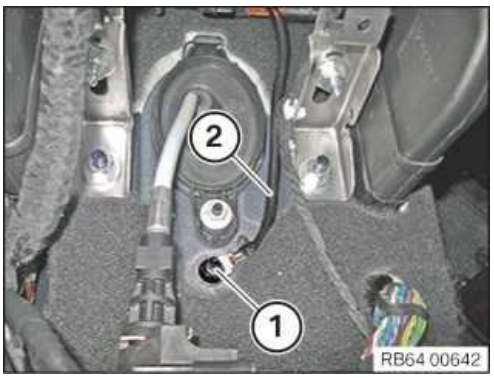


- Remove the air duct (1) on the left and right.

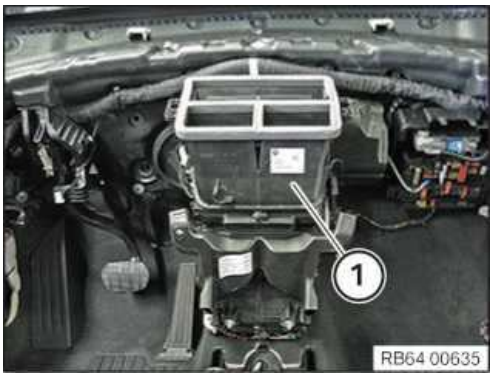
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- Unlock plug connection (1) and disconnect.
- Loosen the cable clip (2).



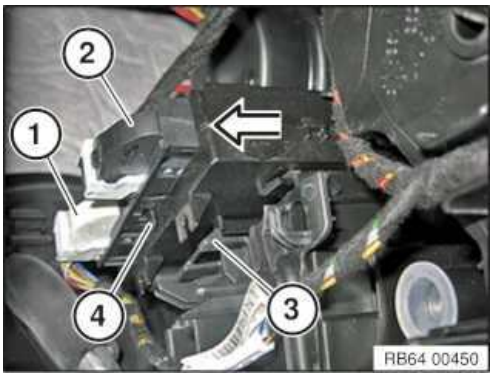
- **For equipment specifications with electric auxiliary heater:** Release the nut (1) and remove the ground cable (2).



- Feed out and remove the heating and air-conditioning unit (1).

46 – If replacing, remount the mounted parts on the heating and air-conditioning unit

► **Removing the air conditioning control unit**

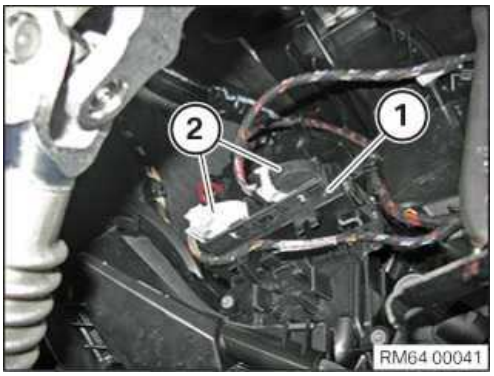


- Unlock and disconnect the plug connections (1) and (2).

Note: The control unit for the air conditioning system is located in the footwell on the left next to the air conditioning unit.

- Unlock the latch mechanism (3) towards the bottom.
- Pull out the control unit (4) in the direction of arrow and remove it.

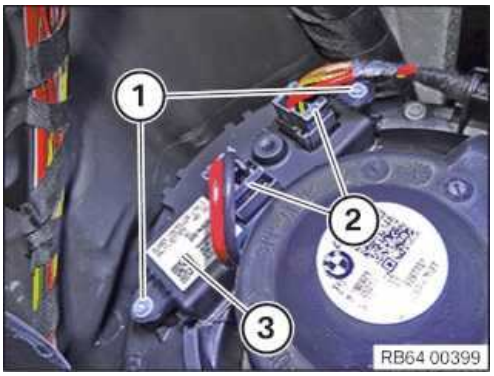
► **Install control unit for heating and air conditioning system**



- Install the control unit (1) and position it correctly.
- Lock the control unit (1).
- Connect connectors (2) and lock.

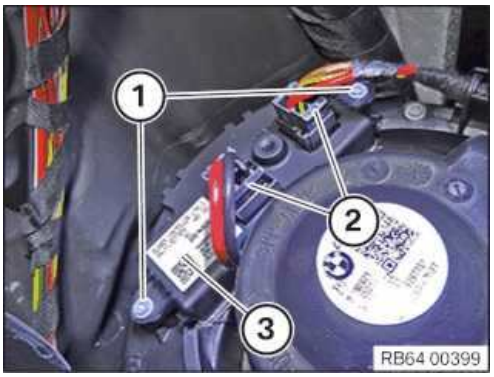
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▶ **Removing controller for the blower**



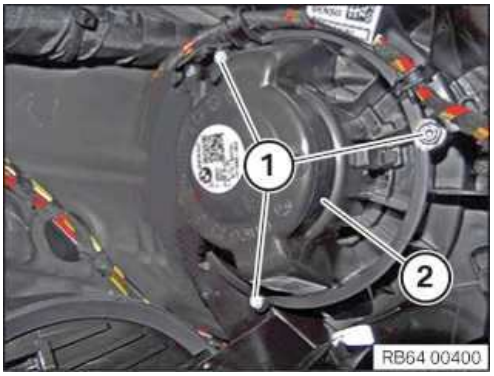
- Loosen screws (1).
- Unlock and disconnect plug connections (2).
- Guide out the controller (3) and remove it.

▶ **Installing the controller for the blower**



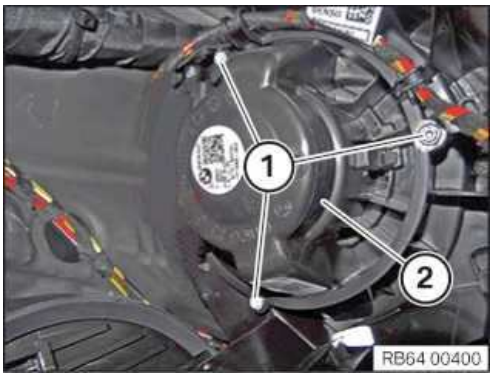
- Feed in and install the controller (3).
- Connect connectors (2) and lock.
- Tighten the screws (1).

▶ **Remove the blower for the heating and air-conditioning unit**



- Loosen screws (1).
- Feed out and remove the blower (2).

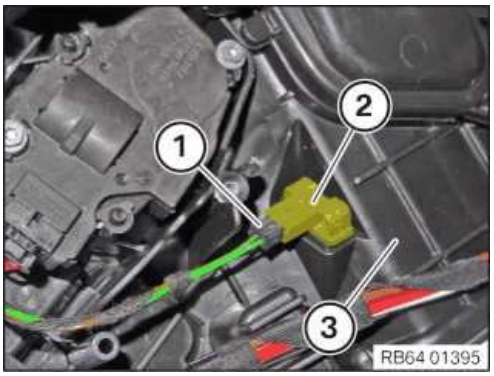
▶ **Install the blower for the heating and air-conditioning unit**



- Feed in the blower (2) and correctly position it.
- Tighten the screws (1).

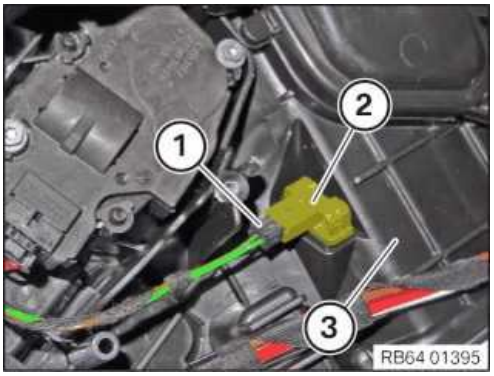
▶ **Remove evaporator temperature sensor**

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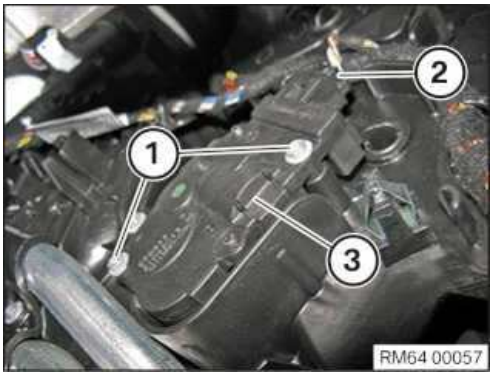
- Unlock and disconnect connector (1).
- Pull the evaporator temperature sensor (2) out of the heating and air-conditioning unit (3) and remove.

▶ **Install evaporator temperature sensor**



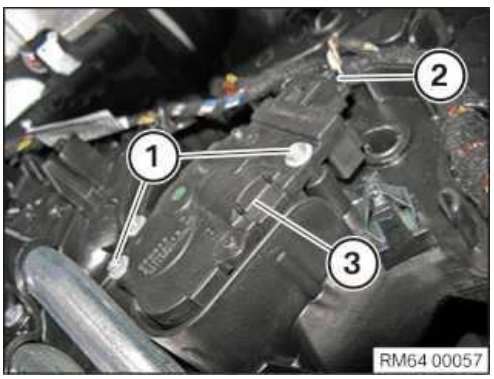
- Fit evaporator temperature sensor (2) correctly in the heating and air-conditioning unit (3).
- Connect connectors (1) and lock.

▶ **Removing the left mixed air flap motor**



- Loosen screws (1).
- Unlock plug connection (2) and disconnect.
- Remove mixed air flap motor (3).

▶ **Install the left mixed air flap motor**



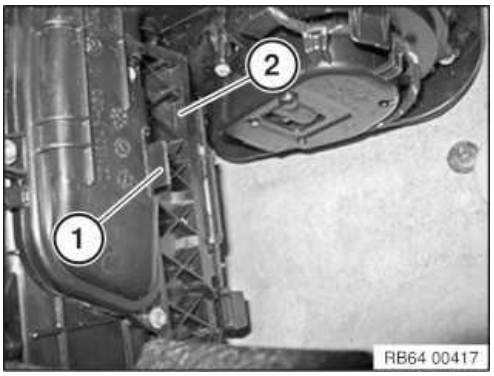
- Correctly position mixed air flap motor (3).
- Connect connectors (2) and lock.
- Tighten the screws (1).

Controller drive to heating and air-conditioning unit

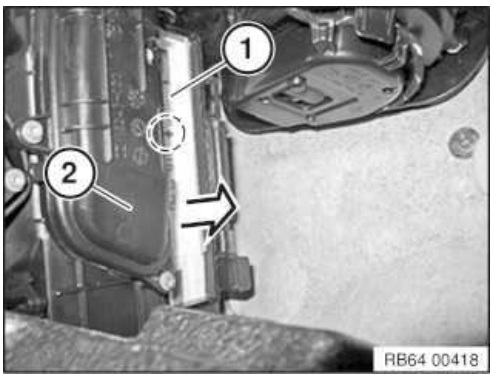
Screw		Tightening torque	1,2 Nm

▶ **Remove microfilter for passenger compartment ventilation**

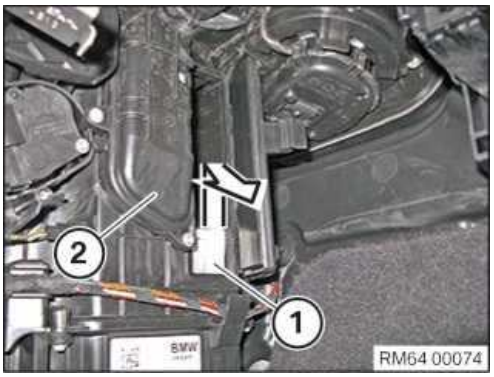
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- Unlock the lock (1).
- Open flap (2).

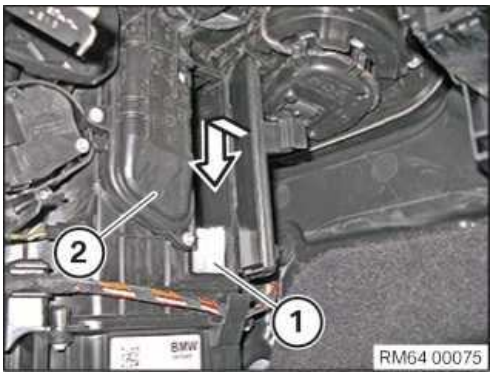


- Remove the upper microfilter (1) from the heating and air-conditioning unit (2) in direction of arrow.



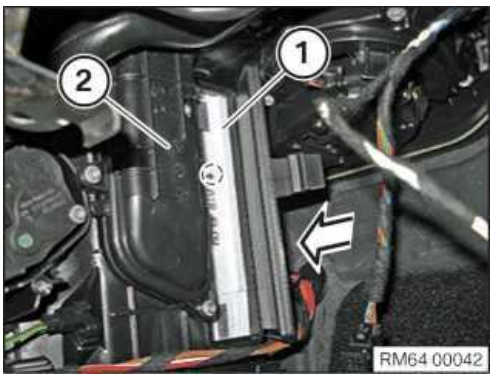
- Remove the lower microfilter (1) from the heating and air-conditioning unit (2) in direction of arrow.

▶ **Installing the microfilter for the interior ventilation**



- Install the lower microfilter (1) in the heating and air-conditioning unit (2) in direction of arrow.

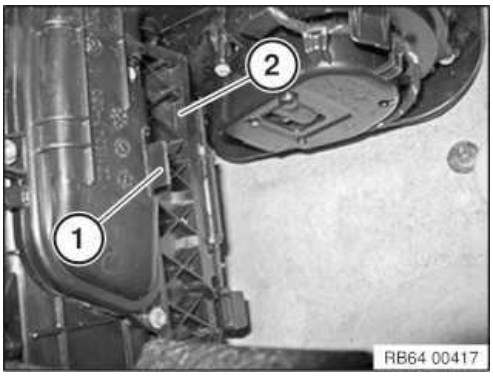
  Note: Pay attention to the direction of installation of the lower microfilter (1).



- Install the upper microfilter (1) in the heating and air-conditioning unit (2) in direction of arrow.

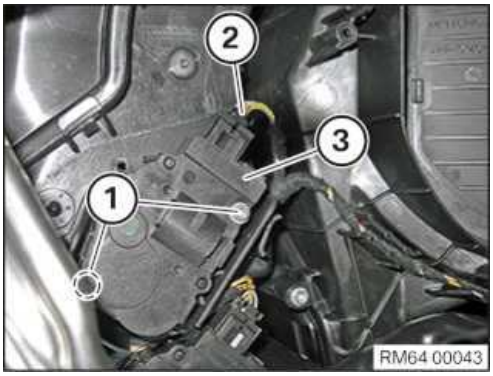
  Note: Pay attention to the direction of installation of the upper microfilter (1) in the marked area.

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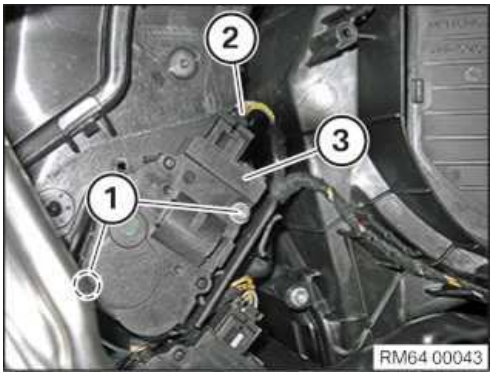
- Close flap (2).
- Lock the lock (1).

► **Remove defroster flap motor**



- Loosen screws (1).
- Unlock plug connection (2) and disconnect.
- Remove defroster flap motor (3).

► **Install the defroster flap motor**

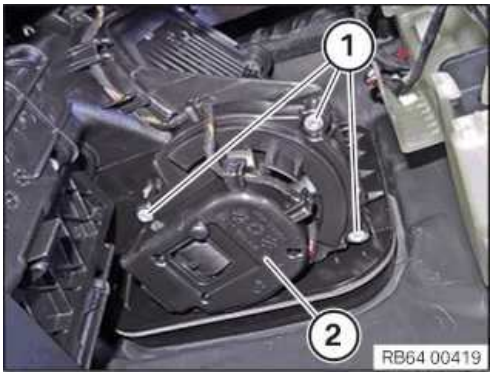


- Correctly position the defroster flap motor (3).
- Connect connectors (2) and lock.
- Tighten the screws (1).

Controller drive to heating and air-conditioning unit

Screw		Tightening torque	1,2 Nm

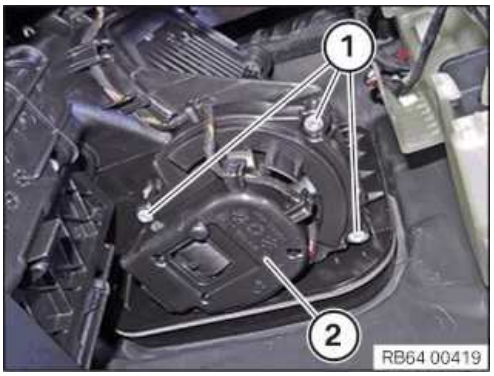
► **Removing the fresh air/recirculated air flap motor**



- Loosen screws (1).
- Unlock associated plug connection and disconnect.
- Remove fresh air/recirculated air flap motor with holder (2).

► **Install the fresh air/recirculated air flap motor**

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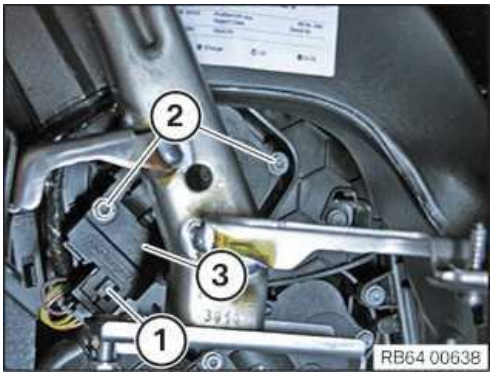
- Correctly position the fresh air/recirculated air flap motor with holder (2).
- Tighten the screws (1).

Controller drive to heating and air-conditioning unit

Screw		Tightening torque	1,2 Nm

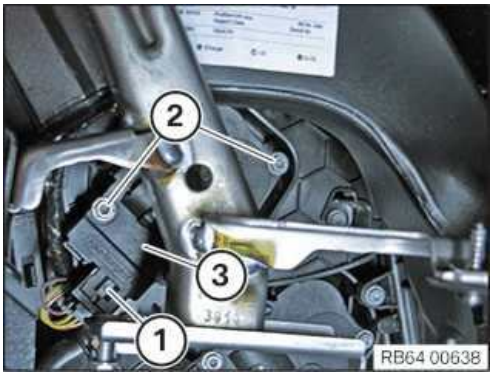
- Connect and lock corresponding connectors.

► **Remove right-hand foot well flap motor**



- Unlock plug connection (1) and disconnect.
- Loosen screws (2).
- Remove foot well flap motor (3).

► **Install the right-hand foot well flap motor**



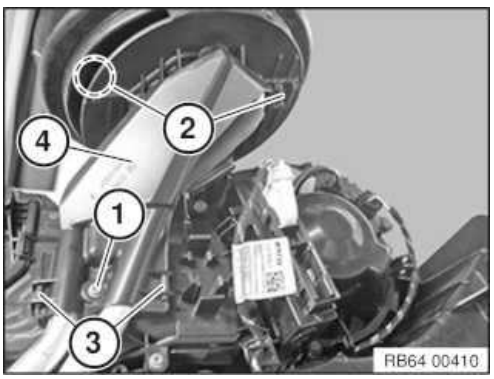
- Correctly position the foot well flap motor (3).
- Tighten the screws (2).

Controller drive to heating and air-conditioning unit

Screw		Tightening torque	1,2 Nm

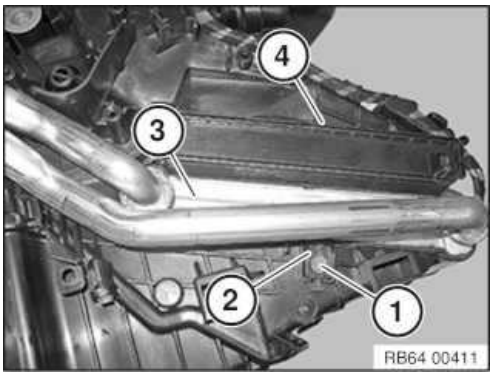
- Connect connectors (1) and lock.

► **Remove the heat exchanger for heating system**



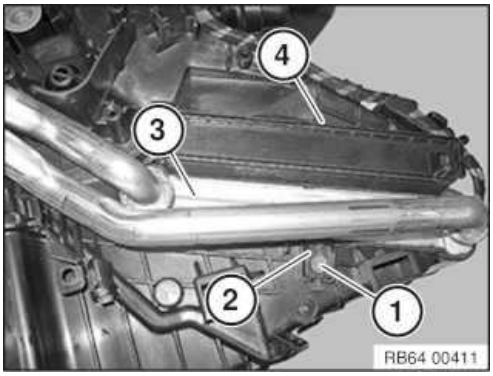
- Loosen screws (1).
- Unlock latch mechanisms (2) and (3).
- Remove the cover (4).

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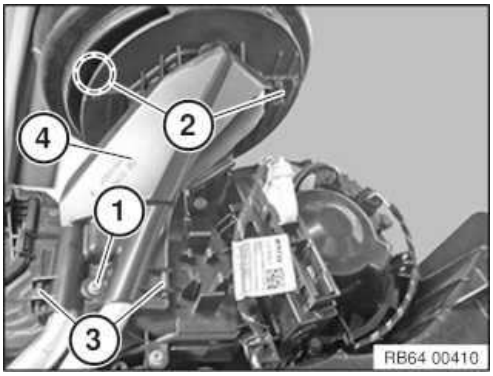


- Loosen screw (1).
- Remove the holder (2).
- Pull out the heat exchanger for heating system (3) from the heating and air-conditioning unit (4).

► **Install heat exchanger for heating system**



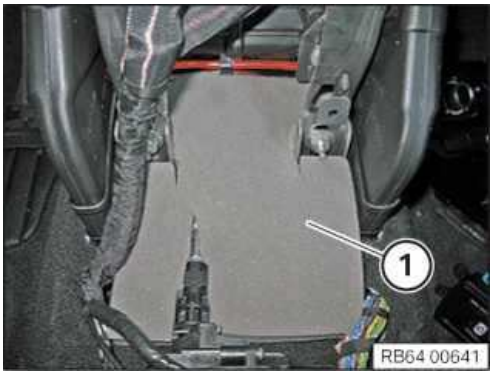
- Insert the heat exchanger for heating system (3) in the heating and air-conditioning unit (4).
- Correctly position the holder (2).
- Tighten down screw (1).



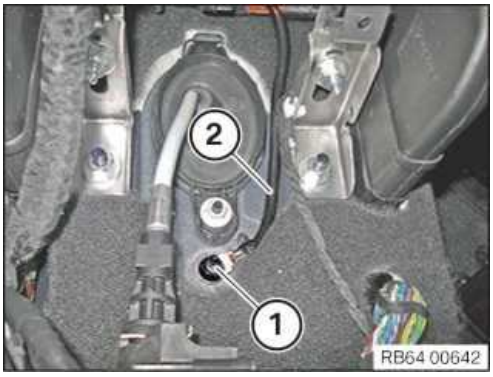
- Correctly position the cover (4).
- Engage the latch mechanisms (2) and (3).
- Tighten the screws (1).

- **For diesel engines only:**

► **Remove electric auxiliary heater**

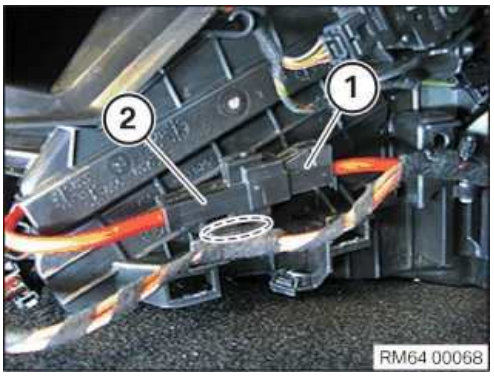


- Remove foam material (1).

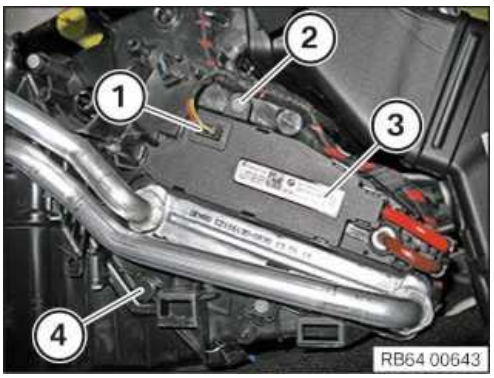


- Unfasten nut (1).
- Thread out ground cable (2).

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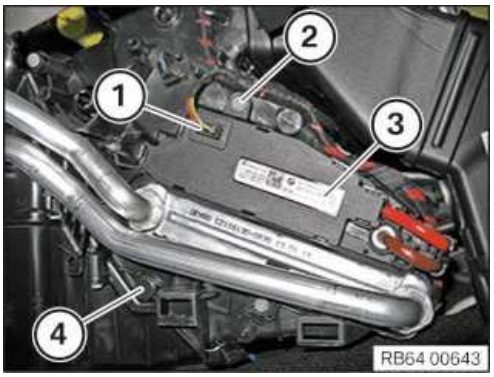


- Unlock plug connection (1) and disconnect.
- Disengage connector housing (2) in the marked area.

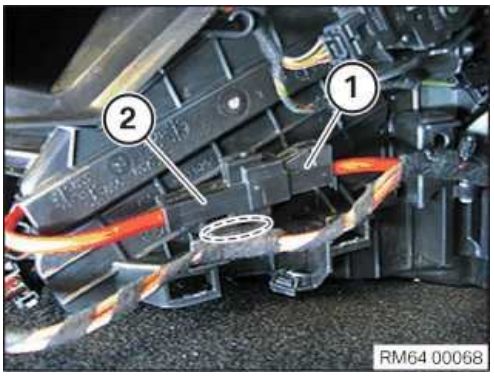


- Unlock plug connection (1) and disconnect.
- Loosen screw (2).
- Pull electric auxiliary heater (3) out of heating and air-conditioning unit (4).

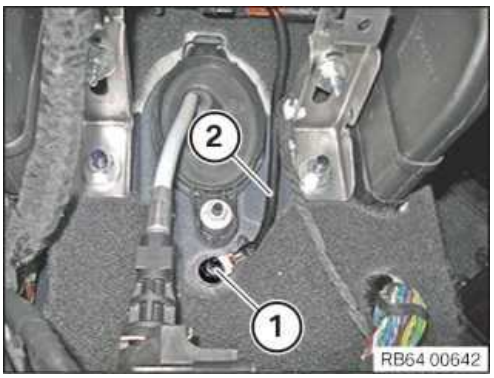
► Installing the electric auxiliary heater



- Install the electric auxiliary heater (3) in the heating and air-conditioning unit (4).
- Tighten down screw (2).
- Connect connectors (1) and lock.

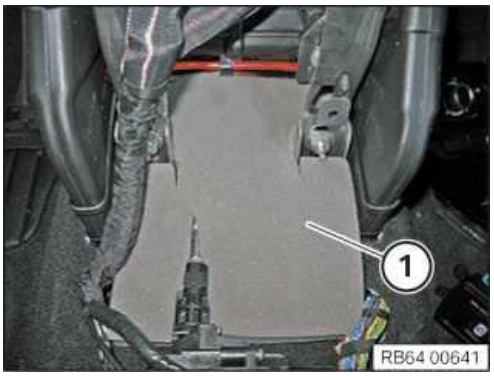


- Engage connector housing (2) in marked area.
- Connect connectors (1) and lock.



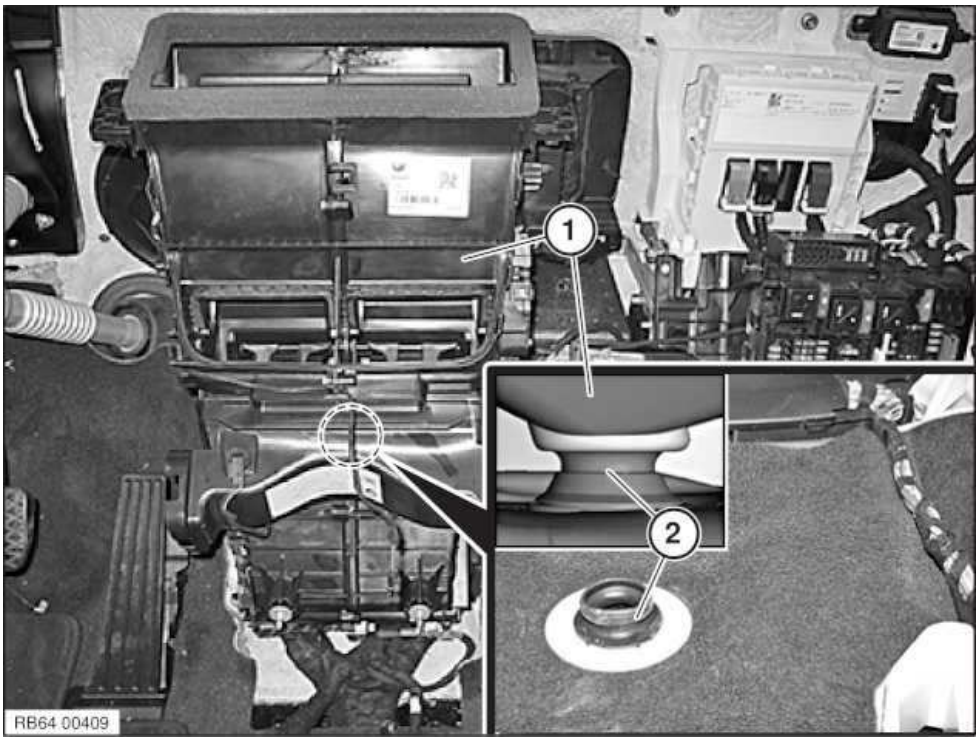
- Guide in ground cable (2) and position correctly.
- Tighten nut (1).

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- Insert the foam material (1).

47 – Installing the heating and air-conditioning unit

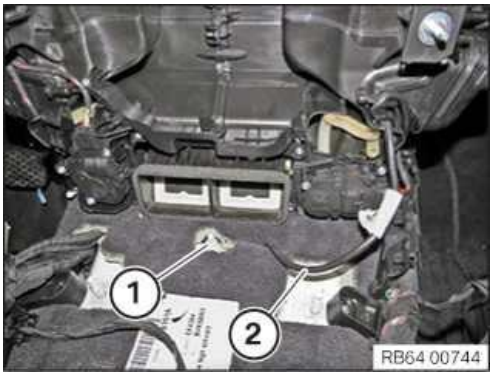


- Coat the condensate drain (2) with lubricant before installing the heating and air-conditioning unit (1).

Assembly aids

Lubricants G14	900 ml, Can	8323236041

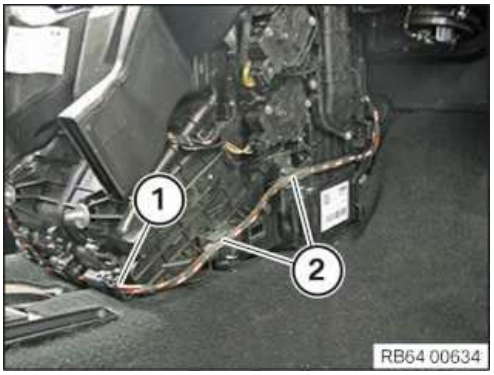
- Insert the heating and air-conditioning unit (1).
- ensure that the heating and air-conditioning unit (1) is positioned exactly on the condensate drain (2).
- Perform a visual inspection after installing the heating and air-conditioning unit (1).



- **For equipment specifications with electric auxiliary heater:** Correctly position the ground cable (2) and tighten the nut (1).

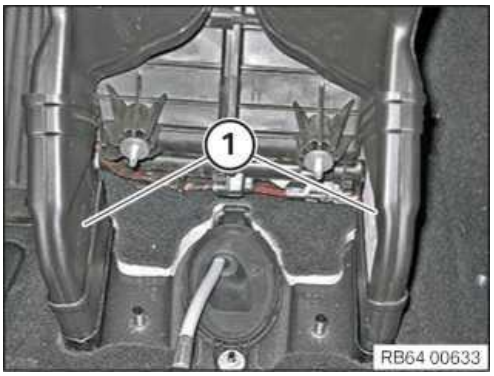
Ground cable to body

Hexagon nut		Tightening torque	8,0 Nm

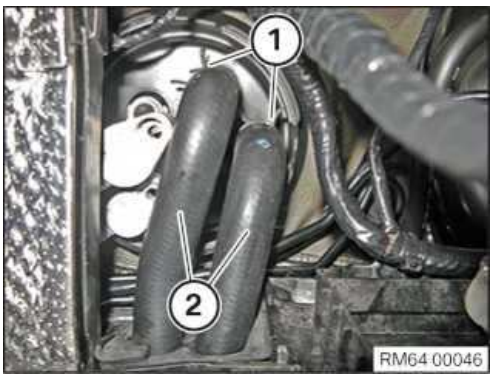


- Engage the cable clip (2).
- Connect connectors (1) and lock.

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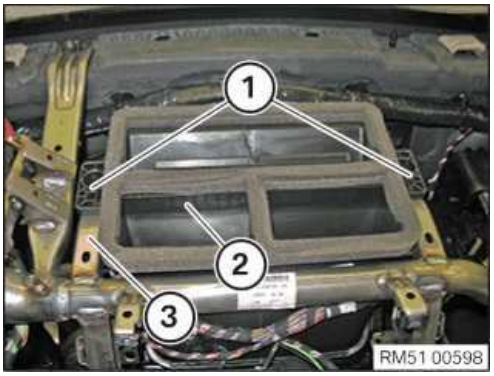
- Install air duct (1) on left and right.



- Slide the marked coolant hoses (2) correctly before the disassembly.
- Secure hose clamps (1) using the special tool .

POSTPROCESSES

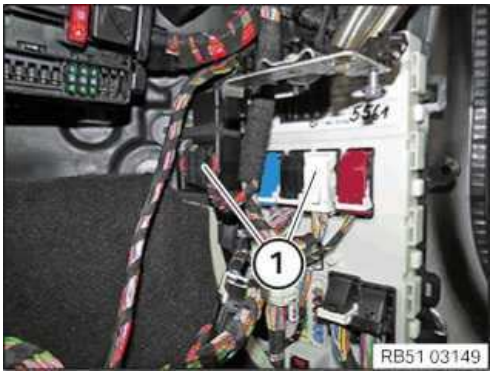
48 – Installing the support for instrument panel



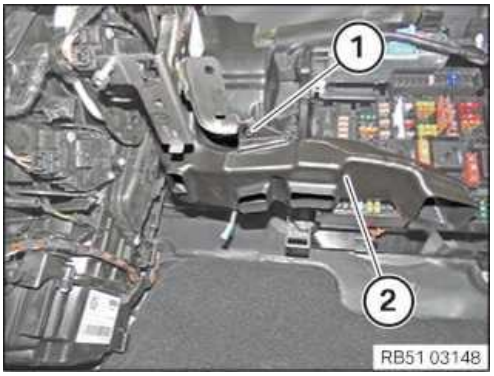
- Install the support (3).
- Correctly position the heating and air-conditioning unit (2) in the area of the screw connection (1) on the support (3).
- Make sure that cable routing is correct and clip in all cable clips on the support.
- Tighten the screws (1).

Heating and air-conditioning unit on the support for the instrument panel

M6x20 screw	Renew screw	Tightening torque	8 Nm
NutM6	Replace nut	Tightening torque	8 Nm



- Connect connectors (1) and lock.

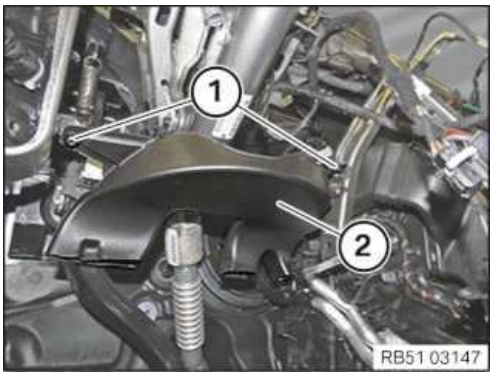


- Install air duct (2).
- Tighten down screw (1).

Footwell ventilation duct

Screw			2,4 Nm

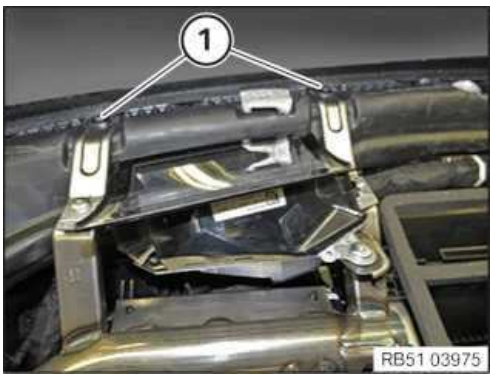
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- Install air duct (2).
- Tighten the screws (1).

Footwell ventilation duct

Screw			2,4 Nm



- Tighten the screws (1).

Support for the instrument panel

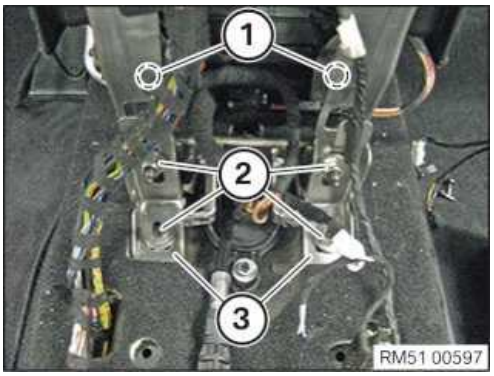
Screw		Tightening torque	21 Nm
Nut		Tightening torque	21 Nm



- Tighten the nuts(1) on the left and right.

Support for the instrument panel

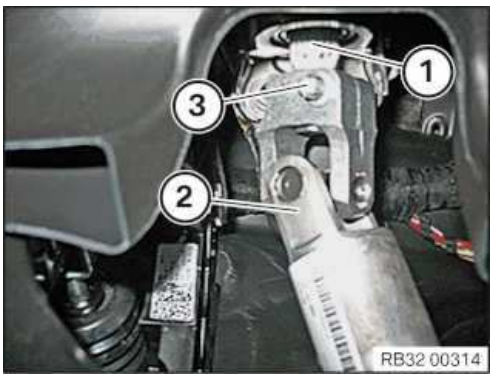
Screw		Tightening torque	21 Nm
Nut		Tightening torque	21 Nm



- Install retaining bracket (3).
- Tighten nuts (2).
- Tighten the screws (1).

Heating and air-conditioning unit on the support for the instrument panel

M6x20 screw	Renew screw	Tightening torque	8 Nm
NutM6	Replace nut	Tightening torque	8 Nm



- Pull the steering column spindle (1) out to the maximum length.
- Push universal joint (2)onto the spindle (1)of the steering column.

  Brace the spindle (1) on the steering column.
- Renew the clamping bolt (3).

  Parts: Clamping bolt
- Tighten the clamping bolt (3).

Lower steering shaft to steering column

Clamping bolt M8	Recut screw thread. Renew clamping bolt. No retorquing permitted!	Tightening torque	28 Nm

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- Tighten the screw (1) on the bulkhead.

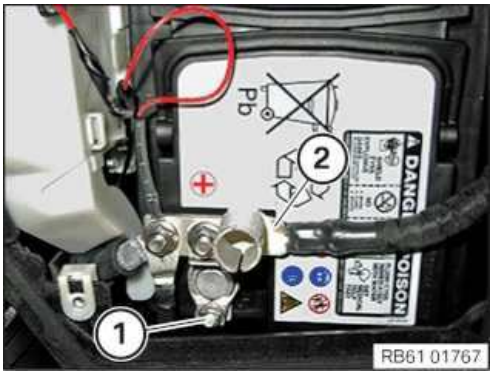
Support for the instrument panel

Screw		Tightening torque	21 Nm
Nut		Tightening torque	21 Nm

▶ **Connect positive battery cable**

Prerequisite

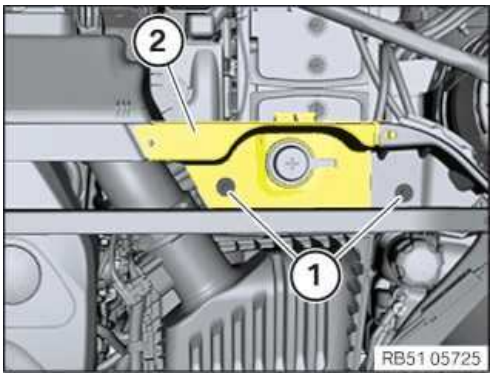
Ignition is switched off.



- Mount the positive battery cable (2) and position correctly.
- Tighten nut (1).

Battery terminal with IBS positive battery terminal / negative battery terminal

NutM6		5 Nm



- Feed in cover (2) and position correctly.
- Tighten the screws (1).

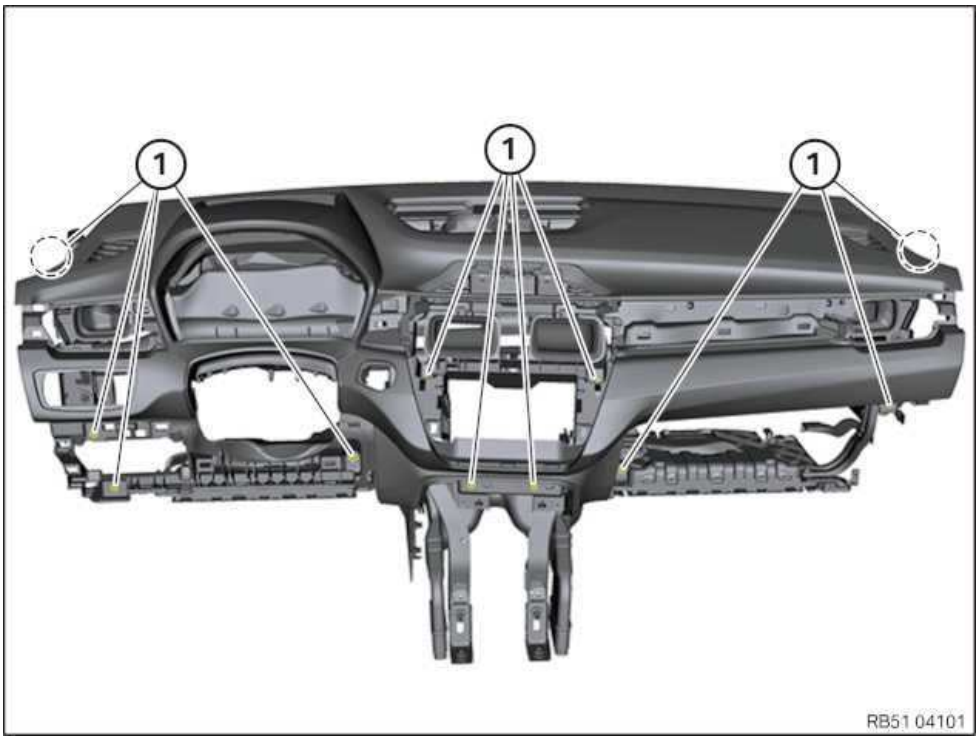
Cover of remote positive terminal

Screw		Tightening torque	2,6 Nm

49 – Install instrument panel trim

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Instrument panel



TECHNICAL INFORMATION

Notes on unlocking/locking airbag plug connections form the basis for these repair instructions and must be observed without fail.

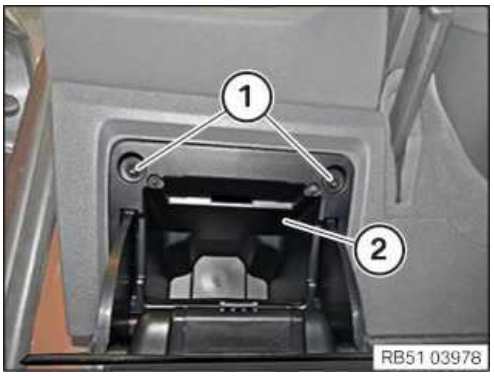
For additional information see: 72 00 ... Notes on unlocking/locking airbag plug connections

- Guide the instrument panel trim through the door aperture with the help of an auxiliary person.
- Install the instrument panel trim, and while doing so secure the wiring harness and connect and lock all the connectors.
- Connect and lock the plug connection of the front passenger airbag.
- Make sure guides on instrument panel are correctly seated in respective mountings of bulkhead.
- Make sure seals for the air ducts are correctly seated.
- Make sure wiring harness is correctly laid.
- Tighten the screws (1).

Instrument panel trim to carrier support

Screw		Tightening torque	2,4 Nm

50 – Installing the left fold-down compartment



- Guide in the fold-down compartment (2) on the instrument panel.
- Tighten the screws (1).

Fold-down compartment to instrument panel

Screw		Tightening torque	1,8 Nm

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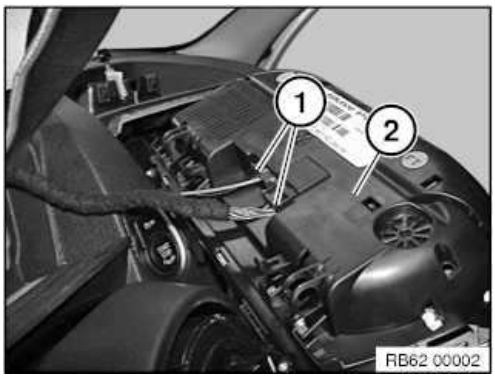
51 – Installing the instrument cluster (KOMBI)

RISK OF DAMAGE

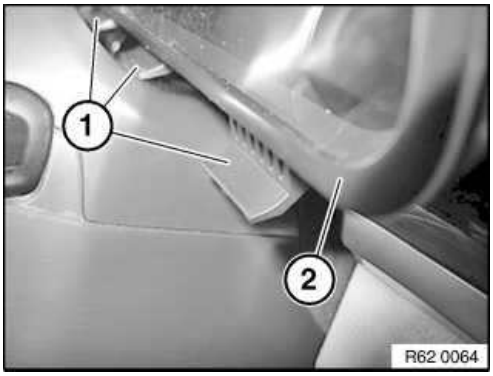
Scratches.

Tools and sharp-edged components can cause scratches.

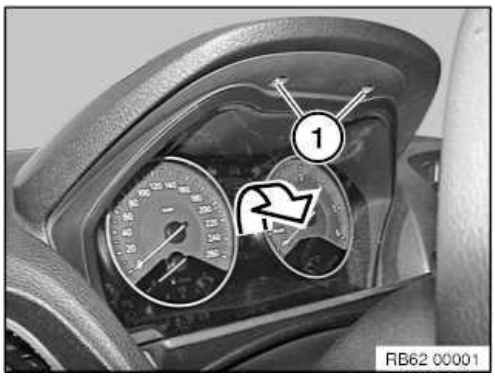
- Protect working area.
- Handle tools and components carefully.



- Connect and lock all connectors (1) to the instrument cluster (KOMBI).



- Make sure that the retaining tabs (1) of the instrument cluster (KOMBI) (2) are seated exactly in mountings of the instrument panel.

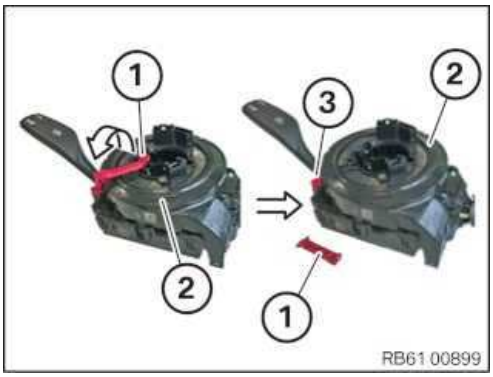


- Position the instrument cluster (KOMBI) position in the opposite direction of the arrow.
- Tighten the screws (1).

Instrument cluster to instrument panel

Screw		1,7 Nm

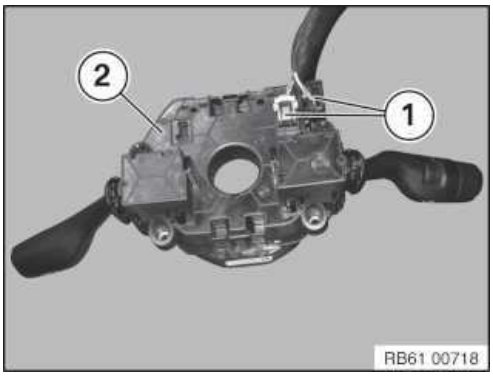
52 – Installing the steering column switch cluster (SZL)



- **Replacement:** Break off the transportation retainer (1) on the steering column switch cluster (SZL) (2) in direction of arrow.

  The broken-off piece of (3) the transportation retainer (1) remains in the steering column switch cluster (SZL) (2).

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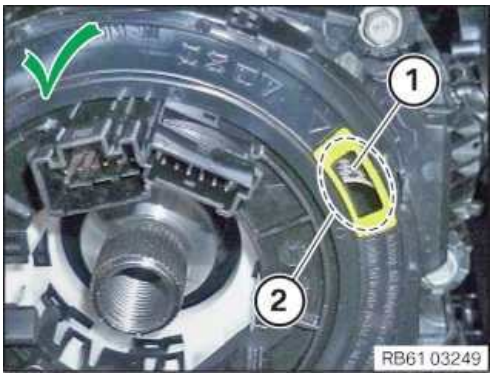


- Connect the connector (1) with the steering column switch cluster (SZL) (2).

▶ **Check the neutral position of the clock spring**

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.



Check

- **Version A:**

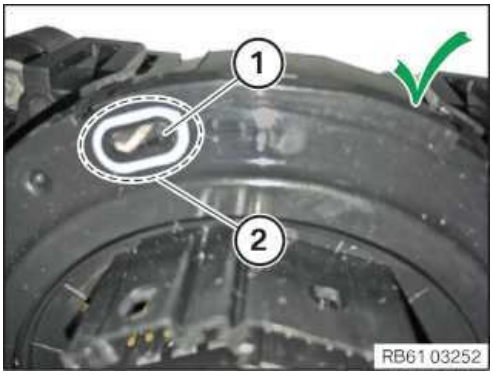
  Check the mark (1) on the coil spring in the inspection glass (2).

Result

» The mark (1) on the coil spring is not visible.

Measure

- Turn the coil spring cassette until the mark (1) on the coil spring becomes visible in the inspection glass (2).



Check

- **Version B:**

  Check the mark (1) on the coil spring in the inspection glass (2).

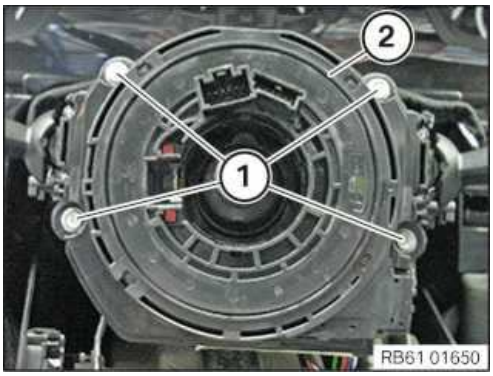
Result

» The mark (1) on the coil spring is not visible.

Measure

- Turn the coil spring cassette until the mark (1) on the coil spring becomes visible in the inspection glass (2).

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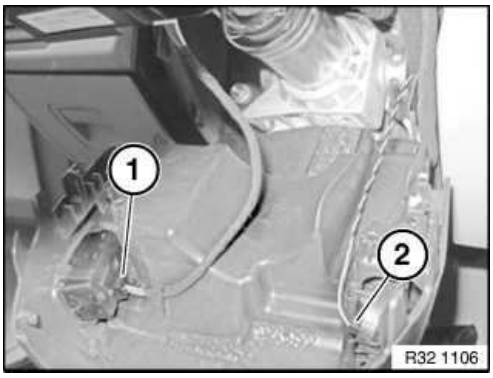


- Position the steering column switch cluster (SZL) (2).
- Tighten the screws (1).

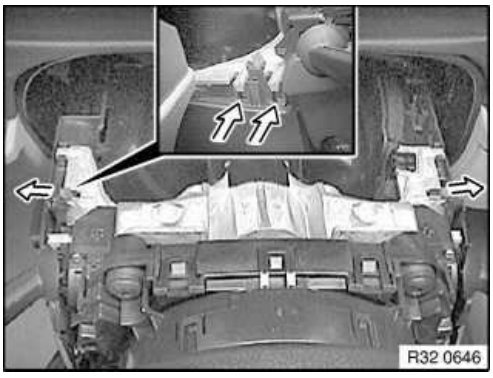
Steering column switch cluster (SZL) on the steering column

Screw TS5x20		Tightening torque	3 Nm

53 – Install steering column shroud lower section



- Position the steering column shroud lower section .
- Connect available connectors (1) and (2) and lock.

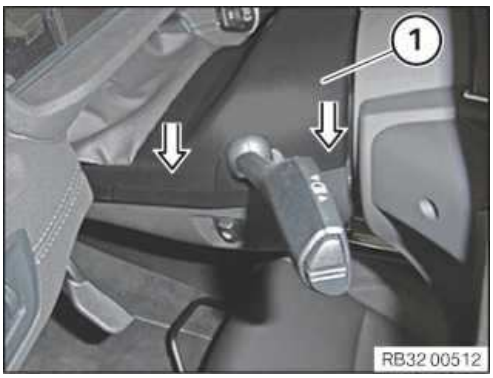


- Position the steering column shroud lower section with the retaining lugs (arrows).
- Press steering column shroud lower section completely towards the top until the retaining lugs (arrows) engage.

54 – Fit steering column shroud upper section



- Position the steering column shroud upper section.
- Attach gap cover of the steering column (1) on the brackets (arrows).



- Position the steering column shroud upper section (1).

NOTICE

Perform the operations on the left and right side.

- Press the upper section of the steering column shroud (1) downwards in direction of arrow.

  The upper section of the steering column shroud must engage audibly and perceptibly.

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▶ **Check the neutral position of the clock spring**

- Ensure that the coil spring is not twisted.

  There are clock springs installed without a mechanical anti-twist lock.

  Coil springs without a mechanical anti-twist lock are identifiable on the inspection glass for the neutral position mark.
- Check the neutral position of the clock spring on the steering column switch cluster (SZL).

  The neutral position is correct if the yellow or green mark (1) is clearly visible.

Check

- Check the mark (1) in the inspection glass.



Result

» The mark (1) is not visible.

Measure

- Turn the coil spring until mark (1) is visible in the inspection glass.

Check

- A micro-encapsulated screw (1) may be fitted.
- Checked threaded connection



Result

» Screw (1) is micro-encapsulated.

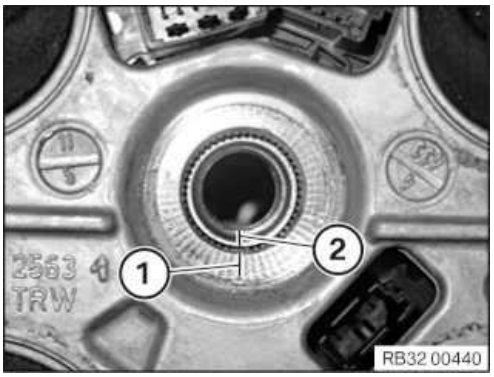
Measure

- Clean thread in the steering column.

  Renew the screw (1).

  Parts: Screw

- Align and connect the steering wheel/sports steering wheel according to the mark (1) with the steering column mark (2).



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- Tighten down screw (1).

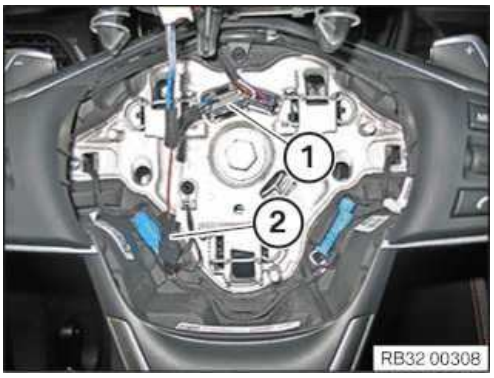
Steering wheel to steering column

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

- **Connect connectors and lock.**

  Make sure connecting lines are correctly routed.

56 – Installing airbag unit of steering wheel/sports steering wheel



- Connect and lock connectors (1) and (2) of the airbag unit.



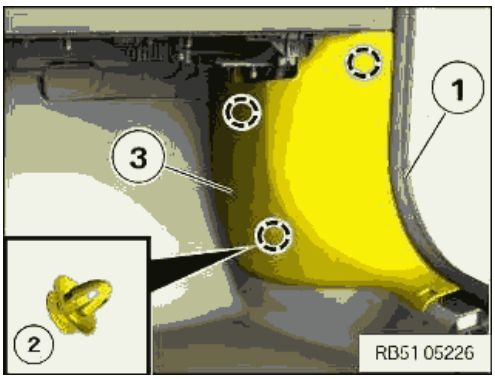
- Before installing the airbag unit, align the wiring harness (1) to the centre so that the latch mechanisms (arrows) are exposed!



- Position airbag unit (1).
- Press the airbag unit (1) with even pressure in each case in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

57 – Installing side trim panel in footwell on right A-pillar



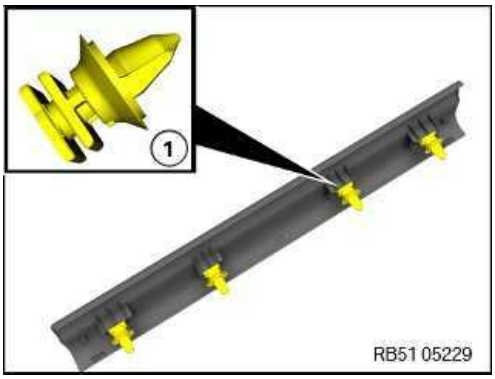
- Check clips (2) for damage, and replace if necessary.
- Feed the side trim panel (3) under the sealing lip of the edge protection (1).
- Clip in the side trim panel (3) with the clips (2).

58 – Install the front right door sill cover strip

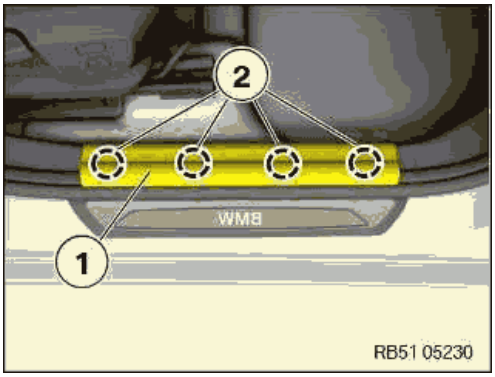
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NOTICE

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

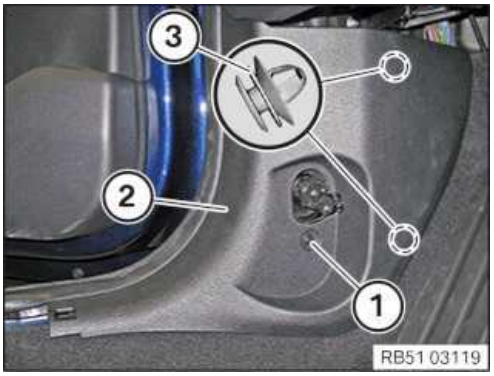


- Check the clips (1) for damage and renew where required.



- Clip the door sill cover strip (1) into the floor panel with the clips (2).

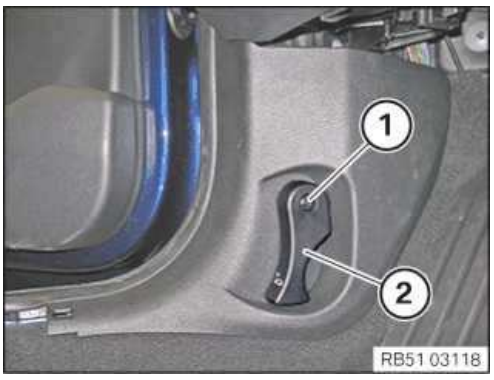
59 – Installing side trim panel in the footwell at A-pillar



- Position the side trim panel (2) and clip it to the clips (3).
- Make sure the edge protection on the side trim panel (2) fits correctly.
- Tighten down screw (1).

Side trim panel bottom left to holder

Screw		Tightening torque	3 Nm



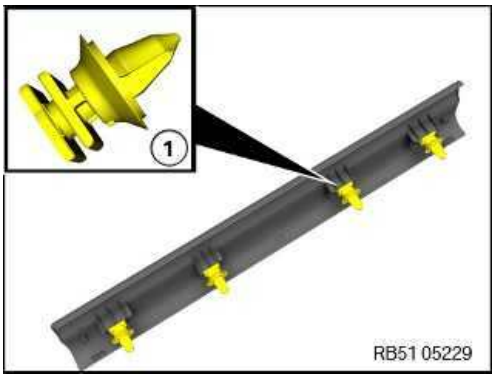
- Install lever for the bonnet release (2)l.
- Tighten down screw (1).

Lever for bonnet release to the holder

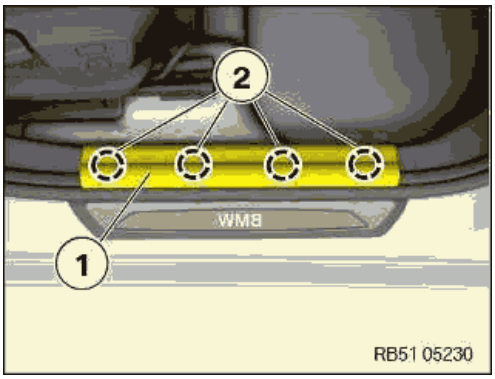
Screw		Tightening torque	3 Nm

60 – Install the front door sill cover strip

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- Check the clips (1) for damage and renew where required.



- Clip the door sill cover strip (1) into the floor panel with the clips (2).

61 – Installing the left and right A-pillar trim panels

NOTICE

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

▸ Install the A-pillar trim panel

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

WARNING

Pyrotechnic components.

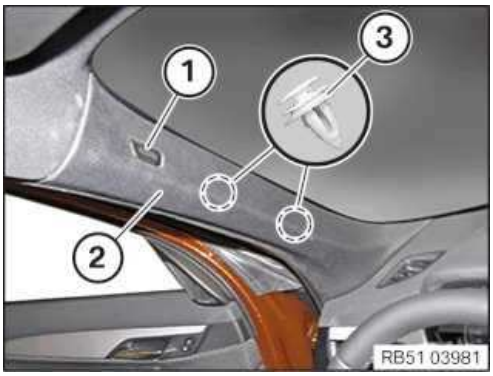
Danger! Life-threatening injuries!

- 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.

TECHNICAL INFORMATION

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

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- Thread in the A-pillar trim panel (2) and clip it in at the clips (3).
- Renew screw.

  Parts: Screw
- Tighten down screw.

A-pillar trim panel to body

M5x42 screw	Renew screw	Tightening torque	2,2 Nm

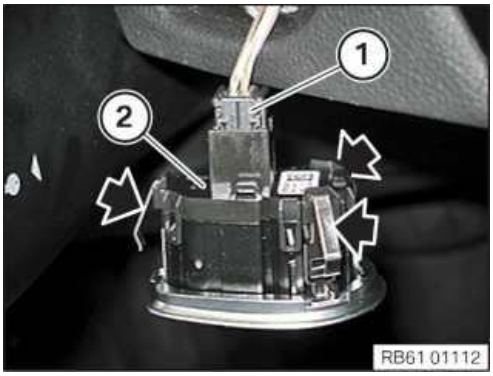
- Clip in the cover (1).

62 – Installing the light operating unit



- Connect associated connector.
- Position light operating unit (1) correctly and clip in where marked.

63 – Installing the START-STOP button



- Connect connector (1) with START-STOP button (2).

  The retaining clips (arrows) must not be damaged or missing.



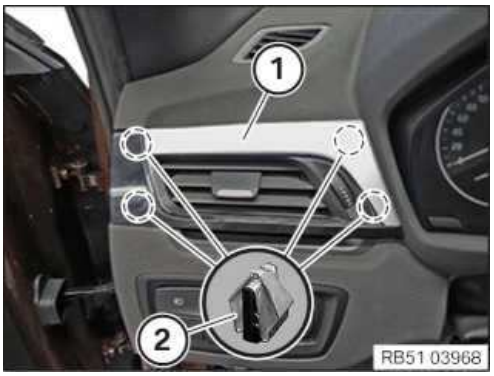
- Install START-STOP button (1) in the instrument panel trim.

64 – Install decorative strip from instrument panel

TECHNICAL INFORMATION

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

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- Install decorative strip (1) a snap into the clamps (2).

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

RISK OF DAMAGE

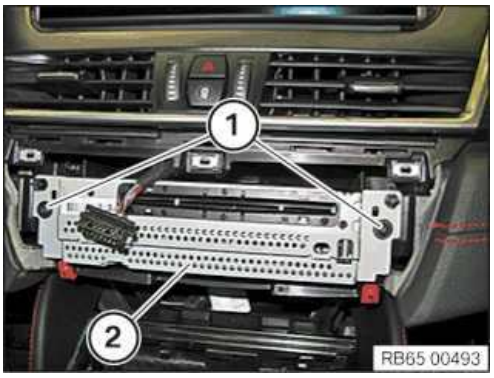
Electrostatic discharge.

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 Information on electrostatic discharge (ESD) protection.



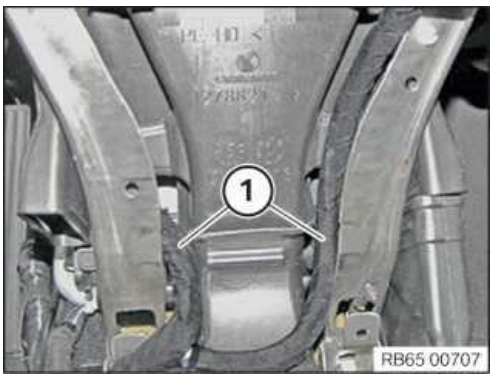
- Position head unit (1).
- Connect and lock all connectors in the marked area.



- Slide in the head unit (2) correctly.
- Tighten the screws (1).

Head unit to instrument panel

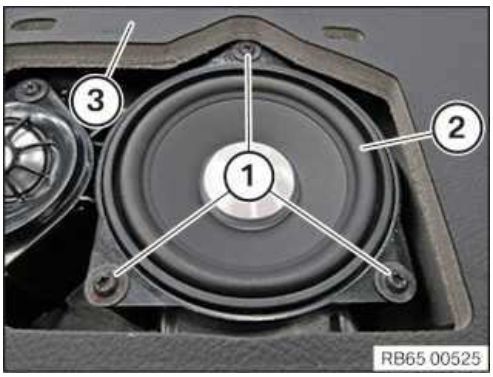
Screw		Tightening torque	1,8 Nm



- Route the wiring harness (1) correctly.

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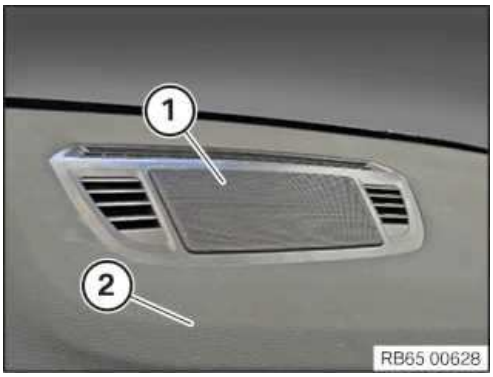
66 – Install the mid-range speakers in the instrument panel



- Connect the connector below it to the mid-range speaker (2).
- Position the mid-range speaker (2) in the instrument panel (3).
- Tighten the screws (1).

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

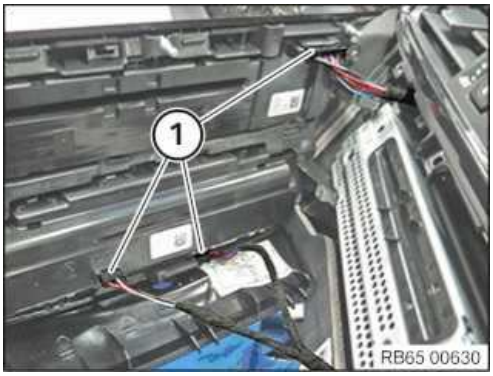
Screw		Tightening torque	1,8 Nm



- Check the latch mechanisms on the speaker cover (1) for damage and renew them if necessary.

  The latch mechanisms must not be missing or faulty.
- Engage the speaker cover (1) correctly into the instrument panel (2).

67 – Installing audio operating unit and air conditioning control panel



- Position audio operating unit and air conditioning control panel.
- Connect plug connection (1) and lock.



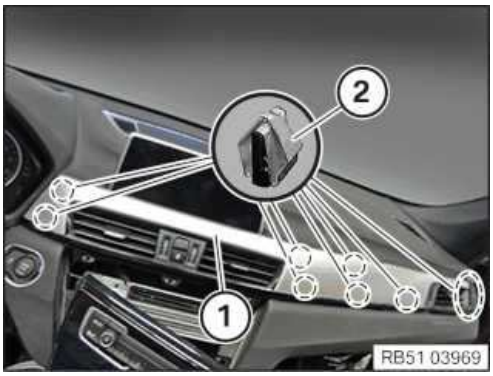
- Correctly position trim (1) and clip it into the instrument panel (2).

68 – Install the finisher on the right instrument panel

TECHNICAL INFORMATION

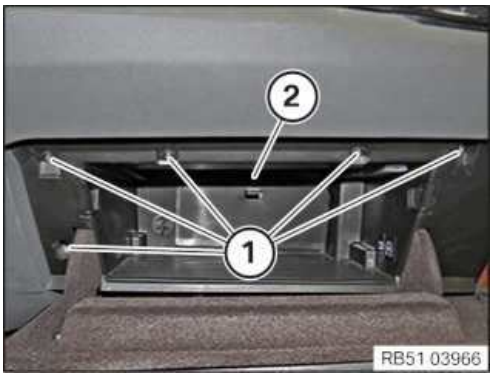
Latch mechanisms, guides and mounting elements must not be damaged or missing.

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- Install the decorative strip (1).
- Connect connector.
- Engage the decorative strip (1) on the clamps (2).

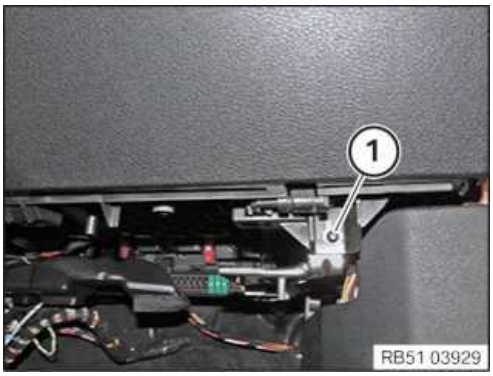
69 – Install right glove box



- Install the glove box (2) and connect and lock associated plug connections.
- Tighten the screws (1).

Glove box to instrument panel

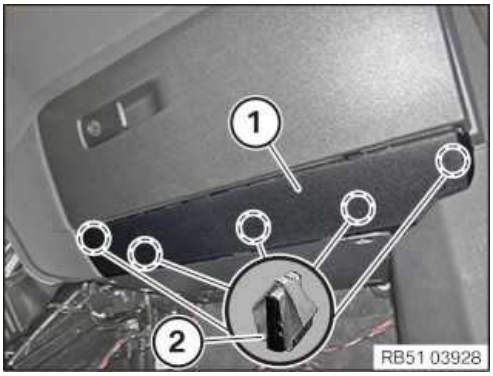
Screw		Tightening torque	1,8 Nm



- Tighten down screw (1).

Glove box to instrument panel

Screw		Tightening torque	1,8 Nm

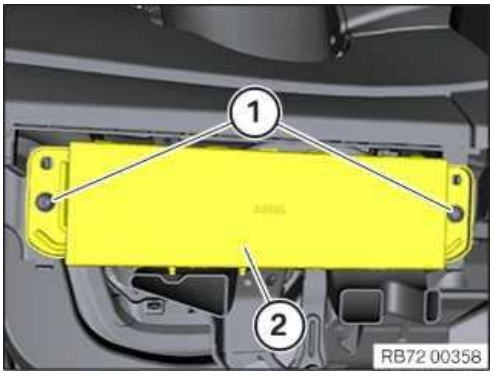


TECHNICAL INFORMATION

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

- Install the trim (1) and lock it at the clamps (2).

70 – Installing knee airbag



- Connect the plug connection to the knee airbag (2) and lock.
- Install knee airbag (2).
- Renew screws (1).

  Parts: Screw
- Tighten the screws (1).

Knee airbag to body

M8	Renew screws.	Tightening torque	8 Nm

71 – Install the side panel on instrument panel on the left and right

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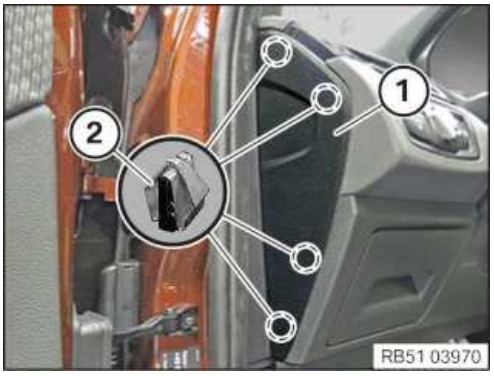
NOTICE

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

▶ **Install side panel on the instrument panel**

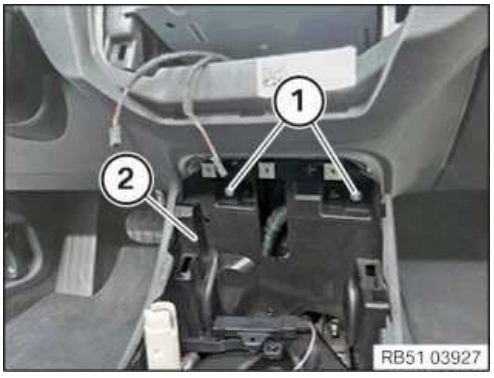
TECHNICAL INFORMATION

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



- Feed in the side panel (1) at an angle toward the front and lock at the clamps (2).

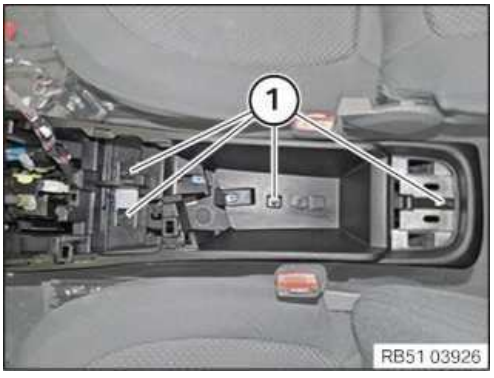
72 – Installing centre console fully with centre armrest



- Lift rear centre console (2), guide it forwards and connect all the connectors.
- Insert the wiring harness into the centre console (2).
- Tighten the screws (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm



- Tighten the screws (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

▶ **Installing the centre armrest**

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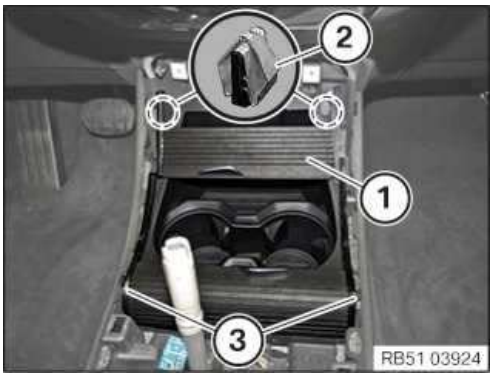


- Install the centre armrest and tighten nuts (1).

Centre armrest to support

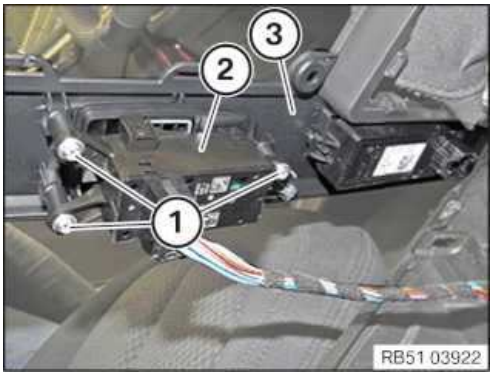
Nut M8		Tightening torque	21,4 Nm

73 – Installing the front storage compartment



- Install storage compartment (1) and connect the connectors.
- Insert the storage compartment (1) into the guides (3) and fold forward.
- Engage storage compartment (1) in the clamps (2) at top.

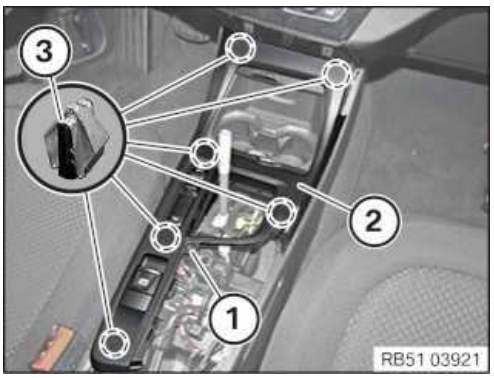
74 – Install the centre console trim



- Install centre console trim (3) and connect and lock the corresponding connectors.
- Install parking brake button (2) on centre console trim (3).
- Tighten the screws (1).

Parking brake button

Oval-head screw		Tightening torque	1,5 Nm



- Install centre console trim (2) and engage it into clamps (3).
- Tighten down screw (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

75 – Installing the decorative trim to the centre console

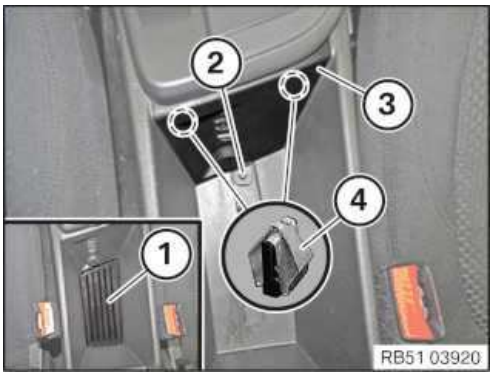


- Connect all connectors.
- Install decorative trim (2).
- Tighten down screw (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

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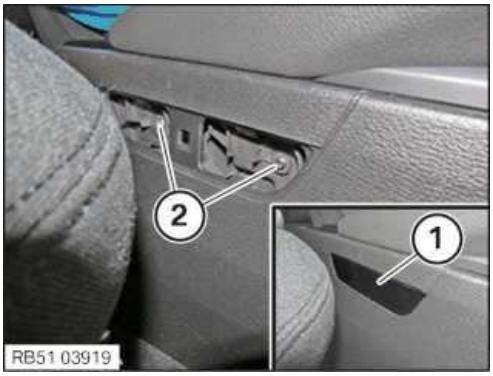


- Position trim (3) and connect all the connectors.
- Install trim (3) and engage it into clamps (4).
- Tighten down screw (2).

Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

- Insert the insert (1).



- Tighten down screws (2).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

- Install cover (1) and engage.



- Tighten down screws (2).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

- Install cover (1) and engage.

76 – Installing the gearshift lever cover



- Place the gearshift lever knob on gearshift lever and align by lightly pressing in the direction of travel.

  The anti-twist lock must bite.
- Press the gearshift lever knob with the palm of the hand until it can be felt to engage.

  When installing, the tie rod of the gearshift lever must not be bent.



- Clip in gaiter (arrows).

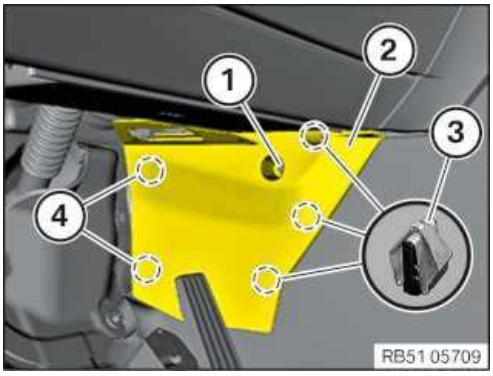
77 – Installing side trim panel for the left and right centre console

▸ Installing side trim panel for the left centre console

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TECHNICAL INFORMATION

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



- Install the side trim panel (2) for the centre console and feed it into the guides (4).
- Engage the side trim panel (2) for the centre console into retaining clips (3).
- Tighten down screw (1).

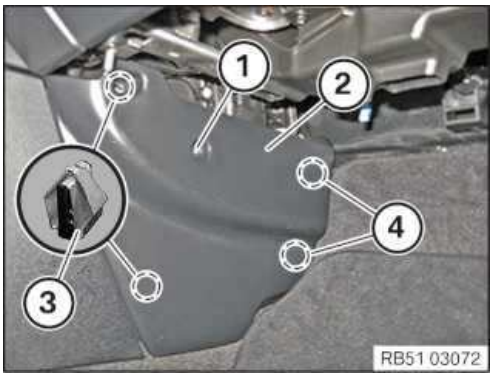
Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

▸ **Installing side trim panel for the right centre console**

TECHNICAL INFORMATION

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



- Install the side trim panel for the centre console (2) and feed it into the guides (4).
- Engage the side trim panel for the centre console (2) into retaining clips (3).
- Tighten down screw (1).

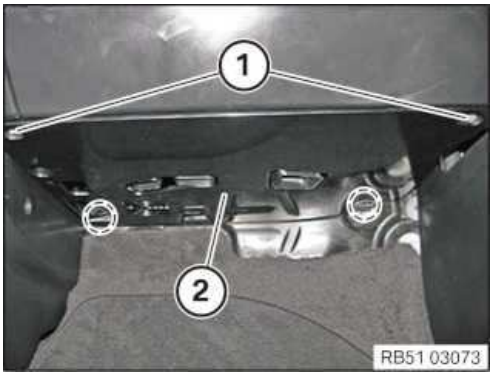
Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

78 – Installing the botto right instrument panel trim

TECHNICAL INFORMATION

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



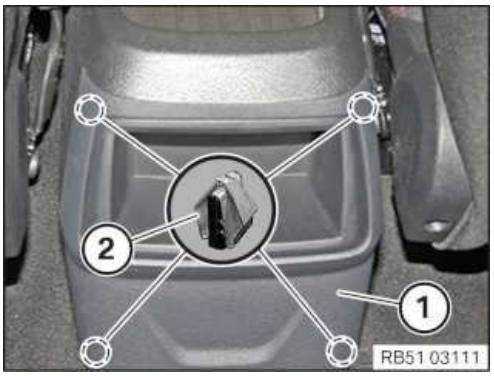
- Install the lower right instrument panel trim (2) and connect and lock the plug connection.
- Insert the lower right instrument panel trim (2) into the front guides.
- Tighten nuts (1).

Bottom left footwell trim to instrument panel

M5 hexagon nut		Tightening torque	2 Nm

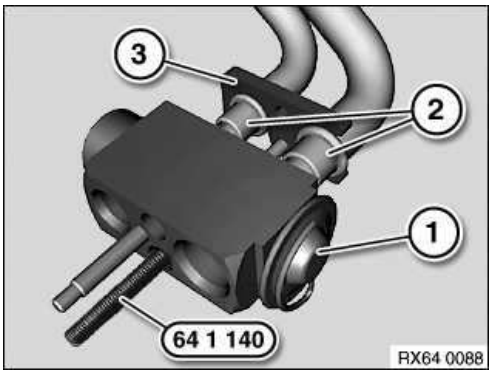
79 – Installing the rear centre console trim

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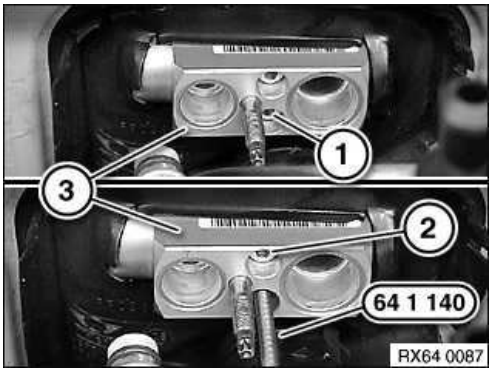
- Install centre console trim (1) and engage it into clamps (2).

80 – Install expansion valve

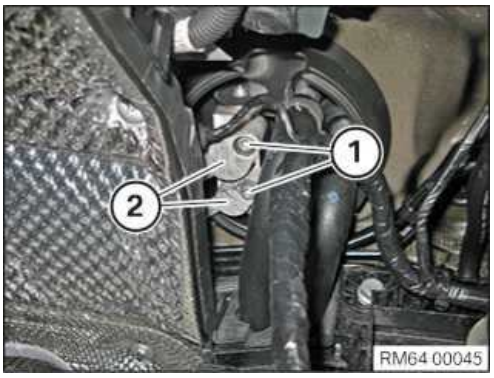


- Renew O-rings on the pipes (2).

  Parts: O-rings
- Brace mounting plate (3) with the special tool **0 495 815 (64 1 140)**.
- Secure expansion valve (1)with a screw.



- Release special tool **0 495 815 (64 1 140)**.
- Tighten the screws (1) and (2) on the expansion valve (3).



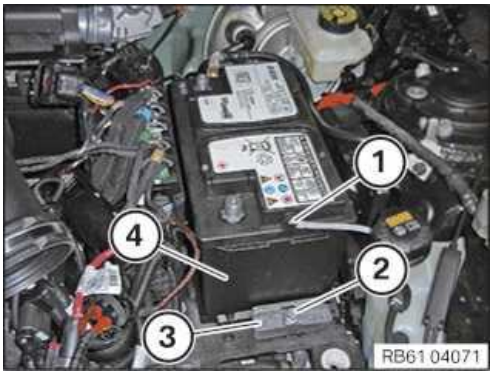
- Replace O-rings.

  Parts: O-rings
- Position refrigerant line (2) correctly.
- Tighten the screws (1).

Refrigerant lines to expansion valve

M6		Tightening torque	8 Nm

81 – Partially install vehicle battery



- Install vehicle battery (4).
- Correctly position the holder (3).
- Tighten down screw (2).

Battery terminal rail to battery tray

M8		19 Nm

- Fit and clip the vent hose (1) in.

► **Check the vent holes of the battery**

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WARNING

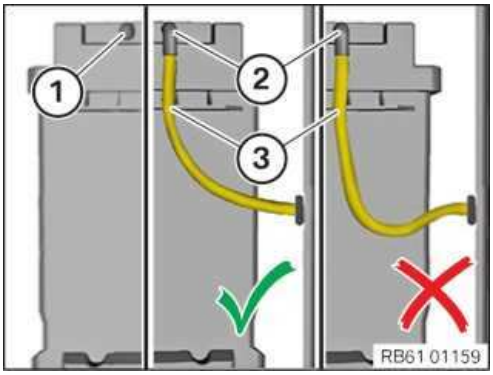
Gas emission.

Danger of injury! Danger of explosion!

- Assign the vent holes correctly.
- Route the vent hose correctly.

TECHNICAL INFORMATION

The battery has two vent holes, opposite:
One vent hole (1) must be closed correctly with a dummy plug.
The vent hose (3) must be correctly connected and routed at the other vent hole (2).



Check

- Check if the vent hole (1) is correctly closed with a dummy plug.

Result

» No dummy plug.

Measure

- Close the vent hole (1) correctly with a dummy plug.

Check

- Check if the vent hole (2) has a correctly connected vent hose (3).

Result

» The vent hose (3) is not correctly connected.

Measure

- At the vent hole (2), connect the vent hose (3) correctly.

Check

- Check if the vent hose (3) is routed to the outside with a downhill gradient (**no siphon formation!**).

Result

» The vent hose (3) is not correctly routed as shown in the image on the right.

Measure

- Route the vent hose (3) correctly as shown in the centre image.

82 – Install electronics box

Prerequisite

Battery earth lead is disconnected.

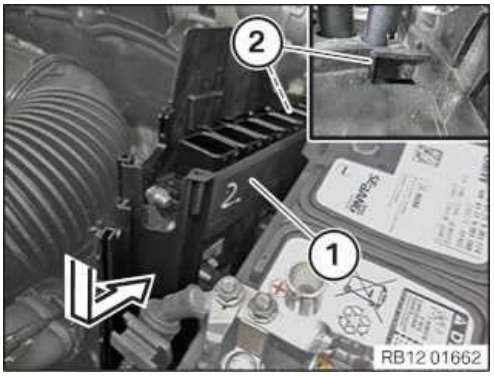
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RISK OF DAMAGE

Improper routing of cables and wiring harnesses.

Trapped, crushed or damaged cables may cause short circuits and malfunctions.

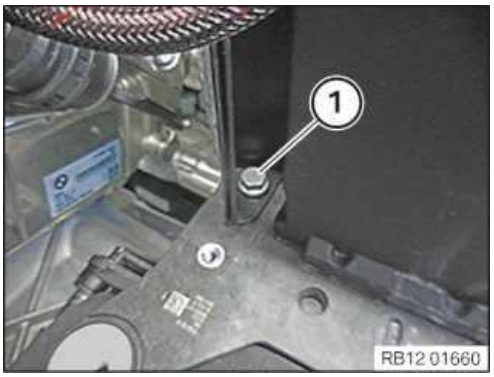
- Route all cables without abrasions, do not trap and crush.



- Guide in and install the electronics box (1) into the guide (2) in direction of arrow.



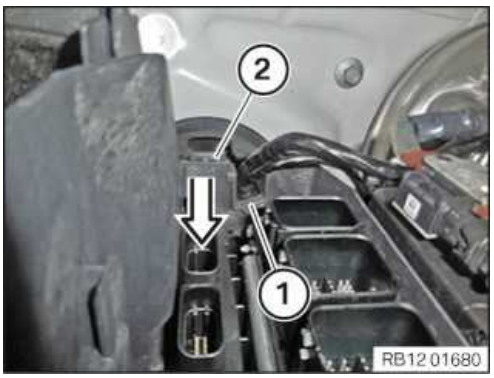
- Make sure that the electronics box (1) is positioned correctly on the bulkhead (2).



- Tighten down screw (1).

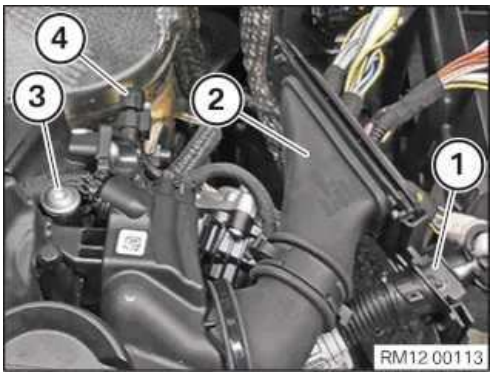
Electronics box to battery tray

M8X16		Tightening torque	15 Nm



- Guide in and install the holder (1) in the electronics box (2) in direction of arrow.
- Make sure the bracket (1) engages audibly.

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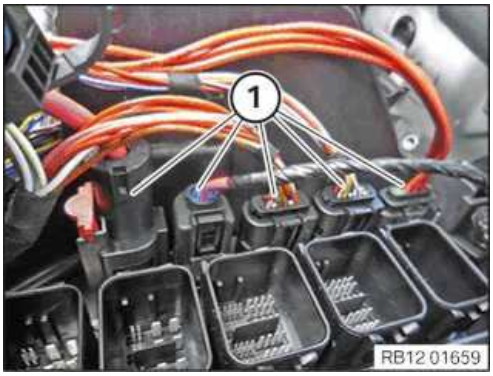


- Lay vehicle wiring harnesses (1) and (2) and mount on electronics box.
- Tighten down screw (3).

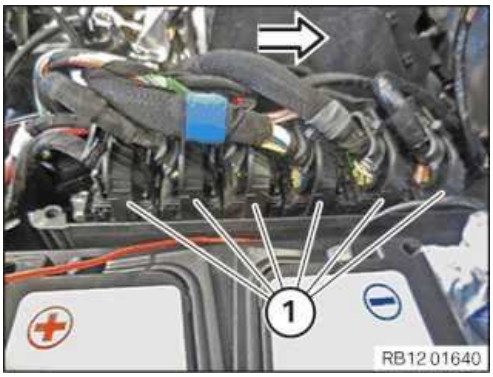
Wiring harness to cylinder head cover

TS5x20		Tightening torque	3,5 Nm

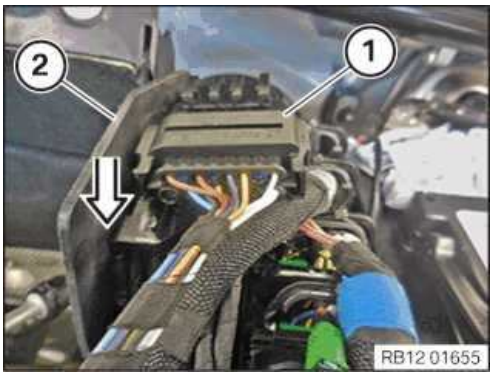
- Attach connector (4) to the differential pressure sensor and lock it audibly.



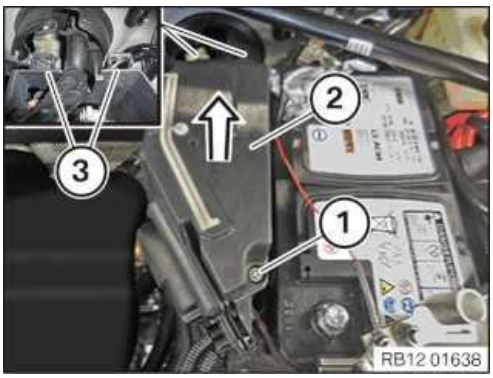
- Connect and lock the connector (1).
- Make sure the connectors (1) engage audibly.



- Connect connector (1) in direction of arrow and lock.
- Make sure the connectors (1) engage audibly.



- Connect and lock the connector (1).
- Make sure the connector (1) engages audibly.
- Insert the connector (1) in the direction of arrow at the electronics box (2) and install.

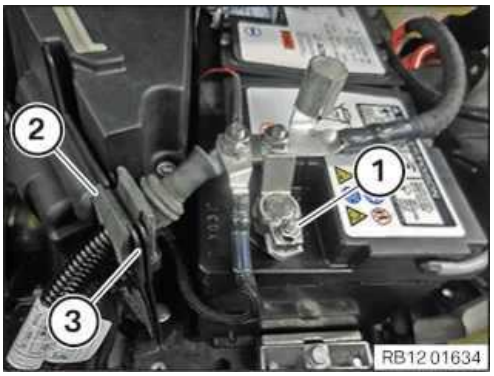


- Insert the cover (2) into the guides (3) in the direction of arrow and install.
- Make sure the cover audibly engages (2) in the guides (3).
- Tighten down screw (1).

Cover to electronics box

RF5x26.5		Tightening torque	2,5 Nm

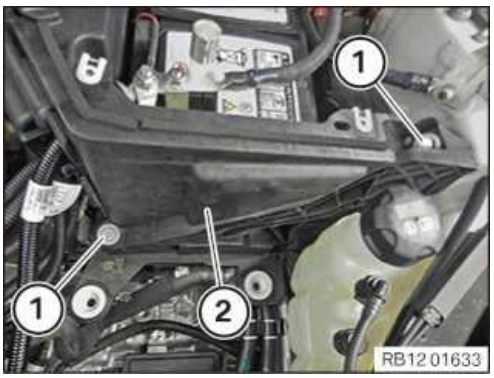
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- Thread in positive battery cable (2) on holder (3) and install.
- Feed in and install positive battery terminal (1).
- Tighten positive battery terminal (1).

Positive battery terminal to battery

NutM6		Tightening torque	5 Nm

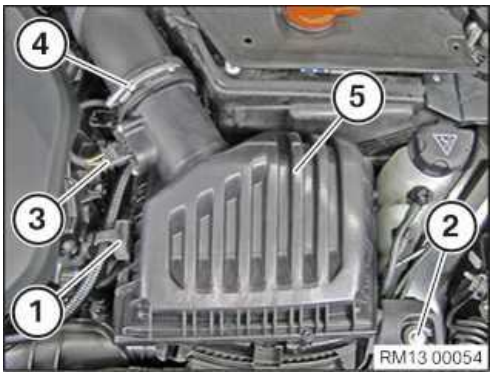


- Feed in and install tension strut (2).
- Tighten the screws (1).

Tension strut to spring strut dome/battery tray

M8		Tightening torque	19 Nm

83 – Installing intake silencer housing



- Insert the intake silencer housing (5) into the rubber mounts and install it.
  Intake filter housing (5) must engage audibly.
- Tighten down screw (2).

Intake silencer housing to lock bridge

M6X30		Tightening torque	8 Nm

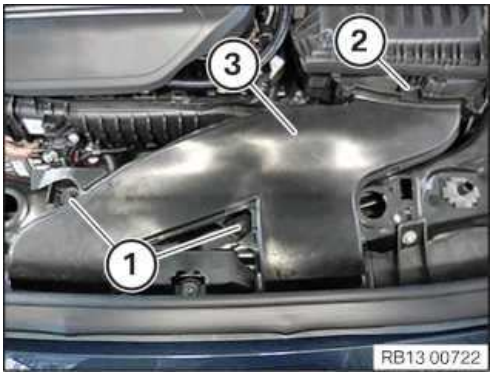
- Tighten clamp (4).

Clean air pipe to intake silencer housing

Clamp		Tightening torque	3 Nm

- Connect and lock the connector (3).
  The connector (3) must engage audibly.
- Insert and install the holder (1).

84 – Install the intake neck for the intake filter housing



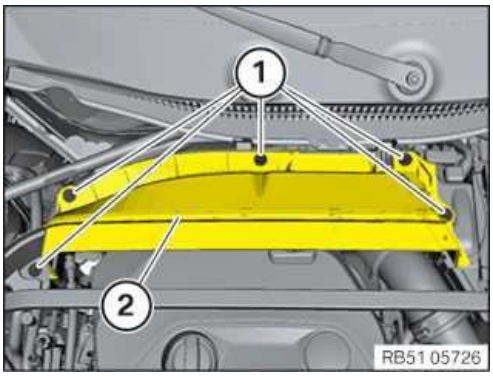
- Insert and install the intake neck (3).
  The lock (2) must audibly engage.
- Tighten nuts (1).

Intake neck to cross connection

M6		Tightening torque	8 Nm

85 – Installing the upper bulkhead cover

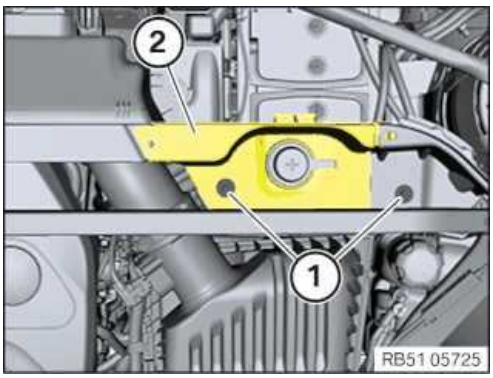
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- Feed in and install cover (2) of the bulkhead at the top.
- Tighten the screws (1).

Cover of top bulkhead

Screw		Tightening torque	2,6 Nm



- Guide in and install cover (2).
- Tighten down screw (1).

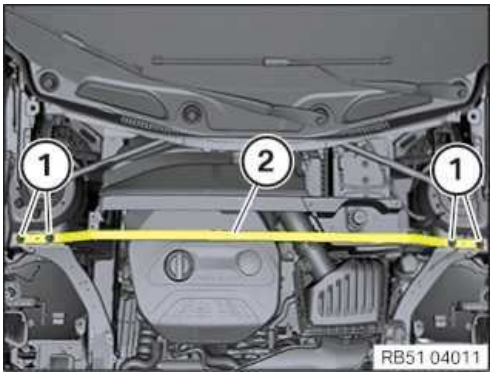
Cover of remote positive terminal

Screw		Tightening torque	2,6 Nm

86 – Install strut brace

TECHNICAL INFORMATION

Driving without the strut brace/front end or tension strut is not permitted.

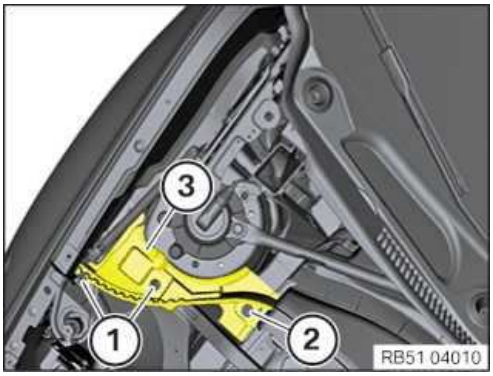


- Install the strut brace (2).
- Renew screws (1).

  Parts: Bolts
- Tighten the screws (1).

Cross-brace to spring strut dome

	Renew screw.	Jointing torque	28 Nm
		Angle of rotation	180 °



NOTICE

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

- Install the cover (3).
- Tighten down screw (2).

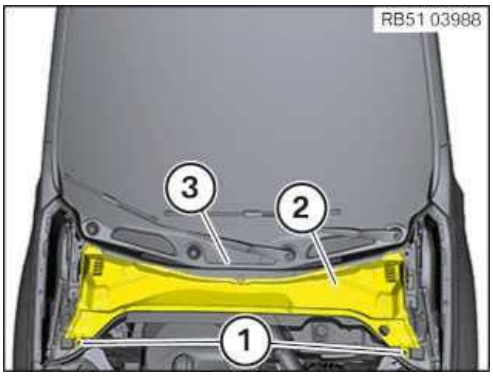
Cover on body

Hexagon screw		Tightening torque	3 Nm

- Install the expanding rivet (1).

87 – Installing front cowl panel cover

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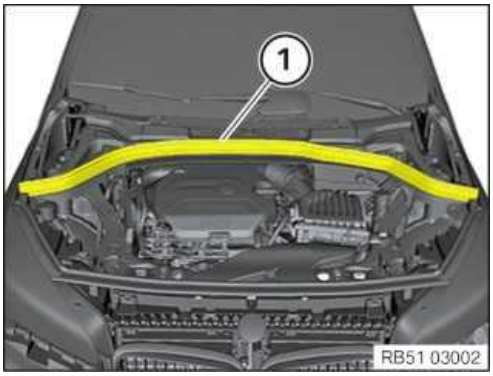


- Insert and install cowl panel cover at front (2) into cowl panel cover at rear (3).
- Check cowl panel cover at front is correctly seated (2).
- Secure expanding rivet (1).

88 – Install the seal for the bonnet

NOTICE

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



- Install bonnet seal at rear (1).
- Ensure that the rear bonnet seal (1) is fitted correctly.

89 – Disconnecting all battery earth leads



- See additional information.

90 – Evacuate and fill air conditioning

- See additional information.

91 – Address the controller drive

- Carry out the service function as follows:
  - Body
  - Heating and air conditioning function
  - Flap motors
  - Address flap motors

Additional Information

Overview of Tightening Torques

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Controller drive to heating and air-conditioning unit

Used in step 46

Screw		Tightening torque	1,2 Nm

Ground cable to body

Used in step 47

Hexagon nut		Tightening torque	8,0 Nm

Heating and air-conditioning unit on the support for the instrument panel

Used in step 48

M6x20 screw	Renew screw	Tightening torque	8 Nm
NutM6	Replace nut	Tightening torque	8 Nm

Footwell ventilation duct

Used in step 48

Screw			2,4 Nm

Support for the instrument panel

Used in step 48

Screw		Tightening torque	21 Nm
Nut		Tightening torque	21 Nm

Lower steering shaft to steering column

Used in step 48

Clamping bolt M8	Recut screw thread. Renew clamping bolt. No retorquing permitted!	Tightening torque	28 Nm

Battery terminal with IBS positive battery terminal / negative battery terminal

Used in step 48

NutM6			5 Nm

Cover of remote positive terminal

Used in step 48 85

Screw		Tightening torque	2,6 Nm

Instrument panel trim to carrier support

Used in step 49

Screw		Tightening torque	2,4 Nm

Fold-down compartment to instrument panel

Used in step 50

Screw		Tightening torque	1,8 Nm

Instrument cluster to instrument panel

Used in step 51

Screw			1,7 Nm

Steering column switch cluster (SZL) on the steering column

Used in step 52

Screw TS5x20		Tightening torque	3 Nm

Steering wheel to steering column

Used in step 55

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

Side trim panel bottom left to holder

Used in step 59

Screw		Tightening torque	3 Nm

Lever for bonnet release to the holder

Used in step 59

Screw		Tightening torque	3 Nm

A-pillar trim panel to body

Used in step 61

M5x42 screw	Renew screw	Tightening torque	2,2 Nm

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Head unit to instrument panel — Used in step 65

Screw		Tightening torque	1,8 Nm

Speaker to support / support to instrument panel / support to body — Used in step 66

Screw		Tightening torque	1,8 Nm

Glove box to instrument panel — Used in step 69

Screw		Tightening torque	1,8 Nm

Knee airbag to body — Used in step 70

M8	Renew screws.	Tightening torque	8 Nm

Screw connection for centre console — Used in step 72 74 75

Oval-head screw		Tightening torque	1,8 Nm

Centre armrest to support — Used in step 72

Nut M8		Tightening torque	21,4 Nm

Parking brake button — Used in step 74

Oval-head screw		Tightening torque	1,5 Nm

Trim to centre console — Used in step 75 77

Oval-head screw		Tightening torque	1,8 Nm

Bottom left footwell trim to instrument panel — Used in step 78

M5 hexagon nut		Tightening torque	2 Nm

Refrigerant lines to expansion valve — Used in step 80

M6		Tightening torque	8 Nm

Battery terminal rail to battery tray — Used in step 81

M8			19 Nm

Electronics box to battery tray — Used in step 82

M8X16		Tightening torque	15 Nm

Wiring harness to cylinder head cover — Used in step 82

TS5x20		Tightening torque	3,5 Nm

Cover to electronics box — Used in step 82

RF5x26.5		Tightening torque	2,5 Nm

Positive battery terminal to battery — Used in step 82

NutM6		Tightening torque	5 Nm

Tension strut to spring strut dome/battery tray — Used in step 82

M8		Tightening torque	19 Nm

Intake silencer housing to lock bridge — Used in step 83

M6X30		Tightening torque	8 Nm

Clean air pipe to intake silencer housing — Used in step 83

Clamp		Tightening torque	3 Nm

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Intake neck to cross connection

Used in step 84

M6		Tightening torque	8 Nm

Cover of top bulkhead

Used in step 85

Screw		Tightening torque	2,6 Nm

Cross-brace to spring strut dome

Used in step 86

	Renew screw.	Jointing torque	28 Nm
		Angle of rotation	180 °

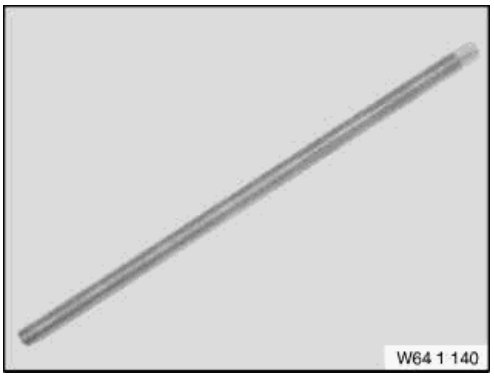
Cover on body

Used in step 86

Hexagon screw		Tightening torque	3 Nm

Overview of Special Tools

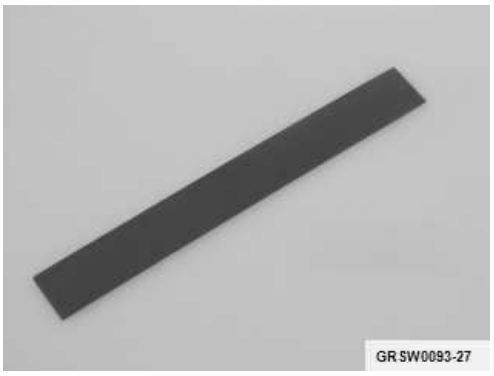
0 495 815 (64 1 140) Rod



Common Used in step 11 80

Usage	(threaded rod) For securing threaded plate when removing expansion valve
Included in the tool or work	
Storage location	C86
Replaced by	
In connection with	
SI-Number	01 23 06 (308)

0 496 571 (00 9 327) Wedge



Common Used in step 16 25

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)

0 496 569 (00 9 325) Wedge

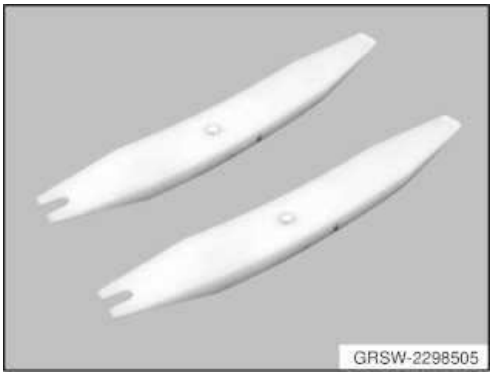


Common Used in step 17 19 21 23 27 28 32 34

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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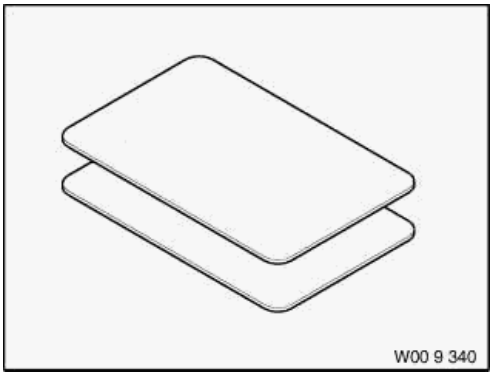
2 298 505 Wedge



Common Used in step 24

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)

0 493 687 (00 9 340) Removal aid



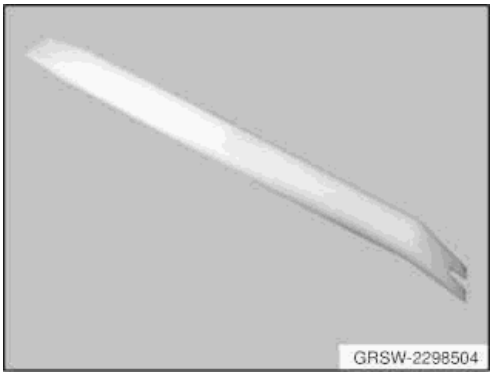
Common Used in step 29

Usage	(Removal aid (2 x)) For levering out switch block on driver's door.
Included in the tool or work	
Storage location	C2
Replaced by	
In connection with	
SI-Number	01 15 99 (483)

Consisting of

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

2 298 504 Wedge



Common Used in step 38

Usage	Wedge with angled lug
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

Links

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	31 61
64 52 ... Instructions for opening and part exchange in refrigerant circuit	

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64 50 ... Note for handling R134a refrigerant

12 00 ... Instructions for removal and replacement of control units

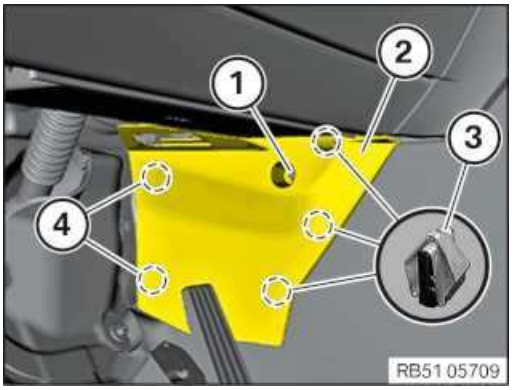
Repair instructions	Used in step
64 50 010 Extract, evacuate and fill air conditioning system	1 90
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 90
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 90
64 50 ... Notes on repairs to air conditioning	1 90
64 50 010 Drawing off, evacuating and filling air conditioning (R1234yf)	1 90
64 50 ... Safety information for handling refrigerant R1234yf	1 90
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	1 90
64 50 ... Safety informations for handling refrigerant oil	1 90
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 89
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 89
61 20 900 Disconnect and connect battery earth lead (Plug-in Hybrid Electric Vehicle)	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
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61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 20 900 Disconnecting and connecting battery earth lead	2 89
61 35 ... Notes on ESD protection (Electro Static Discharge)	9
61 35 ... Notes on ESD protection (Electro Static Discharge)	
72 12 ... Unlocking/locking airbag plug connections	43 49
64 50 ... Safety information for handling refrigerant R1234yf	
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	

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64 11 866 Removing and installing/replacing actuator drive for blending flap (left) (after vehicle diagnosis)

PRELIMINARY WORK

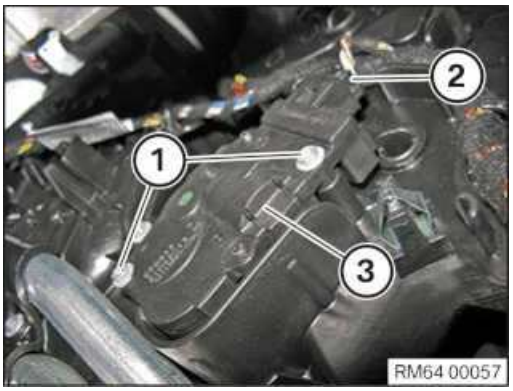
1 – Removing side trim panel for the left centre console



- Loosen screw (1).
- Release side trim panel (2) for the centre console from retaining clips (3).
- Remove side trim panel (2) for the centre console from guides (4) and remove it.

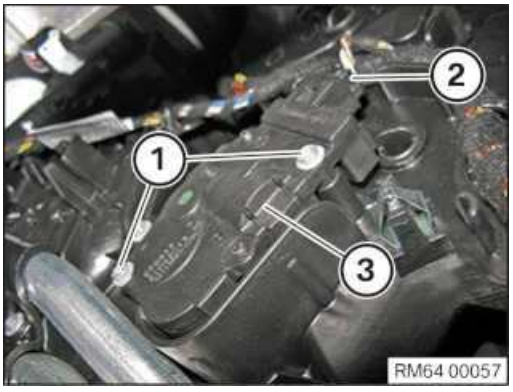
MAIN WORK

2 – Removing the left mixed air flap motor



- Loosen screws (1).
- Unlock plug connection (2) and disconnect.
- Remove mixed air flap motor (3).

3 – Install the left mixed air flap motor



- Correctly position mixed air flap motor (3).
- Connect connectors (2) and lock.
- Tighten the screws (1).

Controller drive to heating and air-conditioning unit

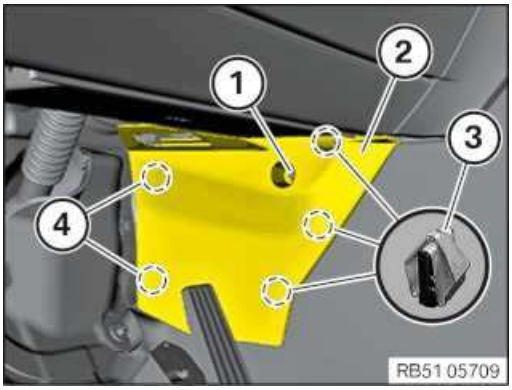
Screw		Tightening torque	1,2 Nm

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4 – Installing side trim panel for the left centre console

TECHNICAL INFORMATION

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



- Install the side trim panel (2) for the centre console and feed it into the guides (4).
- Engage the side trim panel (2) for the centre console into retaining clips (3).
- Tighten down screw (1).

Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

5 – Address the controller drive

- Carry out the service function as follows:
  - Body
  - Heating and air conditioning function
  - Flap motors
  - Address flap motors

Additional Information

Overview of Tightening Torques

Controller drive to heating and air-conditioning unit Used in step 3

Screw		Tightening torque	1,2 Nm

Trim to centre console Used in step 4

Oval-head screw		Tightening torque	1,8 Nm

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64 11 868 Removing and installing/replacing actuator drive for defrosting flap

TECHNICAL INFORMATION

After the replacement, the controller drive must be reconfigured.
The address can only be configured with the diagnosis system.

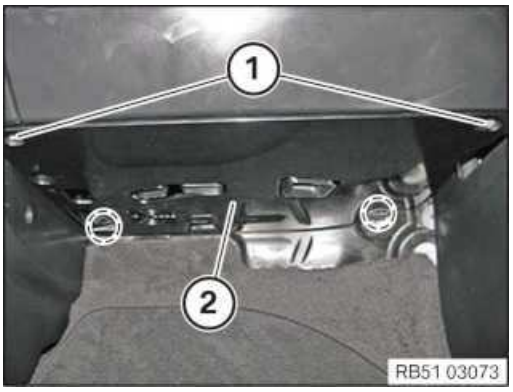
PRELIMINARY WORK

1 – Disconnecting all battery earth leads



- See additional information.

2 – Removing the instrument panel trim at bottom right

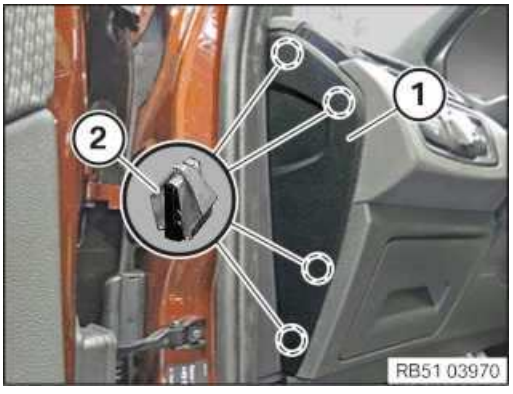


- Loosen nuts (1).
- Lower the instrument panel trim slightly at the bottom right (2) and disconnect the plug connection behind it.
- Guide the instrument panel trim at the bottom right (2) from the front guides and remove it.

3 – Remove the side panel on the right instrument panel

NOTICE

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

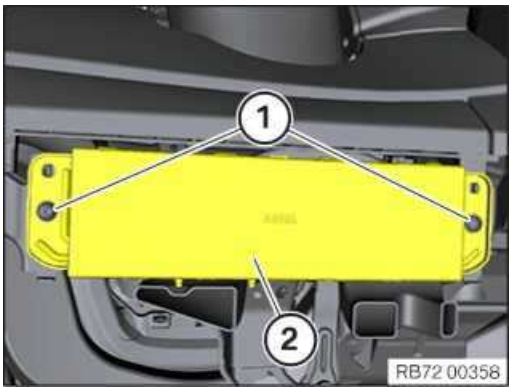


- Lift the side panel (1) out of the clamps (2) with the special tool **0 496 569 (00 9 325)** and feed out toward the rear at an angle.

  If necessary, unlock and disconnect the plug connection on the switch for the front passenger airbag deactivation.

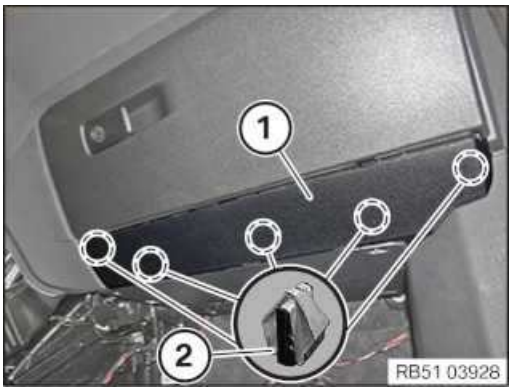
4 – Removing knee airbag

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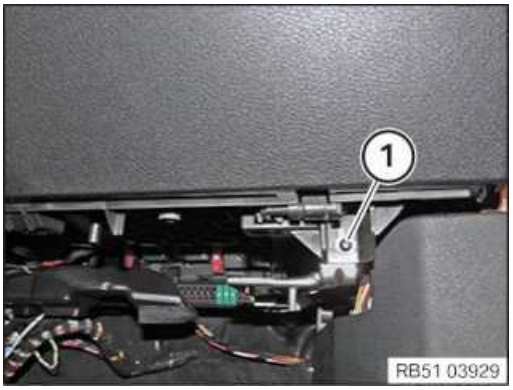


- Unlock plug connection on knee airbag (2) and disconnect.
- Loosen screws (1).
- Remove knee airbag (2).

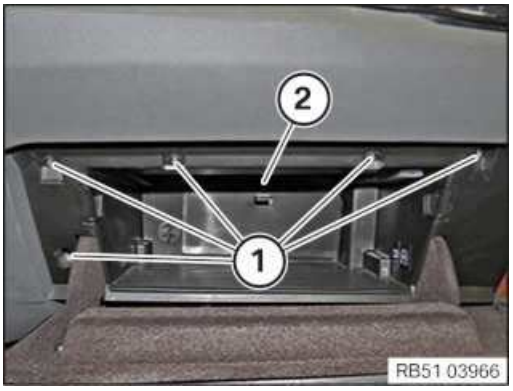
5 – Remove right glove box



- Release the trim (1) with the special tool **0 496 569 (00 9 325)** toward the bottom from the clamps (2) and remove.

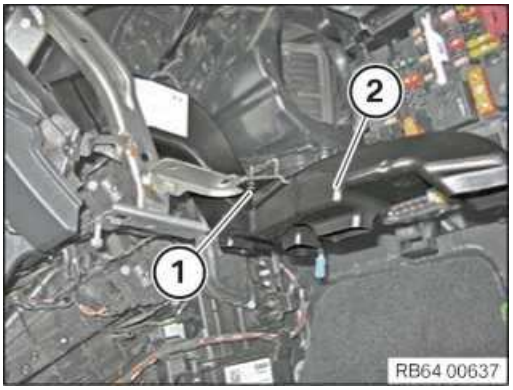


- Loosen screw (1).



- Loosen screws (1).
- Remove glove box (2) to the inside and disconnect associated plug connections.

6 – Remove right footwell ventilation duct

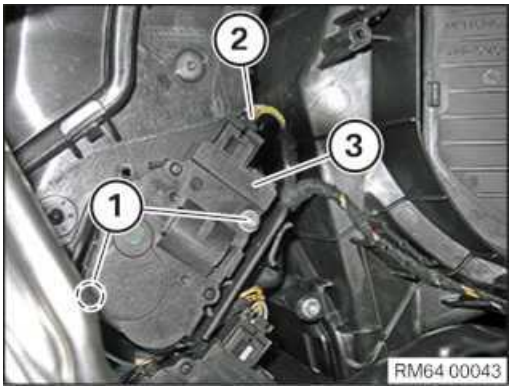


- Loosen screw (1).
- Thread the footwell ventilation duct (2) out and remove.

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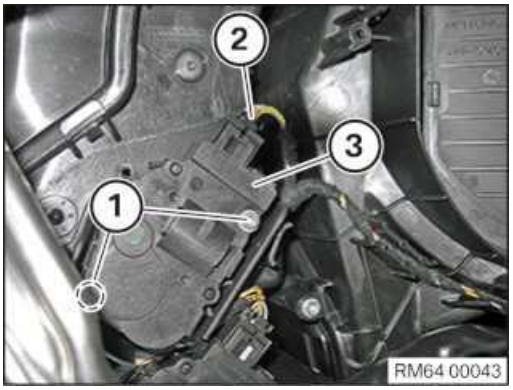
MAIN WORK

7 – Remove defroster flap motor



- Loosen screws (1).
- Unlock plug connection (2) and disconnect.
- Remove defroster flap motor (3).

8 – Install the defroster flap motor



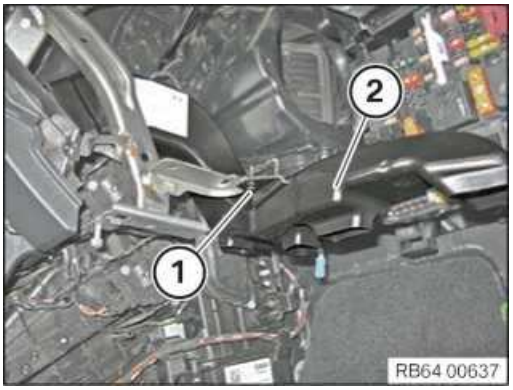
- Correctly position the defroster flap motor (3).
- Connect connectors (2) and lock.
- Tighten the screws (1).

Controller drive to heating and air-conditioning unit

Screw		Tightening torque	1,2 Nm

POSTPROCESSES

9 – Install the right footwell ventilation duct

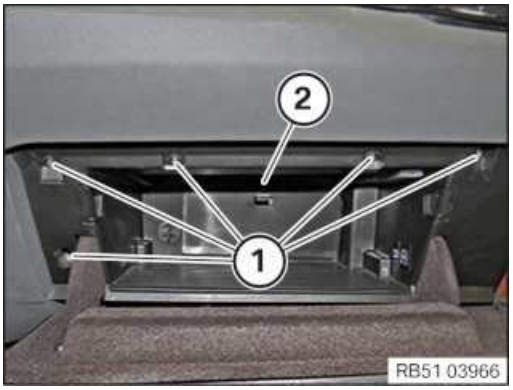


- Feed in the footwell ventilation duct (2).
- Tighten down screw (1).

Footwell ventilation duct

Screw			2,4 Nm

10 – Install right glove box

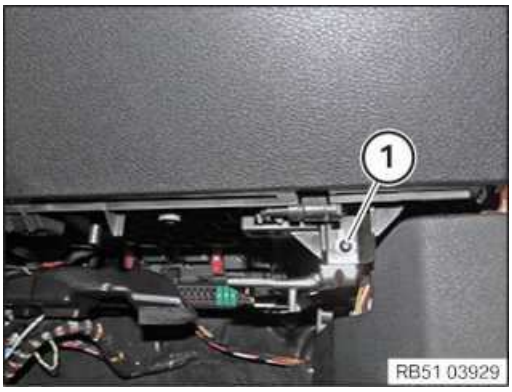


- Install the glove box (2) and connect and lock associated plug connections.
- Tighten the screws (1).

Glove box to instrument panel

Screw		Tightening torque	1,8 Nm

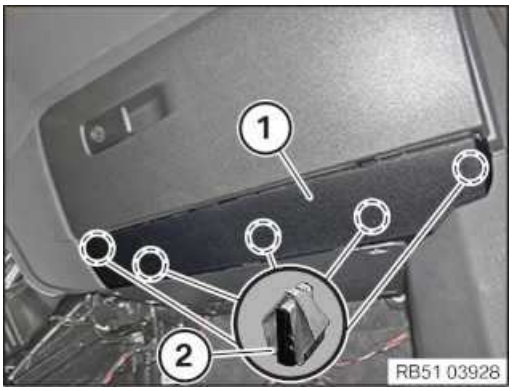
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- Tighten down screw (1).

Glove box to instrument panel

Screw		Tightening torque	1,8 Nm

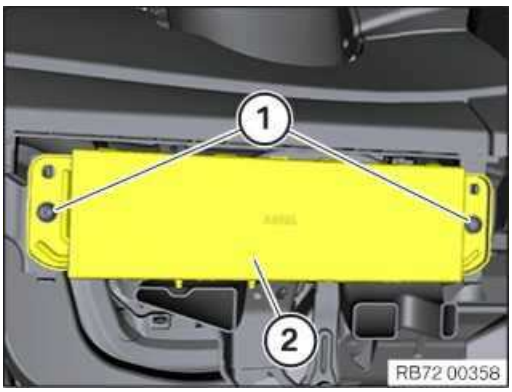


TECHNICAL INFORMATION

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

- Install the trim (1) and lock it at the clamps (2).

11 – Installing knee airbag



- Connect the plug connection to the knee airbag (2) and lock.
- Install knee airbag (2).
- Renew screws (1).

  Parts: Screw
- Tighten the screws (1).

Knee airbag to body

M8	Renew screws.	Tightening torque	8 Nm

12 – Install the side panel on instrument panel on the right

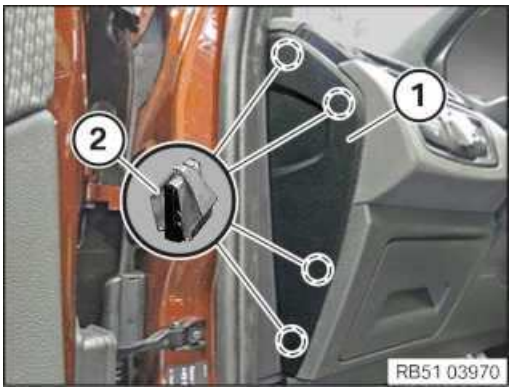
TECHNICAL INFORMATION

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

NOTICE

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

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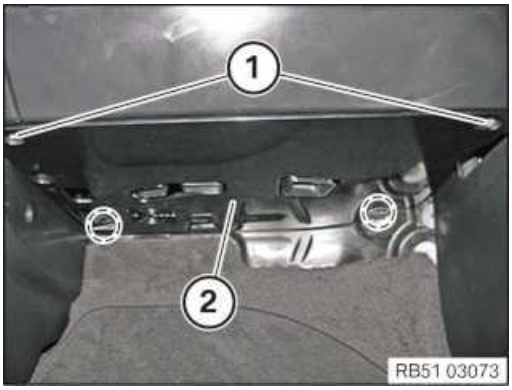


- If necessary, connect the plug connection on the switch for front passenger airbag deactivation and lock.
- Feed in the side panel (1) at an angle toward the front and lock at the clamps (2).

13 – Installing the botto right instrument panel trim

TECHNICAL INFORMATION

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



- Install the lower right instrument panel trim (2) and connect and lock the plug connection.
- Insert the lower right instrument panel trim (2) into the front guides.
- Tighten nuts (1).

Bottom left footwell trim to instrument panel

M5 hexagon nut		Tightening torque	2 Nm

14 – Disconnecting all battery earth leads



- See additional information.

15 – Address the controller drive

- Carry out the service function as follows:
  - Body
  - Heating and air conditioning function
  - Flap motors
  - Address flap motors

Additional Information

Overview of Tightening Torques

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Controller drive to heating and air-conditioning unit

Used in step 8

Screw		Tightening torque	1,2 Nm

Footwell ventilation duct

Used in step 9

Screw			2,4 Nm

Glove box to instrument panel

Used in step 10

Screw		Tightening torque	1,8 Nm

Knee airbag to body

Used in step 11

M8	Renew screws.	Tightening torque	8 Nm

Bottom left footwell trim to instrument panel

Used in step 13

M5 hexagon nut		Tightening torque	2 Nm

Overview of Special Tools

0 496 569 (00 9 325) Wedge



Common

Used in step 3 5

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)

Links

Repair instructions	Used in step
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1 14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1 14
61 20 900 Disconnect and connect battery earth lead (Plug-in Hybrid Electric Vehicle)	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
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61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14

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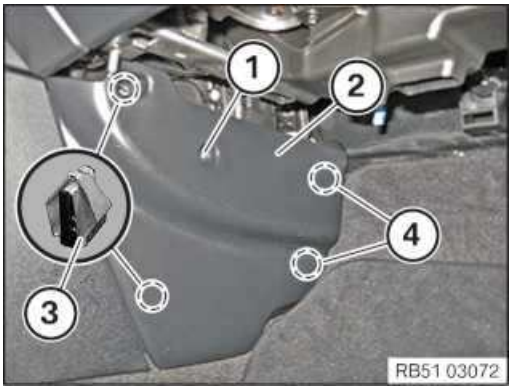
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14

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64 11 872 Removing and installing/replacing controller drive of the blending flap (right) (after vehicle diagnosis)

PRELIMINARY WORK

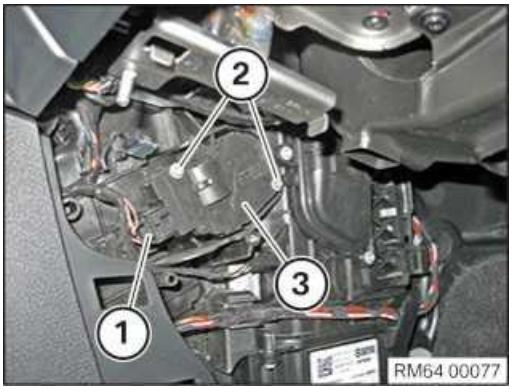
1 – Removing side trim panel for the centre console on the right side



- Loosen screw (1).
- Release the side trim panel for centre console (2) from retaining clips (3).
- Remove the side trim panel for centre console (2) from guides (4) and remove it.

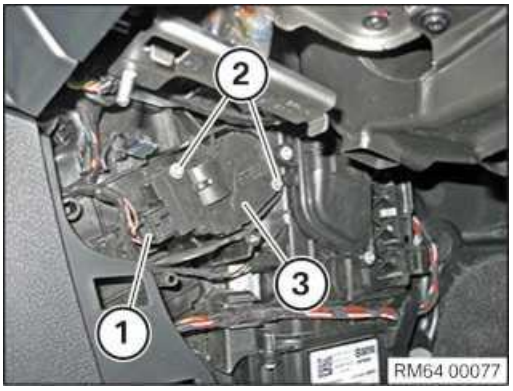
MAIN WORK

2 – Removing right mixed air flap motor



- Loosen screws (2).
- Unlock plug connection (1) and disconnect.
- Remove mixed air flap motor (3) .

3 – Installing the mixed air flap motor on the right



- Correctly position mixed air flap motor (3).
- Connect connectors (1) and lock.
- Tighten the screws (2).

Controller drive to heating and air-conditioning unit

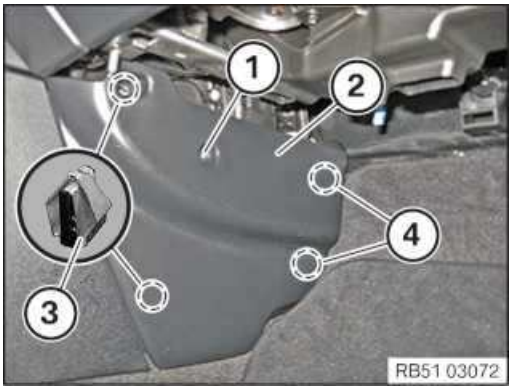
Screw		Tightening torque	1,2 Nm

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4 – Installing side trim panel for the right centre console

TECHNICAL INFORMATION

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



- Install the side trim panel for the centre console (2) and feed it into the guides (4).
- Engage the side trim panel for the centre console (2) into retaining clips (3).
- Tighten down screw (1).

Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

5 – Address the controller drive

- Carry out the service function as follows:
  - Body
  - Heating and air conditioning function
  - Flap motors
  - Address flap motors

Additional Information

Overview of Tightening Torques

Controller drive to heating and air-conditioning unit Used in step 3

Screw		Tightening torque	1,2 Nm

Trim to centre console Used in step 4

Oval-head screw		Tightening torque	1,8 Nm

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64 11 908 Removing and installing/replacing footwell temperature sensor (after vehicle diagnosis)

RISK OF DAMAGE

Scratches.

Tools and sharp-edged components can cause scratches.

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

PRELIMINARY WORK

1 – Disconnecting all battery earth leads



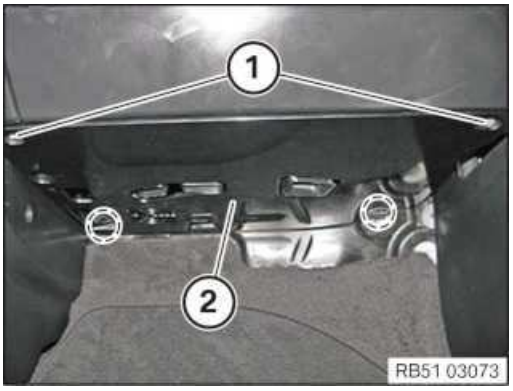
- See additional information.

2 – Adjust the steering column position



- Adjust the length of the steering column to the maximum length in the direction of arrow (1).
- Move the steering column to the lowest steering column position in the direction of arrow (2).

3 – Removing the instrument panel trim at bottom right

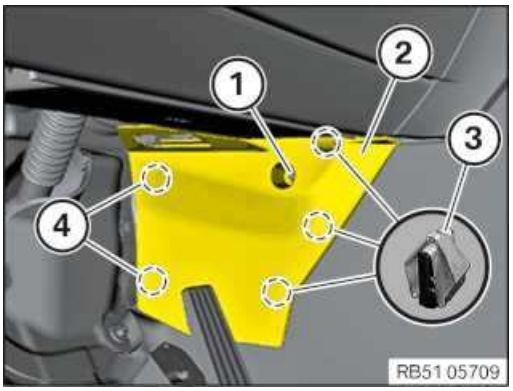


- Loosen nuts (1).
- Lower the instrument panel trim slightly at the bottom right (2) and disconnect the plug connection behind it.
- Guide the instrument panel trim at the bottom right (2) from the front guides and remove it.

4 – Removing the side trim panel for the left and right centre console

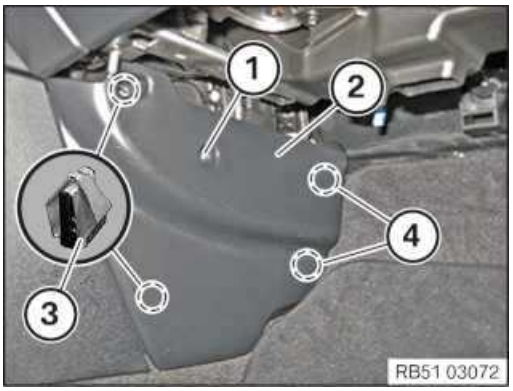
▸ **Removing side trim panel for the left centre console**

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- Loosen screw (1).
- Release side trim panel (2) for the centre console from retaining clips (3).
- Remove side trim panel (2) for the centre console from guides (4) and remove it.

▶ **Removing side trim panel for the centre console on the right side**



- Loosen screw (1).
- Release the side trim panel for centre console (2) from retaining clips (3).
- Remove the side trim panel for centre console (2) from guides (4) and remove it.

5 – Remove gearshift lever cover



- Use wedges (1) to unclip the gaiter and pull it off upward.



- Remove the gearshift lever knob and the gaiter by means of a powerful jolt vertically upwards.

  In doing so, the tie rod must not be bent or damaged.
- Ensure that the gearshift lever knob is not twisted when removing, otherwise the anti-twist lock in the gearshift lever knob will be sheared off.

6 – Remove the decorative trim from the centre console

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RISK OF DAMAGE

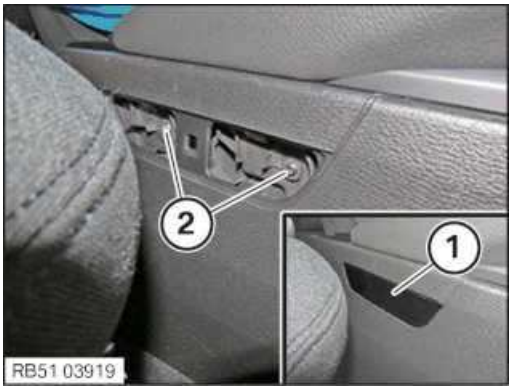
Scratches.

Tools and sharp-edged components can cause scratches.

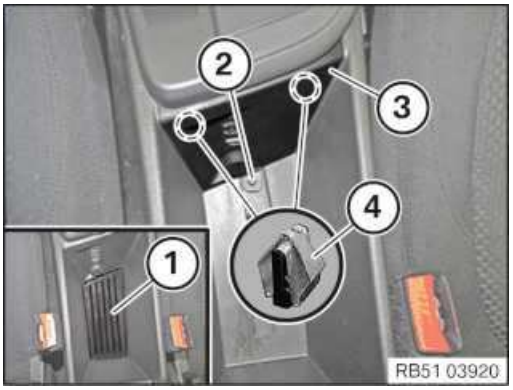
- Protect working area.
- Handle tools and components carefully.



- Lever out and remove cover (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screws (2).



- Lever out and remove cover (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screws (2).



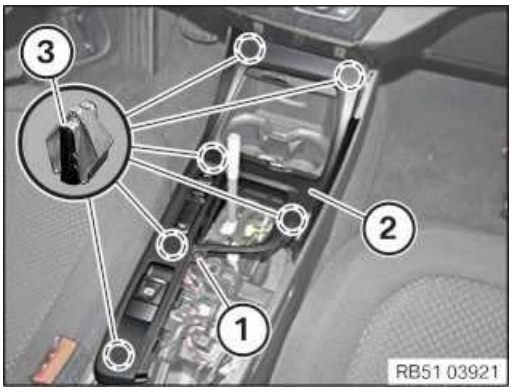
- Remove insert (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screw (2).
- Lever out trim (3) from clamps (4) towards the rear with the special tool **0 496 571 (00 9 327)**.
- Unfasten plug connection.
- Remove the trim (3).



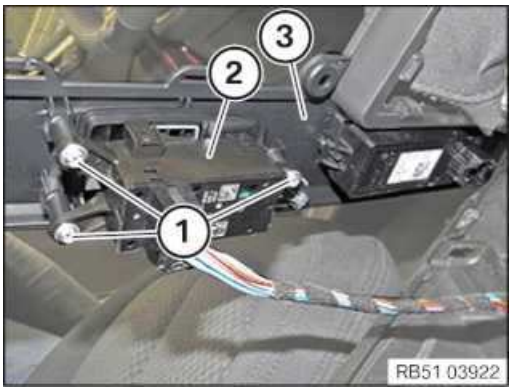
- Loosen screw (1).
- Remove decorative trim (2) and disconnect all the plug connections.
- Remove decorative trim (2).

7 – Remove the centre console trim

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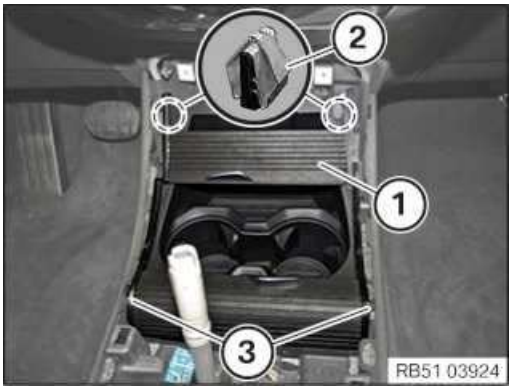
- Loosen screw (1).
- Release centre console trim (2) from clamps (3) with the special tool **0 496 569 (00 9 325)**.
- Lift centre console trim (2).



- Loosen screws (1).
- Remove parking brake button (2) from centre console trim (3) and place it down.

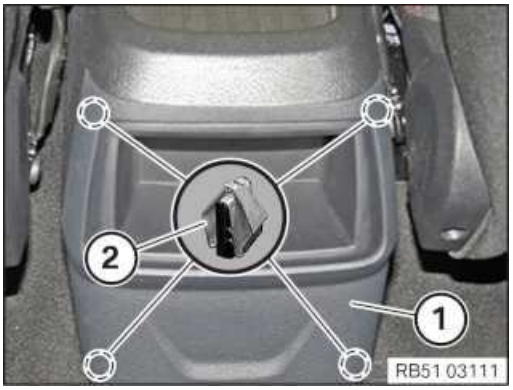
  The plug connection must not be disconnected.
- Disconnect the remaining plug connections and remove centre console trim (3).

8 – Removing the front storage compartment



- Lever storage compartment (1) at top from the clamps (2).
- Fold storage compartment (1) so far back that it can be lifted from the guides (3).
- Disconnect plug connections and remove the storage compartment (1).

9 – Removing the rear centre console trim



- Lever out and remove centre console trim (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2).

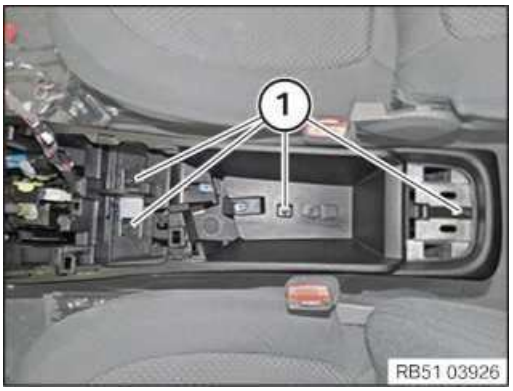
10 – Removing centre console fully with centre armrest

▸ **Removing the centre armrest**

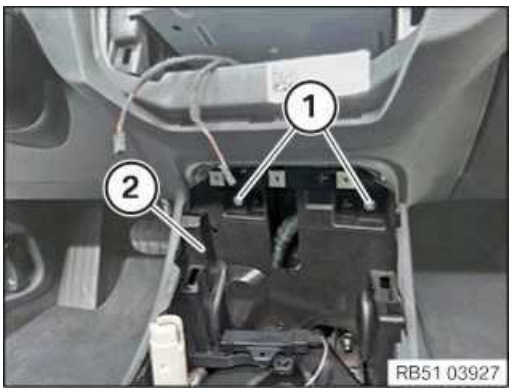
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- Release nuts (1) and remove centre armrest upwards.



- Loosen screws (1).



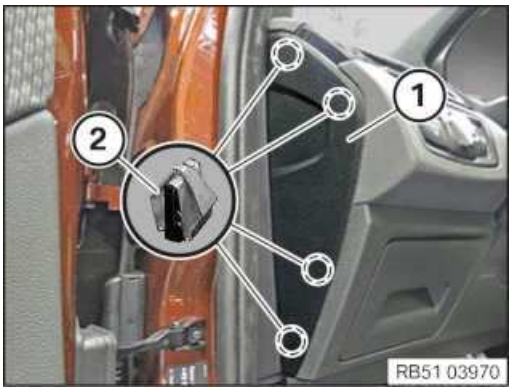
- Loosen screws (1).
- Lift the rear centre console (2) and in this process, disconnect all plug connections.
- Guide out the wiring harness and remove centre console (2) from the vehicle.

11 – Remove the side panel on the left and right of the instrument panel

NOTICE

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

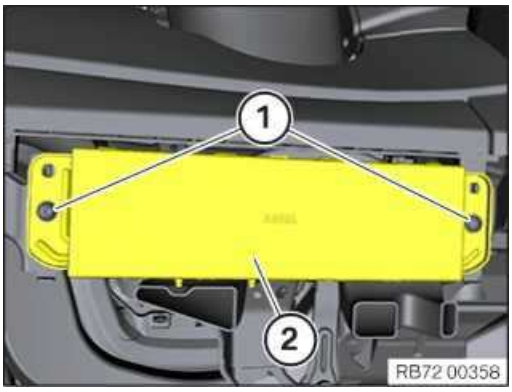
▸ **Remove side panel on the instrument panel**



- Lift out the side panel (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2) and slide it out to the rear at an angle.

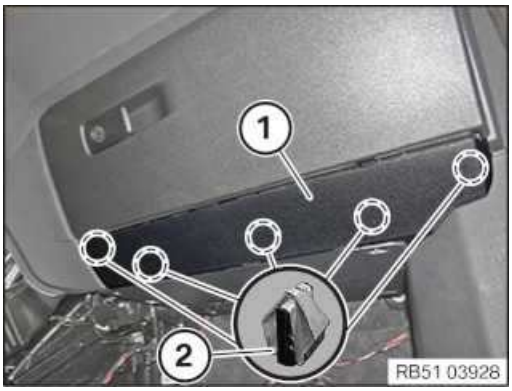
12 – Removing knee airbag

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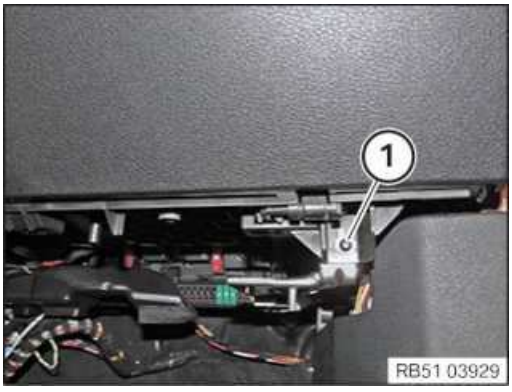


- Unlock plug connection on knee airbag (2) and disconnect.
- Loosen screws (1).
- Remove knee airbag (2).

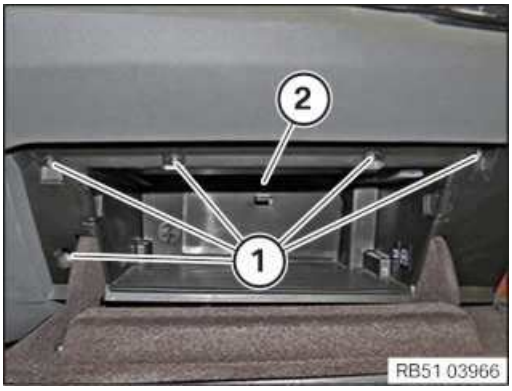
13 – Remove right glove box



- Release the trim (1) with the special tool **0 496 569 (00 9 325)** toward the bottom from the clamps (2) and remove.



- Loosen screw (1).



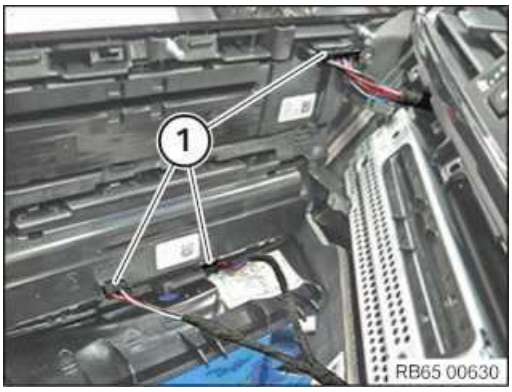
- Loosen screws (1).
- Remove glove box (2) to the inside and disconnect associated plug connections.

14 – Removing the audio operating unit and the air conditioning control panel



- Unclip the trim (1) using special tool **2 298 505**.

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- Unlock plug connection (1) and disconnect.
- Remove the audio operating unit and the air conditioning control panel.

15 – Remove Head Unit High (HU-H)

RISK OF DAMAGE

Electrostatic discharge.

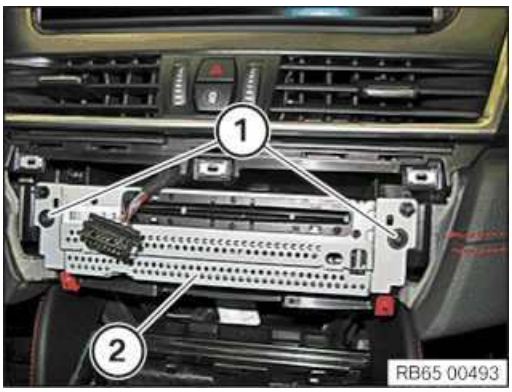
Damage to or destruction of electrical components.

- 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 Information on electrostatic discharge (ESD) protection.



- Remove the wiring harness (1).

  In the factory, the wiring harness (1)is routed such that not enough excess length exists to remove the head unit.



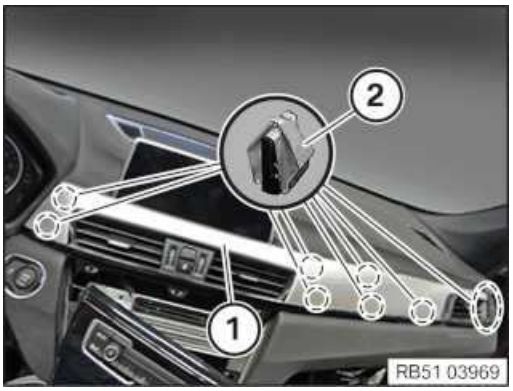
- Loosen screws (1).
- Pull out the head unit (2) a bit.

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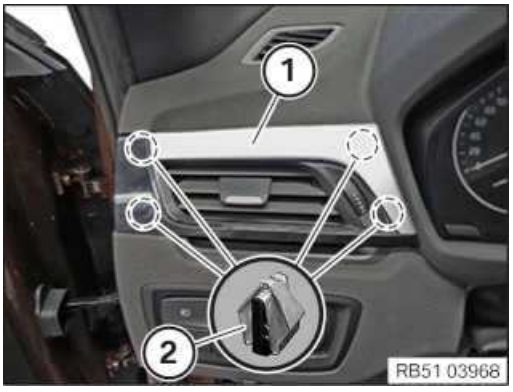
- Unlock and disconnect all connectors in the marked area.
- Remove head unit (1).

16 – Remove the finisher on the right instrument panel



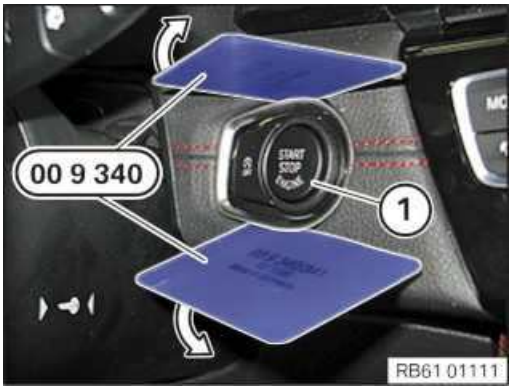
- Carefully release the decorative strip (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2) starting from the side.
- Lift up the decorative strip (1) and disconnect the plug connections behind it.
- Remove the decorative strip (1).

17 – Remove decorative strip from instrument panel



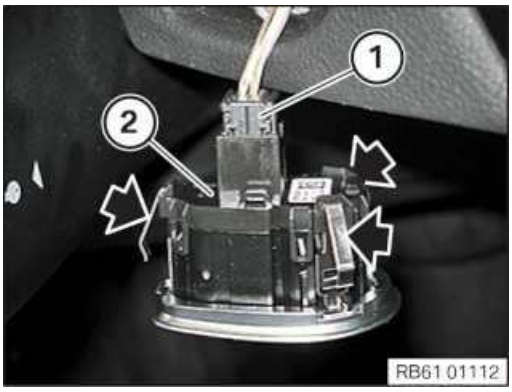
- Release the decorative strip (1) using the special tool **0 496 569 (00 9 325)** from the clamps (2) and remove.

18 – Removing the START-STOP button



- Remove START-STOP button (1) using the special tool **0 493 687 (00 9 340)** .

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- Disconnect the connector (1) and remove the START-STOP button (2).

19 – Removing the light operating unit



- Unclip the light operating unit (1) in the marked area.
- Unlock and disconnect associated connector.

20 – Removing the left and right A-pillar trim panels

NOTICE

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

▸ **Remove the A-pillar trim panel**

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

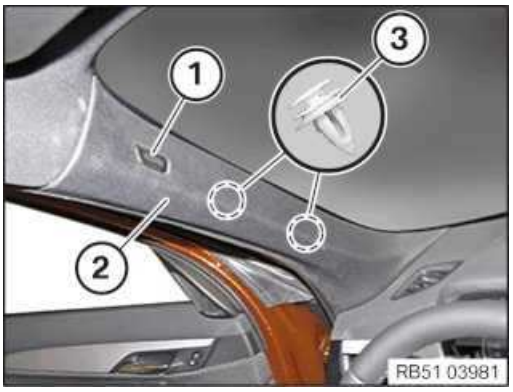
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

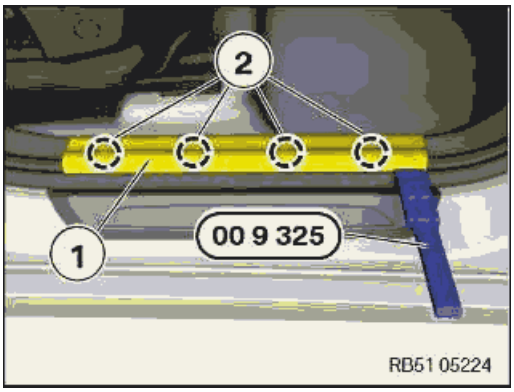
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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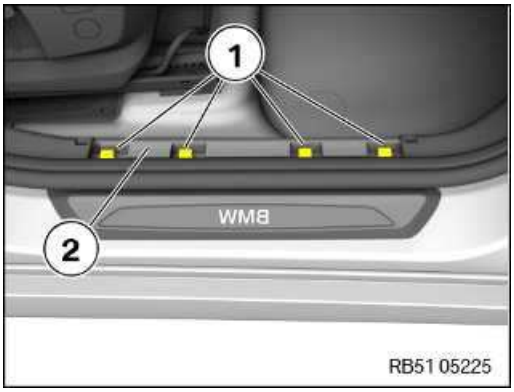


- Unclip cover (1) and unscrew the screw below it.
- Release the A-pillar trim panel (2) from the clips (3) and guide out upwards.

21 – Remove front entrance cover strip

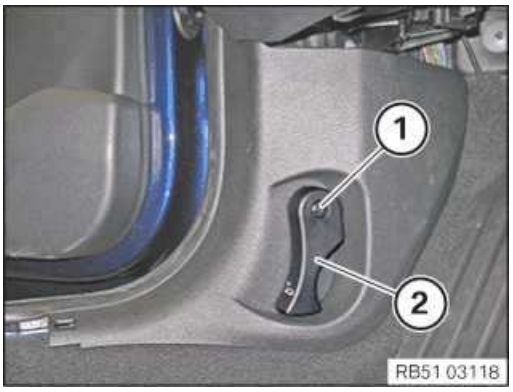


- Unclip the door sill cover strip (1) at the clips **0 496 569 (00 9 325)** using special tool (2) starting from the rear.

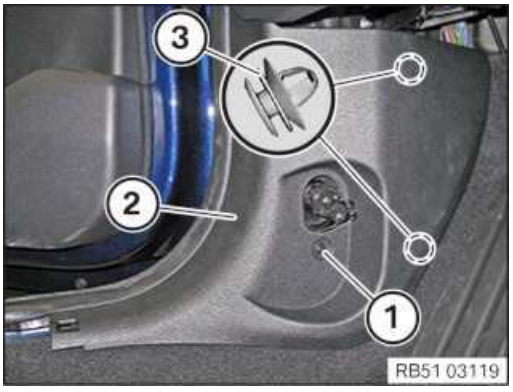


- If applicable, loosen clips (1) from floor panel (2) and mount on the door sill cover strip.

22 – Removing the side trim panel in the footwell at the A-pillar



- Loosen screw (1).
- Remove bonnet release lever (2).



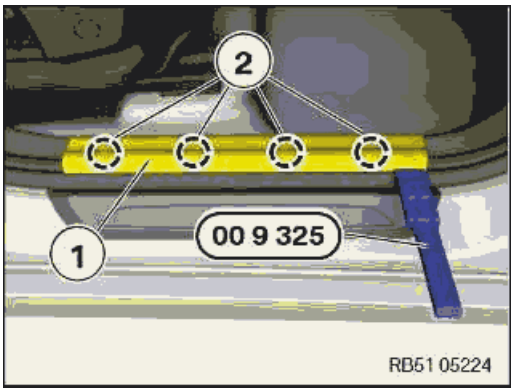
- Loosen screw (1).
- Unclip side trim panel (2) from the clips (3) and remove.

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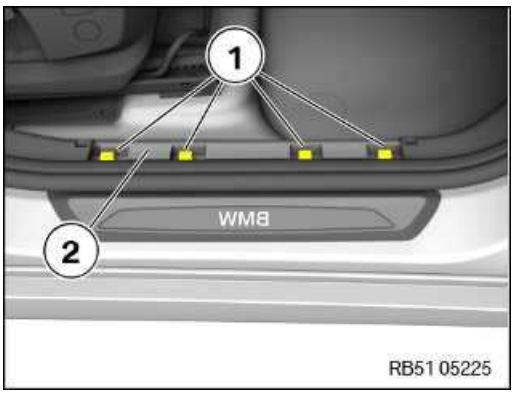
23 – Remove front right door sill cover strip

NOTICE

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

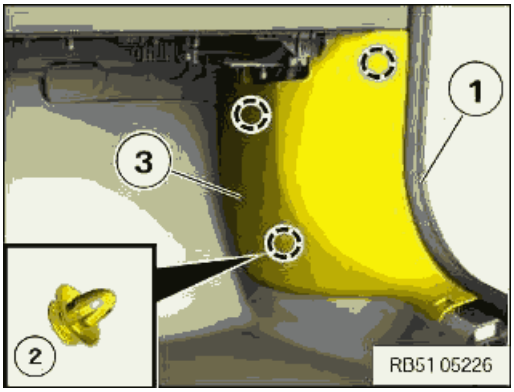


- Unclip the door sill cover strip (1) at the clips **0 496 569 (00 9 325)** using special tool (2) starting from the rear.



- If applicable, release clips (1) from floor panel (2) and mount on the door sill cover strip.

24 – Removing the side trim panel in the footwell at the right-hand A-pillar



- Guide side trim panel (3) under the sealing lip out of the edge protection (1).
- Unclip and remove the side trim panel (3) at the clips (2).

25 – Removing airbag unit of the steering wheel/sports steering wheel

WARNING

Airbag unit.

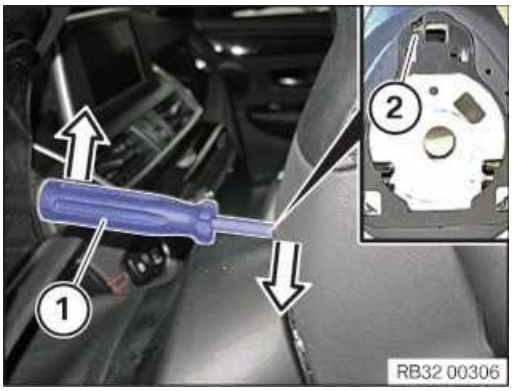
Danger! Life-threatening injuries!

- 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

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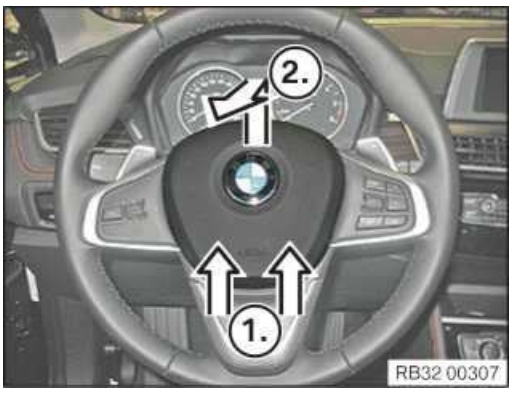


- Turn the steering wheel (1) through 180° from the "straight-ahead driving position".

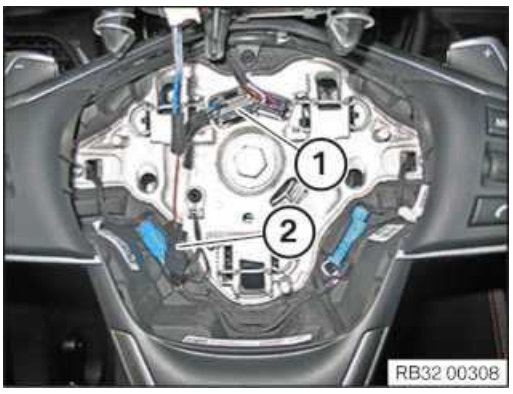


- Insert the slotted screwdriver (1) into the elongated hole on the rear side on the steering wheel.
- Push the slotted screwdriver (1) up and thereby push the retaining spring down (2).

  The airbag unit is unlocked.



- (1) Push unlocked airbag unit up.
- (2) At the same time, pull off the top airbag unit in the opposite direction of travel.



- Unlock and disconnect the plug connections (1) and (2).
- Remove airbag unit.

26 – Removing steering wheel/sports steering wheel



- Move the steering wheel/sports steering wheels to the straight-ahead position.
- **Unlock plug connection and disconnect.**
- Release the screw (1) and remove the steering wheel/sports steering wheel.

27 – Removing steering column shroud upper section

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NOTICE

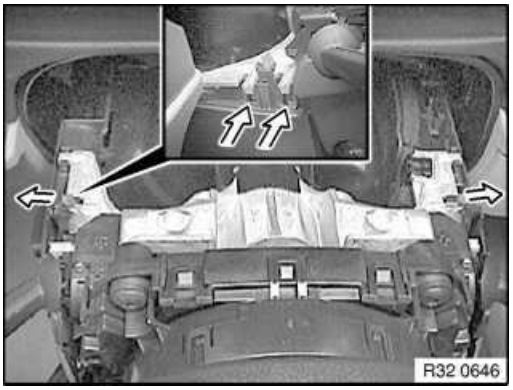
Perform the operations on the left and right side.

- Unclip the steering column shroud upper section (1) with the special tool **2 298 504** in area (2).
- Fold the steering column shroud upper section (1) up.

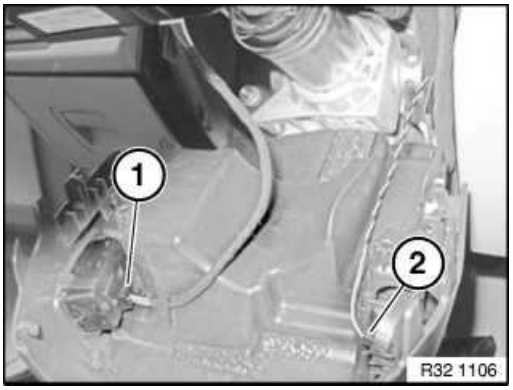


- Release the gap cover of the steering column (1) from the brackets (arrows) of the steering column shroud upper section.
- Remove steering column shroud upper section.

28 – Removing steering column shroud lower section

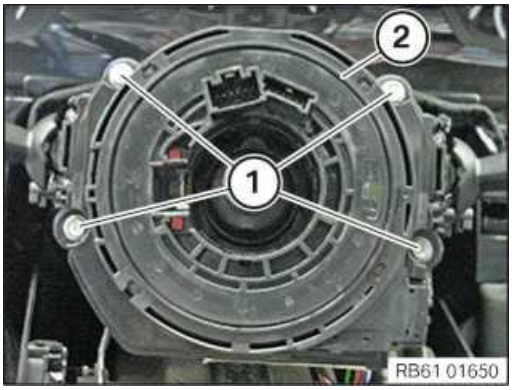


- Press the retaining lugs (arrows) a little outwards and unclip the steering column shroud lower section in a downward direction.



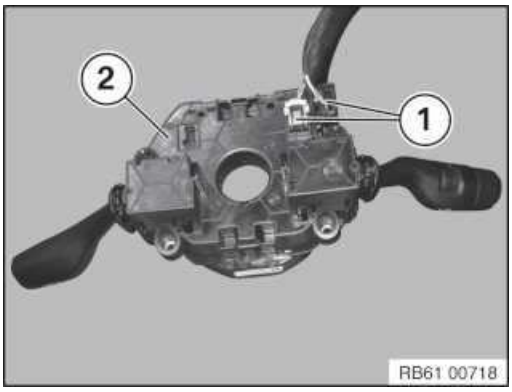
- Tilt steering column shroud lower section in downward direction.
- Unlock and disconnect the plug connections (1) and (2).
- Remove steering column shroud lower section.

29 – Removing the steering column switch cluster (SZL)



- Loosen screws (1).
- Remove the steering column switch cluster (SZL) (2).

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- Unlock and disconnect the connector (1) on the steering column switch cluster (SZL) (2).

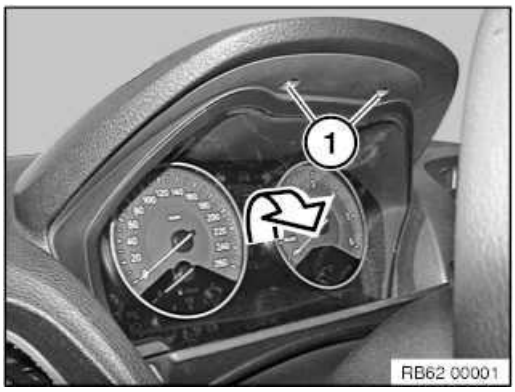
30 – Removing the instrument cluster (KOMBI)

RISK OF DAMAGE

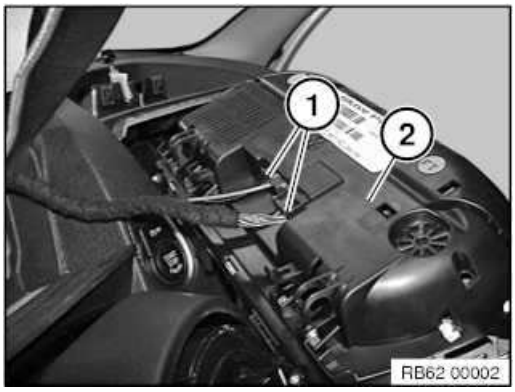
Scratches.

Tools and sharp-edged components can cause scratches.

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

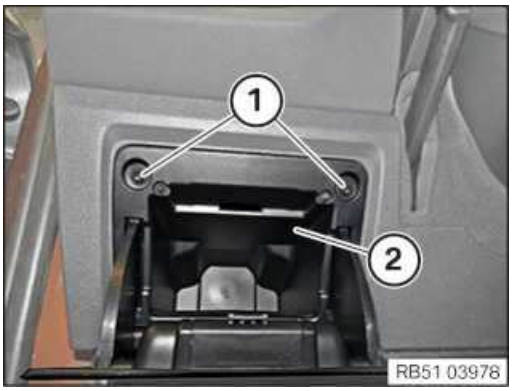


- Loosen both screws (1).
- Thread out instrument cluster (KOMBI) in direction of arrow.



- Disconnect all plug connections (1).
- Removing the instrument cluster (KOMBI) (2).

31 – Removing the left fold-down compartment

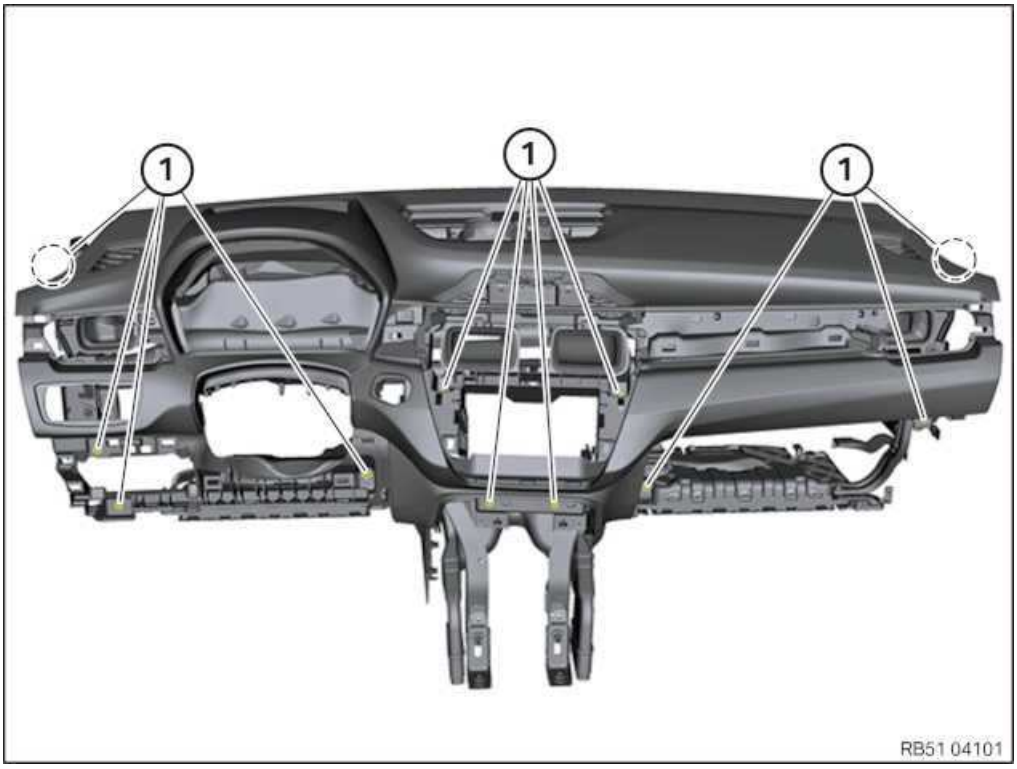


- Loosen screws (1).
- Guide out and remove the fold-down compartment (2) downward from the instrument panel.

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32 – Remove instrument panel trim

Instrument panel



TECHNICAL INFORMATION

Notes on unlocking/locking airbag plug connections form the basis for these repair instructions and must be observed without fail.

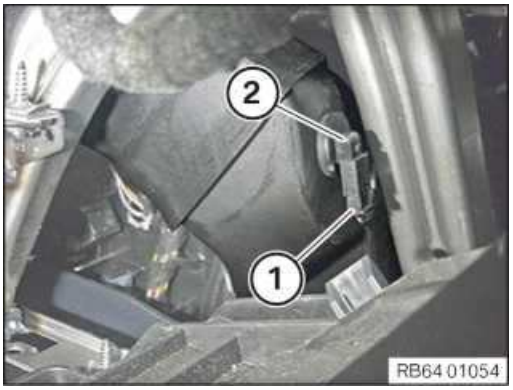
For additional information see: 72 00 ... Notes on unlocking/locking airbag plug connections

- Loosen screws (1).
- Unlock and disconnect the plug connection of the front passenger airbag.
- Guide out the instrument panel trim with the help of an auxiliary person and unlock and disconnect all the plug connections.
- Release the wiring harness from the instrument panel trim.
- Guide out the instrument panel trim through the door aperture from the vehicle.

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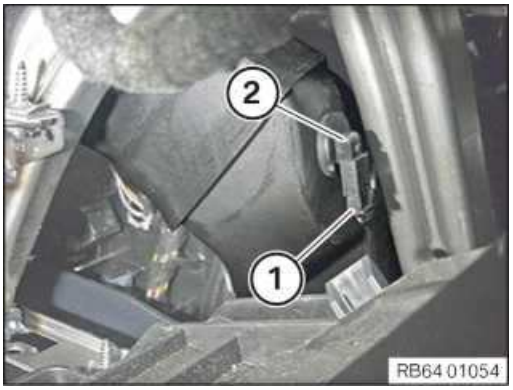
MAIN WORK

33 – Removing footwell temperature sensor



- Disconnect plug connection (1).
- Turn the footwell temperature sensor (2) clockwise and pull it out of the footwell ventilation duct.

34 – Installing footwell temperature sensor

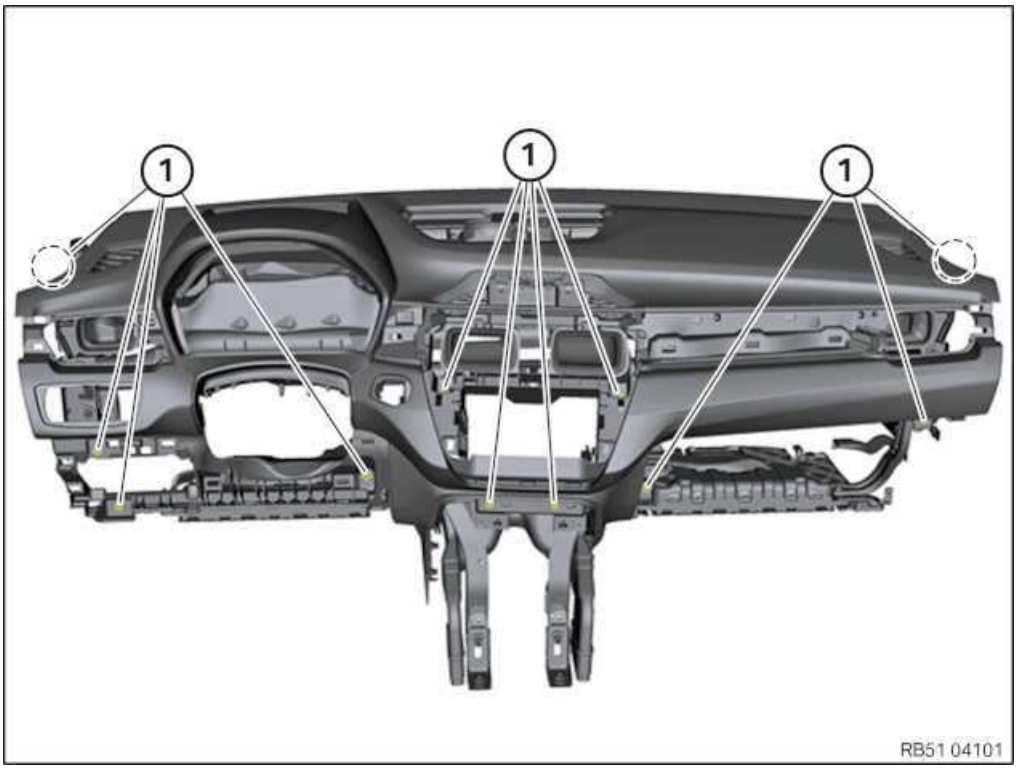


- Position the footwell temperature sensor (2) correctly in the footwell ventilation duct.
- Turn the footwell temperature sensor (2) counter-clockwise to the limit position.
- Connect connector (1).

POSTPROCESSES

35 – Install instrument panel trim

Instrument panel



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TECHNICAL INFORMATION

Notes on unlocking/locking airbag plug connections form the basis for these repair instructions and must be observed without fail.

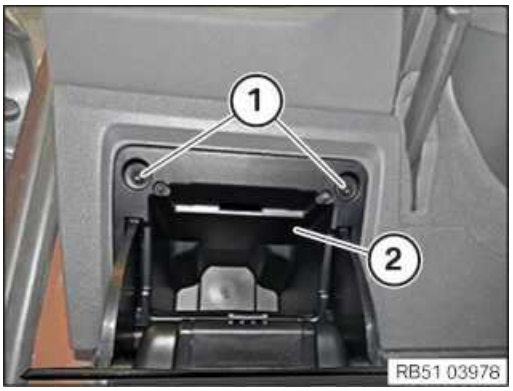
For additional information see: 72 00 ... Notes on unlocking/locking airbag plug connections

- Guide the instrument panel trim through the door aperture with the help of an auxiliary person.
- Install the instrument panel trim, and while doing so secure the wiring harness and connect and lock all the connectors.
- Connect and lock the plug connection of the front passenger airbag.
- Make sure guides on instrument panel are correctly seated in respective mountings of bulkhead.
- Make sure seals for the air ducts are correctly seated.
- Make sure wiring harness is correctly laid.
- Tighten the screws (1).

Instrument panel trim to carrier support

Screw		Tightening torque	2,4 Nm

36 – Installing the left fold-down compartment



- Guide in the fold-down compartment (2) on the instrument panel.
- Tighten the screws (1).

Fold-down compartment to instrument panel

Screw		Tightening torque	1,8 Nm

37 – Installing the instrument cluster (KOMBI)

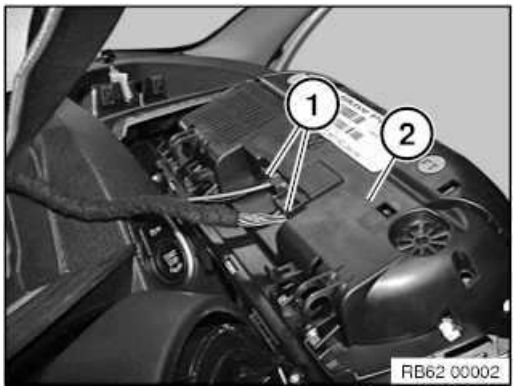
RISK OF DAMAGE

Scratches.

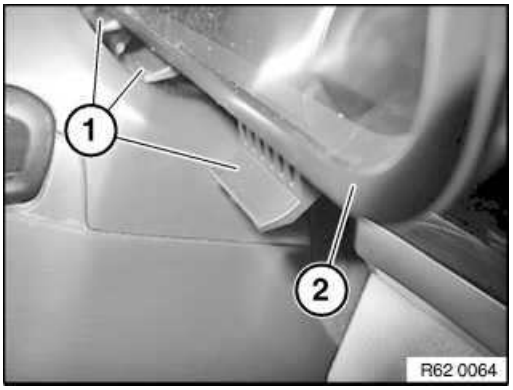
Tools and sharp-edged components can cause scratches.

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

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- Connect and lock all connectors (1) to the instrument cluster (KOMBI).



- Make sure that the retaining tabs (1) of the instrument cluster (KOMBI) (2) are seated exactly in mountings of the instrument panel.

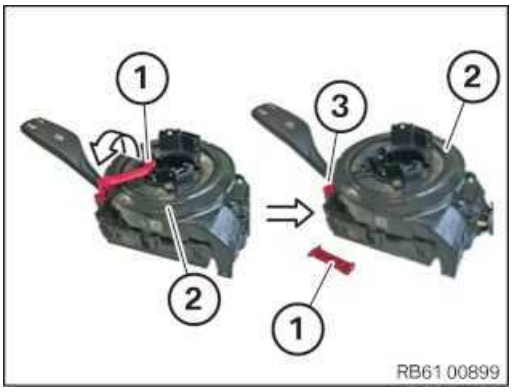


- Position the instrument cluster (KOMBI) position in the opposite direction of the arrow.
- Tighten the screws (1).

Instrument cluster to instrument panel

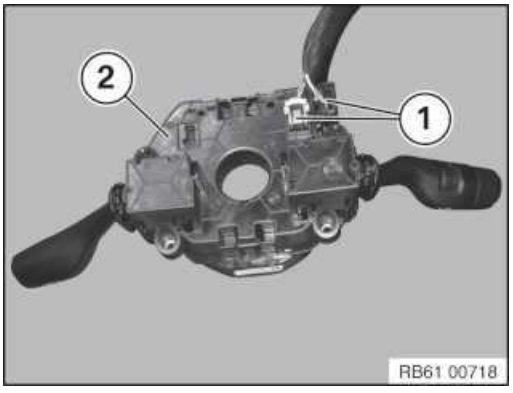
Screw		1,7 Nm

38 – Installing the steering column switch cluster (SZL)



- **Replacement:** Break off the transportation retainer (1) on the steering column switch cluster (SZL) (2) in direction of arrow.

  The broken-off piece of (3) the transportation retainer (1) remains in the steering column switch cluster (SZL) (2).



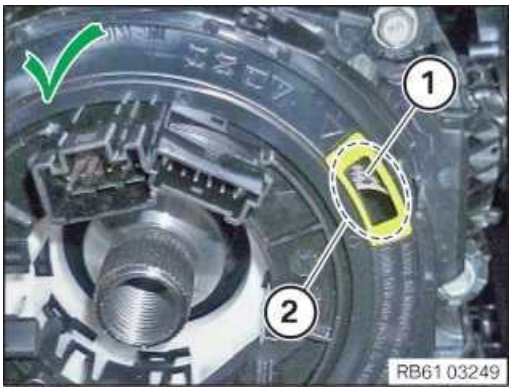
- Connect the connector (1) with the steering column switch cluster (SZL) (2).

▸ **Check the neutral position of the clock spring**

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TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.



Check

- **Version A:**

  Check the mark (1) on the coil spring in the inspection glass (2).

Result

» The mark (1) on the coil spring is not visible.

Measure

- Turn the coil spring cassette until the mark (1) on the coil spring becomes visible in the inspection glass (2).



Check

- **Version B:**

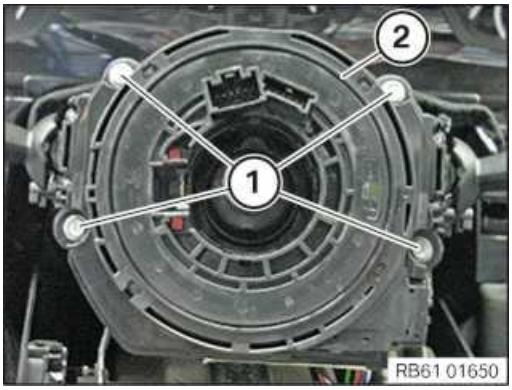
  Check the mark (1) on the coil spring in the inspection glass (2).

Result

» The mark (1) on the coil spring is not visible.

Measure

- Turn the coil spring cassette until the mark (1) on the coil spring becomes visible in the inspection glass (2).



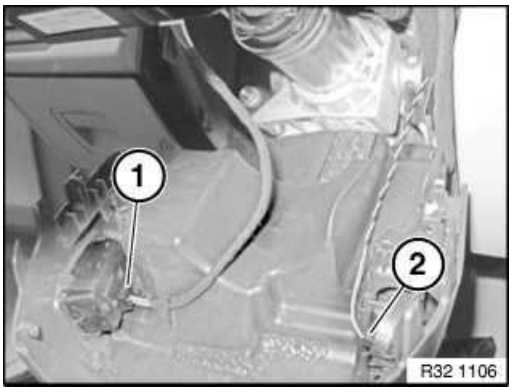
- Position the steering column switch cluster (SZL) (2).
- Tighten the screws (1).

Steering column switch cluster (SZL) on the steering column

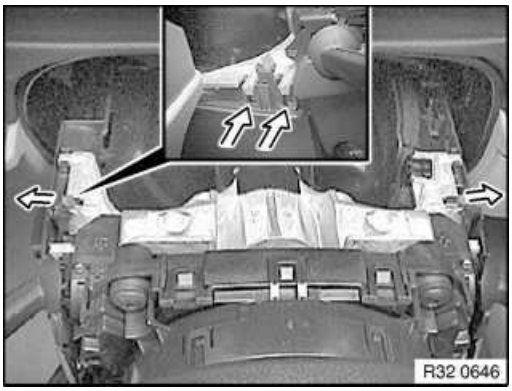
Screw TS5x20		Tightening torque	3 Nm

39 – Install steering column shroud lower section

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- Position the steering column shroud lower section .
- Connect available connectors (1) and (2) and lock.

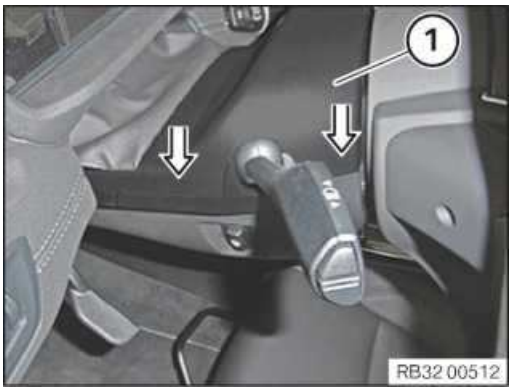


- Position the steering column shroud lower section with the retaining lugs (arrows).
- Press steering column shroud lower section completely towards the top until the retaining lugs (arrows) engage.

40 – Fit steering column shroud upper section



- Position the steering column shroud upper section.
- Attach gap cover of the steering column (1) on the brackets (arrows).



- Position the steering column shroud upper section (1).

NOTICE

Perform the operations on the left and right side.

- Press the upper section of the steering column shroud (1) downwards in direction of arrow.

  The upper section of the steering column shroud must engage audibly and perceptibly.

41 – Installing the steering wheel/sports steering wheel

▸ **Check the neutral position of the clock spring**

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- Ensure that the coil spring is not twisted.

  There are clock springs installed without a mechanical anti-twist lock.

  Coil springs without a mechanical anti-twist lock are identifiable on the inspection glass for the neutral position mark.
- Check the neutral position of the clock spring on the steering column switch cluster (SZL).

  The neutral position is correct if the yellow or green mark (1) is clearly visible.

Check



- Check the mark (1) in the inspection glass.

Result

» The mark (1) is not visible.

Measure

- Turn the coil spring until mark (1) is visible in the inspection glass.

Check



- A micro-encapsulated screw (1) may be fitted.
- Checked threaded connection

Result

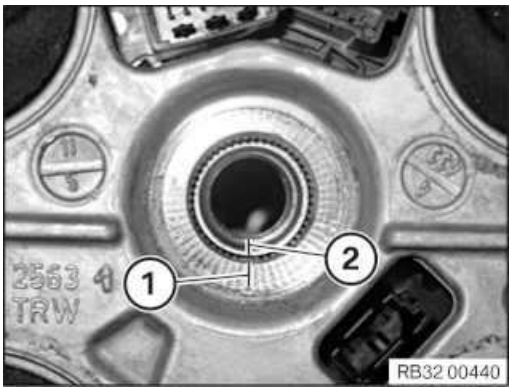
» Screw (1) is micro-encapsulated.

Measure

- Clean thread in the steering column.

  Renew the screw (1).

  Parts: Screw



- Align and connect the steering wheel/sports steering wheel according to the mark (1) with the steering column mark (2).

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- Tighten down screw (1).

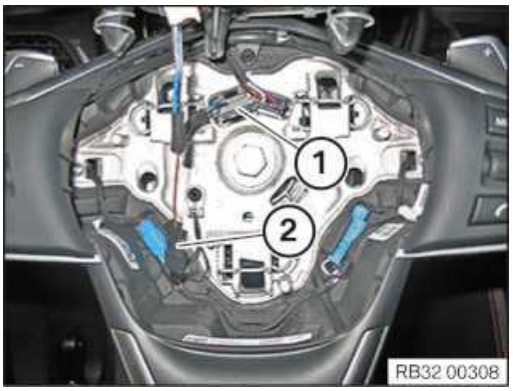
Steering wheel to steering column

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

- **Connect connectors and lock.**

  Make sure connecting lines are correctly routed.

42 – Installing airbag unit of steering wheel/sports steering wheel



- Connect and lock connectors (1) and (2) of the airbag unit.



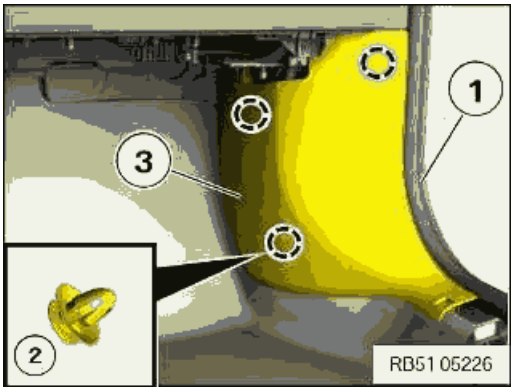
- Before installing the airbag unit, align the wiring harness (1) to the centre so that the latch mechanisms (arrows) are exposed!



- Position airbag unit (1).
- Press the airbag unit (1) with even pressure in each case in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

43 – Installing side trim panel in footwell on right A-pillar



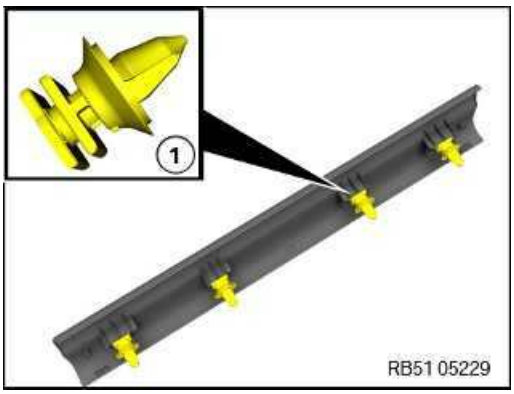
- Check clips (2) for damage, and replace if necessary.
- Feed the side trim panel (3) under the sealing lip of the edge protection (1).
- Clip in the side trim panel (3) with the clips (2).

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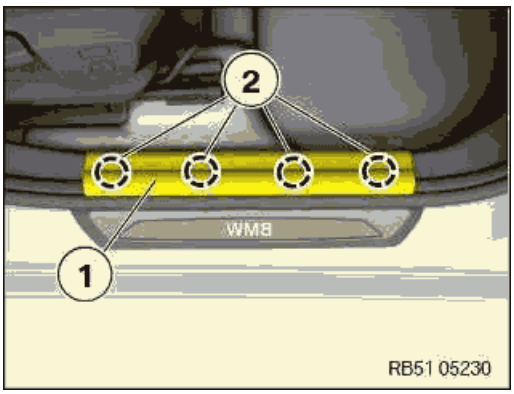
44 – Install the front right door sill cover strip

NOTICE

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

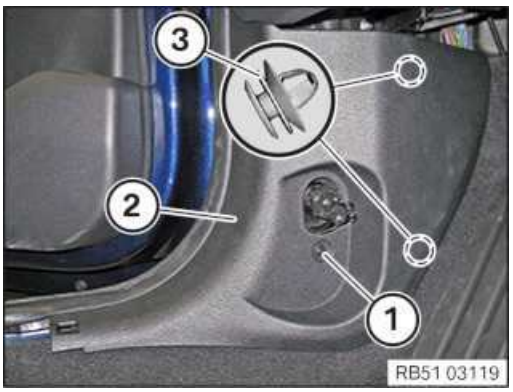


- Check the clips (1) for damage and renew where required.



- Clip the door sill cover strip (1) into the floor panel with the clips (2).

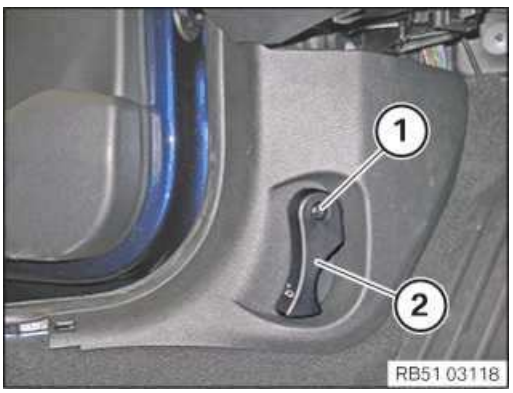
45 – Installing side trim panel in the footwell at A-pillar



- Position the side trim panel (2) and clip it to the clips (3).
- Make sure the edge protection on the side trim panel (2) fits correctly.
- Tighten down screw (1).

Side trim panel bottom left to holder

Screw		Tightening torque	3 Nm



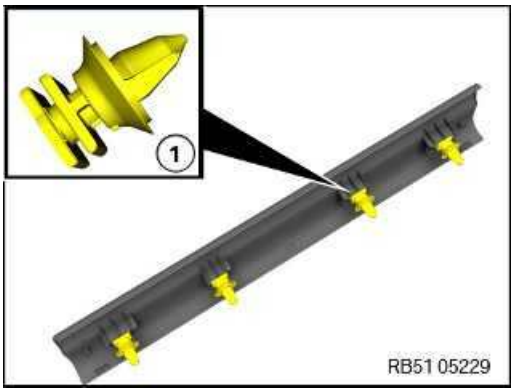
- Install lever for the bonnet release (2)l.
- Tighten down screw (1).

Lever for bonnet release to the holder

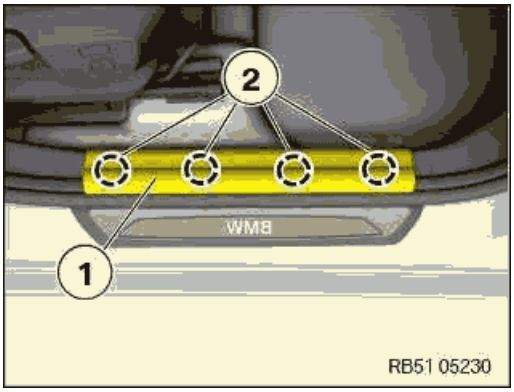
Screw		Tightening torque	3 Nm

46 – Install the front door sill cover strip

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- Check the clips (1) for damage and renew where required.



- Clip the door sill cover strip (1) into the floor panel with the clips (2).

47 – Installing the left and right A-pillar trim panels

NOTICE

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

▸ **Install the A-pillar trim panel**

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

WARNING

Pyrotechnic components.

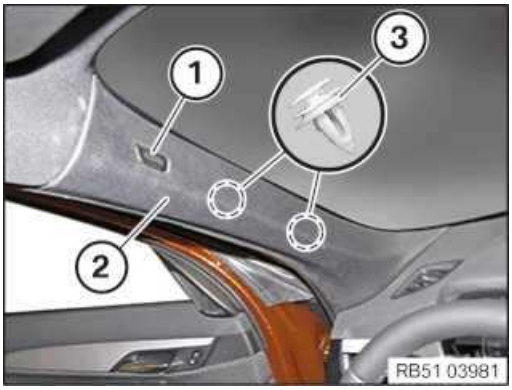
Danger! Life-threatening injuries!

- 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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TECHNICAL INFORMATION

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



- Thread in the A-pillar trim panel (2) and clip it in at the clips (3).
- Renew screw.

  Parts: Screw
- Tighten down screw.

A-pillar trim panel to body

M5x42 screw	Renew screw	Tightening torque	2,2 Nm

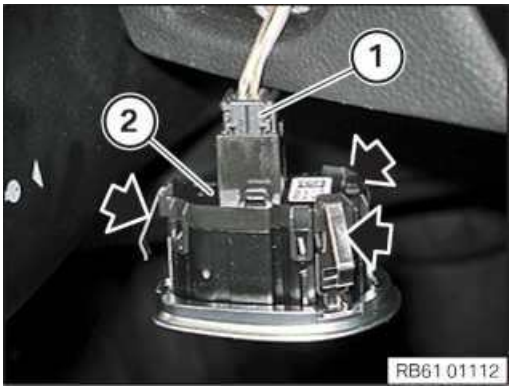
- Clip in the cover (1).

48 – Installing the light operating unit



- Connect associated connector.
- Position light operating unit (1) correctly and clip in where marked.

49 – Installing the START-STOP button



- Connect connector (1) with START-STOP button (2).

  The retaining clips (arrows) must not be damaged or missing.



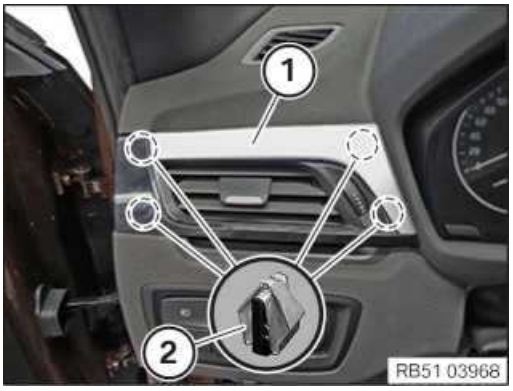
- Install START-STOP button (1) in the instrument panel trim.

50 – Install decorative strip from instrument panel

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TECHNICAL INFORMATION

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



- Install decorative strip (1) a snap into the clamps (2).

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

RISK OF DAMAGE

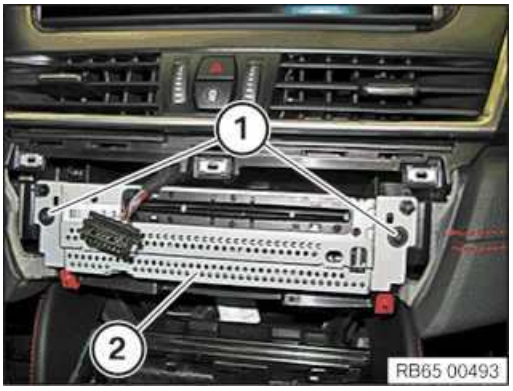
Electrostatic discharge.

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 Information on electrostatic discharge (ESD) protection.



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



- Slide in the head unit (2) correctly.
- Tighten the screws (1).

Head unit to instrument panel

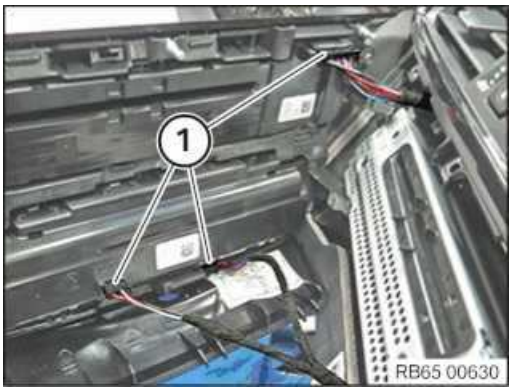
Screw		Tightening torque	1,8 Nm

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- Route the wiring harness (1) correctly.

52 – Installing audio operating unit and air conditioning control panel



- Position audio operating unit and air conditioning control panel.
- Connect plug connection (1) and lock.

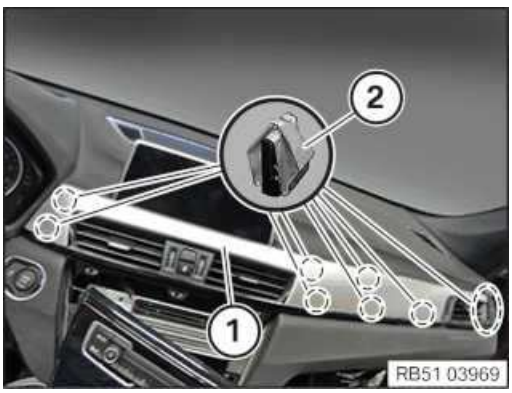


- Correctly position trim (1) and clip it into the instrument panel (2).

53 – Install the finisher on the right instrument panel

TECHNICAL INFORMATION

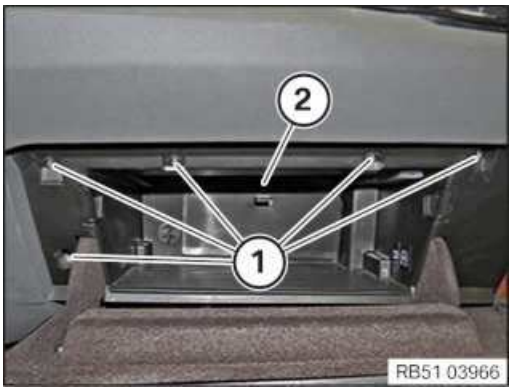
Latch mechanisms, guides and mounting elements must not be damaged or missing.



- Install the decorative strip (1).
- Connect connector.
- Engage the decorative strip (1) on the clamps (2).

54 – Install right glove box

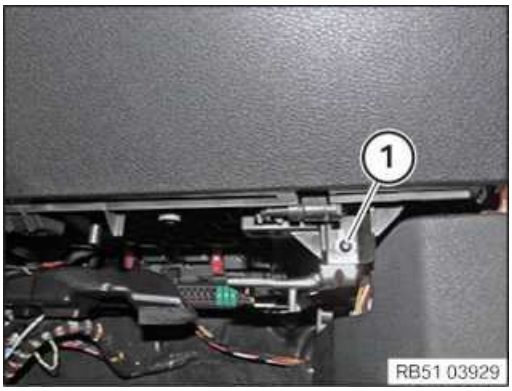
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- Install the glove box (2) and connect and lock associated plug connections.
- Tighten the screws (1).

Glove box to instrument panel

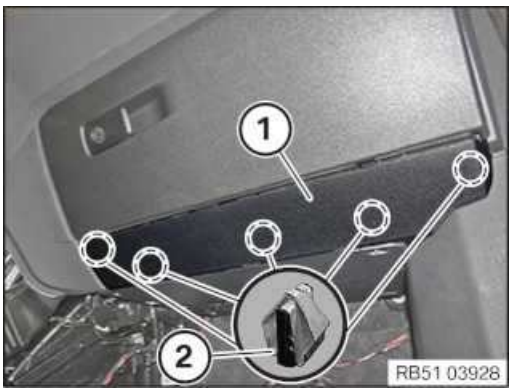
Screw		Tightening torque	1,8 Nm



- Tighten down screw (1).

Glove box to instrument panel

Screw		Tightening torque	1,8 Nm

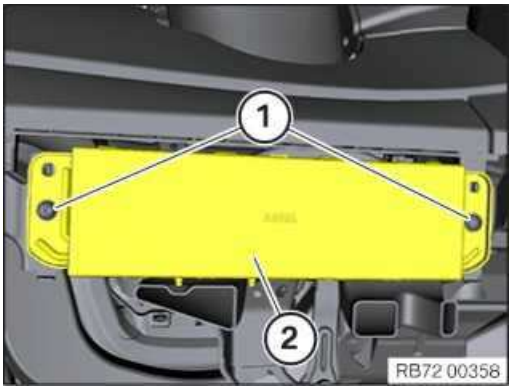


TECHNICAL INFORMATION

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

- Install the trim (1) and lock it at the clamps (2).

55 – Installing knee airbag



- Connect the plug connection to the knee airbag (2) and lock.
- Install knee airbag (2).
- Renew screws (1).

  Parts: Screw
- Tighten the screws (1).

Knee airbag to body

M8	Renew screws.	Tightening torque	8 Nm

56 – Install the side panel on instrument panel on the left and right

NOTICE

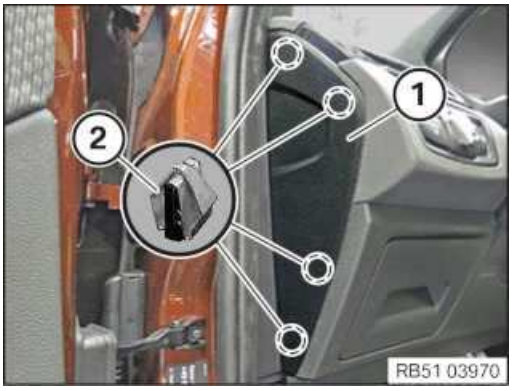
Description is for left component only. Procedure on the right side is identical.

▸ **Install side panel on the instrument panel**

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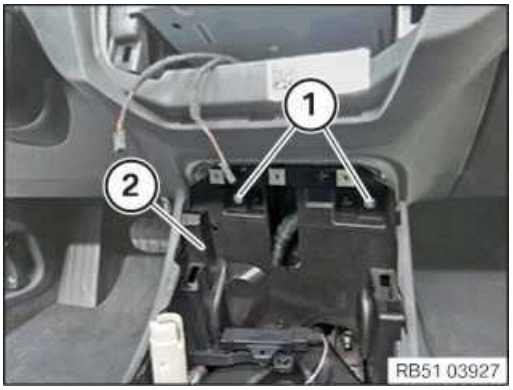
TECHNICAL INFORMATION

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



- Feed in the side panel (1) at an angle toward the front and lock at the clamps (2).

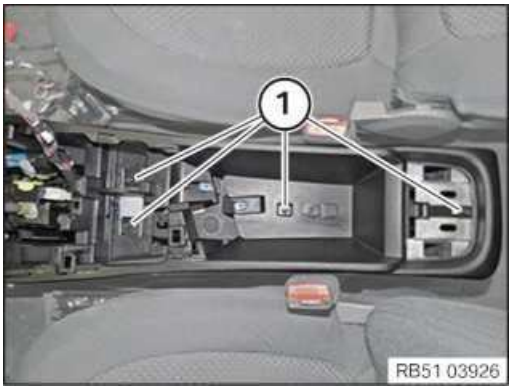
57 – Installing centre console fully with centre armrest



- Lift rear centre console (2), guide it forwards and connect all the connectors.
- Insert the wiring harness into the centre console (2).
- Tighten the screws (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm



- Tighten the screws (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

▸ **Installing the centre armrest**



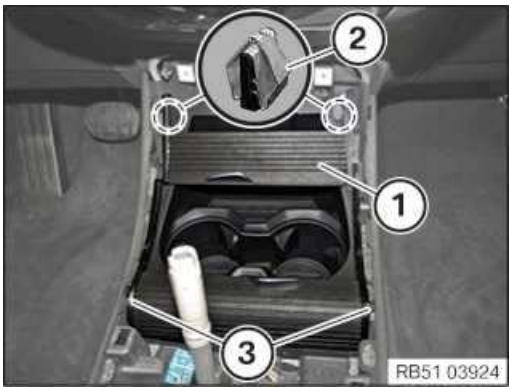
- Install the centre armrest and tighten nuts (1).

Centre armrest to support

Nut M8		Tightening torque	21,4 Nm

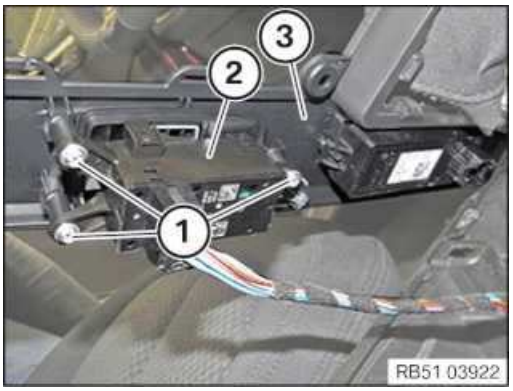
58 – Installing the front storage compartment

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- Install storage compartment (1) and connect the connectors.
- Insert the storage compartment (1) into the guides (3) and fold forward.
- Engage storage compartment (1) in the clamps (2) at top.

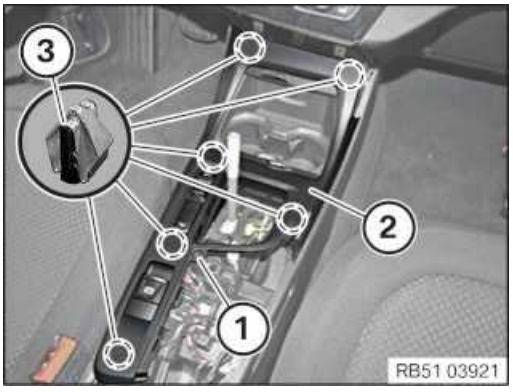
59 – Install the centre console trim



- Install centre console trim (3) and connect and lock the corresponding connectors.
- Install parking brake button (2) on centre console trim (3).
- Tighten the screws (1).

Parking brake button

Oval-head screw		Tightening torque	1,5 Nm



- Install centre console trim (2) and engage it into clamps (3).
- Tighten down screw (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

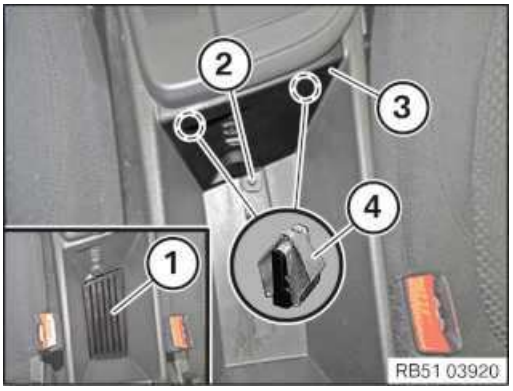
60 – Installing the decorative trim to the centre console



- Connect all connectors.
- Install decorative trim (2).
- Tighten down screw (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm



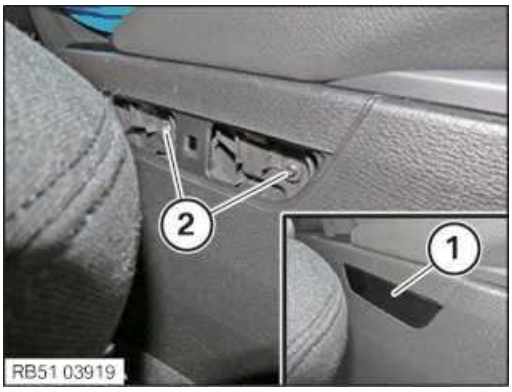
- Position trim (3) and connect all the connectors.
- Install trim (3) and engage it into clamps (4).
- Tighten down screw (2).

Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

- Insert the insert (1).

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- Tighten down screws (2).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

- Install cover (1) and engage.



- Tighten down screws (2).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

- Install cover (1) and engage.

61 – Installing the gearshift lever cover



- Place the gearshift lever knob on gearshift lever and align by lightly pressing in the direction of travel.

  The anti-twist lock must bite.
- Press the gearshift lever knob with the palm of the hand until it can be felt to engage.

  When installing, the tie rod of the gearshift lever must not be bent.



- Clip in gaiter (arrows).

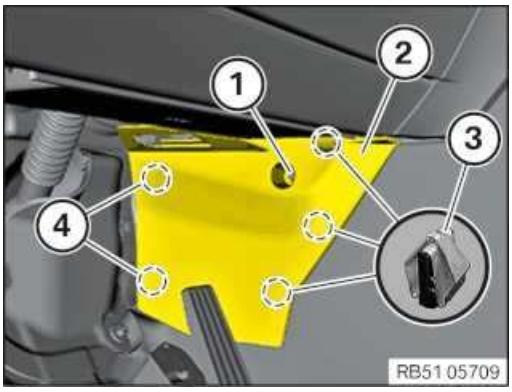
62 – Installing side trim panel for the left and right centre console

▶ **Installing side trim panel for the left centre console**

TECHNICAL INFORMATION

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

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- Install the side trim panel (2) for the centre console and feed it into the guides (4).
- Engage the side trim panel (2) for the centre console into retaining clips (3).
- Tighten down screw (1).

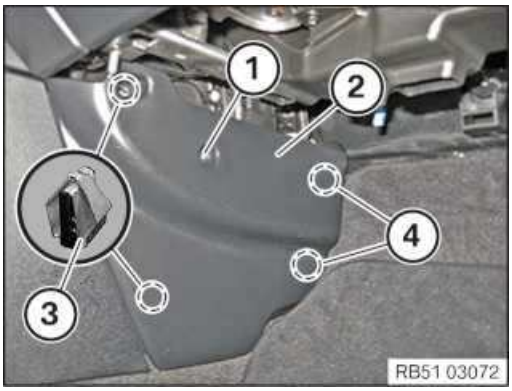
Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

▸ **Installing side trim panel for the right centre console**

TECHNICAL INFORMATION

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



- Install the side trim panel for the centre console (2) and feed it into the guides (4).
- Engage the side trim panel for the centre console (2) into retaining clips (3).
- Tighten down screw (1).

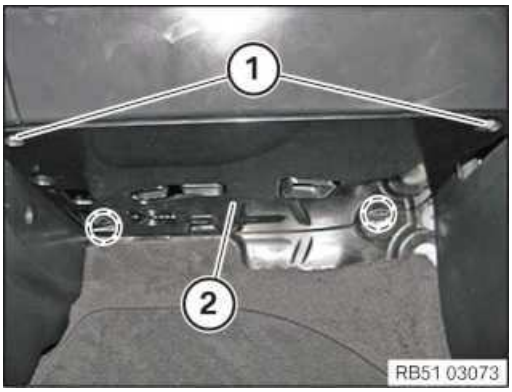
Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

63 – Installing the botto right instrument panel trim

TECHNICAL INFORMATION

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



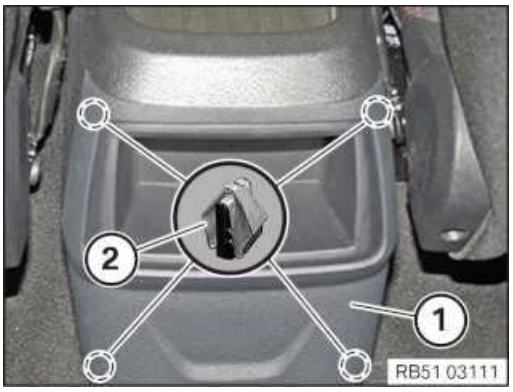
- Install the lower right instrument panel trim (2) and connect and lock the plug connection.
- Insert the lower right instrument panel trim (2) into the front guides.
- Tighten nuts (1).

Bottom left footwell trim to instrument panel

M5 hexagon nut		Tightening torque	2 Nm

64 – Installing the rear centre console trim

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- Install centre console trim (1) and engage it into clamps (2).

65 – Disconnecting all battery earth leads



- See additional information.

Additional Information

Overview of Tightening Torques

Instrument panel trim to carrier support — Used in step 35

Screw		Tightening torque	2,4 Nm

Fold-down compartment to instrument panel — Used in step 36

Screw		Tightening torque	1,8 Nm

Instrument cluster to instrument panel — Used in step 37

Screw			1,7 Nm

Steering column switch cluster (SZL) on the steering column — Used in step 38

Screw TS5x20		Tightening torque	3 Nm

Steering wheel to steering column — Used in step 41

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

Side trim panel bottom left to holder — Used in step 45

Screw		Tightening torque	3 Nm

Lever for bonnet release to the holder — Used in step 45

Screw		Tightening torque	3 Nm

A-pillar trim panel to body — Used in step 47

M5x42 screw	Renew screw	Tightening torque	2,2 Nm

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Head unit to instrument panel

Used in step 51

Screw		Tightening torque	1,8 Nm

Glove box to instrument panel

Used in step 54

Screw		Tightening torque	1,8 Nm

Knee airbag to body

Used in step 55

M8	Renew screws.	Tightening torque	8 Nm

Screw connection for centre console

Used in step 57 59 60

Oval-head screw		Tightening torque	1,8 Nm

Centre armrest to support

Used in step 57

Nut M8		Tightening torque	21,4 Nm

Parking brake button

Used in step 59

Oval-head screw		Tightening torque	1,5 Nm

Trim to centre console

Used in step 60 62

Oval-head screw		Tightening torque	1,8 Nm

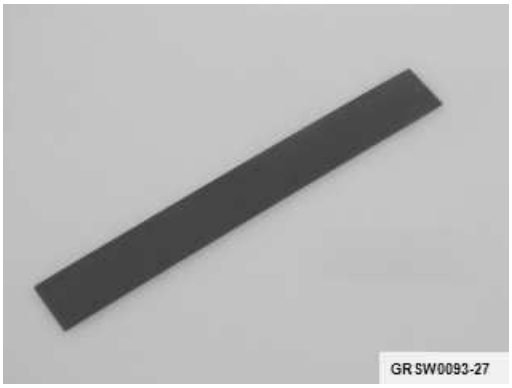
Bottom left footwell trim to instrument panel

Used in step 63

M5 hexagon nut		Tightening torque	2 Nm

Overview of Special Tools

0 496 571 (00 9 327) Wedge



Common Used in step 6

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)

0 496 569 (00 9 325) Wedge

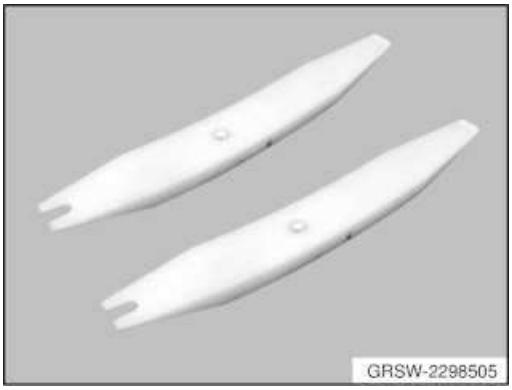


Common Used in step 7 9 11 13 16 17 21 23

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)

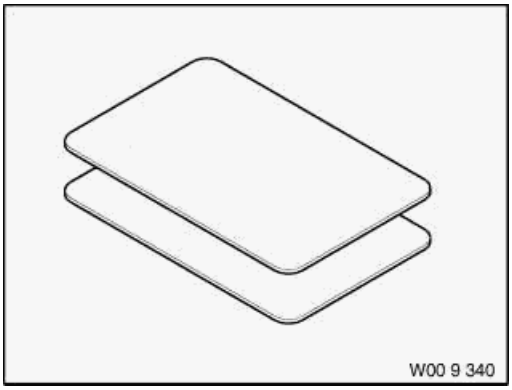
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2 298 505 Wedge



Common	Used in step 14
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)

0 493 687 (00 9 340) Removal aid



Common	Used in step 18
Usage	(Removal aid (2 x)) For levering out switch block on driver's door.
Included in the tool or work	
Storage location	C2
Replaced by	
In connection with	
SI-Number	01 15 99 (483)

Consisting of

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

2 298 504 Wedge



Common	Used in step 27
Usage	Wedge with angled lug
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

Links

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	20 47

Repair instructions	Used in step

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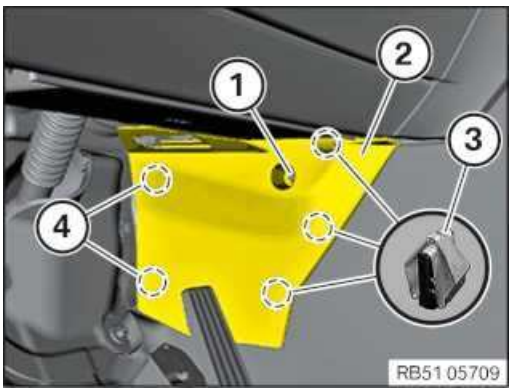
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1	65
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1	65
61 20 900 Disconnect and connect battery earth lead (Plug-in Hybrid Electric Vehicle)	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
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61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 20 900 Disconnecting and connecting battery earth lead	1	65
61 35 ... Notes on ESD protection (Electro Static Discharge)		
72 12 ... Unlocking/locking airbag plug connections	32	35

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64 11 213 Removing and installing/replacing heater/air conditioner fan

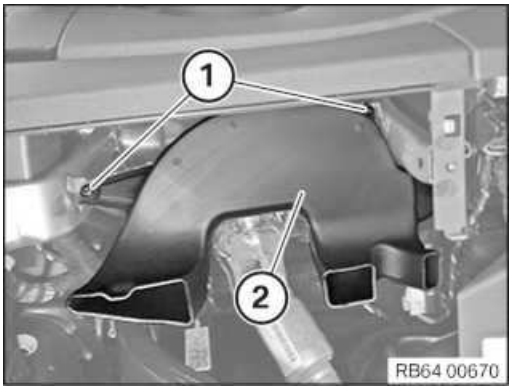
PRELIMINARY WORK

1 – Removing side trim panel for the left centre console



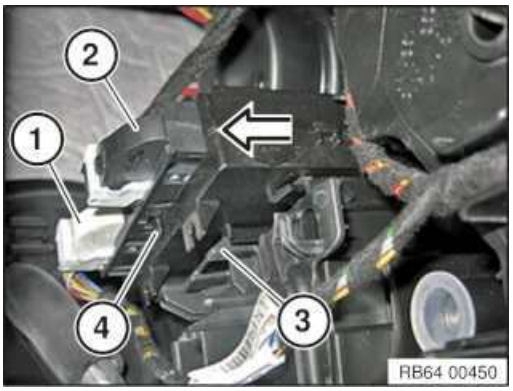
- Loosen screw (1).
- Release side trim panel (2) for the centre console from retaining clips (3).
- Remove side trim panel (2) for the centre console from guides (4) and remove it.

2 – Removing the left footwell ventilation duct



- Loosen screws (1).
- Guide out the left footwell ventilation duct (2) and remove.

3 – Removing the air conditioning control unit

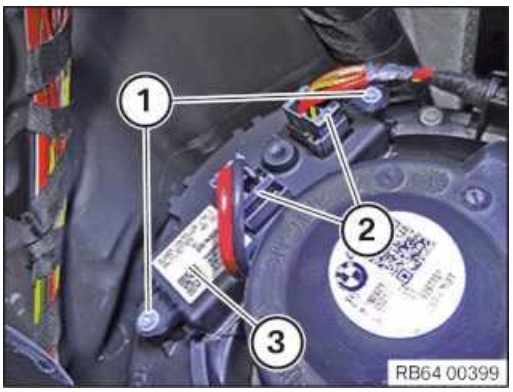


- Unlock and disconnect the plug connections (1) and (2).

Note: The control unit for the air conditioning system is located in the footwell on the left next to the air conditioning unit.

- Unlock the latch mechanism (3) towards the bottom.
- Pull out the control unit (4) in the direction of arrow and remove it.

4 – Removing controller for the blower

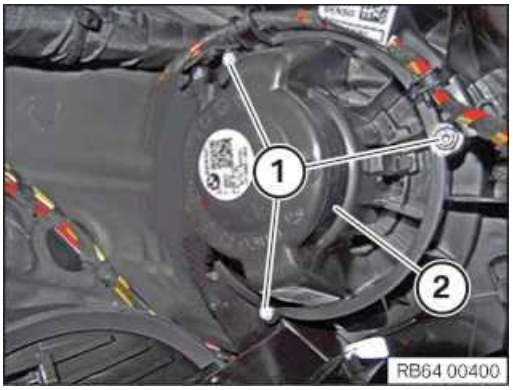


- Loosen screws (1).
- Unlock and disconnect plug connections (2).
- Guide out the controller (3) and remove it.

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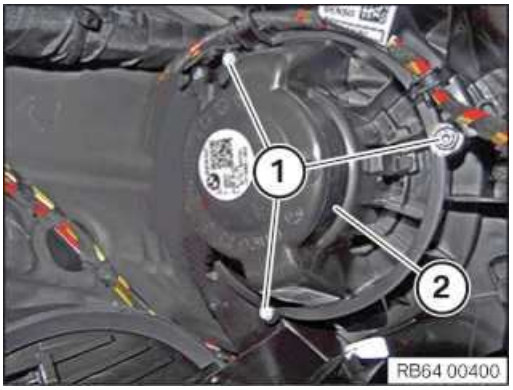
MAIN WORK

5 – Remove the blower for the heating and air-conditioning unit



- Loosen screws (1).
- Feed out and remove the blower (2).

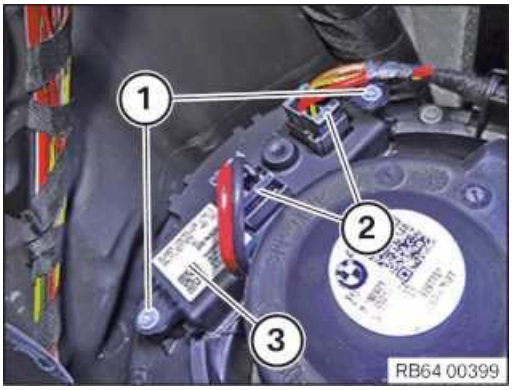
6 – Install the blower for the heating and air-conditioning unit



- Feed in the blower (2) and correctly position it.
- Tighten the screws (1).

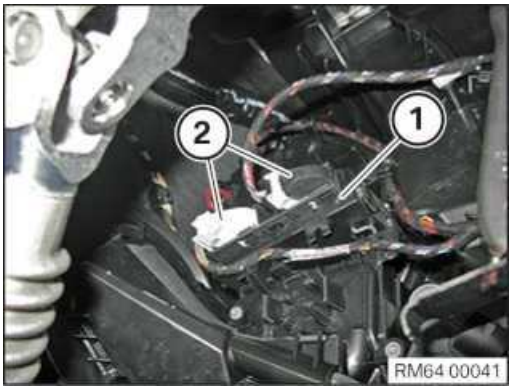
POSTPROCESSES

7 – Installing the controller for the blower



- Feed in and install the controller (3).
- Connect connectors (2) and lock.
- Tighten the screws (1).

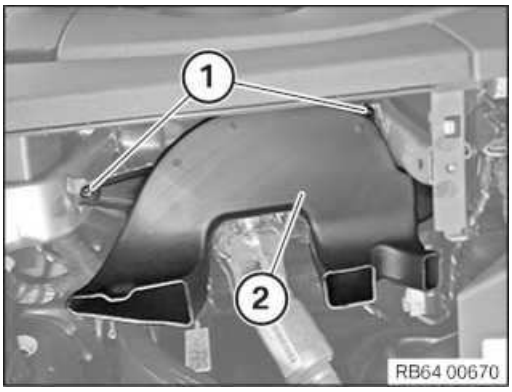
8 – Install control unit for heating and air conditioning system



- Install the control unit (1) and position it correctly.
- Lock the control unit (1).
- Connect connectors (2) and lock.

9 – Install the left footwell ventilation duct

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- Guide and install left footwell ventilation duct (2).
- Tighten the screws (1).

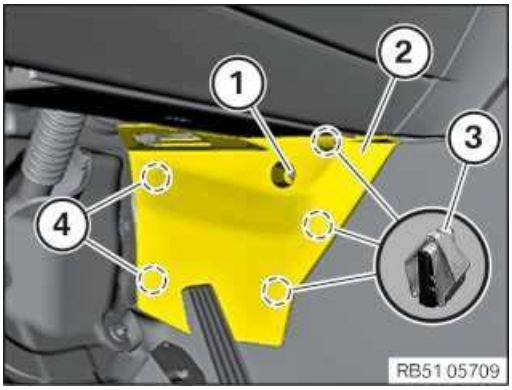
Footwell ventilation duct

Screw			2,4 Nm

10 – Installing side trim panel for the left centre console

TECHNICAL INFORMATION

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



- Install the side trim panel (2) for the centre console and feed it into the guides (4).
- Engage the side trim panel (2) for the centre console into retaining clips (3).
- Tighten down screw (1).

Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

Additional Information

Overview of Tightening Torques

Footwell ventilation duct Used in step 9

Screw			2,4 Nm

Trim to centre console Used in step 10

Oval-head screw		Tightening torque	1,8 Nm

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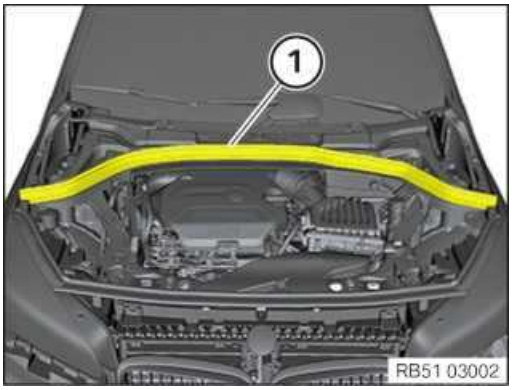
64 11 991 Removing and installing/replacing sensor for automatic air recirculation control

PRELIMINARY WORK

1 – Remove the seal for the rear bonnet

NOTICE

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



- Pull off rear bonnet seal (1) towards the top and remove.

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

NOTICE

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

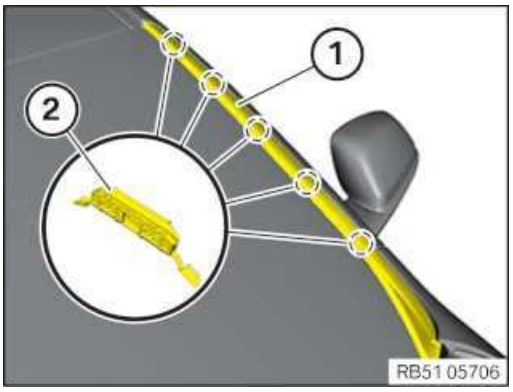
▸ **Remove the gutter strip on the windscreen**

RISK OF DAMAGE

Scratches.

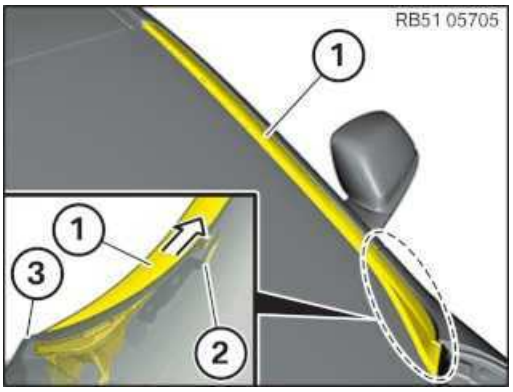
Tools and sharp-edged components can cause scratches.

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



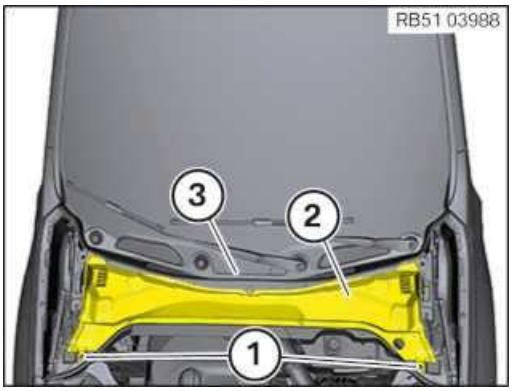
- Unclip the gutter strip (1) from the clamps (2) beginning at the roof to the top.

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

3 – Removing front cowl panel cover



- Loosen the expanding rivet (1).
- Feed out and remove front cowl panel cover (2) from the rear cowl panel cover(3).

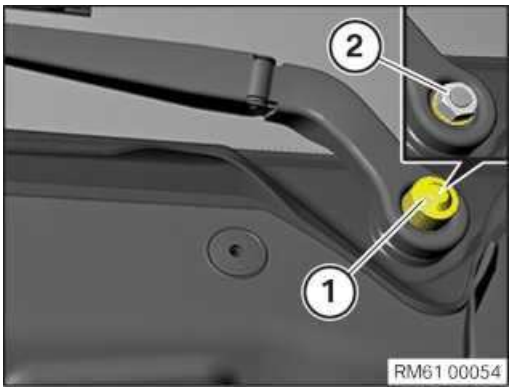
4 – Remove left and right wiper arm

RISK OF DAMAGE

Damage to wiper console

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

- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do not lift off wiper arm, else the wiper console may break on the predetermined breaking point for the pedestrian protection.



- Pull off the protective cap (1) and release the nut (2) below it.



- Pull off windscreen wiper arm (1)with special tool .

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5 – Remove the rear cowl panel



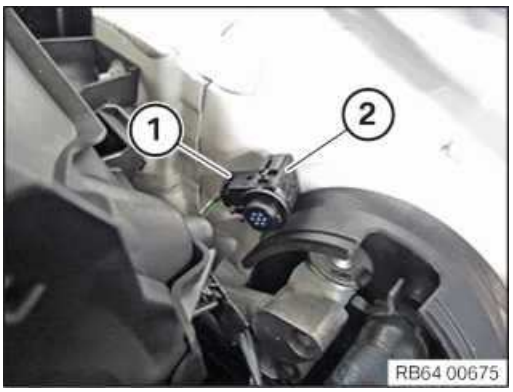
- Pull off the cowl panel cover (1) towards the top, starting from the side and feed out.

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6 – Removing the automatic air recirculation control sensor (AUC)



- Disengage sensor (1) in direction of arrow.



- Unlock and disconnect connector (1).
- Remove the sensor (2).

7 – Installing the automatic air recirculation control sensor (AUC)



- Connect and lock the connector (1) at the sensor (2).



- Move the sensor (1) in the direction of the arrow until the sensor (1) has locked.

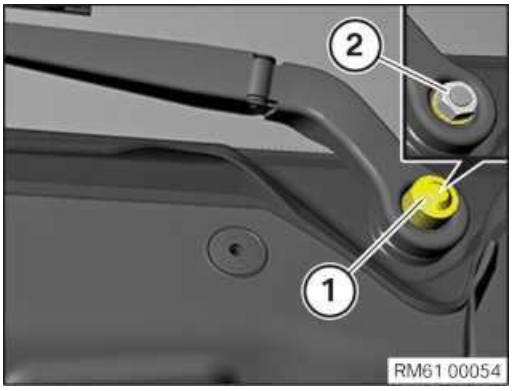
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8 – Install the rear cowl panel



- Insert the cowl panel cover (1) and press it into the latch mechanism on the windscreen starting at the side.

9 – Install left and right wiper arm



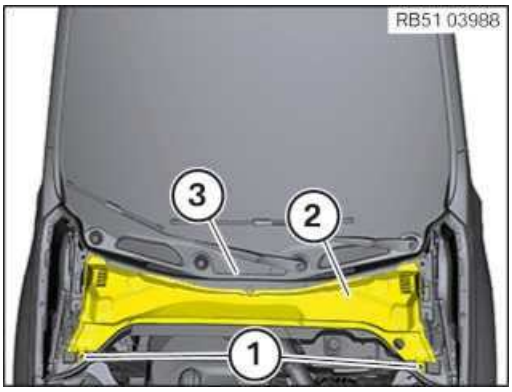
- Join wiper arm and tighten with nut (2).

Windscreen wiper arm

Combination hexagon nut		Tightening torque	35 Nm

- Join the protective cap (1).

10 – Installing front cowl panel cover



- Insert and install cowl panel cover at front (2) into cowl panel cover at rear (3).
- Check cowl panel cover at front is correctly seated (2).
- Secure expanding rivet (1).

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

NOTICE

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

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

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RISK OF DAMAGE

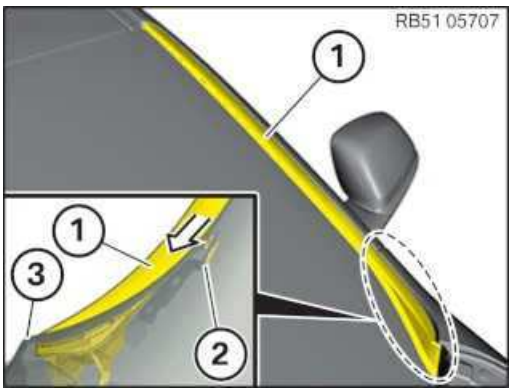
Scratches.

Tools and sharp-edged components can cause scratches.

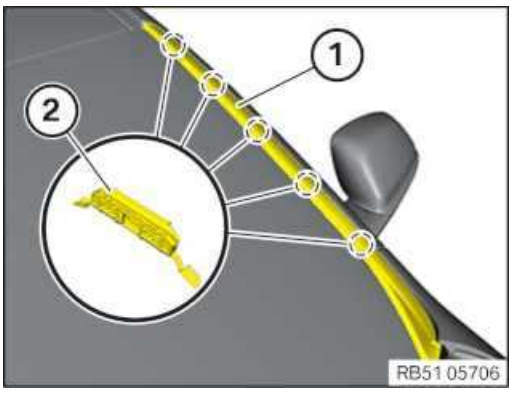
- Protect working area.
- Handle tools and components carefully.

TECHNICAL INFORMATION

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



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

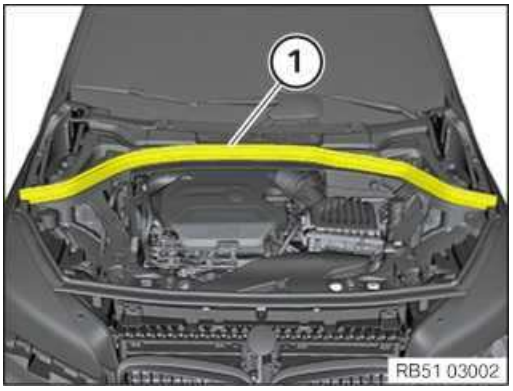


- Clip in the gutter strip (1) at the bottom starting at the clamps (2).

12 – Install the seal for the bonnet

NOTICE

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



- Install bonnet seal at rear (1).
- Ensure that the rear bonnet seal (1) is fitted correctly.

Additional Information

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Overview of Tightening Torques

Windscreen wiper arm Used in step 9

Combination hexagon nut		Tightening torque	35 Nm

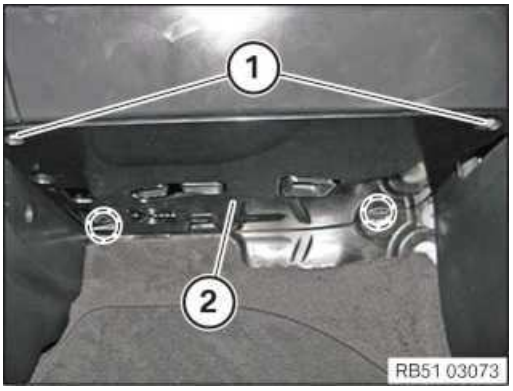
Overview of Special Tools

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64 11 805 Removing and installing/replacing the controller drive of the fresh/recirculated air flap (air conditioning) (for work no. 64 10 010)

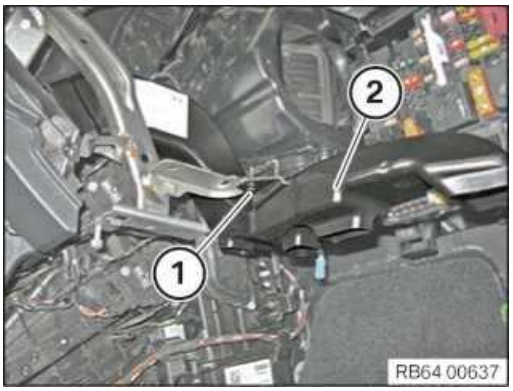
PRELIMINARY WORK

1 – Removing the instrument panel trim at bottom right



- Loosen nuts (1).
- Lower the instrument panel trim slightly at the bottom right (2) and disconnect the plug connection behind it.
- Guide the instrument panel trim at the bottom right (2) from the front guides and remove it.

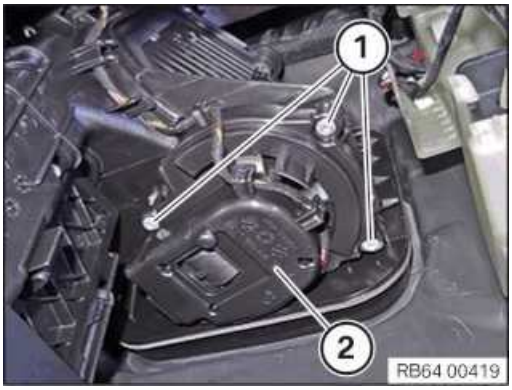
2 – Remove right footwell ventilation duct



- Loosen screw (1).
- Thread the footwell ventilation duct (2) out and remove.

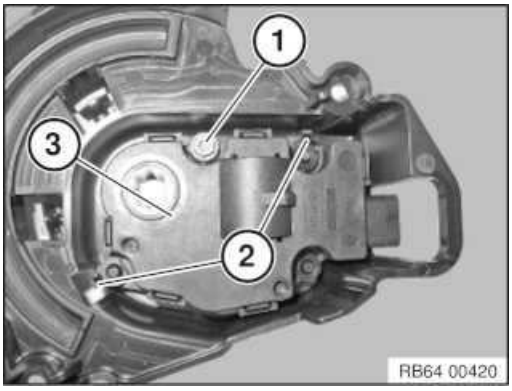
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3 – Removing the fresh air/recirculated air flap motor



- Loosen screws (1).
- Unlock associated plug connection and disconnect.
- Remove fresh air/recirculated air flap motor with holder (2).

4 – Replacing fresh air / recirculated air flap motor



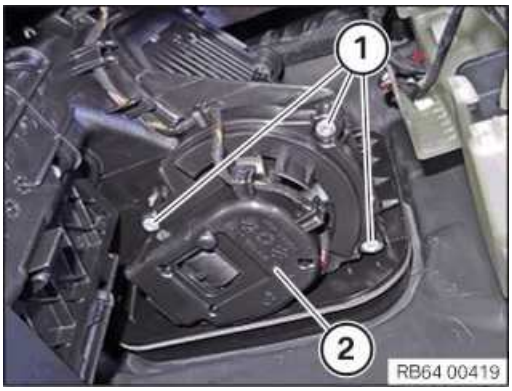
- Loosen screw (1).
- Unlock the latch mechanisms (2).
- Release fresh air/recirculated air flap motor (3) from the holder.
- Renew fresh air/recirculated air flap motor (3).

  Parts: Fresh air/recirculated air flap motor
- Position fresh air/recirculated air flap motor (3) on the holder.
- Lock the latch mechanisms (2).
- Tighten down screw (1).

Controller drive to heating and air-conditioning unit

Screw		Tightening torque	1,2 Nm

5 – Install the fresh air/recirculated air flap motor



- Correctly position the fresh air/recirculated air flap motor with holder (2).
- Tighten the screws (1).

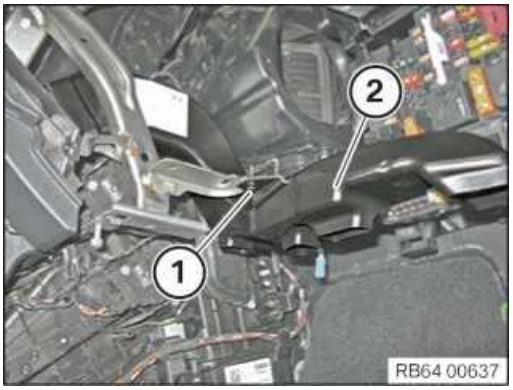
Controller drive to heating and air-conditioning unit

Screw		Tightening torque	1,2 Nm

- Connect and lock corresponding connectors.

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6 – Install the right footwell ventilation duct



- Feed in the footwell ventilation duct (2).
- Tighten down screw (1).

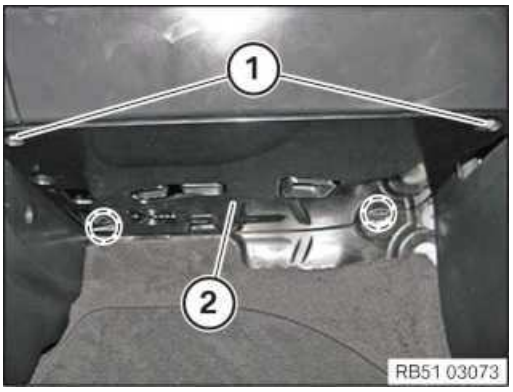
Footwell ventilation duct

Screw			2,4 Nm

7 – Installing the botto right instrument panel trim

TECHNICAL INFORMATION

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



- Install the lower right instrument panel trim (2) and connect and lock the plug connection.
- Insert the lower right instrument panel trim (2) into the front guides.
- Tighten nuts (1).

Bottom left footwell trim to instrument panel

M5 hexagon nut		Tightening torque	2 Nm

8 – Address the controller drive

- Carry out the service function as follows:
  - Body
  - Heating and air conditioning function
  - Flap motors
  - Address flap motors

Additional Information

Overview of Tightening Torques

Controller drive to heating and air-conditioning unit — Used in step 4 5

Screw		Tightening torque	1,2 Nm

Footwell ventilation duct — Used in step 6

Screw			2,4 Nm

Bottom left footwell trim to instrument panel — Used in step 7

M5 hexagon nut		Tightening torque	2 Nm

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64 11 906 Removing and installing/replacing ventilation temperature sensor (after vehicle diagnosis)

RISK OF DAMAGE

Scratches.

Tools and sharp-edged components can cause scratches.

- 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 Information on electrostatic discharge (ESD) protection.

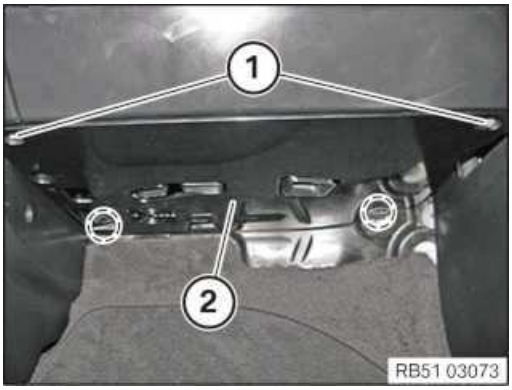
PRELIMINARY WORK

1 – Disconnecting all battery earth leads



- See additional information.

2 – Removing the instrument panel trim at bottom right

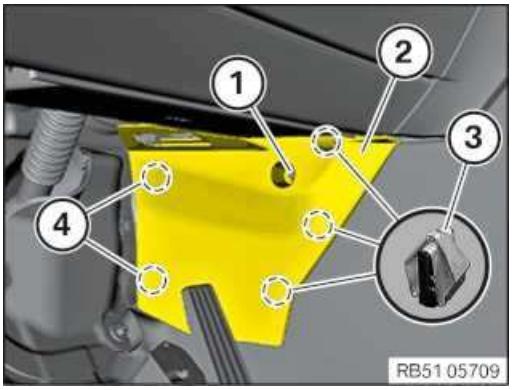


- Loosen nuts (1).
- Lower the instrument panel trim slightly at the bottom right (2) and disconnect the plug connection behind it.
- Guide the instrument panel trim at the bottom right (2) from the front guides and remove it.

3 – Removing the side trim panel for the left and right centre console

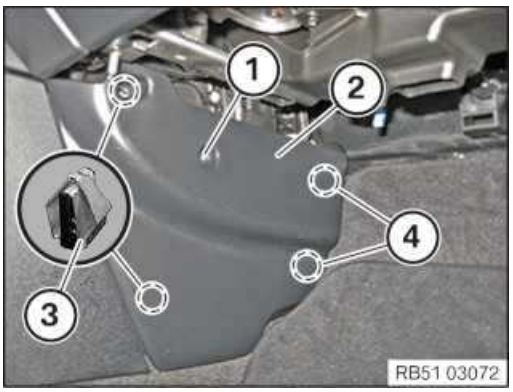
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▶ **Removing side trim panel for the left centre console**



- Loosen screw (1).
- Release side trim panel (2) for the centre console from retaining clips (3).
- Remove side trim panel (2) for the centre console from guides (4) and remove it.

▶ **Removing side trim panel for the centre console on the right side**



- Loosen screw (1).
- Release the side trim panel for centre console (2) from retaining clips (3).
- Remove the side trim panel for centre console (2) from guides (4) and remove it.

4 – Remove gearshift lever cover



- Use wedges (1) to unclip the gaiter and pull it off upward.



- Remove the gearshift lever knob and the gaiter by means of a powerful jolt vertically upwards.

  In doing so, the tie rod must not be bent or damaged.
- Ensure that the gearshift lever knob is not twisted when removing, otherwise the anti-twist lock in the gearshift lever knob will be sheared off.

5 – Remove the decorative trim from the centre console

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RISK OF DAMAGE

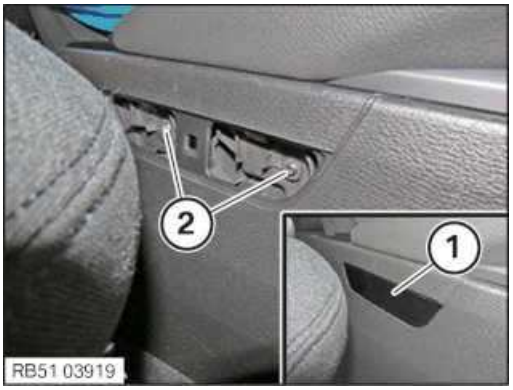
Scratches.

Tools and sharp-edged components can cause scratches.

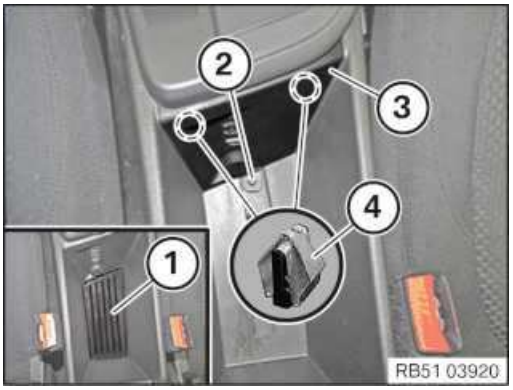
- Protect working area.
- Handle tools and components carefully.



- Lever out and remove cover (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screws (2).



- Lever out and remove cover (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screws (2).



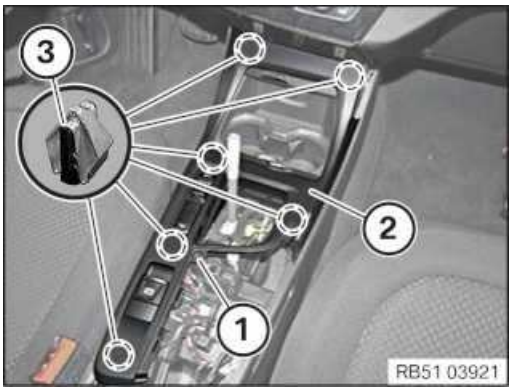
- Remove insert (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screw (2).
- Lever out trim (3) from clamps (4) towards the rear with the special tool **0 496 571 (00 9 327)**.
- Unfasten plug connection.
- Remove the trim (3).



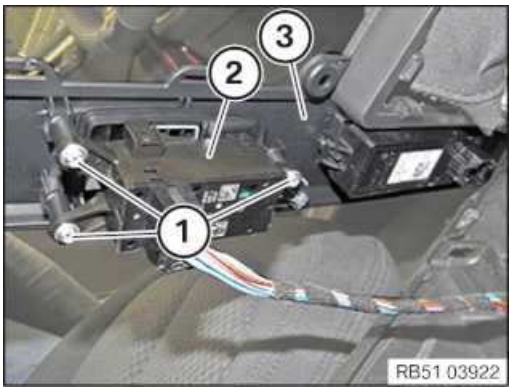
- Loosen screw (1).
- Remove decorative trim (2) and disconnect all the plug connections.
- Remove decorative trim (2).

6 – Remove the centre console trim

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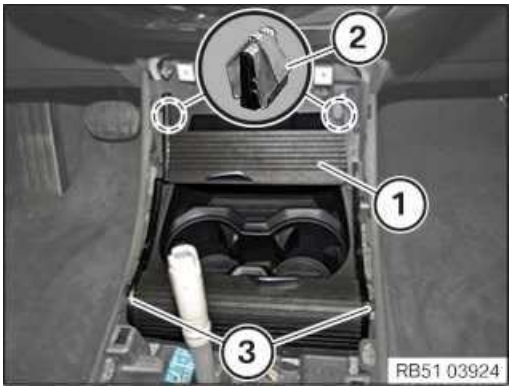
- Loosen screw (1).
- Release centre console trim (2) from clamps (3) with the special tool **0 496 569 (00 9 325)**.
- Lift centre console trim (2).



- Loosen screws (1).
- Remove parking brake button (2) from centre console trim (3) and place it down.

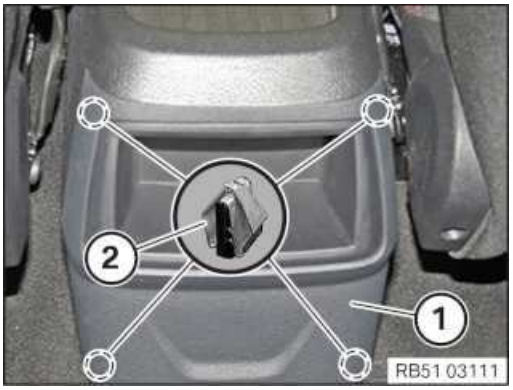
  The plug connection must not be disconnected.
- Disconnect the remaining plug connections and remove centre console trim (3).

7 – Removing the front storage compartment



- Lever storage compartment (1) at top from the clamps (2).
- Fold storage compartment (1) so far back that it can be lifted from the guides (3).
- Disconnect plug connections and remove the storage compartment (1).

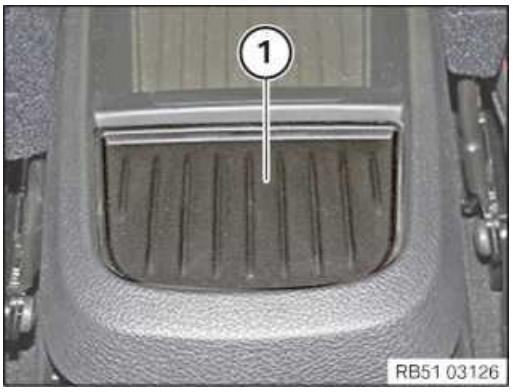
8 – Removing the rear centre console trim



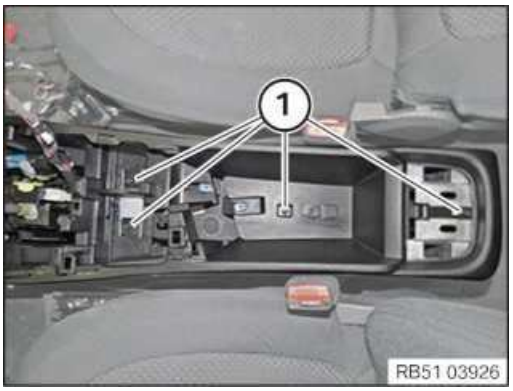
- Lever out and remove centre console trim (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2).

9 – Remove complete centre console

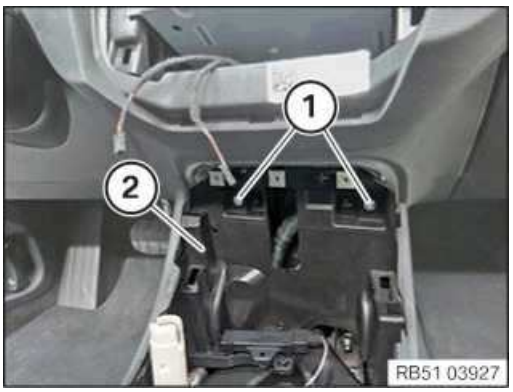
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- Remove the cover (1).



- Loosen screws (1).

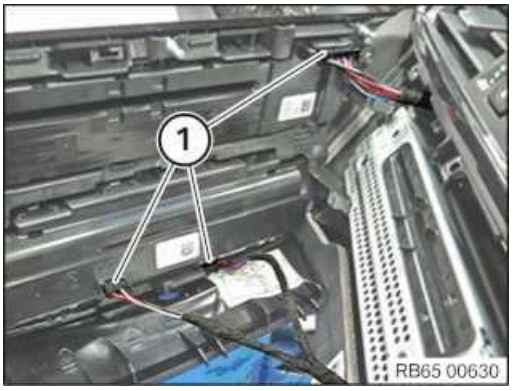


- Loosen screws (1).
- Lift the rear centre console (2) and in this process, disconnect all plug connections.
- Guide out the wiring harness and remove centre console (2) from the vehicle.

10 – Removing the audio operating unit and the air conditioning control panel



- Unclip the trim (1) using special tool **2 298 505**.



- Unlock plug connection (1) and disconnect.
- Remove the audio operating unit and the air conditioning control panel.

11 – Remove Head Unit High (HU-H)

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RISK OF DAMAGE

Electrostatic discharge.

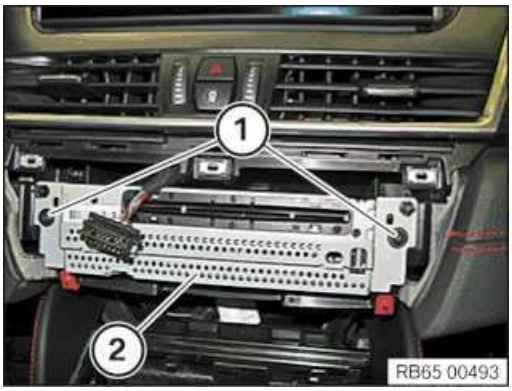
Damage to or destruction of electrical components.

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



- Remove the wiring harness (1).

  In the factory, the wiring harness (1)is routed such that not enough excess length exists to remove the head unit.



- Loosen screws (1).
- Pull out the head unit (2) a bit.

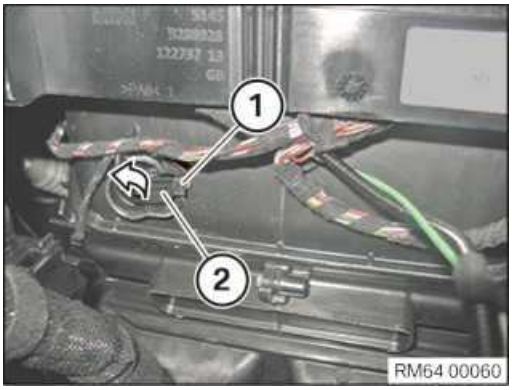


- Unlock and disconnect all connectors in the marked area.
- Remove head unit (1).

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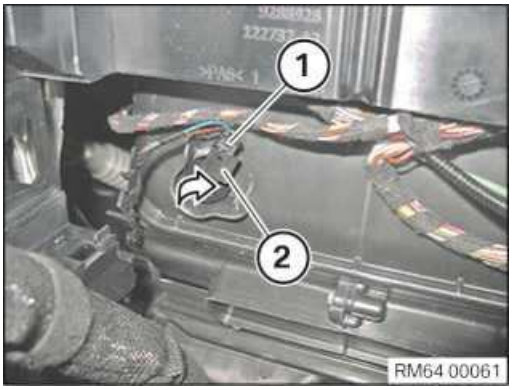
MAIN WORK

12 – Remove ventilation temperature sensor



- Disconnect plug connection (1).
- Turn ventilation temperature sensor (2) in the direction of the arrow and remove.

13 – Installing the ventilation temperature sensor



- Correctly position the ventilation temperature sensor (2).
- Twist the ventilation temperature sensor (2) up to the limit position.
- Connect connector (1).

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POSTPROCESSES

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

RISK OF DAMAGE

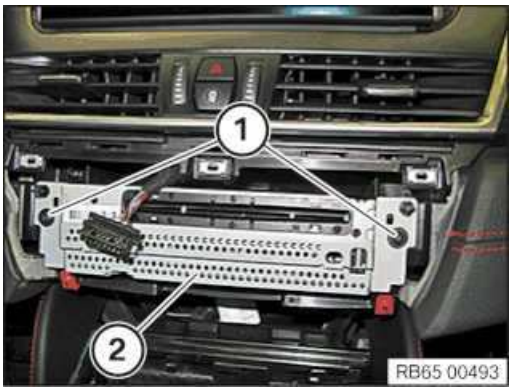
Electrostatic discharge.

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 Information on electrostatic discharge (ESD) protection.



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



- Slide in the head unit (2) correctly.
- Tighten the screws (1).

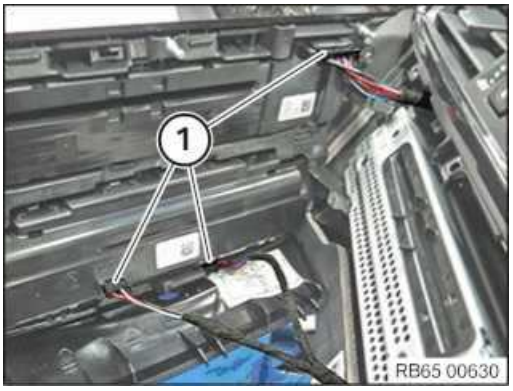
Head unit to instrument panel

Screw		Tightening torque	1,8 Nm



- Route the wiring harness (1) correctly.

15 – Installing audio operating unit and air conditioning control panel



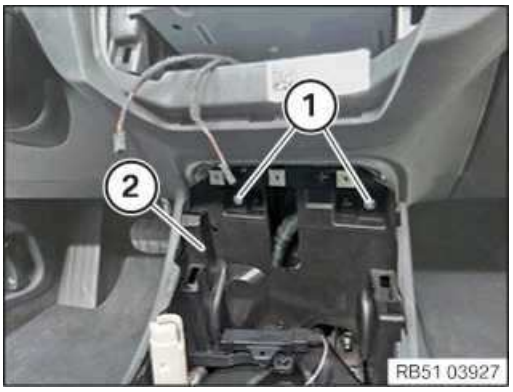
- Position audio operating unit and air conditioning control panel.
- Connect plug connection (1) and lock.



- Correctly position trim (1) and clip it into the instrument panel (2).

16 – Install centre console, complete

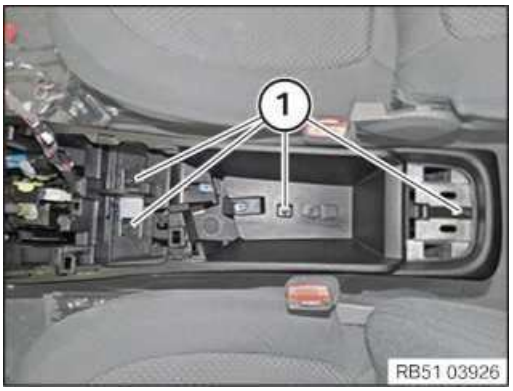
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- Lift rear centre console (2), guide it forwards and connect all the connectors.
- Insert the wiring harness into the centre console (2).
- Tighten the screws (1).

Screw connection for centre console

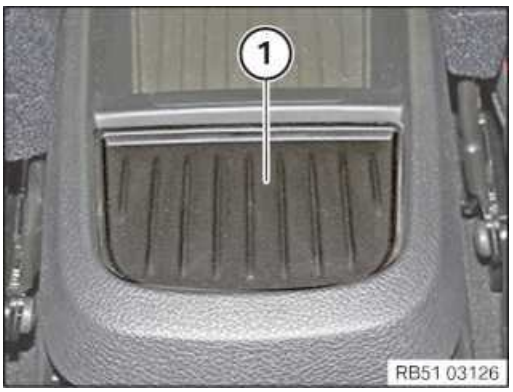
Oval-head screw		Tightening torque	1,8 Nm



- Tighten the screws (1).

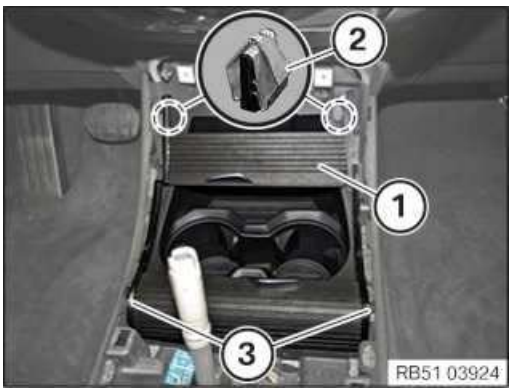
Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm



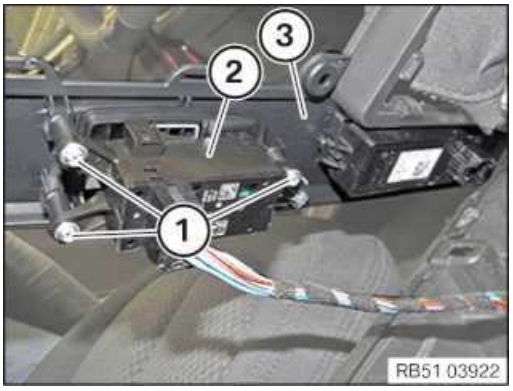
- Install the cover (1).

17 – Installing the front storage compartment



- Install storage compartment (1) and connect the connectors.
- Insert the storage compartment (1) into the guides (3) and fold forward.
- Engage storage compartment (1) in the clamps (2) at top.

18 – Install the centre console trim

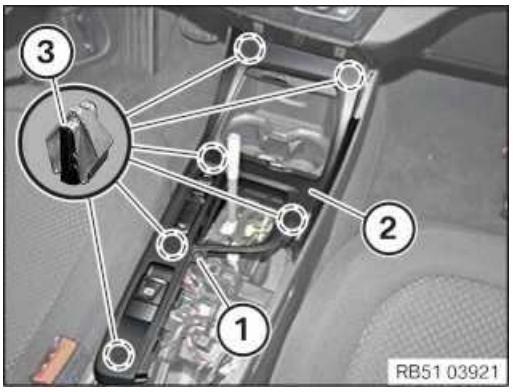


- Install centre console trim (3) and connect and lock the corresponding connectors.
- Install parking brake button (2) on centre console trim (3).
- Tighten the screws (1).

Parking brake button

Oval-head screw		Tightening torque	1,5 Nm

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- Install centre console trim (2) and engage it into clamps (3).
- Tighten down screw (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

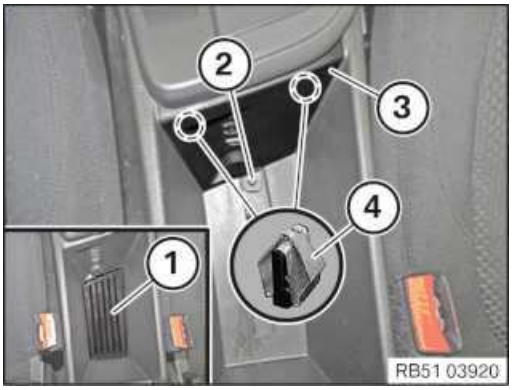
19 – Installing the decorative trim to the centre console



- Connect all connectors.
- Install decorative trim (2).
- Tighten down screw (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

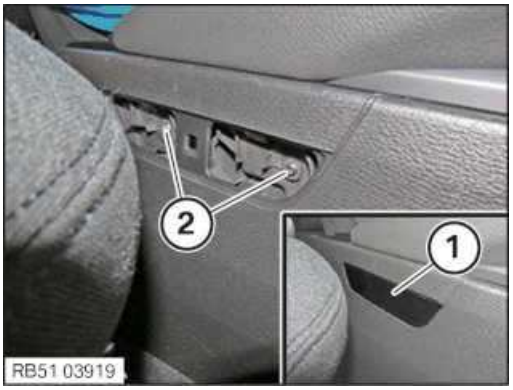


- Position trim (3) and connect all the connectors.
- Install trim (3) and engage it into clamps (4).
- Tighten down screw (2).

Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

- Insert the insert (1).



- Tighten down screws (2).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

- Install cover (1) and engage.



- Tighten down screws (2).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

- Install cover (1) and engage.

20 – Installing the gearshift lever cover

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- Place the gearshift lever knob on gearshift lever and align by lightly pressing in the direction of travel.

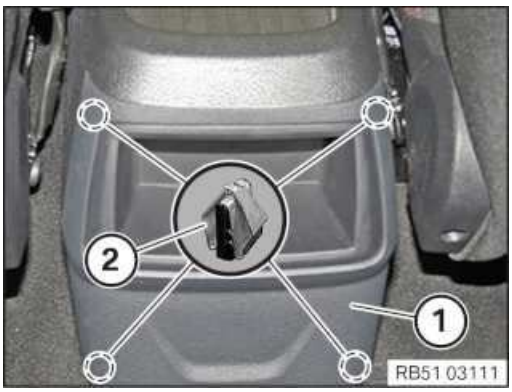
  The anti-twist lock must bite.
- Press the gearshift lever knob with the palm of the hand until it can be felt to engage.

  When installing, the tie rod of the gearshift lever must not be bent.



- Clip in gaiter (arrows).

21 – Installing the rear centre console trim



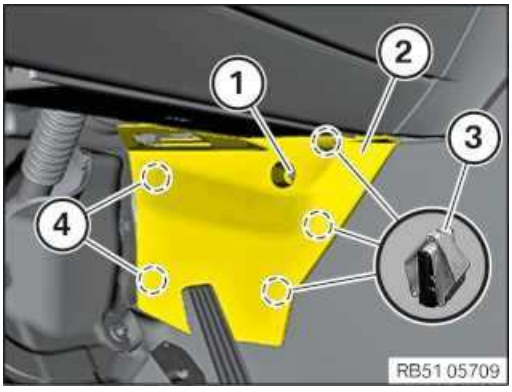
- Install centre console trim (1) and engage it into clamps (2).

22 – Installing side trim panel for the left and right centre console

▸ **Installing side trim panel for the left centre console**

TECHNICAL INFORMATION

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



- Install the side trim panel (2) for the centre console and feed it into the guides (4).
- Engage the side trim panel (2) for the centre console into retaining clips (3).
- Tighten down screw (1).

Trim to centre console

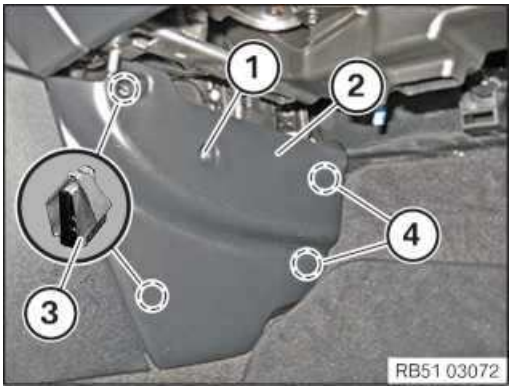
Oval-head screw		Tightening torque	1,8 Nm

▸ **Installing side trim panel for the right centre console**

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TECHNICAL INFORMATION

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



- Install the side trim panel for the centre console (2) and feed it into the guides (4).
- Engage the side trim panel for the centre console (2) into retaining clips (3).
- Tighten down screw (1).

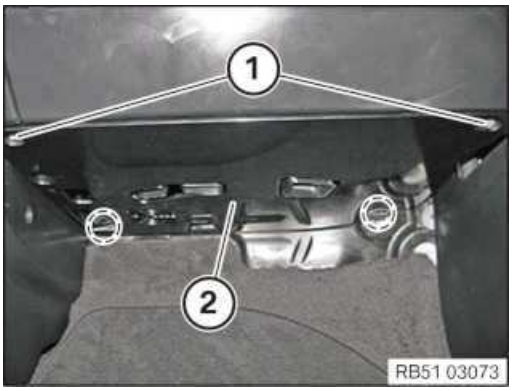
Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

23 – Installing the botto right instrument panel trim

TECHNICAL INFORMATION

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



- Install the lower right instrument panel trim (2) and connect and lock the plug connection.
- Insert the lower right instrument panel trim (2) into the front guides.
- Tighten nuts (1).

Bottom left footwell trim to instrument panel

M5 hexagon nut		Tightening torque	2 Nm

24 – Disconnecting all battery earth leads



- See additional information.

25 – Encode/program control unit(s)

Prerequisite

Replacement of the control unit.

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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.
Exception:
BMW I01: Note Product and Measures Management Aftersales measure 55176388.

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

Additional Information

Overview of Tightening Torques

Head unit to instrument panel — Used in step 14

Screw		Tightening torque	1,8 Nm

Screw connection for centre console — Used in step 16 18 19

Oval-head screw		Tightening torque	1,8 Nm

Parking brake button — Used in step 18

Oval-head screw		Tightening torque	1,5 Nm

Trim to centre console — Used in step 19 22

Oval-head screw		Tightening torque	1,8 Nm

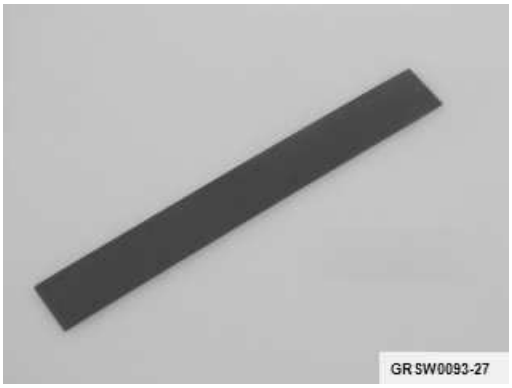
Bottom left footwell trim to instrument panel — Used in step 23

M5 hexagon nut		Tightening torque	2 Nm

Overview of Special Tools

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0 496 571 (00 9 327) Wedge



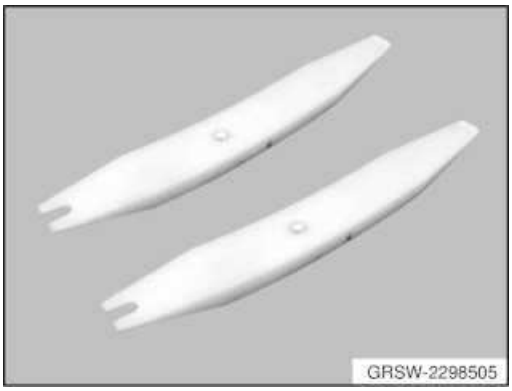
Common	Used in step 5
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 496 569 (00 9 325) Wedge



Common	Used in step 6 8
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)

2 298 505 Wedge



Common	Used in step 10
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	Used in step
61 20 900 Disconnecting and connecting battery earth lead	1 24
61 20 900 Disconnecting and connecting battery earth lead	1 24
61 20 900 Disconnecting and connecting battery earth lead	1 24
61 20 900 Disconnecting and connecting battery earth lead	1 24
61 20 900 Disconnecting and connecting battery earth lead	1 24
61 20 900 Disconnecting and connecting battery earth lead	1 24
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1 24
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1 24
61 20 900 Disconnecting and connecting battery earth lead	1 24
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1 24
61 20 900 Disconnect and connect battery earth lead (Plug-in Hybrid Electric Vehicle)	1 24

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61 20 900 Disconnecting and connecting battery earth lead 1 24
61 20 900 Disconnecting and connecting battery earth lead 1 24
61 20 900 Disconnecting and connecting battery earth lead 1 24
61 20 900 Disconnecting and connecting battery earth lead 1 24
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61 20 900 Disconnecting and connecting battery earth lead 1 24
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 1 24
61 20 900 Disconnecting and connecting battery earth lead 1 24
61 20 900 Disconnecting and connecting battery earth lead 1 24
61 20 900 Disconnecting and connecting battery earth lead 1 24
61 20 900 Disconnecting and connecting battery earth lead 1 24
61 20 900 Disconnecting and connecting battery earth lead 1 24
61 20 900 Disconnecting and connecting battery earth lead 1 24
61 20 900 Disconnecting and connecting battery earth lead 1 24
61 35 ... Notes on ESD protection (Electro Static Discharge)

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64 11 841 Replacing actuator drive for right footwell flap

TECHNICAL INFORMATION

After the replacement, the controller drive must be reconfigured.
The address can only be configured with the diagnosis system.

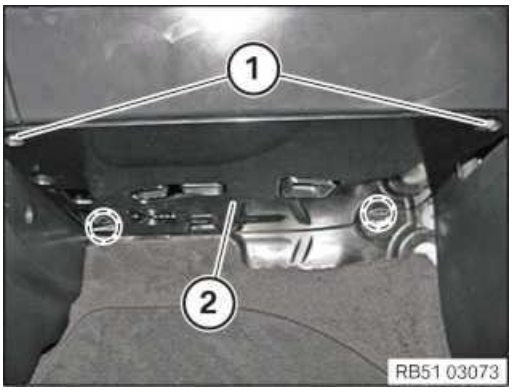
PRELIMINARY WORK

1 – Disconnecting all battery earth leads



- See additional information.

2 – Removing the instrument panel trim at bottom right

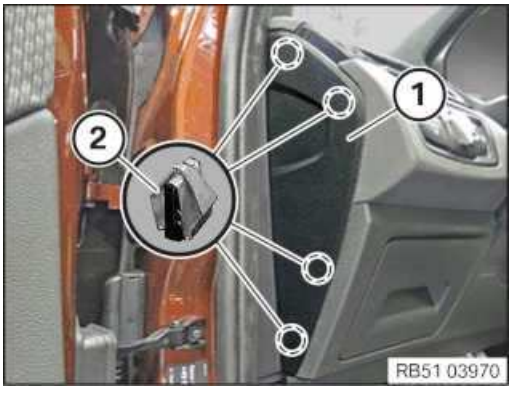


- Loosen nuts (1).
- Lower the instrument panel trim slightly at the bottom right (2) and disconnect the plug connection behind it.
- Guide the instrument panel trim at the bottom right (2) from the front guides and remove it.

3 – Remove the side panel on the right instrument panel

NOTICE

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

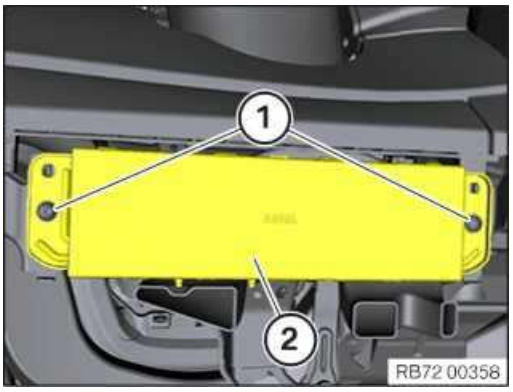


- Lift the side panel (1) out of the clamps (2) with the special tool **0 496 569 (00 9 325)** and feed out toward the rear at an angle.

  If necessary, unlock and disconnect the plug connection on the switch for the front passenger airbag deactivation.

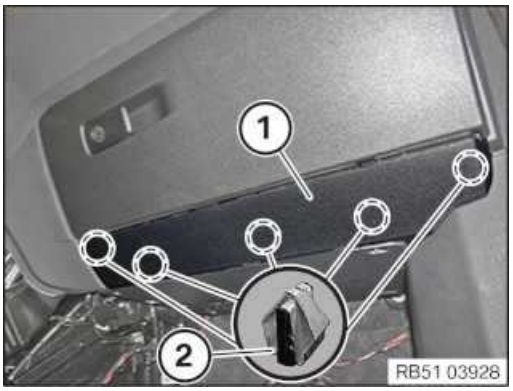
4 – Removing knee airbag

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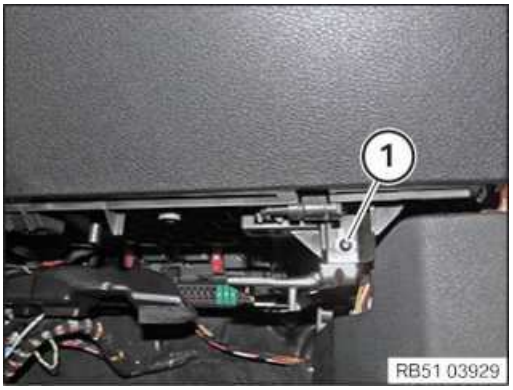


- Unlock plug connection on knee airbag (2) and disconnect.
- Loosen screws (1).
- Remove knee airbag (2).

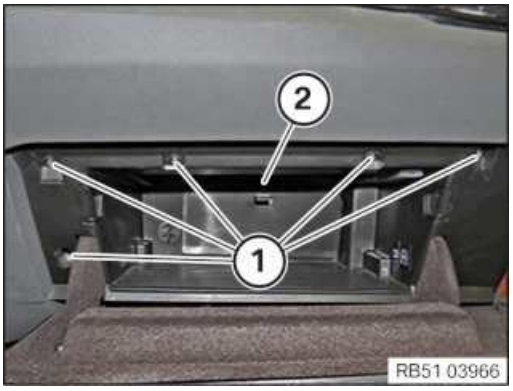
5 – Remove right glove box



- Release the trim (1) with the special tool **0 496 569 (00 9 325)** toward the bottom from the clamps (2) and remove.

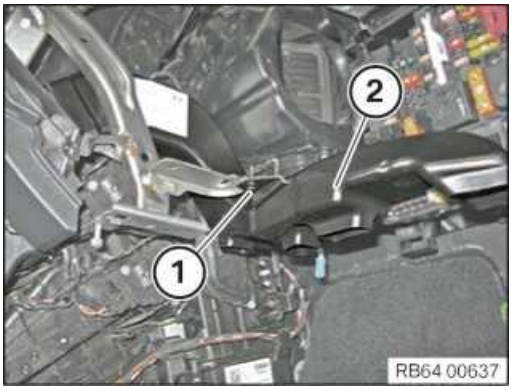


- Loosen screw (1).



- Loosen screws (1).
- Remove glove box (2) to the inside and disconnect associated plug connections.

6 – Remove right footwell ventilation duct

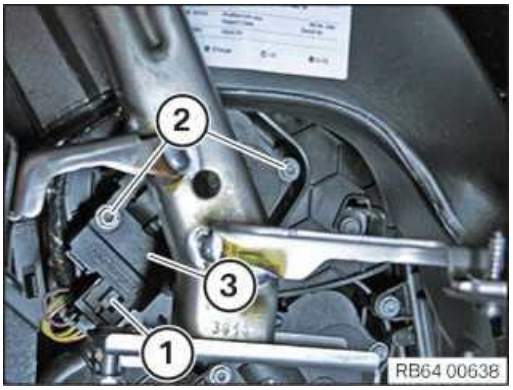


- Loosen screw (1).
- Thread the footwell ventilation duct (2) out and remove.

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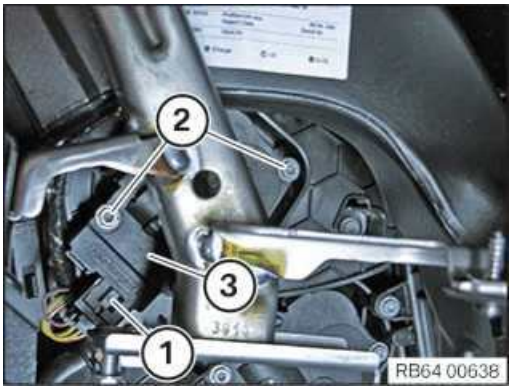
MAIN WORK

7 – Remove right-hand foot well flap motor



- Unlock plug connection (1) and disconnect.
- Loosen screws (2).
- Remove foot well flap motor (3).

8 – Install the right-hand foot well flap motor



- Correctly position the foot well flap motor (3).
- Tighten the screws (2).

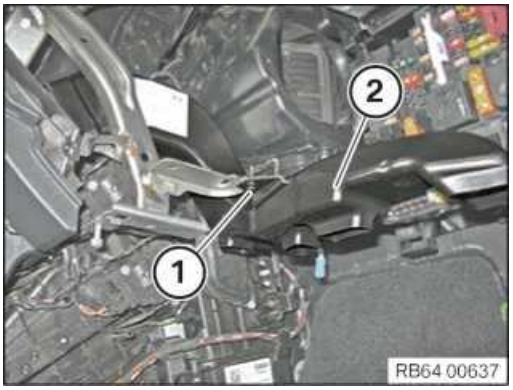
Controller drive to heating and air-conditioning unit

Screw		Tightening torque	1,2 Nm

- Connect connectors (1) and lock.

POSTPROCESSES

9 – Install the right footwell ventilation duct

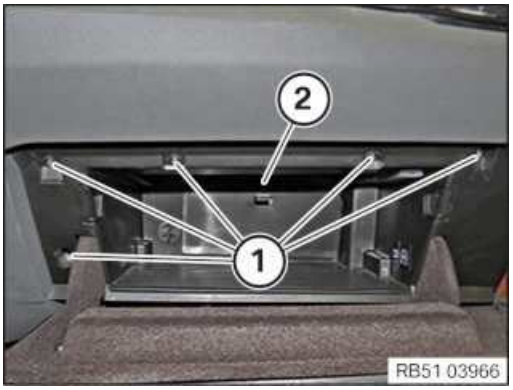


- Feed in the footwell ventilation duct (2).
- Tighten down screw (1).

Footwell ventilation duct

Screw			2,4 Nm

10 – Install right glove box

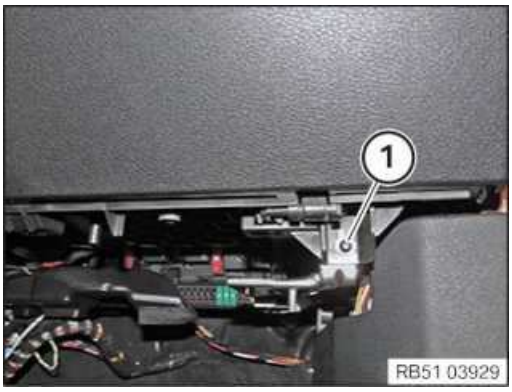


- Install the glove box (2) and connect and lock associated plug connections.
- Tighten the screws (1).

Glove box to instrument panel

Screw		Tightening torque	1,8 Nm

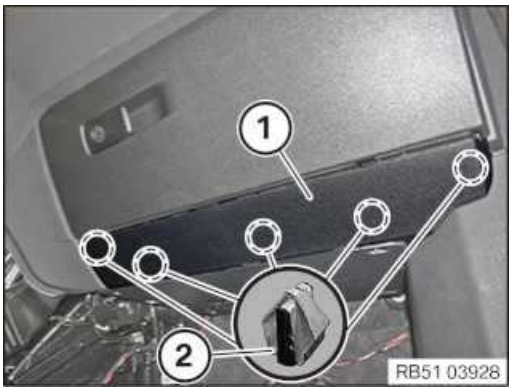
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- Tighten down screw (1).

Glove box to instrument panel

Screw		Tightening torque	1,8 Nm

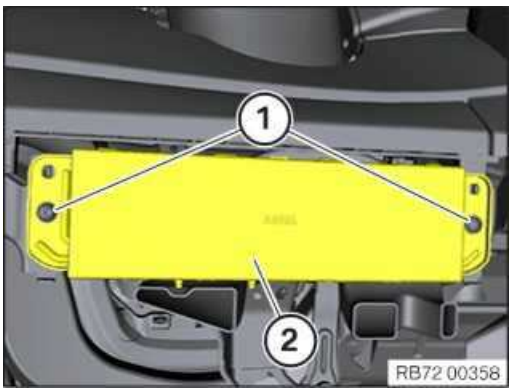


TECHNICAL INFORMATION

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

- Install the trim (1) and lock it at the clamps (2).

11 – Installing knee airbag



- Connect the plug connection to the knee airbag (2) and lock.
- Install knee airbag (2).
- Renew screws (1).

  Parts: Screw
- Tighten the screws (1).

Knee airbag to body

M8	Renew screws.	Tightening torque	8 Nm

12 – Install the side panel on instrument panel on the right

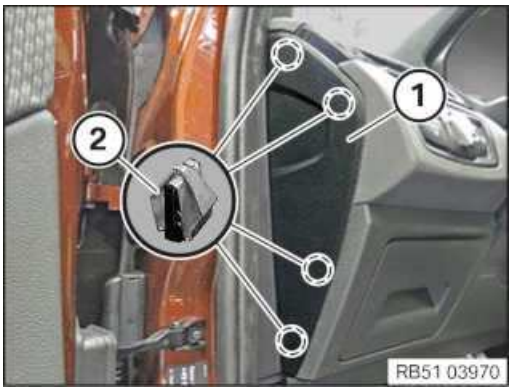
TECHNICAL INFORMATION

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

NOTICE

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

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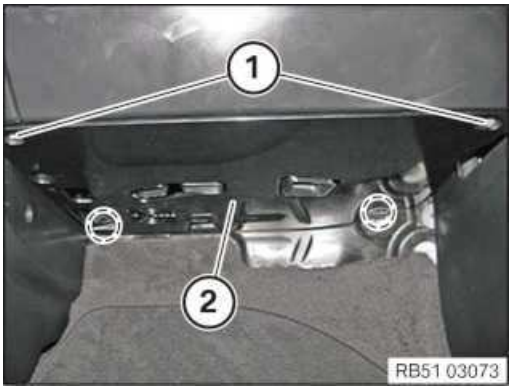


- If necessary, connect the plug connection on the switch for front passenger airbag deactivation and lock.
- Feed in the side panel (1) at an angle toward the front and lock at the clamps (2).

13 – Installing the botto right instrument panel trim

TECHNICAL INFORMATION

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



- Install the lower right instrument panel trim (2) and connect and lock the plug connection.
- Insert the lower right instrument panel trim (2) into the front guides.
- Tighten nuts (1).

Bottom left footwell trim to instrument panel

M5 hexagon nut		Tightening torque	2 Nm

14 – Disconnecting all battery earth leads



- See additional information.

15 – Address the controller drive

- Carry out the service function as follows:
  - Body
  - Heating and air conditioning function
  - Flap motors
  - Address flap motors

Additional Information

Overview of Tightening Torques

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Controller drive to heating and air-conditioning unit

Used in step 8

Screw		Tightening torque	1,2 Nm

Footwell ventilation duct

Used in step 9

Screw			2,4 Nm

Glove box to instrument panel

Used in step 10

Screw		Tightening torque	1,8 Nm

Knee airbag to body

Used in step 11

M8	Renew screws.	Tightening torque	8 Nm

Bottom left footwell trim to instrument panel

Used in step 13

M5 hexagon nut		Tightening torque	2 Nm

Overview of Special Tools

0 496 569 (00 9 325) Wedge



Common

Used in step 3 5

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)

Links

Repair instructions	Used in step
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1 14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1 14
61 20 900 Disconnect and connect battery earth lead (Plug-in Hybrid Electric Vehicle)	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14
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61 20 900 Disconnecting and connecting battery earth lead	1 14
61 20 900 Disconnecting and connecting battery earth lead	1 14

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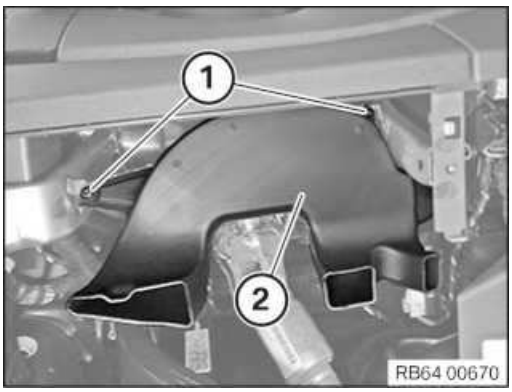
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14
61 20 900 Disconnecting and connecting battery earth lead	1	14

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64 11 225 Replacing controller for heating and air conditioning system

PRELIMINARY WORK

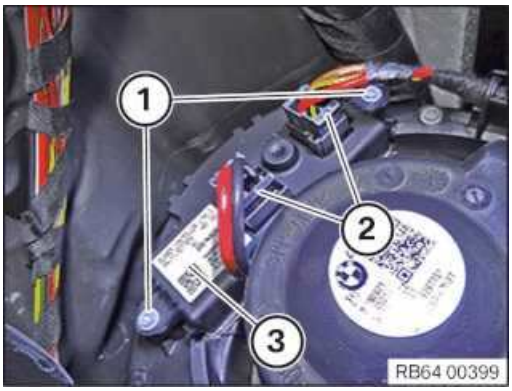
1 – Removing the left footwell ventilation duct



- Loosen screws (1).
- Guide out the left footwell ventilation duct (2) and remove.

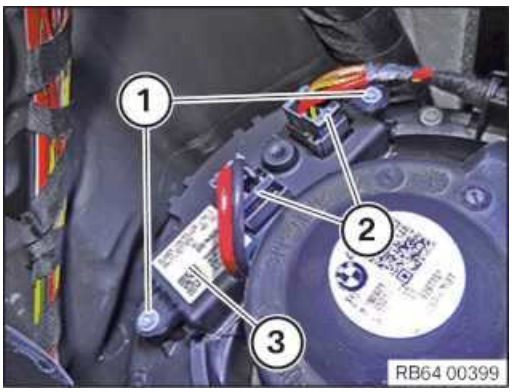
MAIN WORK

2 – Removing controller for the blower



- Loosen screws (1).
- Unlock and disconnect plug connections (2).
- Guide out the controller (3) and remove it.

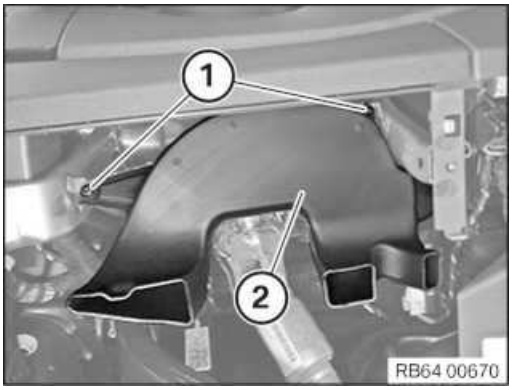
3 – Installing the controller for the blower



- Feed in and install the controller (3).
- Connect connectors (2) and lock.
- Tighten the screws (1).

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4 – Install the left footwell ventilation duct



- Guide and install left footwell ventilation duct (2).
- Tighten the screws (1).

Footwell ventilation duct

Screw			2,4 Nm

Additional Information

Overview of Tightening Torques

Footwell ventilation duct Used in step 4

Screw			2,4 Nm

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64 11 942 Replacing evaporator temperature sensor (after vehicle diagnosis)

RISK OF DAMAGE

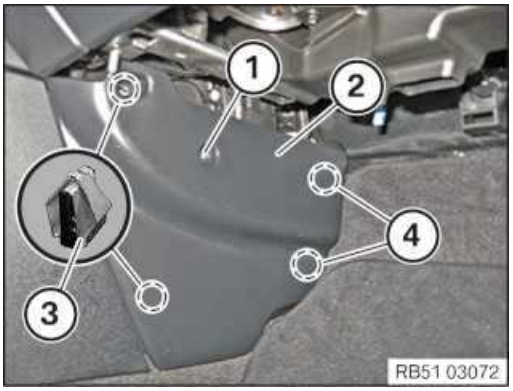
Scratches.

Tools and sharp-edged components can cause scratches.

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

PRELIMINARY WORK

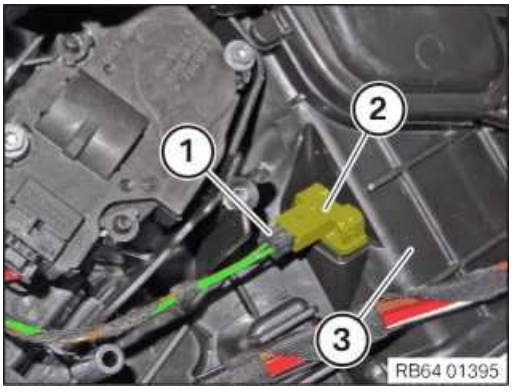
1 – Removing side trim panel for the centre console on the right side



- Loosen screw (1).
- Release the side trim panel for centre console (2) from retaining clips (3).
- Remove the side trim panel for centre console (2) from guides (4) and remove it.

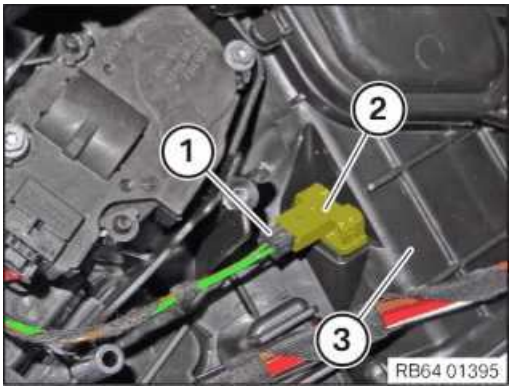
MAIN WORK

2 – Remove evaporator temperature sensor



- Unlock and disconnect connector (1).
- Pull the evaporator temperature sensor (2) out of the heating and air-conditioning unit (3) and remove.

3 – Install evaporator temperature sensor



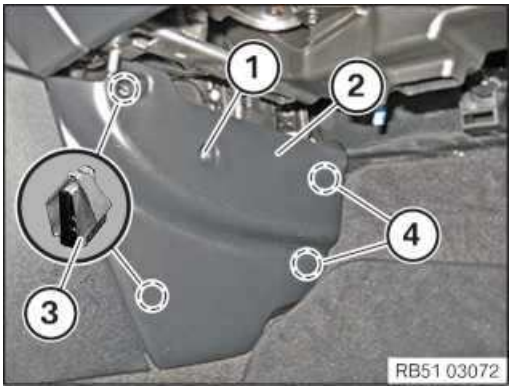
- Fit evaporator temperature sensor (2) correctly in the heating and air-conditioning unit (3).
- Connect connectors (1) and lock.

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4 – Installing side trim panel for the right centre console

TECHNICAL INFORMATION

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



- Install the side trim panel for the centre console (2) and feed it into the guides (4).
- Engage the side trim panel for the centre console (2) into retaining clips (3).
- Tighten down screw (1).

Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

Additional Information

Overview of Tightening Torques

Trim to centre console Used in step 4

Oval-head screw		Tightening torque	1,8 Nm

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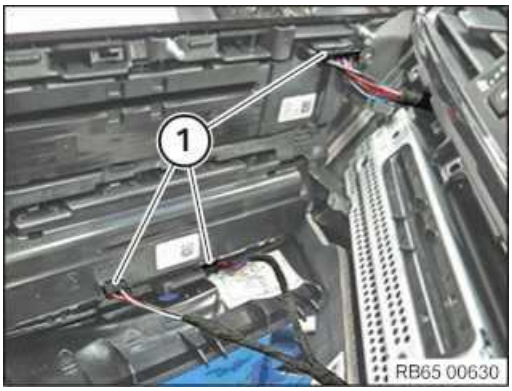
64 11 891 Replacing the control panel for the heating and air conditioning system (after vehicle diagnosis)

PRELIMINARY WORK

1 – Removing the audio operating unit and the air conditioning control panel



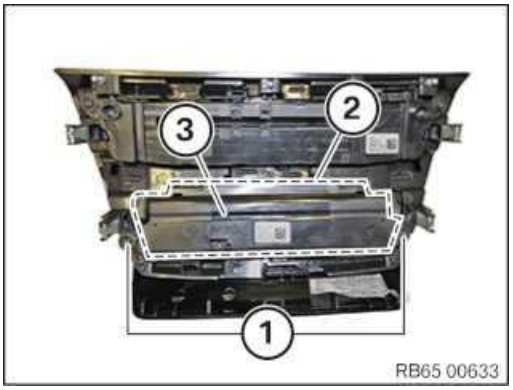
- Unclip the trim (1) using special tool **2 298 505**.



- Unlock plug connection (1) and disconnect.
- Remove the audio operating unit and the air conditioning control panel.

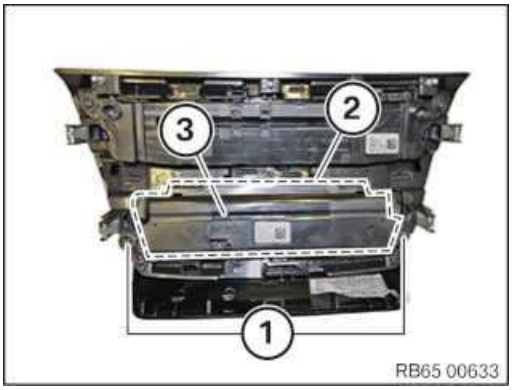
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2 – Remove control panel for heating and air conditioning



- Loosen screws (1).
- Unlock the latch mechanisms in the highlighted area (2) and remove the control panel of the heating and air conditioning system (3).

3 – Install control panel for heating and air conditioning system



- Correctly position the control panel of the heating and air conditioning system (3) and engage it with the latch mechanisms (2).
- Tighten the screws (1).

Control panel for air conditioning on trim

Screw		Tightening torque	2,5 Nm

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4 – Installing the audio operating unit trim



- Correctly position trim (1) and clip it into the instrument panel (2).

5 – Encode/program control unit(s)

Prerequisite

Replacement of the control unit.

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.
Exception:
BMW I01: Note Product and Measures Management Aftersales measure 55176388.

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

Additional Information

Overview of Tightening Torques

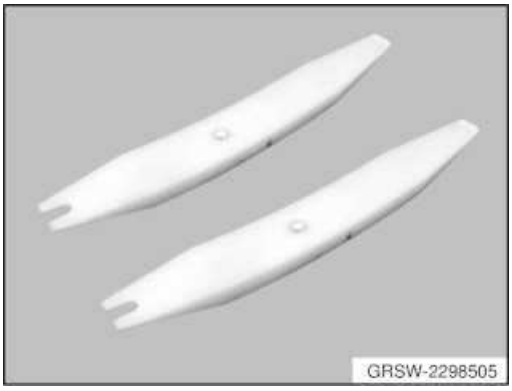
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Control panel for air conditioning on trim Used in step 3

Screw		Tightening torque	2,5 Nm

Overview of Special Tools

2 298 505 Wedge



Common Used in step 1

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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64 11 531 Replacing the heat exchanger for heating system (heating and air-conditioning unit removed)

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.
- For additional batteries: Detach all battery earth leads from additional batteries.

RISK OF DAMAGE

Scratches.

Tools and sharp-edged components can cause scratches.

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

PRELIMINARY WORK

1 – Drawing off the air conditioning

- See additional information.

2 – Disconnecting all battery earth leads



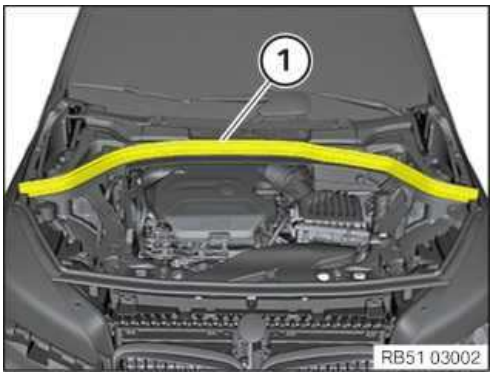
- See additional information.

3 – Remove the seal for the rear bonnet

NOTICE

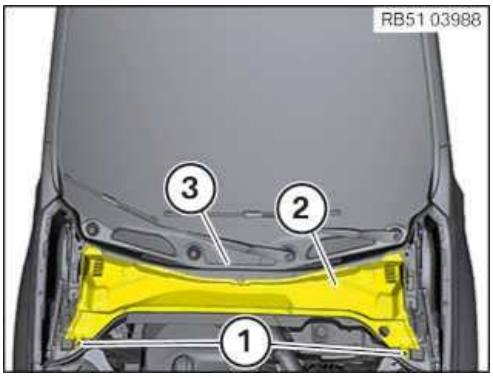
Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Pull off rear bonnet seal (1) towards the top and remove.

4 – Removing front cowl panel cover

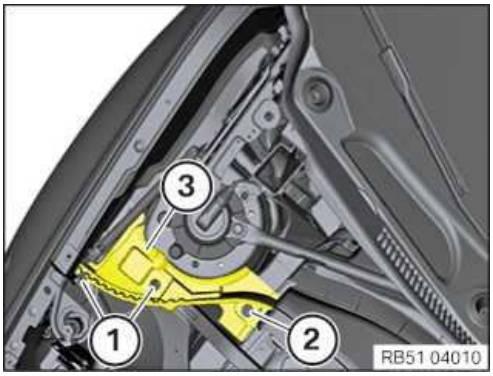


- Loosen the expanding rivet (1).
- Feed out and remove front cowl panel cover (2) from the rear cowl panel cover(3).

5 – Remove suspension cross-brace

TECHNICAL INFORMATION

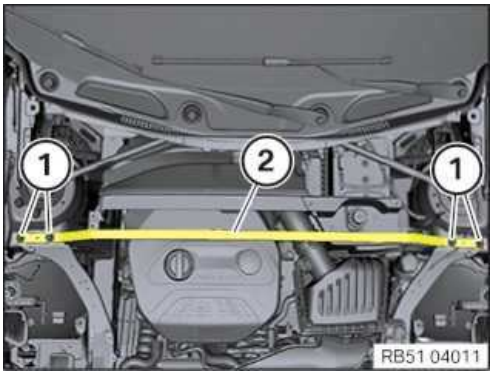
Driving without the strut brace/front end or tension strut is not permitted.



NOTICE

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

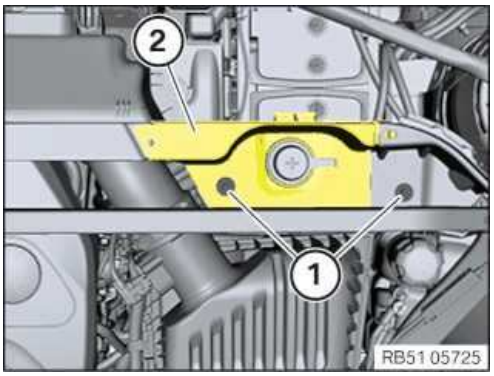
- Loosen expanding rivet (1).
- Loosen screw (2).
- Remove the cover (3).



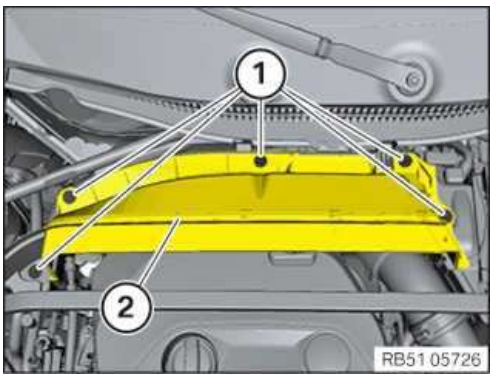
- Loosen screws (1).
- Remove strut brace (2).

6 – Removing the upper bulkhead cover

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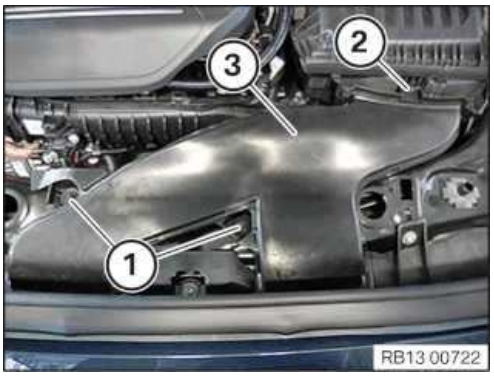


- Loosen screws (1).
- Guide out and remove the cover (2).



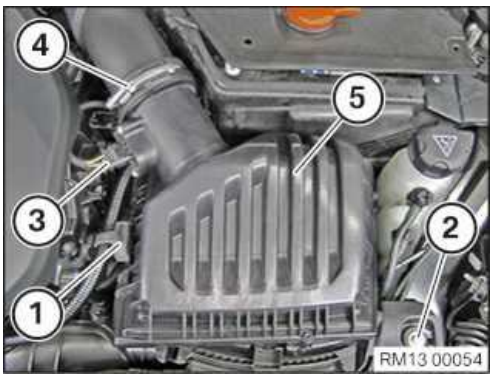
- Loosen screws (1).
- Feed out and remove the upper bulkhead cover (2).

7 – Remove the intake neck for intake silencer housing



- Loosen nuts (1).
- Loosen the lock (2).
- Guide the intake neck (3) out and remove it.

8 – Removing intake silencer housing



- Loosen the holder (1).
- Loosen screw (2).
- Unlock and loosen connector (3).
- Unfasten clamp (4).
- Pull out and remove the intake silencer housing (5) from the rubber mounts towards the top.

9 – Remove electronics box

Prerequisite

Battery earth lead is disconnected.

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RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

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

RISK OF DAMAGE

Damage to wires when disconnecting connectors and plug connections.

Sheared wires can cause a short circuit.

- Do not pull on the wires when disconnecting connectors and plug connections.

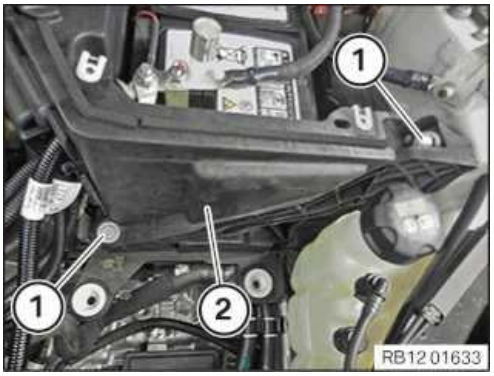
TECHNICAL INFORMATION

Follow instructions for removing and installing control units.

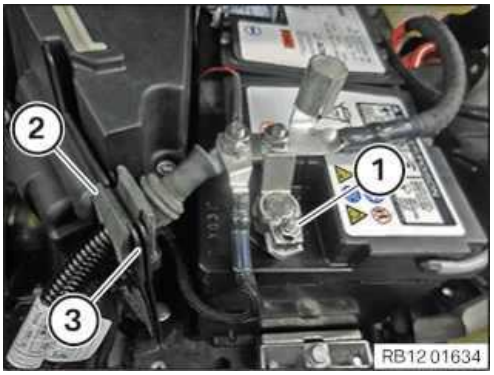
For additional information see: 12 00 ... Notes on removal and installation of control units

TECHNICAL INFORMATION

Disconnecting control units may cause fault code entries and functional limitations. Fault code entries must be read out and deleted if necessary.

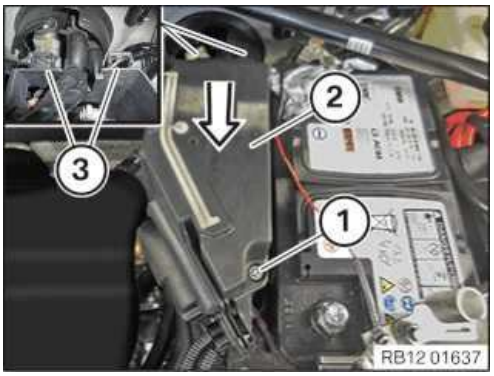


- Loosen screws (1).
- Guide out the tension strut (2) toward the top and remove it.

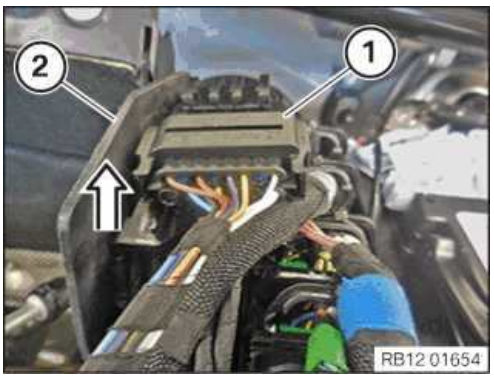


- Undo positive battery terminal (1).
- Feed out positive battery terminal (1) and set aside.
- Guide the positive battery cable (2) out of the holder (3) and lay to one side.

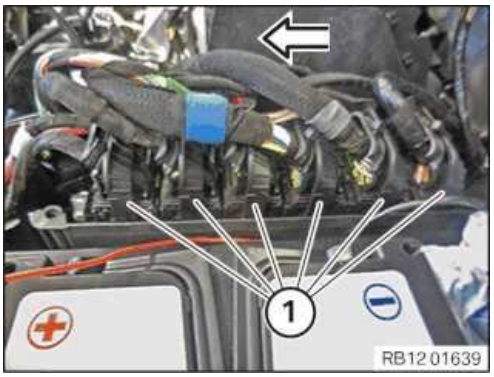
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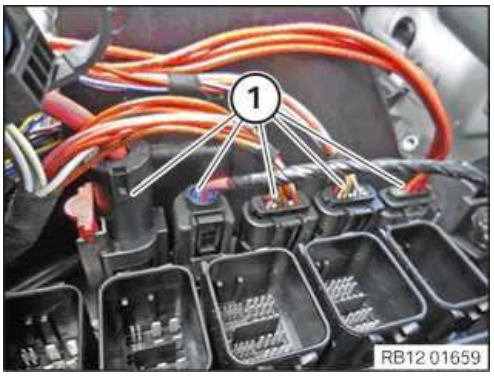
- Loosen screw (1).
- Unlock cover (2) and feed out and remove from the guides (3) in the direction of arrow.



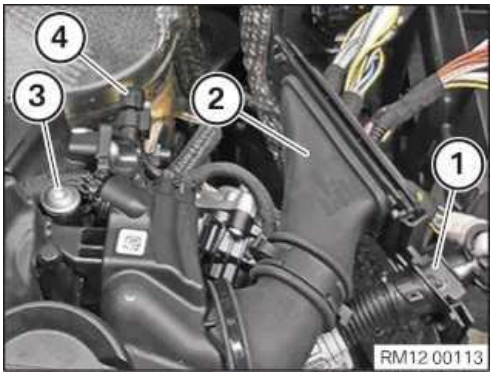
- Feed out connector (1) from the electronics box (2) and remove in the direction of arrow.
- Unlock and loosen connector (1).



- Unlock and remove the connector (1) in the direction of the arrow.
- Feed out connector (1) and place to one side.

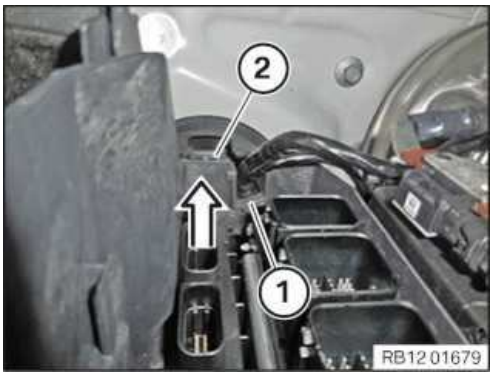


- Unlock and loosen connector (1).

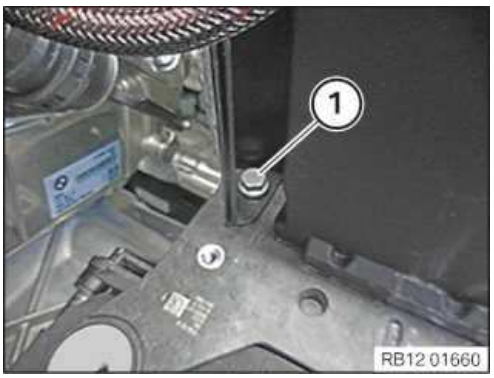


- Detach the wiring harness (1) from the electronics box.
- Detach the wiring harnesses (2) from electronics box.
- Loosen screw (3).
- Set wiring harnesses (1) and (2) aside.
- Unlock the connector (4) and disconnect it from the differential pressure sensor.

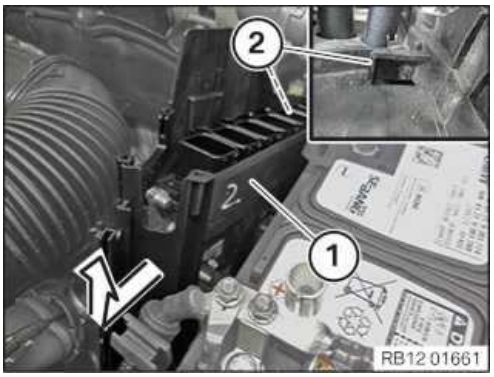
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- Unlock and loosen holder (1).
- Guide the holder (1) out of the electronics box (2) in direction of arrow and set it aside.

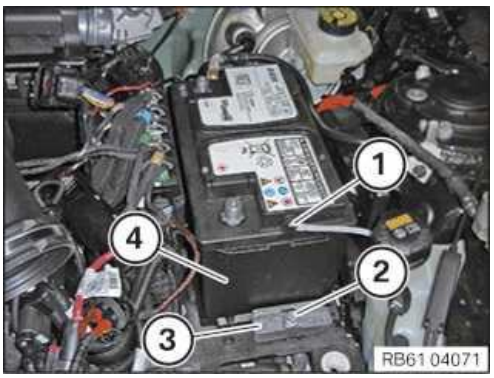


- Loosen screw (1).



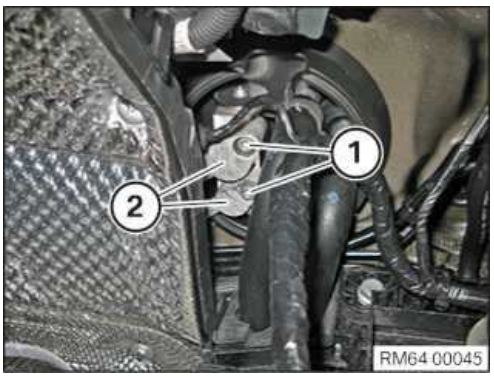
- Guide the electronics box (1) out of the guide (2) in direction of arrow and remove.

10 – Partially remove vehicle battery



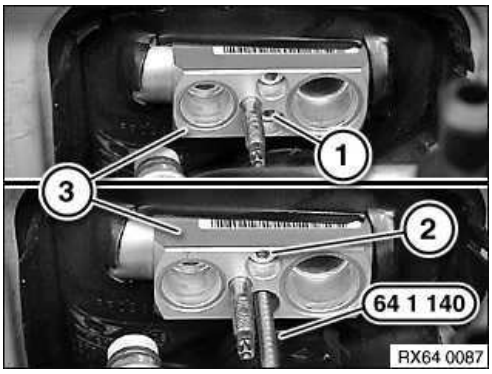
- Pull off the vent hose (1).
- Unscrew the screw (2) and remove the holder (3).
- Remove vehicle battery (4).

11 – Remove expansion valve



- Loosen screws (1).
- Take off refrigerant line (2).

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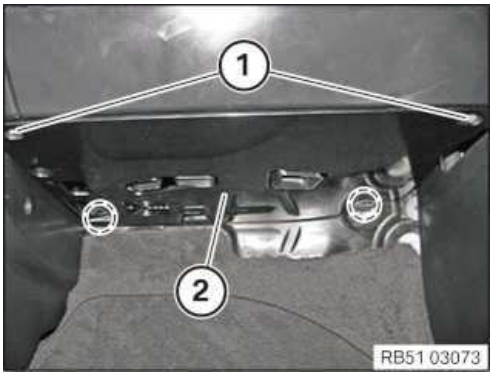
- Loosen screw (1) and screw the special tool **0 495 815 (64 1 140)** in.
- Loosen screw (2) then slide the expansion valve (3) forwards and remove.

12 – Adjust the steering column position



- Adjust the length of the steering column to the maximum length in the direction of arrow (1).
- Move the steering column to the lowest steering column position in the direction of arrow (2).

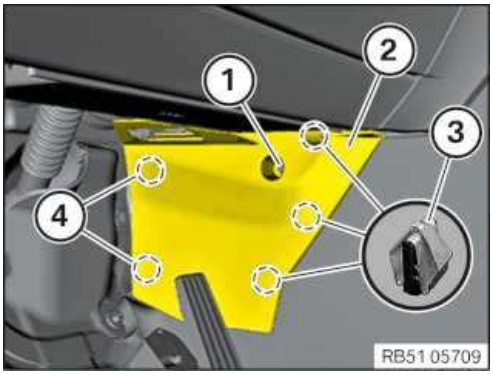
13 – Removing the instrument panel trim at bottom right



- Loosen nuts (1).
- Lower the instrument panel trim slightly at the bottom right (2) and disconnect the plug connection behind it.
- Guide the instrument panel trim at the bottom right (2) from the front guides and remove it.

14 – Removing the side trim panel for the left and right centre console

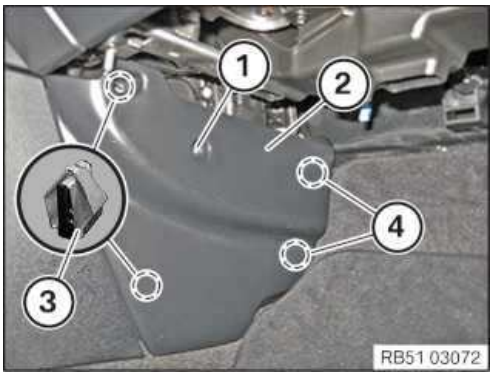
▶ **Removing side trim panel for the left centre console**



- Loosen screw (1).
- Release side trim panel (2) for the centre console from retaining clips (3).
- Remove side trim panel (2) for the centre console from guides (4) and remove it.

▶ **Removing side trim panel for the centre console on the right side**

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- Loosen screw (1).
- Release the side trim panel for centre console (2) from retaining clips (3).
- Remove the side trim panel for centre console (2) from guides (4) and remove it.

15 – Remove gearshift lever cover



- Use wedges (1) to unclip the gaiter and pull it off upward.



- Remove the gearshift lever knob and the gaiter by means of a powerful jolt vertically upwards.

  In doing so, the tie rod must not be bent or damaged.
- Ensure that the gearshift lever knob is not twisted when removing, otherwise the anti-twist lock in the gearshift lever knob will be sheared off.

16 – Remove the decorative trim from the centre console

RISK OF DAMAGE

Scratches.

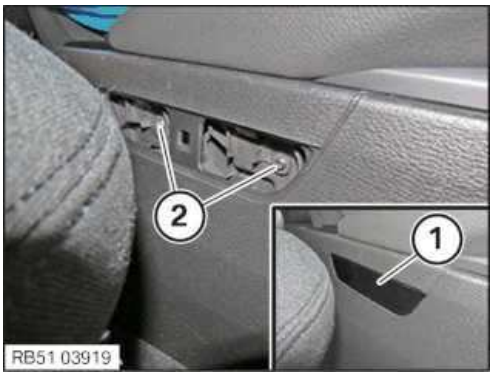
Tools and sharp-edged components can cause scratches.

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

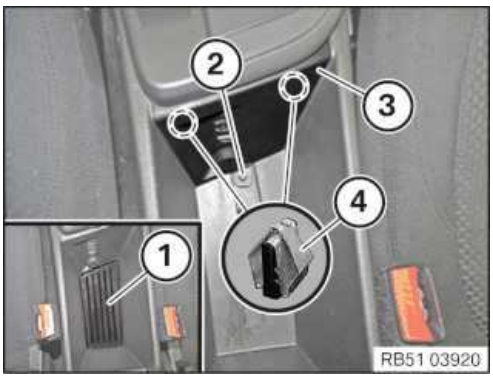


- Lever out and remove cover (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screws (2).

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- Lever out and remove cover (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screws (2).

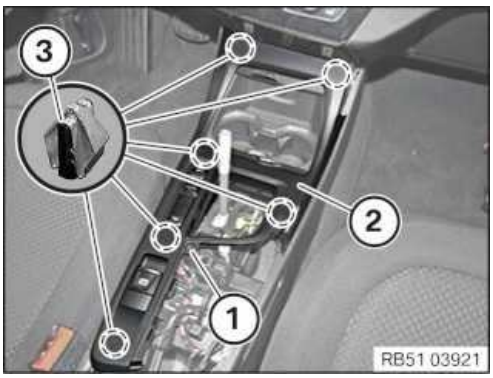


- Remove insert (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screw (2).
- Lever out trim (3) from clamps (4) towards the rear with the special tool **0 496 571 (00 9 327)**.
- Unfasten plug connection.
- Remove the trim (3).

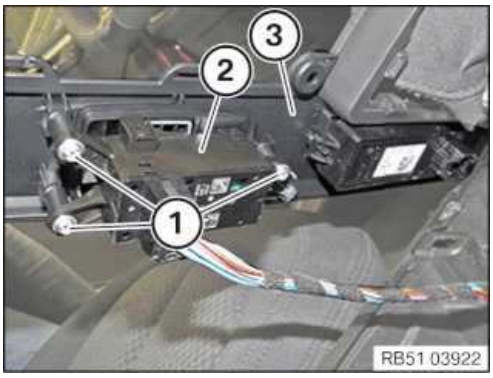


- Loosen screw (1).
- Remove decorative trim (2) and disconnect all the plug connections.
- Remove decorative trim (2).

17 – Remove the centre console trim



- Loosen screw (1).
- Release centre console trim (2) from clamps (3) with the special tool **0 496 569 (00 9 325)**.
- Lift centre console trim (2).

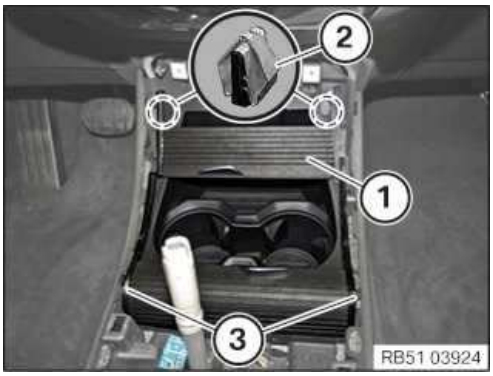


- Loosen screws (1).
- Remove parking brake button (2) from centre console trim (3) and place it down.

  The plug connection must not be disconnected.
- Disconnect the remaining plug connections and remove centre console trim (3).

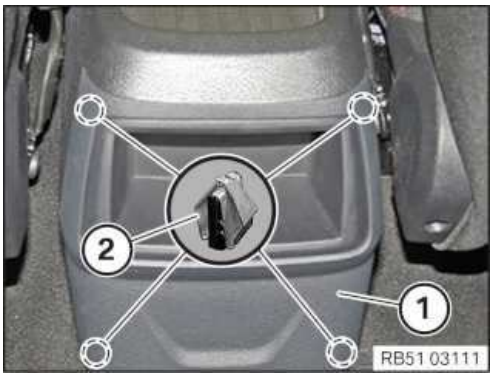
18 – Removing the front storage compartment

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- Lever storage compartment (1) at top from the clamps (2).
- Fold storage compartment (1) so far back that it can be lifted from the guides (3).
- Disconnect plug connections and remove the storage compartment (1).

19 – Removing the rear centre console trim



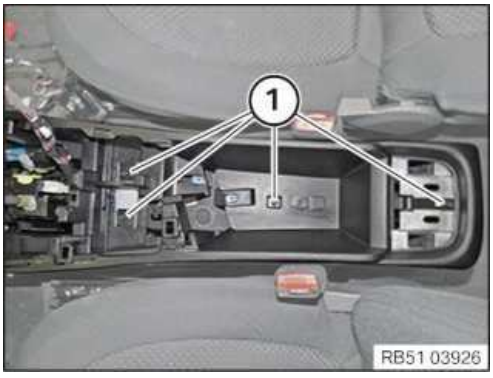
- Lever out and remove centre console trim (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2).

20 – Removing centre console fully with centre armrest

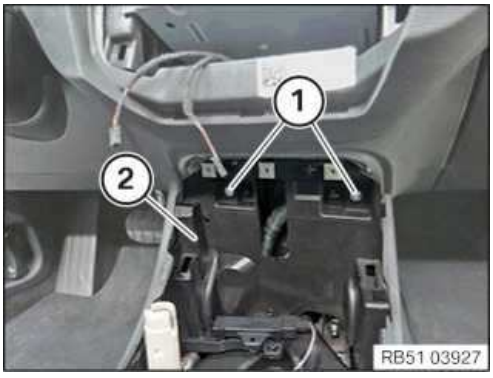
► **Removing the centre armrest**



- Release nuts (1) and remove centre armrest upwards.



- Loosen screws (1).



- Loosen screws (1).
- Lift the rear centre console (2) and in this process, disconnect all plug connections.
- Guide out the wiring harness and remove centre console (2) from the vehicle.

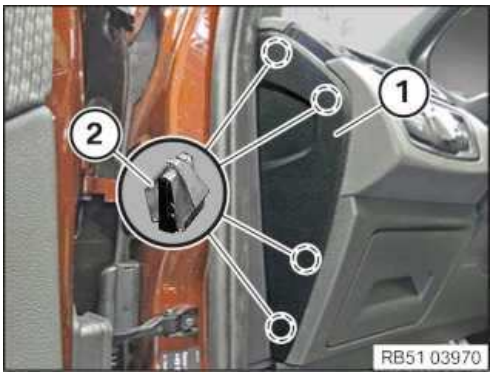
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21 – Remove the side panel on the left and right of the instrument panel

NOTICE

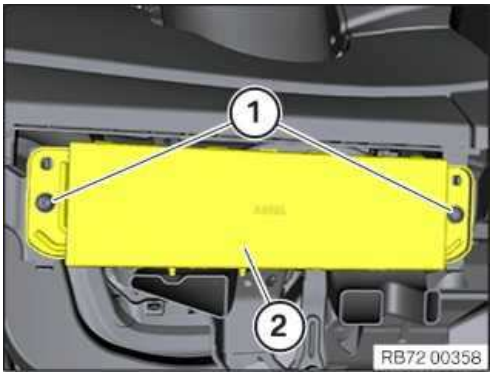
Description is for left component only. Procedure on the right side is identical.

▶ **Remove side panel on the instrument panel**



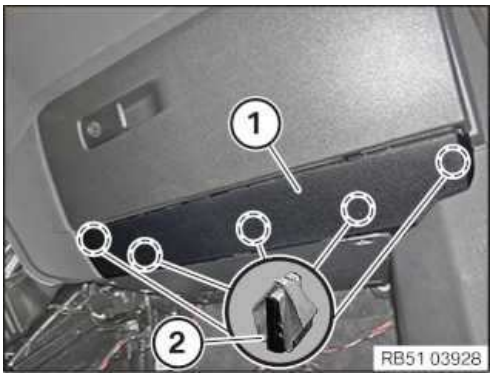
- Lift out the side panel (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2) and slide it out to the rear at an angle.

22 – Removing knee airbag

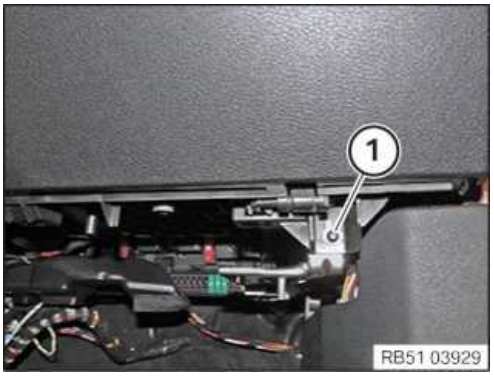


- Unlock plug connection on knee airbag (2) and disconnect.
- Loosen screws (1).
- Remove knee airbag (2).

23 – Remove right glove box

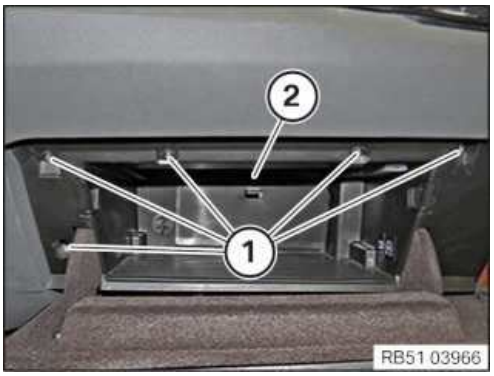


- Release the trim (1) with the special tool **0 496 569 (00 9 325)** toward the bottom from the clamps (2) and remove.



- Loosen screw (1).

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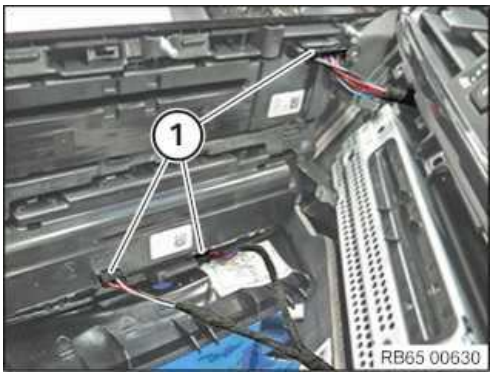


- Loosen screws (1).
- Remove glove box (2) to the inside and disconnect associated plug connections.

24 – Removing the audio operating unit and the air conditioning control panel

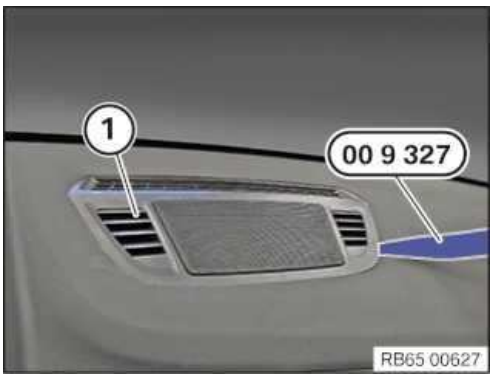


- Unclip the trim (1) using special tool **2 298 505**.

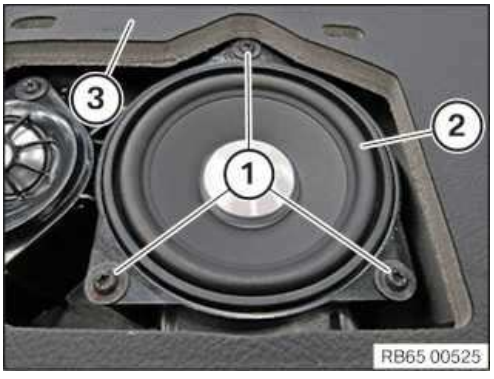


- Unlock plug connection (1) and disconnect.
- Remove the audio operating unit and the air conditioning control panel.

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



- Unclip the speaker cover (1) using the special tool **0 496 571 (00 9 327)** and remove upwards.



- Loosen screws (1).
- Disconnect plug connection underneath.
- Guide the mid-range speaker (2) out of the instrument panel (3) and remove it.

26 – Remove Head Unit High (HU-H)

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RISK OF DAMAGE

Electrostatic discharge.

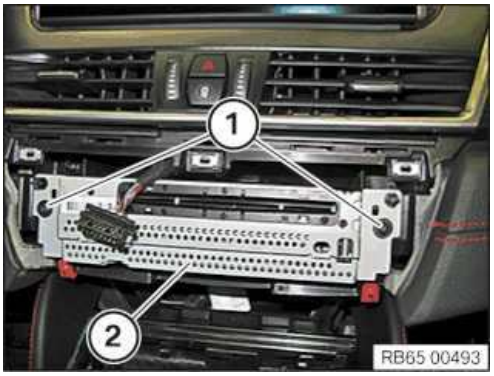
Damage to or destruction of electrical components.

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



- Remove the wiring harness (1).

  In the factory, the wiring harness (1)is routed such that not enough excess length exists to remove the head unit.

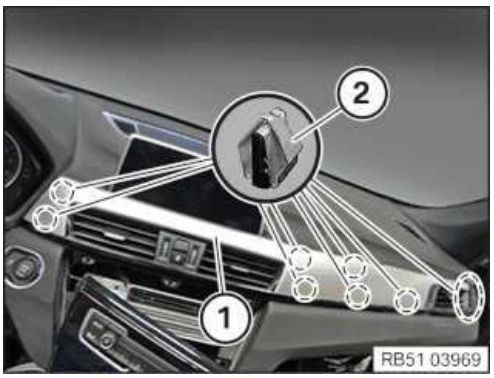


- Loosen screws (1).
- Pull out the head unit (2) a bit.



- Unlock and disconnect all connectors in the marked area.
- Remove head unit (1).

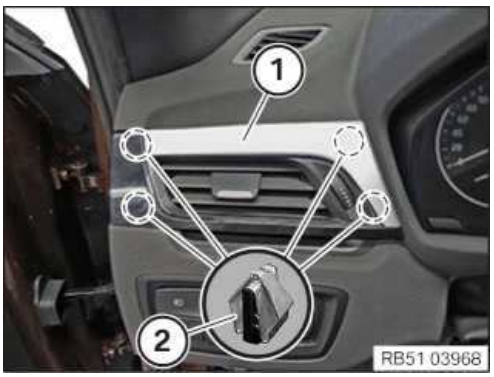
27 – Remove the finisher on the right instrument panel



- Carefully release the decorative strip (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2) starting from the side.
- Lift up the decorative strip (1) and disconnect the plug connections behind it.
- Remove the decorative strip (1).

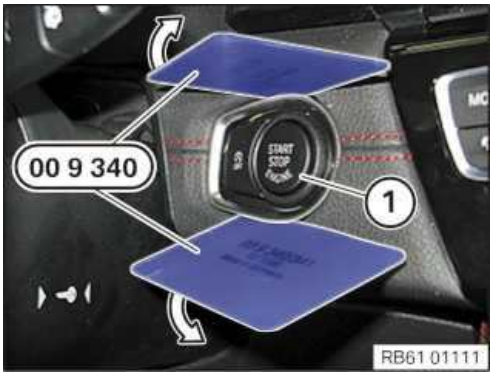
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28 – Remove decorative strip from instrument panel

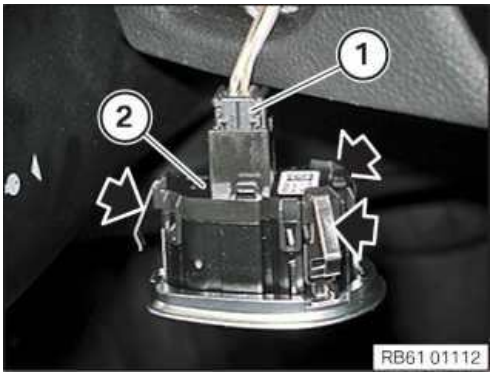


- Release the decorative strip (1) using the special tool **0 496 569 (00 9 325)** from the clamps (2) and remove.

29 – Removing the START-STOP button



- Remove START-STOP button (1) using the special tool **0 493 687 (00 9 340)**.



- Disconnect the connector (1) and remove the START-STOP button (2).

30 – Removing the light operating unit



- Unclip the light operating unit (1) in the marked area.
- Unlock and disconnect associated connector.

31 – Removing the left and right A-pillar trim panels

NOTICE

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

▸ **Remove the A-pillar trim panel**

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WARNING

Airbag unit.

Danger! Life-threatening injuries!

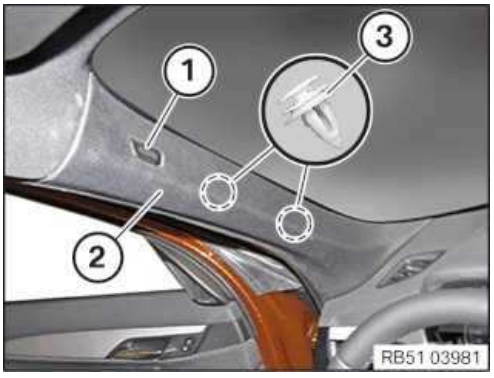
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

WARNING

Pyrotechnic components.

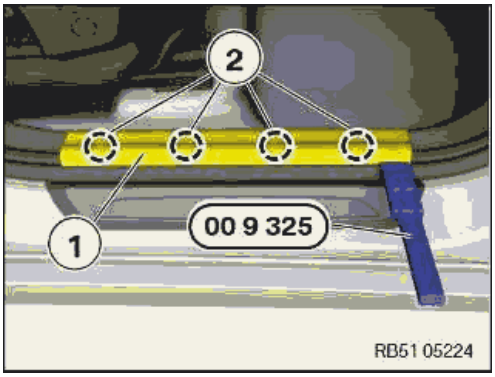
Danger! Life-threatening injuries!

- 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.

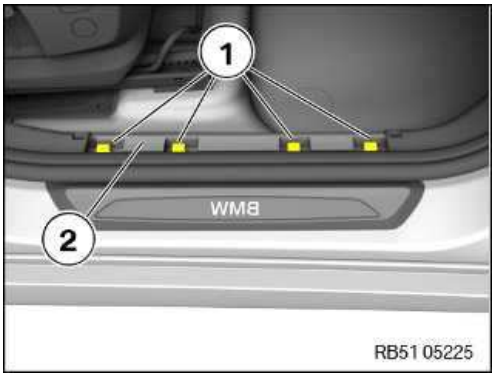


- Unclip cover (1) and unscrew the screw below it.
- Release the A-pillar trim panel (2) from the clips (3) and guide out upwards.

32 – Remove front entrance cover strip



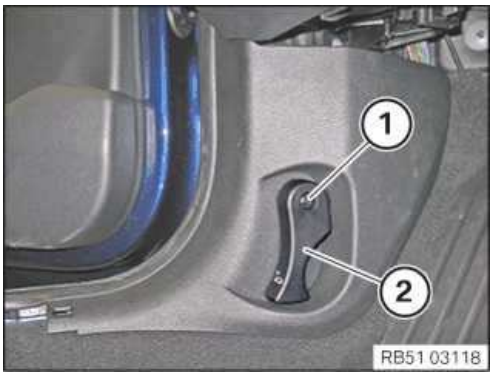
- Unclip the door sill cover strip (1) at the clips **0 496 569 (00 9 325)** using special tool (2) starting from the rear.



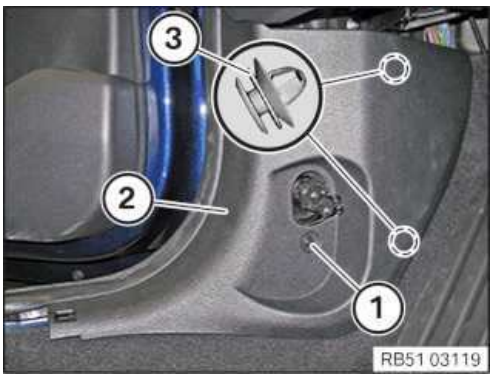
- If applicable, loosen clips (1) from floor panel (2) and mount on the door sill cover strip.

33 – Removing the side trim panel in the footwell at the A-pillar

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- Loosen screw (1).
- Remove bonnet release lever (2).

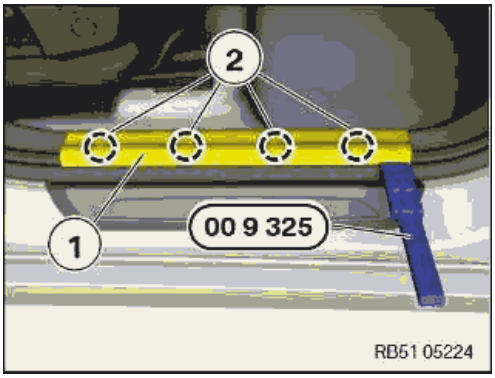


- Loosen screw (1).
- Unclip side trim panel (2) from the clips (3) and remove.

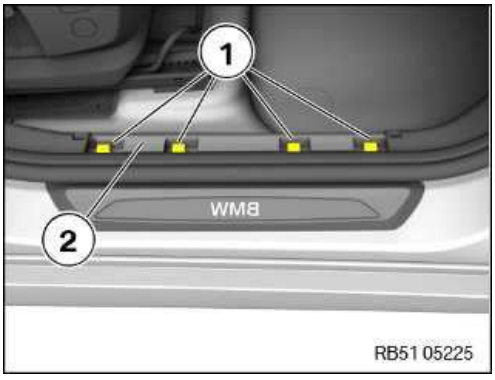
34 – Remove front right door sill cover strip

NOTICE

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



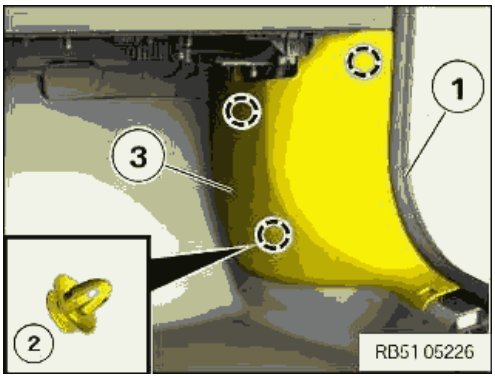
- Unclip the door sill cover strip (1) at the clips **0 496 569 (00 9 325)** using special tool (2) starting from the rear.



- If applicable, release clips (1) from floor panel (2) and mount on the door sill cover strip.

35 – Removing the side trim panel in the footwell at the right-hand A-pillar

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- Guide side trim panel (3) under the sealing lip out of the edge protection (1).
- Unclip and remove the side trim panel (3) at the clips (2).

36 – Removing airbag unit of the steering wheel/sports steering wheel

WARNING

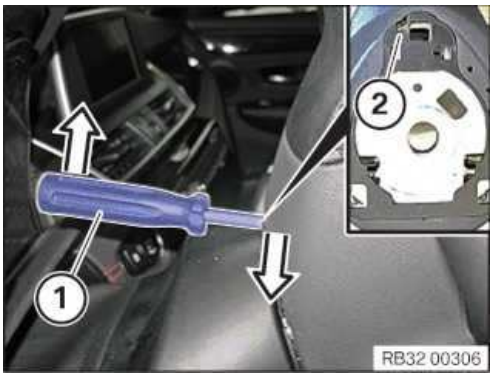
Airbag unit.

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



- Turn the steering wheel (1) through 180° from the "straight-ahead driving position".



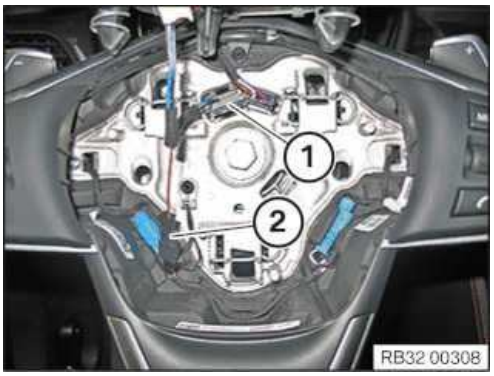
- Insert the slotted screwdriver (1) into the elongated hole on the rear side on the steering wheel.
- Push the slotted screwdriver (1) up and thereby push the retaining spring down (2).

  The airbag unit is unlocked.



- (1) Push unlocked airbag unit up.
- (2) At the same time, pull off the top airbag unit in the opposite direction of travel.

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- Unlock and disconnect the plug connections (1) and (2).
- Remove airbag unit.

37 – Removing steering wheel/sports steering wheel



- Move the steering wheel/sports steering wheels to the straight-ahead position.
- **Unlock plug connection and disconnect.**
- Release the screw (1) and remove the steering wheel/sports steering wheel.

38 – Removing steering column shroud upper section



NOTICE

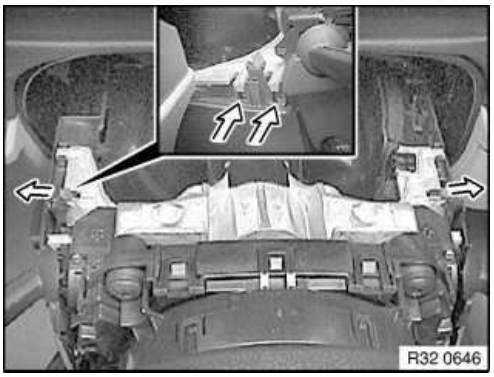
Perform the operations on the left and right side.

- Unclip the steering column shroud upper section (1) with the special tool **2 298 504** in area (2).
- Fold the steering column shroud upper section (1) up.



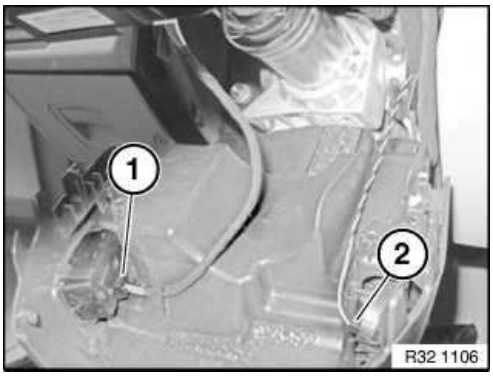
- Release the gap cover of the steering column (1) from the brackets (arrows) of the steering column shroud upper section.
- Remove steering column shroud upper section.

39 – Removing steering column shroud lower section



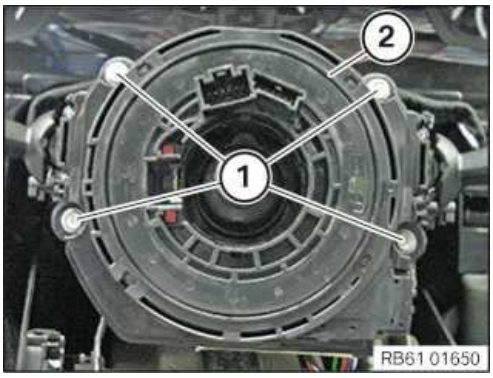
- Press the retaining lugs (arrows) a little outwards and unclip the steering column shroud lower section in a downward direction.

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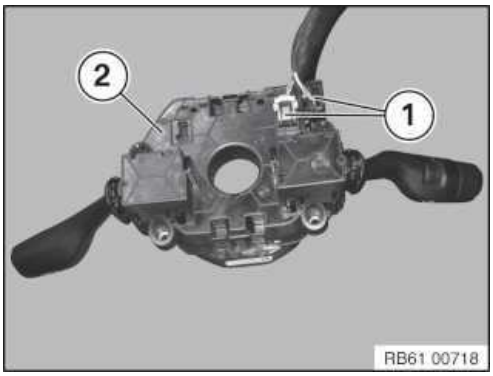


- Tilt steering column shroud lower section in downward direction.
- Unlock and disconnect the plug connections (1) and (2).
- Remove steering column shroud lower section.

40 – Removing the steering column switch cluster (SZL)



- Loosen screws (1).
- Remove the steering column switch cluster (SZL) (2).



- Unlock and disconnect the connector (1) on the steering column switch cluster (SZL) (2).

41 – Removing the instrument cluster (KOMBI)

RISK OF DAMAGE

Scratches.

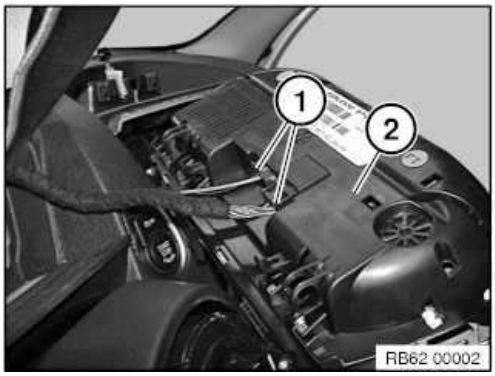
Tools and sharp-edged components can cause scratches.

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



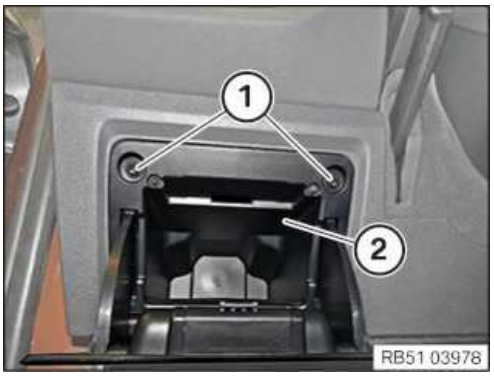
- Loosen both screws (1).
- Thread out instrument cluster (KOMBI) in direction of arrow.

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- Disconnect all plug connections (1).
- Removing the instrument cluster (KOMBI) (2).

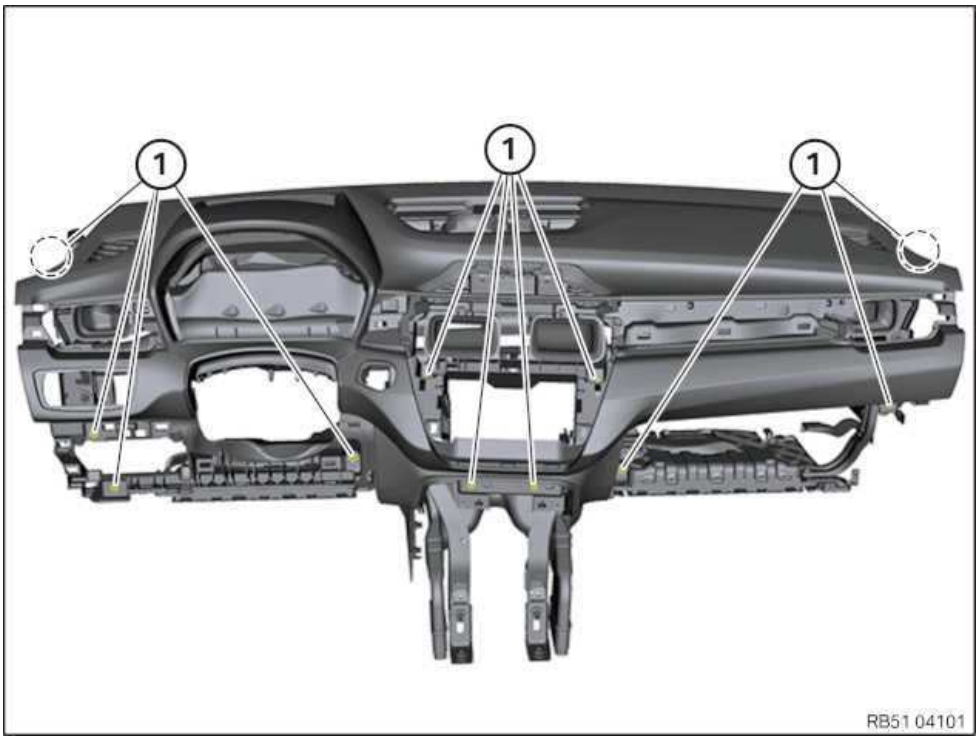
42 – Removing the left fold-down compartment



- Loosen screws (1).
- Guide out and remove the fold-down compartment (2) downward from the instrument panel.

43 – Remove instrument panel trim

Instrument panel



TECHNICAL INFORMATION

Notes on unlocking/locking airbag plug connections form the basis for these repair instructions and must be observed without fail.

For additional information see: 72 00 ... Notes on unlocking/locking airbag plug connections

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- Loosen screws (1).
- Unlock and disconnect the plug connection of the front passenger airbag.
- Guide out the instrument panel trim with the help of an auxiliary person and unlock and disconnect all the plug connections.
- Release the wiring harness from the instrument panel trim.
- Guide out the instrument panel trim through the door aperture from the vehicle.

44 – Removing the support for the instrument panel

▶ **Disconnect positive battery cable**

Prerequisite

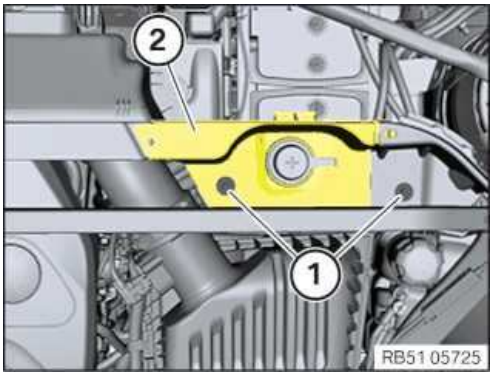
Ignition is switched off.

WARNING

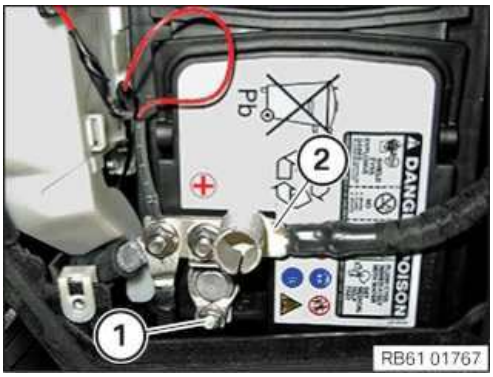
Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.
- For additional batteries: Detach all battery earth leads from additional batteries.



- Loosen screws (1).
- Guide out and remove the cover (2).



- Slacken nut (1).
- Remove positive battery cable (2).

WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Fasten positive battery cable (2) laterally.

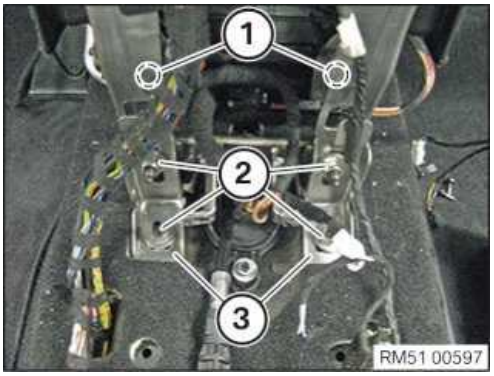


- Release the screw (1) on bulkhead.

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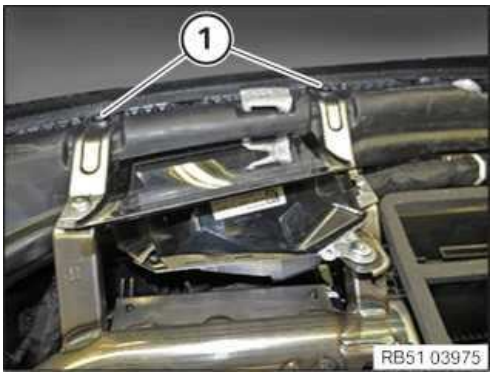
- Release the clamping bolt (1) of steering shaft on the steering column.
- Pull the steering shaft off of the steering column.



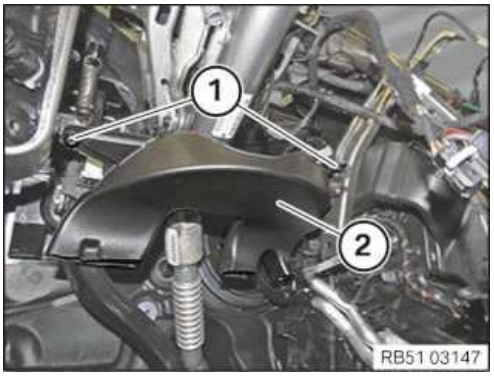
- Loosen nuts (2).
- Remove retaining bracket (3).
- Loosen screws (1).



- Loosen the nuts (1) on the left and right.

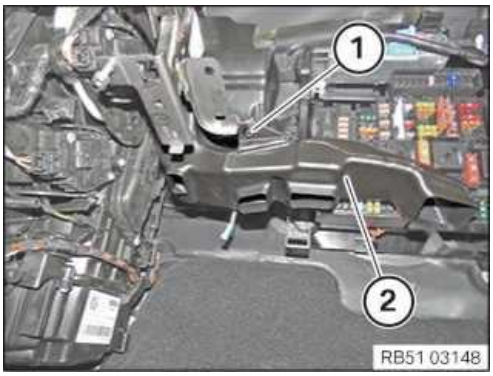


- Loosen screws (1).

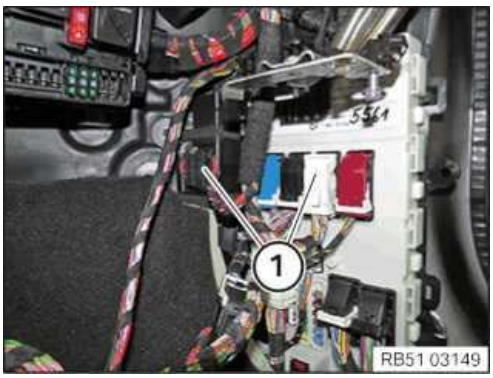


- Loosen screws (1).
- Remove the air duct (2).

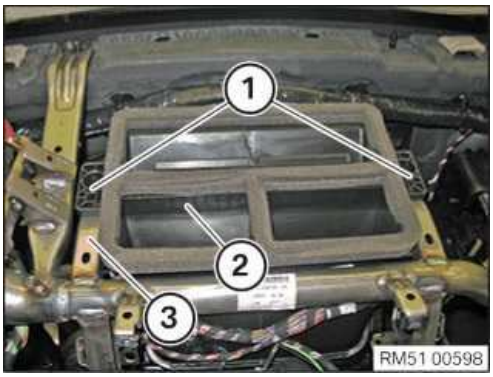
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- Loosen screw (1).
- Remove the air duct (2).

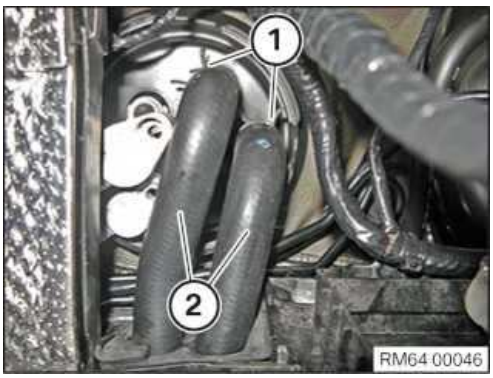


- Unlock and disconnect plug connections (1).

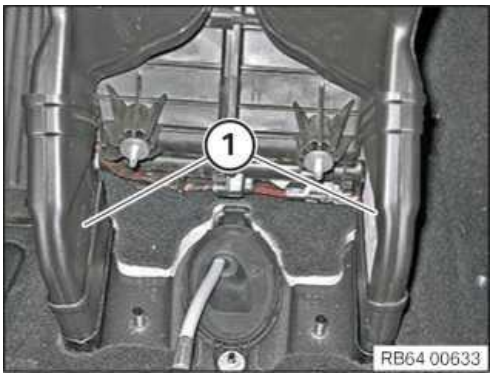


- Loosen screws (1).
- Raise heating and air-conditioning unit (2) slightly and guide out the support (3) towards rear.
- If necessary, release additional cables and all cable clips and remove support (3).

45 – Removing the heating and air-conditioning unit

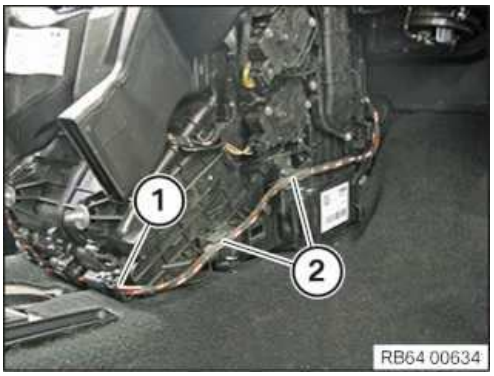


- Mark the coolant hoses (2) before removing.
- Release the hose clamps (1) using special tool and pull off the coolant hoses (2).

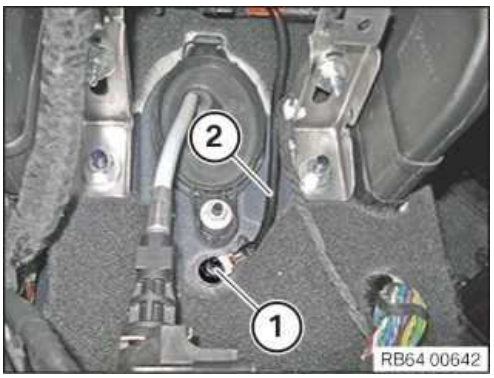


- Remove the air duct (1) on the left and right.

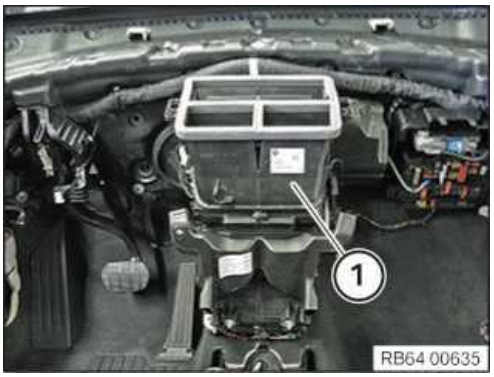
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- Unlock plug connection (1) and disconnect.
- Loosen the cable clip (2).



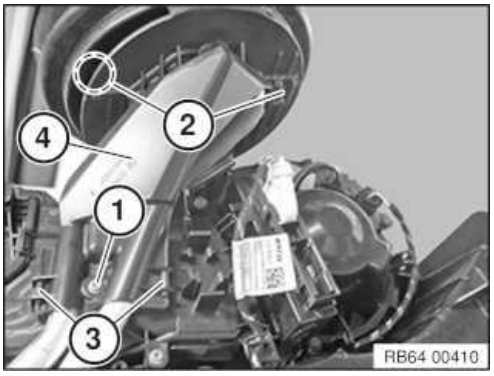
- **For equipment specifications with electric auxiliary heater:** Release the nut (1) and remove the ground cable (2).



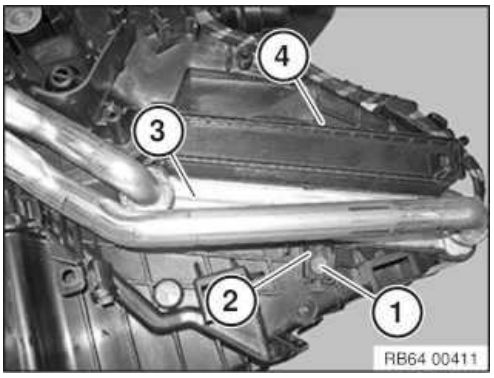
- Feed out and remove the heating and air-conditioning unit (1).

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46 – Remove the heat exchanger for heating system

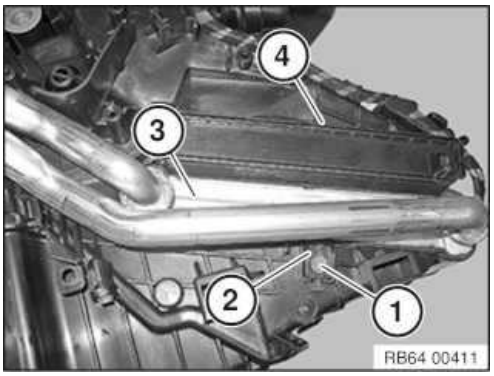


- Loosen screws (1).
- Unlock latch mechanisms (2) and (3).
- Remove the cover (4).

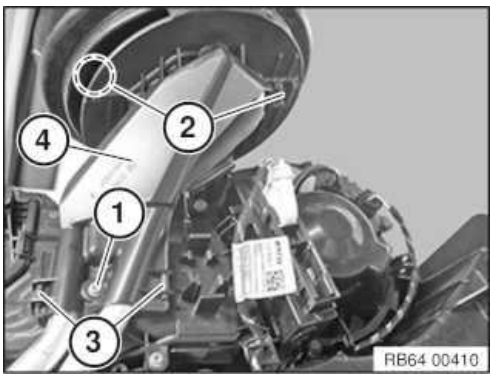


- Loosen screw (1).
- Remove the holder (2).
- Pull out the heat exchanger for heating system (3) from the heating and air-conditioning unit (4).

47 – Install heat exchanger for heating system



- Insert the heat exchanger for heating system (3) in the heating and air-conditioning unit (4).
- Correctly position the holder (2).
- Tighten down screw (1).

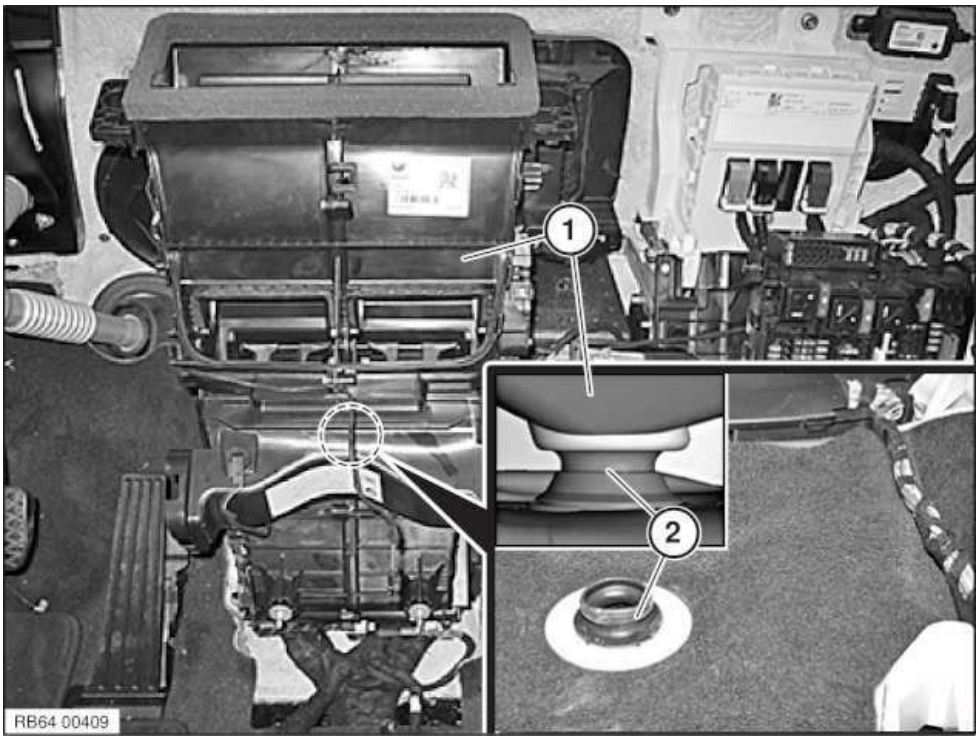


- Correctly position the cover (4).
- Engage the latch mechanisms (2) and (3).
- Tighten the screws (1).

POSTPROCESSES

48 – Installing the heating and air-conditioning unit

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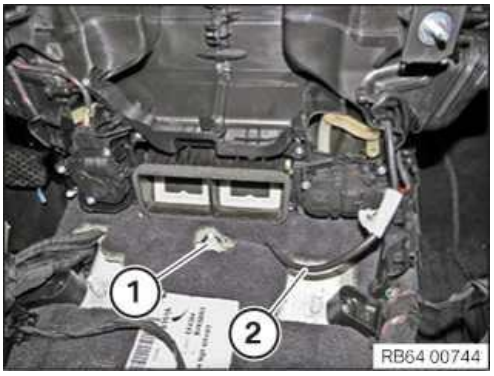


- Coat the condensate drain (2) with lubricant before installing the heating and air-conditioning unit (1).

Assembly aids

Lubricants G14	900 ml, Can	8323236041

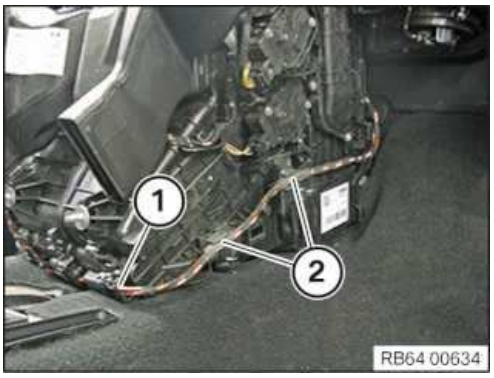
- Insert the heating and air-conditioning unit (1).
- ensure that the heating and air-conditioning unit (1) is positioned exactly on the condensate drain (2).
- Perform a visual inspection after installing the heating and air-conditioning unit (1).



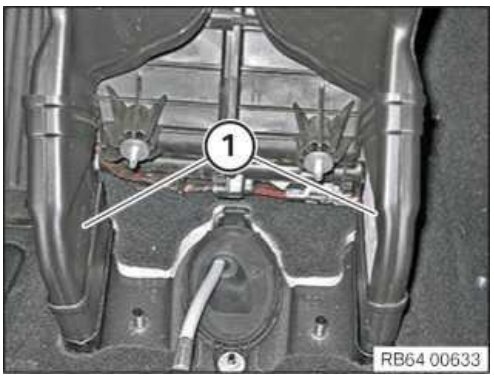
- **For equipment specifications with electric auxiliary heater:** Correctly position the ground cable (2) and tighten the nut (1).

Ground cable to body

Hexagon nut		Tightening torque	8,0 Nm

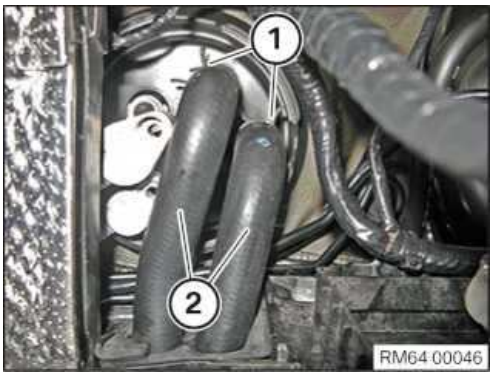


- Engage the cable clip (2).
- Connect connectors (1) and lock.



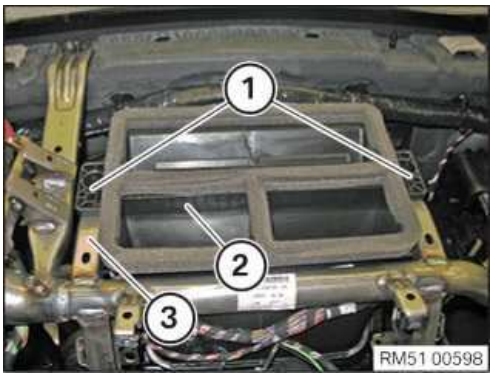
- Install air duct (1) on left and right.

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- Slide the marked coolant hoses (2) correctly before the disassembly.
- Secure hose clamps (1) using the special tool .

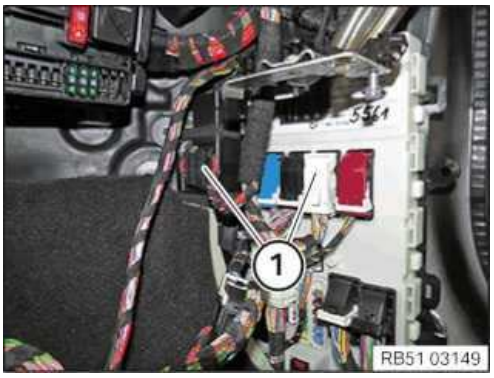
49 – Installing the support for instrument panel



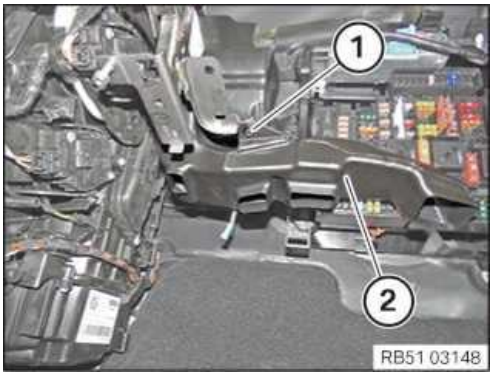
- Install the support (3).
- Correctly position the heating and air-conditioning unit (2) in the area of the screw connection (1) on the support (3).
- Make sure that cable routing is correct and clip in all cable clips on the support.
- Tighten the screws (1).

Heating and air-conditioning unit on the support for the instrument panel

M6x20 screw	Renew screw	Tightening torque	8 Nm
NutM6	Replace nut	Tightening torque	8 Nm



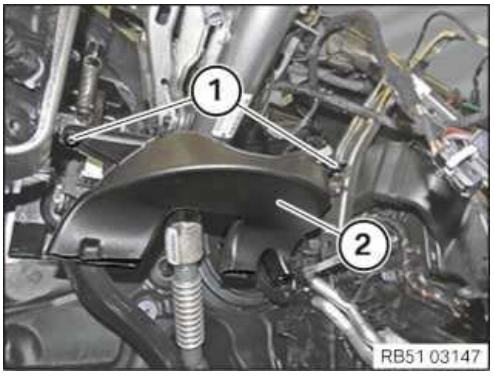
- Connect connectors (1) and lock.



- Install air duct (2).
- Tighten down screw (1).

Footwell ventilation duct

Screw			2,4 Nm

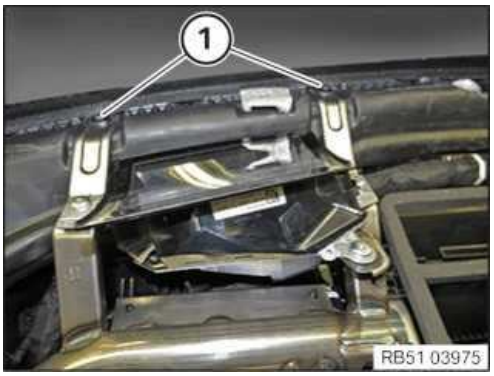


- Install air duct (2).
- Tighten the screws (1).

Footwell ventilation duct

Screw			2,4 Nm

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- Tighten the screws (1).

Support for the instrument panel

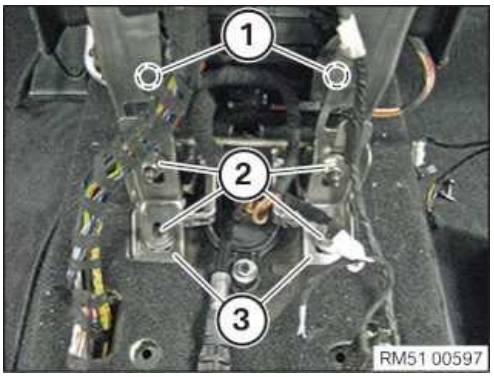
Screw		Tightening torque	21 Nm
Nut		Tightening torque	21 Nm



- Tighten the nuts(1) on the left and right.

Support for the instrument panel

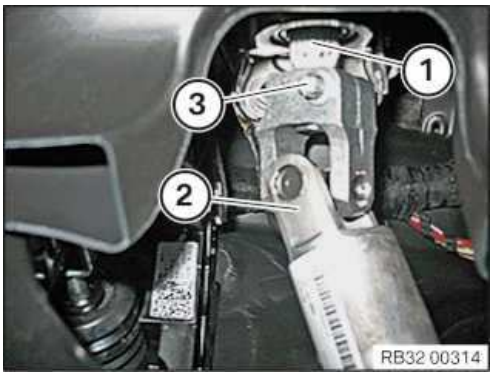
Screw		Tightening torque	21 Nm
Nut		Tightening torque	21 Nm



- Install retaining bracket (3).
- Tighten nuts (2).
- Tighten the screws (1).

Heating and air-conditioning unit on the support for the instrument panel

M6x20 screw	Renew screw	Tightening torque	8 Nm
NutM6	Replace nut	Tightening torque	8 Nm



- Pull the steering column spindle (1) out to the maximum length.
- Push universal joint (2)onto the spindle (1)of the steering column.

  Brace the spindle (1) on the steering column.
- Renew the clamping bolt (3).

  Parts: Clamping bolt
- Tighten the clamping bolt (3).

Lower steering shaft to steering column

Clamping bolt M8	Recut screw thread. Renew clamping bolt. No retorquing permitted!	Tightening torque	28 Nm



- Tighten the screw (1) on the bulkhead.

Support for the instrument panel

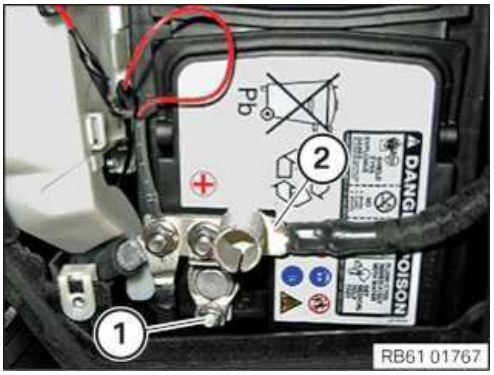
Screw		Tightening torque	21 Nm
Nut		Tightening torque	21 Nm

▸ **Connect positive battery cable**

Prerequisite

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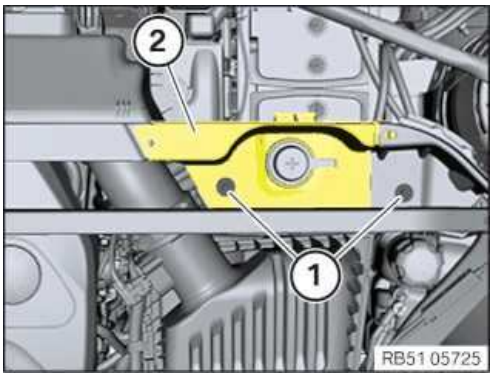
Ignition is switched off.



- Mount the positive battery cable (2) and position correctly.
- Tighten nut (1).

Battery terminal with IBS positive battery terminal / negative battery terminal

NutM6		5 Nm



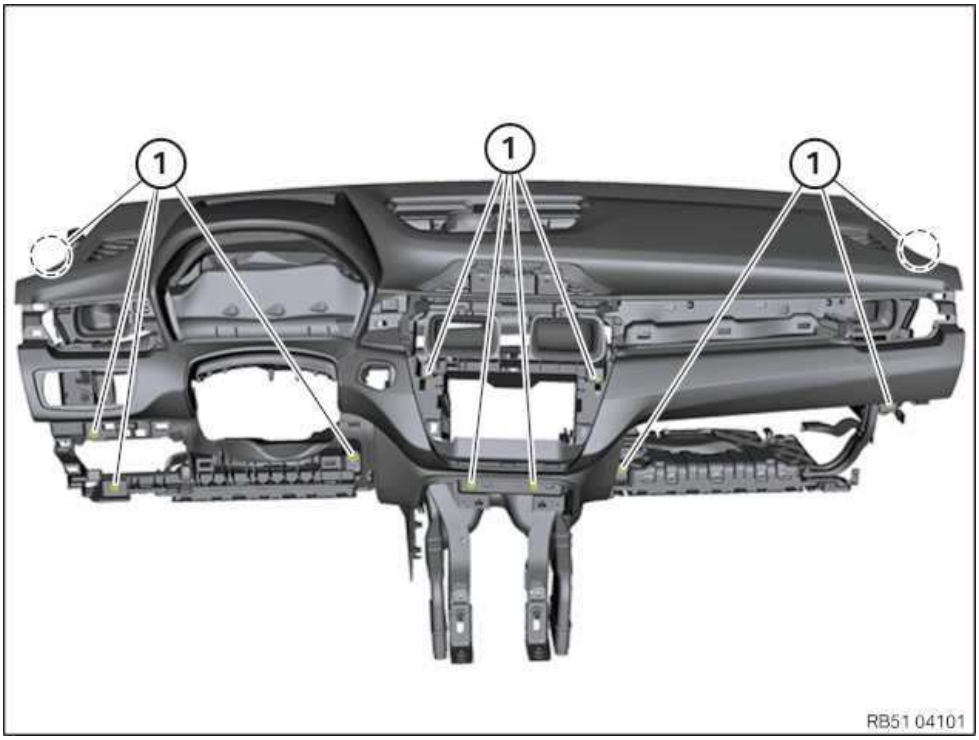
- Feed in cover (2) and position correctly.
- Tighten the screws (1).

Cover of remote positive terminal

Screw		Tightening torque	2,6 Nm

50 – Install instrument panel trim

Instrument panel



TECHNICAL INFORMATION

Notes on unlocking/locking airbag plug connections form the basis for these repair instructions and must be observed without fail.

For additional information see: 72 00 ... Notes on unlocking/locking airbag plug connections

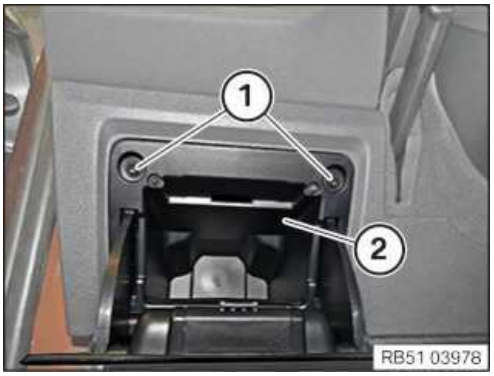
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- Guide the instrument panel trim through the door aperture with the help of an auxiliary person.
- Install the instrument panel trim, and while doing so secure the wiring harness and connect and lock all the connectors.
- Connect and lock the plug connection of the front passenger airbag.
- Make sure guides on instrument panel are correctly seated in respective mountings of bulkhead.
- Make sure seals for the air ducts are correctly seated.
- Make sure wiring harness is correctly laid.
- Tighten the screws (1).

Instrument panel trim to carrier support

Screw		Tightening torque	2,4 Nm

51 – Installing the left fold-down compartment



- Guide in the fold-down compartment (2) on the instrument panel.
- Tighten the screws (1).

Fold-down compartment to instrument panel

Screw		Tightening torque	1,8 Nm

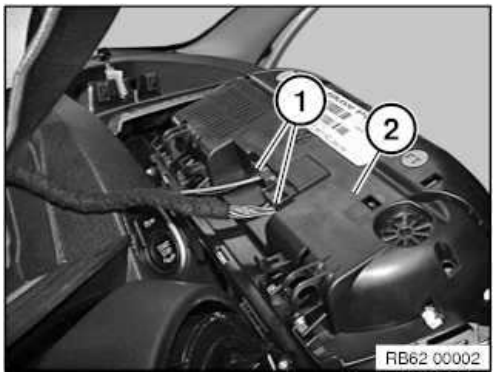
52 – Installing the instrument cluster (KOMBI)

RISK OF DAMAGE

Scratches.

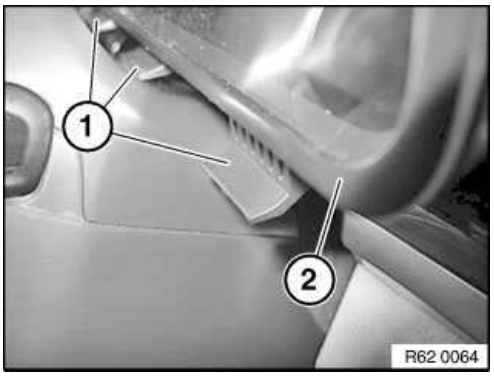
Tools and sharp-edged components can cause scratches.

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

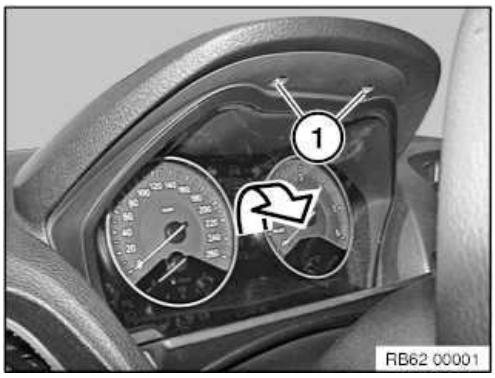


- Connect and lock all connectors (1) to the instrument cluster (KOMBI).

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- Make sure that the retaining tabs (1) of the instrument cluster (KOMBI) (2) are seated exactly in mountings of the instrument panel.

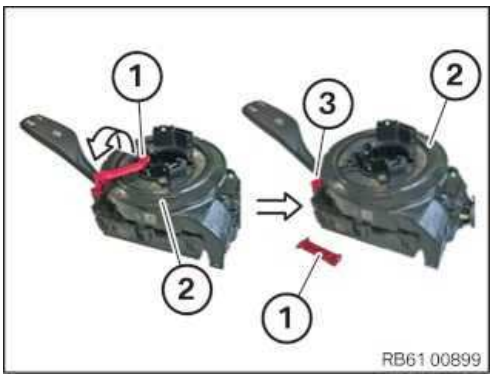


- Position the instrument cluster (KOMBI) position in the opposite direction of the arrow.
- Tighten the screws (1).

Instrument cluster to instrument panel

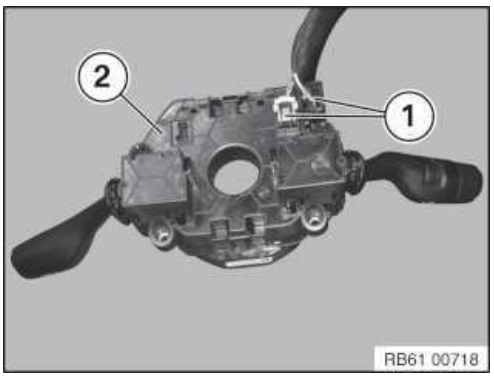
Screw		1,7 Nm

53 – Installing the steering column switch cluster (SZL)



- **Replacement:** Break off the transportation retainer (1) on the steering column switch cluster (SZL) (2) in direction of arrow.

  The broken-off piece of (3) the transportation retainer (1) remains in the steering column switch cluster (SZL) (2).



- Connect the connector (1) with the steering column switch cluster (SZL) (2).

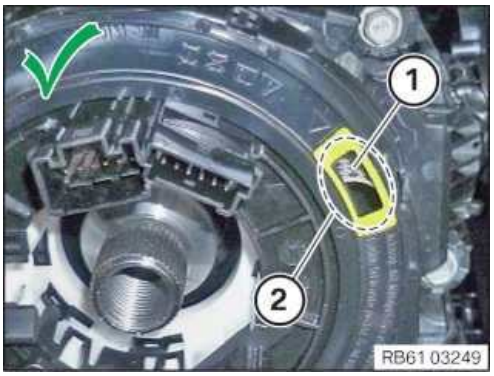
▸ **Check the neutral position of the clock spring**

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

Check

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- **Version A:**

  Check the mark (1) on the coil spring in the inspection glass (2).

Result

» The mark (1) on the coil spring is not visible.

Measure

- Turn the coil spring cassette until the mark (1) on the coil spring becomes visible in the inspection glass (2).

Check



- **Version B:**

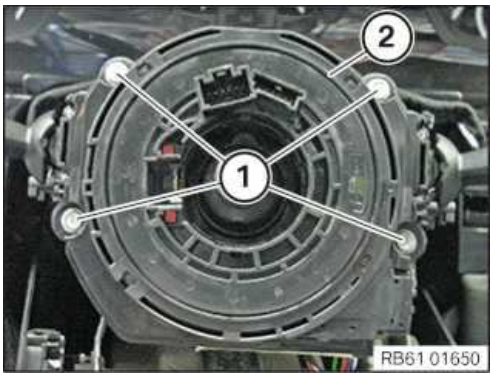
  Check the mark (1) on the coil spring in the inspection glass (2).

Result

» The mark (1) on the coil spring is not visible.

Measure

- Turn the coil spring cassette until the mark (1) on the coil spring becomes visible in the inspection glass (2).

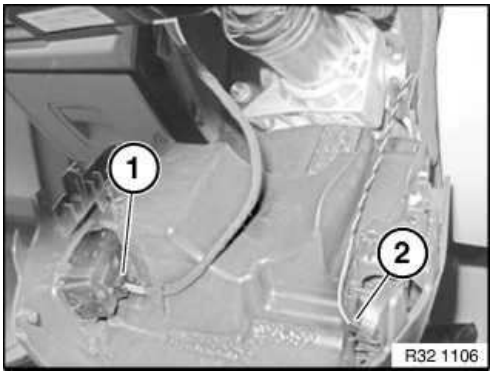


- Position the steering column switch cluster (SZL) (2).
- Tighten the screws (1).

Steering column switch cluster (SZL) on the steering column

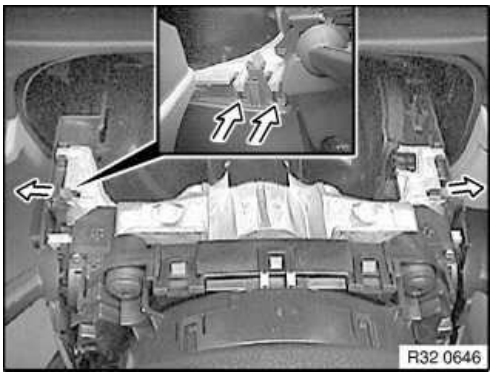
Screw TS5x20		Tightening torque	3 Nm

54 – Install steering column shroud lower section



- Position the steering column shroud lower section .
- Connect available connectors (1) and (2) and lock.

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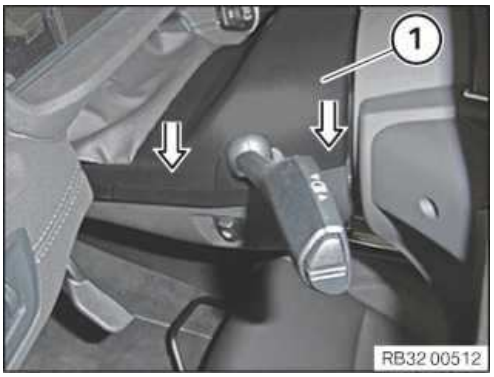


- Position the steering column shroud lower section with the retaining lugs (arrows).
- Press steering column shroud lower section completely towards the top until the retaining lugs (arrows) engage.

55 – Fit steering column shroud upper section



- Position the steering column shroud upper section.
- Attach gap cover of the steering column (1) on the brackets (arrows).



- Position the steering column shroud upper section (1).

NOTICE

Perform the operations on the left and right side.

- Press the upper section of the steering column shroud (1) downwards in direction of arrow.

  The upper section of the steering column shroud must engage audibly and perceptibly.

56 – Installing the steering wheel/sports steering wheel

▸ **Check the neutral position of the clock spring**

- Ensure that the coil spring is not twisted.

  There are clock springs installed without a mechanical anti-twist lock.

  Coil springs without a mechanical anti-twist lock are identifiable on the inspection glass for the neutral position mark.
- Check the neutral position of the clock spring on the steering column switch cluster (SZL).

  The neutral position is correct if the yellow or green mark (1) is clearly visible.

Check

- Check the mark (1) in the inspection glass.



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Result

» The mark (1) is not visible.

Measure

- Turn the coil spring until mark (1) is visible in the inspection glass.

Check



- A micro-encapsulated screw (1) may be fitted.
- Checked threaded connection

Result

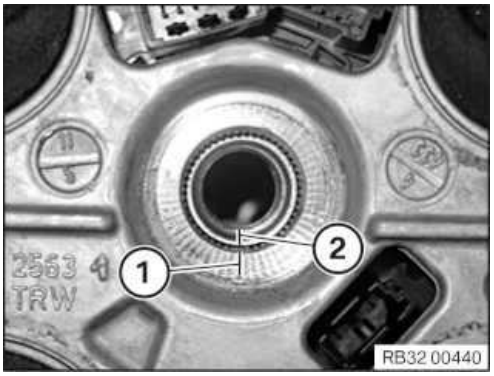
» Screw (1) is micro-encapsulated.

Measure

- Clean thread in the steering column.

  Renew the screw (1).

  Parts: Screw



- Align and connect the steering wheel/sports steering wheel according to the mark (1) with the steering column mark (2).



- Tighten down screw (1).

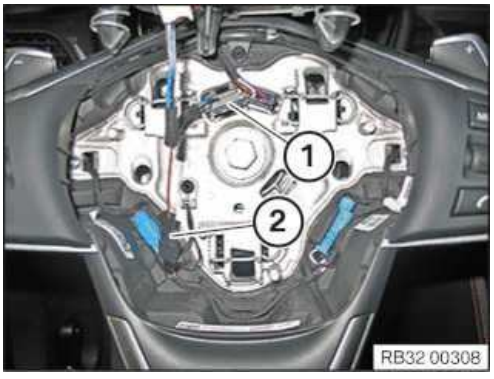
Steering wheel to steering column

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

- **Connect connectors and lock.**

  Make sure connecting lines are correctly routed.

57 – Installing airbag unit of steering wheel/sports steering wheel



- Connect and lock connectors (1) and (2) of the airbag unit.

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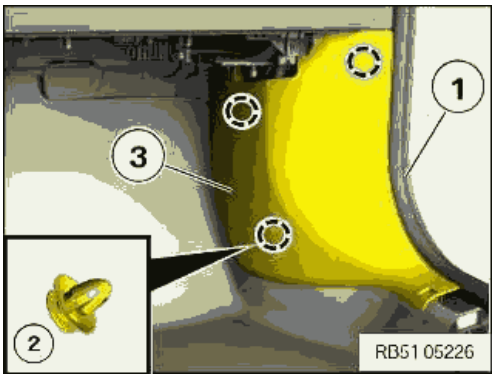
- Before installing the airbag unit, align the wiring harness (1) to the centre so that the latch mechanisms (arrows) are exposed!



- Position airbag unit (1).
- Press the airbag unit (1) with even pressure in each case in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

58 – Installing side trim panel in footwell on right A-pillar

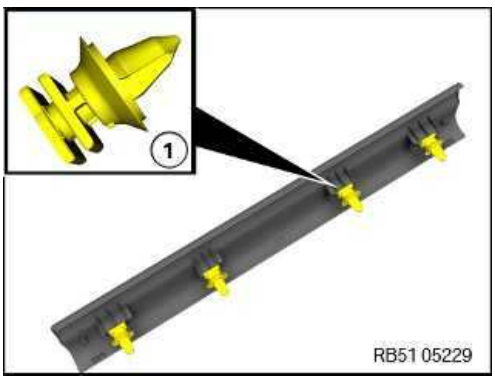


- Check clips (2) for damage, and replace if necessary.
- Feed the side trim panel (3) under the sealing lip of the edge protection (1).
- Clip in the side trim panel (3) with the clips (2).

59 – Install the front right door sill cover strip

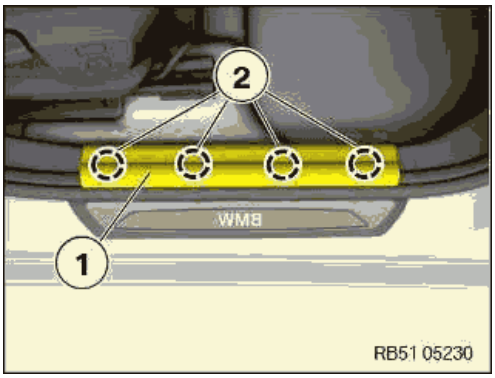
NOTICE

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



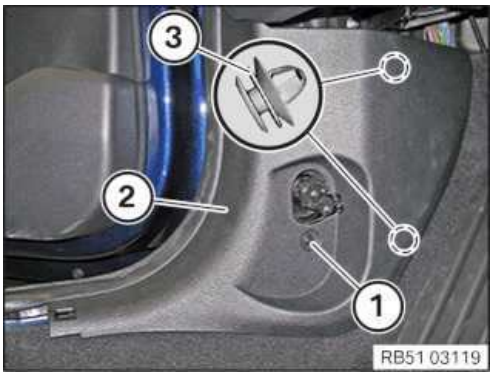
- Check the clips (1) for damage and renew where required.

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- Clip the door sill cover strip (1) into the floor panel with the clips (2).

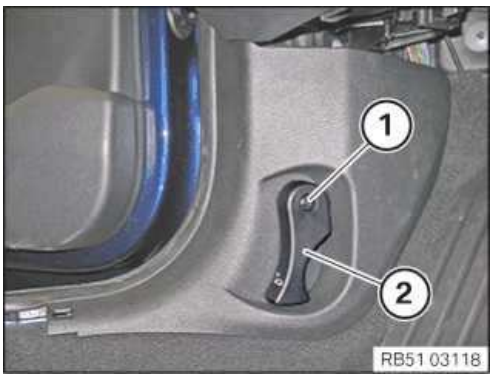
60 – Installing side trim panel in the footwell at A-pillar



- Position the side trim panel (2) and clip it to the clips (3).
- Make sure the edge protection on the side trim panel (2) fits correctly.
- Tighten down screw (1).

Side trim panel bottom left to holder

Screw		Tightening torque	3 Nm

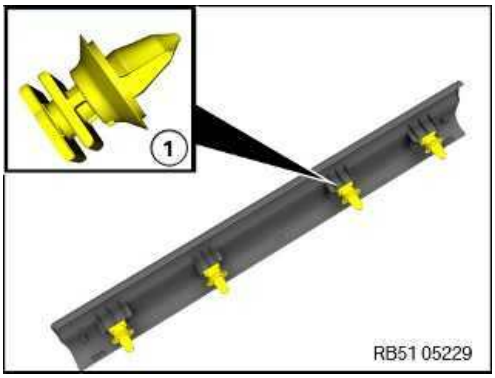


- Install lever for the bonnet release (2)l.
- Tighten down screw (1).

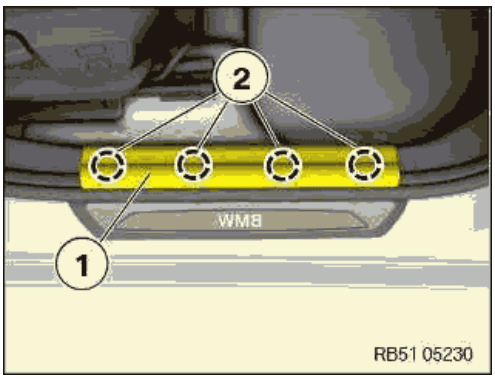
Lever for bonnet release to the holder

Screw		Tightening torque	3 Nm

61 – Install the front door sill cover strip



- Check the clips (1) for damage and renew where required.



- Clip the door sill cover strip (1) into the floor panel with the clips (2).

62 – Installing the left and right A-pillar trim panels

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NOTICE

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

▶ **Install the A-pillar trim panel**

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

WARNING

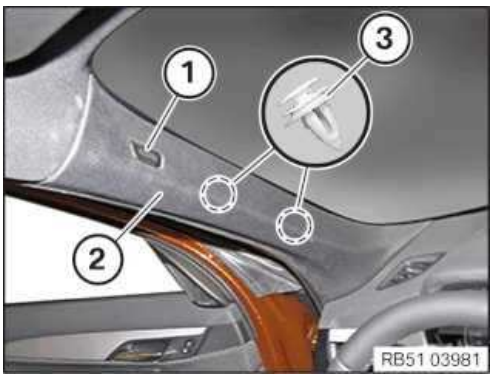
Pyrotechnic components.

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.

TECHNICAL INFORMATION

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



- Thread in the A-pillar trim panel (2) and clip it in at the clips (3).
- Renew screw.

  Parts: Screw
- Tighten down screw.

A-pillar trim panel to body

M5x42 screw	Renew screw	Tightening torque	2,2 Nm

- Clip in the cover (1).

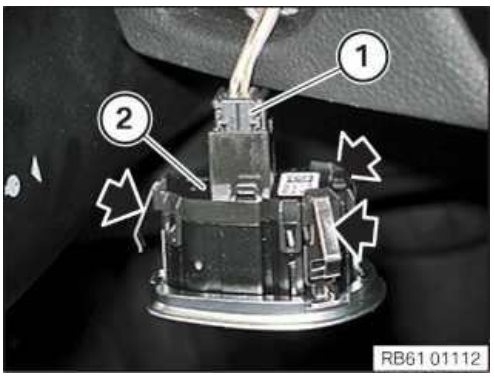
63 – Installing the light operating unit



- Connect associated connector.
- Position light operating unit (1) correctly and clip in where marked.

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64 – Installing the START-STOP button



- Connect connector (1) with START-STOP button (2).

  The retaining clips (arrows) must not be damaged or missing.



- Install START-STOP button (1) in the instrument panel trim.

65 – Install decorative strip from instrument panel

TECHNICAL INFORMATION

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



- Install decorative strip (1) a snap into the clamps (2).

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

RISK OF DAMAGE

Electrostatic discharge.

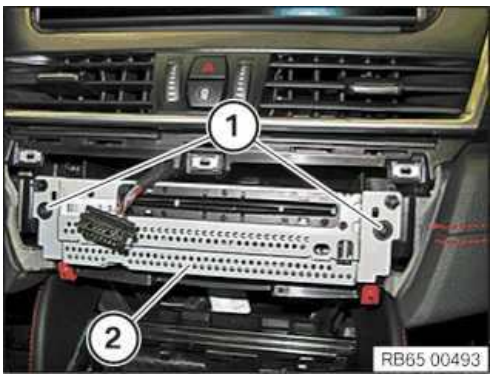
Damage to or destruction of electrical components.

- 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 Information on electrostatic discharge (ESD) protection.

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



- Slide in the head unit (2) correctly.
- Tighten the screws (1).

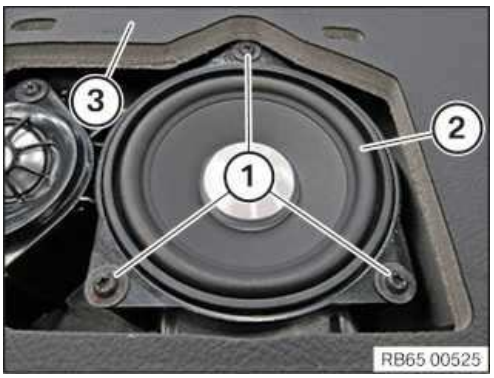
Head unit to instrument panel

Screw		Tightening torque	1,8 Nm



- Route the wiring harness (1) correctly.

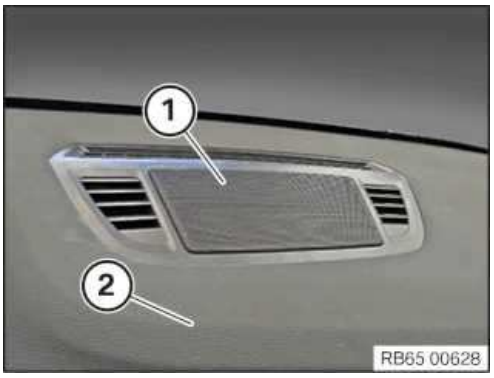
67 – Install the mid-range speakers in the instrument panel



- Connect the connector below it to the mid-range speaker (2).
- Position the mid-range speaker (2) in the instrument panel (3).
- Tighten the screws (1).

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

Screw		Tightening torque	1,8 Nm

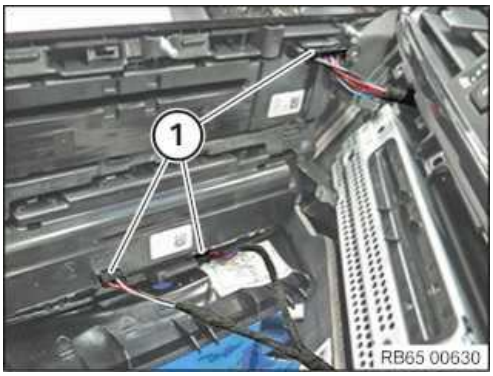


- Check the latch mechanisms on the speaker cover (1) for damage and renew them if necessary.

  The latch mechanisms must not be missing or faulty.
- Engage the speaker cover (1) correctly into the instrument panel (2).

68 – Installing audio operating unit and air conditioning control panel

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- Position audio operating unit and air conditioning control panel.
- Connect plug connection (1) and lock.

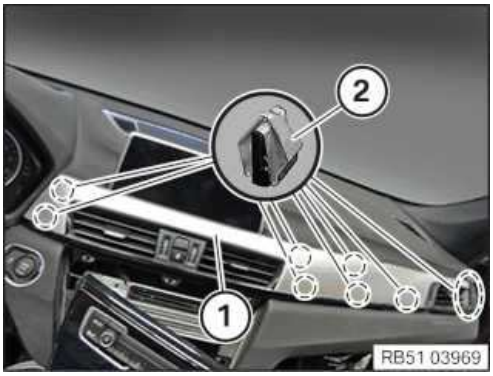


- Correctly position trim (1) and clip it into the instrument panel (2).

69 – Install the finisher on the right instrument panel

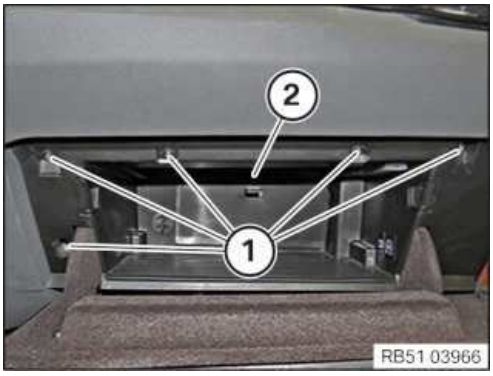
TECHNICAL INFORMATION

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



- Install the decorative strip (1).
- Connect connector.
- Engage the decorative strip (1) on the clamps (2).

70 – Install right glove box

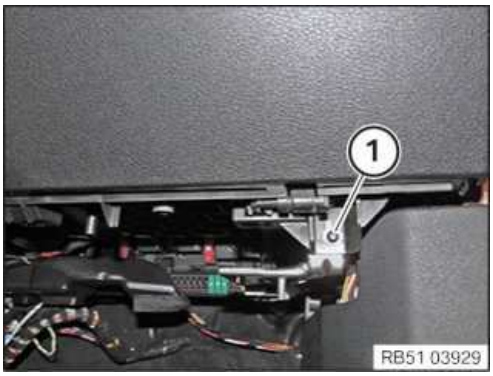


- Install the glove box (2) and connect and lock associated plug connections.
- Tighten the screws (1).

Glove box to instrument panel

Screw		Tightening torque	1,8 Nm

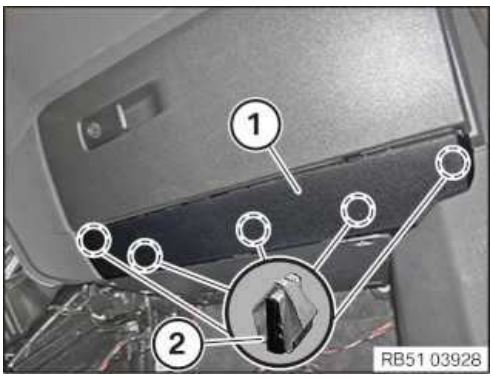
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- Tighten down screw (1).

Glove box to instrument panel

Screw		Tightening torque	1,8 Nm

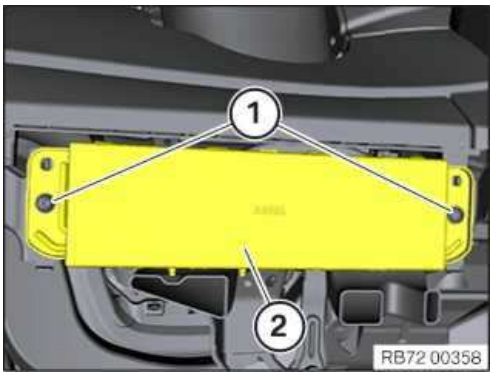


TECHNICAL INFORMATION

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

- Install the trim (1) and lock it at the clamps (2).

71 – Installing knee airbag



- Connect the plug connection to the knee airbag (2) and lock.
- Install knee airbag (2).
- Renew screws (1).

  Parts: Screw
- Tighten the screws (1).

Knee airbag to body

M8	Renew screws.	Tightening torque	8 Nm

72 – Install the side panel on instrument panel on the left and right

NOTICE

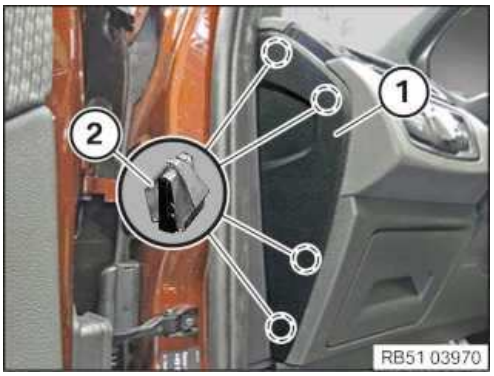
Description is for left component only. Procedure on the right side is identical.

▸ **Install side panel on the instrument panel**

TECHNICAL INFORMATION

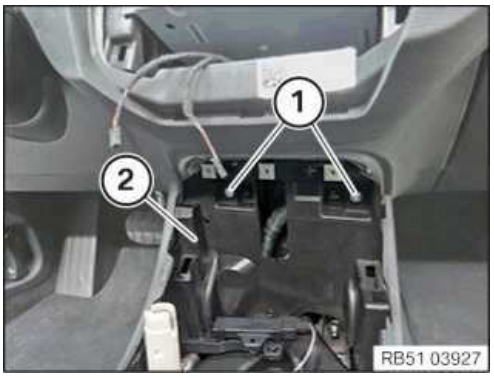
Latch mechanisms, guides and mounting elements must not be damaged or missing.

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- Feed in the side panel (1) at an angle toward the front and lock at the clamps (2).

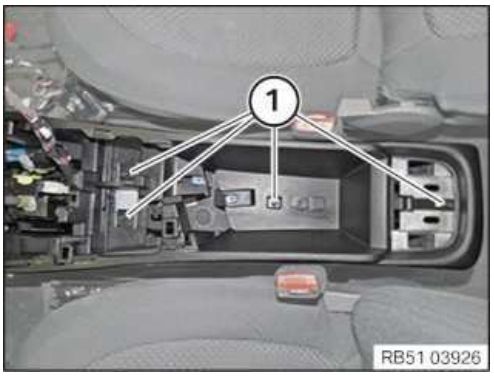
73 – Installing centre console fully with centre armrest



- Lift rear centre console (2), guide it forwards and connect all the connectors.
- Insert the wiring harness into the centre console (2).
- Tighten the screws (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm



- Tighten the screws (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

▸ **Installing the centre armrest**

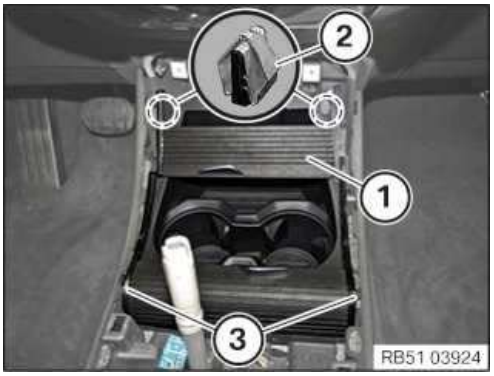


- Install the centre armrest and tighten nuts (1).

Centre armrest to support

Nut M8		Tightening torque	21,4 Nm

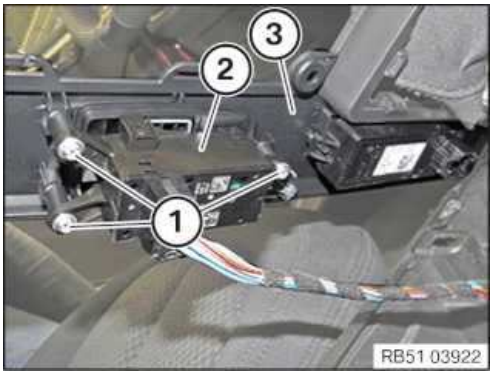
74 – Installing the front storage compartment



- Install storage compartment (1) and connect the connectors.
- Insert the storage compartment (1) into the guides (3) and fold forward.
- Engage storage compartment (1) in the clamps (2) at top.

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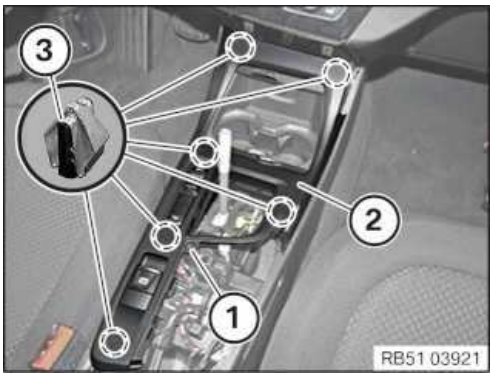
75 – Install the centre console trim



- Install centre console trim (3) and connect and lock the corresponding connectors.
- Install parking brake button (2) on centre console trim (3).
- Tighten the screws (1).

Parking brake button

Oval-head screw		Tightening torque	1,5 Nm



- Install centre console trim (2) and engage it into clamps (3).
- Tighten down screw (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

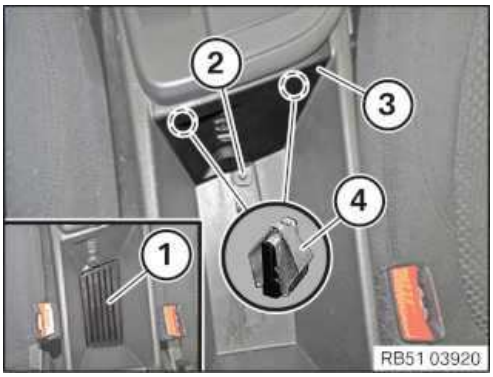
76 – Installing the decorative trim to the centre console



- Connect all connectors.
- Install decorative trim (2).
- Tighten down screw (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

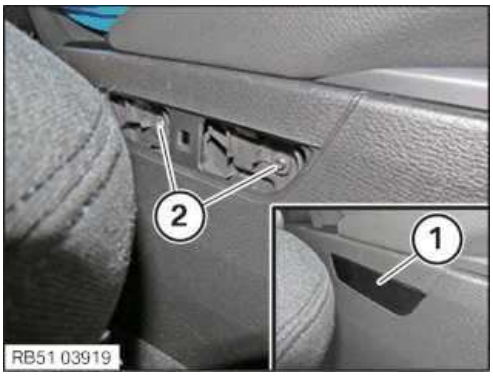


- Position trim (3) and connect all the connectors.
- Install trim (3) and engage it into clamps (4).
- Tighten down screw (2).

Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

- Insert the insert (1).



- Tighten down screws (2).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

- Install cover (1) and engage.

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- Tighten down screws (2).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

- Install cover (1) and engage.

77 – Installing the gearshift lever cover



- Place the gearshift lever knob on gearshift lever and align by lightly pressing in the direction of travel.

  The anti-twist lock must bite.
- Press the gearshift lever knob with the palm of the hand until it can be felt to engage.

  When installing, the tie rod of the gearshift lever must not be bent.



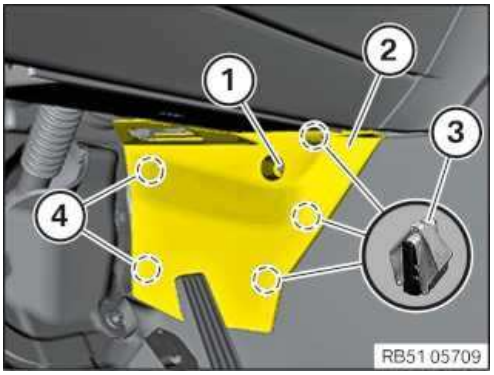
- Clip in gaiter (arrows).

78 – Installing side trim panel for the left and right centre console

▸ **Installing side trim panel for the left centre console**

TECHNICAL INFORMATION

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



- Install the side trim panel (2) for the centre console and feed it into the guides (4).
- Engage the side trim panel (2) for the centre console into retaining clips (3).
- Tighten down screw (1).

Trim to centre console

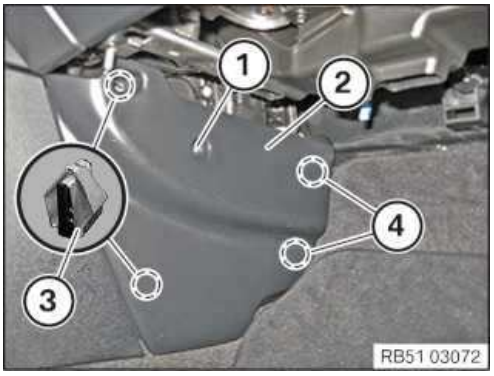
Oval-head screw		Tightening torque	1,8 Nm

▸ **Installing side trim panel for the right centre console**

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TECHNICAL INFORMATION

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



- Install the side trim panel for the centre console (2) and feed it into the guides (4).
- Engage the side trim panel for the centre console (2) into retaining clips (3).
- Tighten down screw (1).

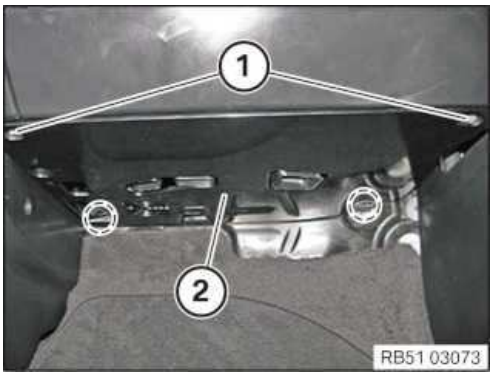
Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

79 – Installing the botto right instrument panel trim

TECHNICAL INFORMATION

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

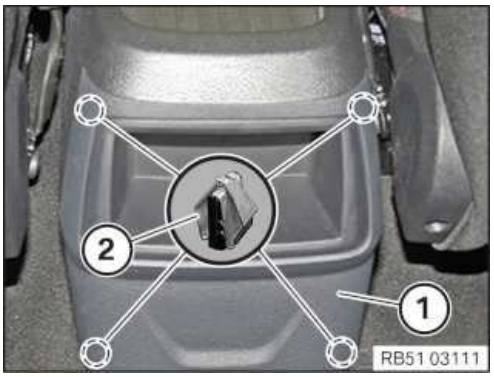


- Install the lower right instrument panel trim (2) and connect and lock the plug connection.
- Insert the lower right instrument panel trim (2) into the front guides.
- Tighten nuts (1).

Bottom left footwell trim to instrument panel

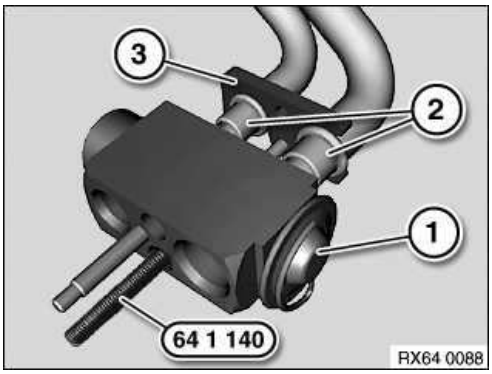
M5 hexagon nut		Tightening torque	2 Nm

80 – Installing the rear centre console trim



- Install centre console trim (1) and engage it into clamps (2).

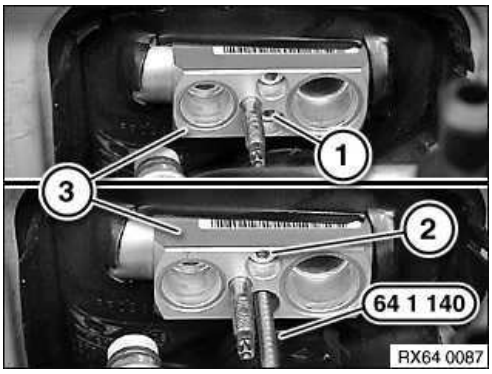
81 – Install expansion valve



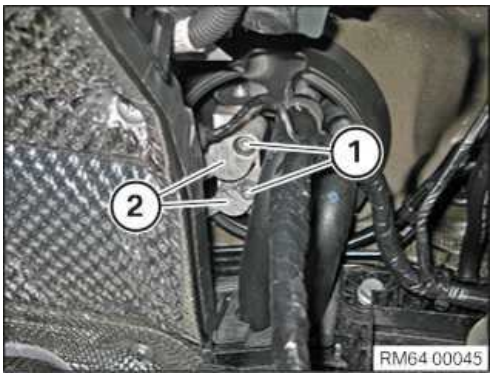
- Renew O-rings on the pipes (2).

  Parts: O-rings
- Brace mounting plate (3) with the special tool **0 495 815 (64 1 140)**.
- Secure expansion valve (1)with a screw.

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- Release special tool **0 495 815 (64 1 140)**.
- Tighten the screws (1) and (2) on the expansion valve (3).



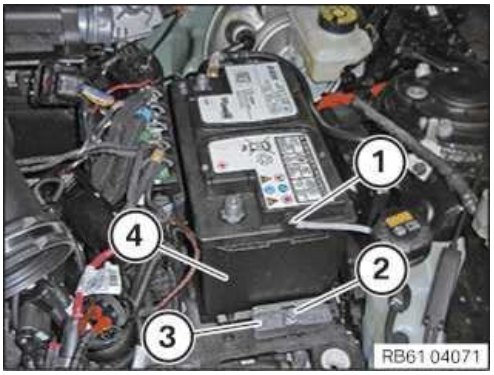
- Replace O-rings.

  Parts: O-rings
- Position refrigerant line (2) correctly.
- Tighten the screws (1).

Refrigerant lines to expansion valve

M6		Tightening torque	8 Nm

82 – Partially install vehicle battery



- Install vehicle battery (4).
- Correctly position the holder (3).
- Tighten down screw (2).

Battery terminal rail to battery tray

M8		19 Nm

- Fit and clip the vent hose (1) in.

▶ **Check the vent holes of the battery**

WARNING

Gas emission.

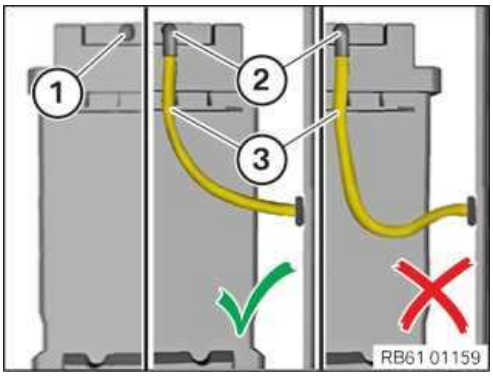
Danger of injury! Danger of explosion!

- Assign the vent holes correctly.
- Route the vent hose correctly.

TECHNICAL INFORMATION

The battery has two vent holes, opposite:
One vent hole (1) must be closed correctly with a dummy plug.
The vent hose (3) must be correctly connected and routed at the other vent hole (2).

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Check
- Check if the vent hole (1) is correctly closed with a dummy plug.

Result

» No dummy plug.

Measure
- Close the vent hole (1) correctly with a dummy plug.

Check
- Check if the vent hole (2) has a correctly connected vent hose (3).

Result

» The vent hose (3) is not correctly connected.

Measure
- At the vent hole (2), connect the vent hose (3) correctly.

Check
- Check if the vent hose (3) is routed to the outside with a downhill gradient (**no siphon formation!**).

Result

» The vent hose (3) is not correctly routed as shown in the image on the right.

Measure
- Route the vent hose (3) correctly as shown in the centre image.

83 – Install electronics box

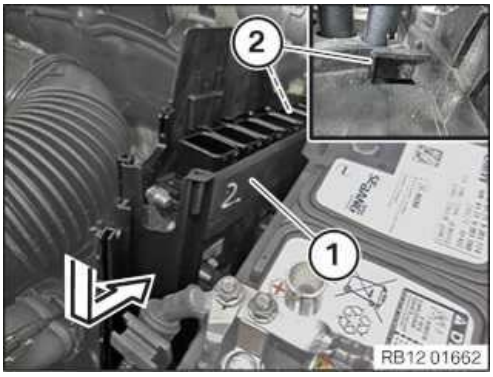
Prerequisite

Battery earth lead is disconnected.

RISK OF DAMAGE

Improper routing of cables and wiring harnesses.

Trapped, crushed or damaged cables may cause short circuits and malfunctions.
- Route all cables without abrasions, do not trap and crush.

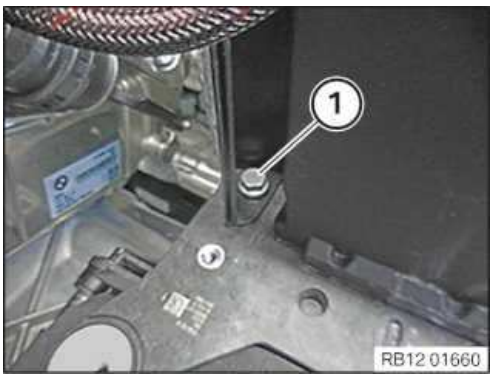


- Guide in and install the electronics box (1) into the guide (2) in direction of arrow.

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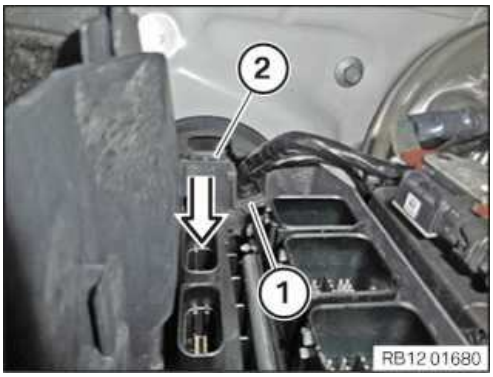
- Make sure that the electronics box (1) is positioned correctly on the bulkhead (2).



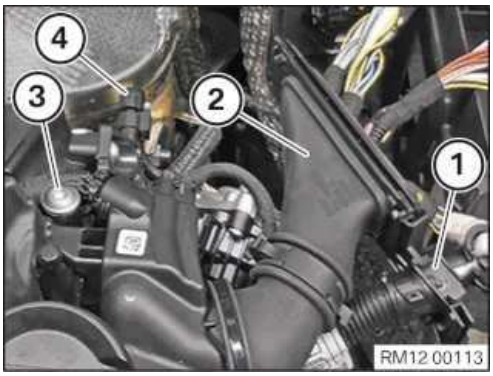
- Tighten down screw (1).

Electronics box to battery tray

M8X16		Tightening torque	15 Nm



- Guide in and install the holder (1) in the electronics box (2) in direction of arrow.
- Make sure the bracket (1) engages audibly.

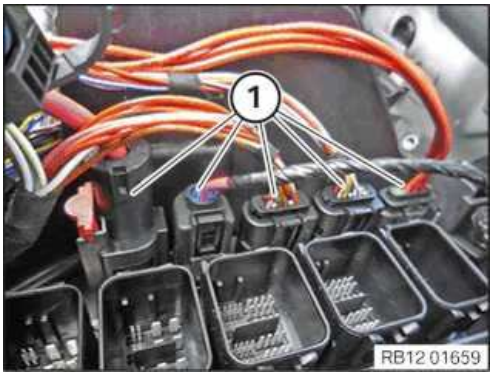


- Lay vehicle wiring harnesses (1) and (2) and mount on electronics box.
- Tighten down screw (3).

Wiring harness to cylinder head cover

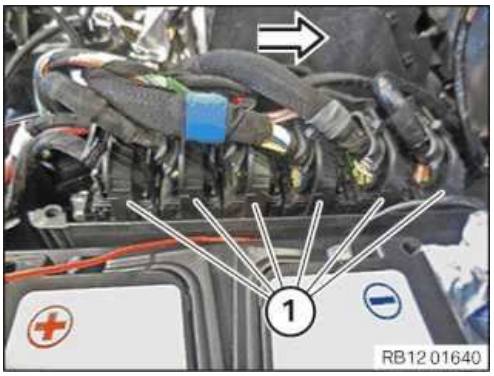
TS5x20		Tightening torque	3,5 Nm

- Attach connector (4) to the differential pressure sensor and lock it audibly.

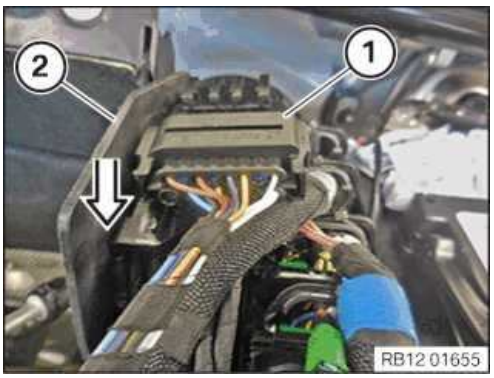


- Connect and lock the connector (1).
- Make sure the connectors (1) engage audibly.

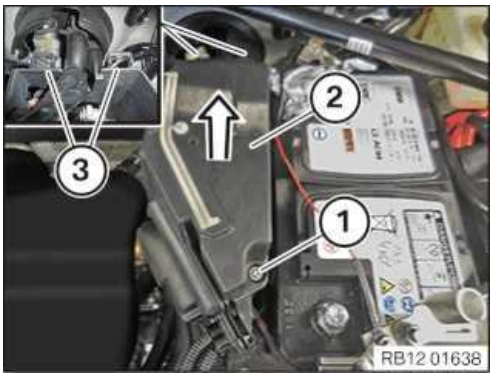
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- Connect connector (1) in direction of arrow and lock.
- Make sure the connectors (1) engage audibly.



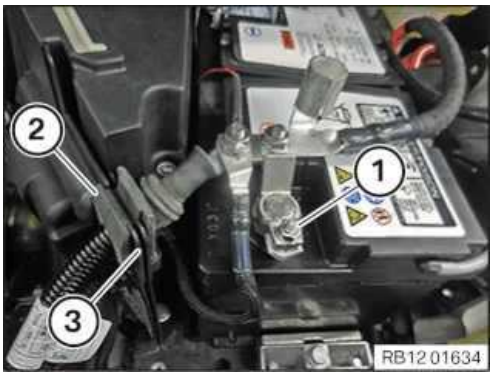
- Connect and lock the connector (1).
- Make sure the connector (1) engages audibly.
- Insert the connector (1) in the direction of arrow at the electronics box (2) and install.



- Insert the cover (2) into the guides (3) in the direction of arrow and install.
- Make sure the cover audibly engages (2) in the guides (3).
- Tighten down screw (1).

Cover to electronics box

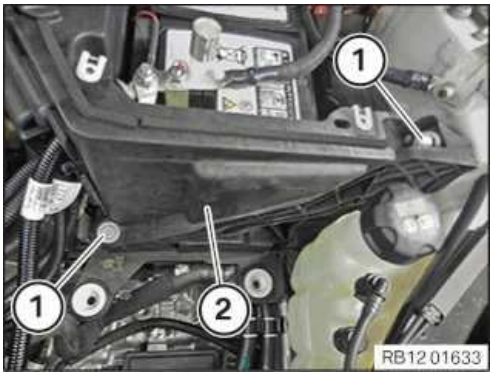
RF5x26.5		Tightening torque	2,5 Nm



- Thread in positive battery cable (2) on holder (3) and install.
- Feed in and install positive battery terminal (1).
- Tighten positive battery terminal (1).

Positive battery terminal to battery

NutM6		Tightening torque	5 Nm



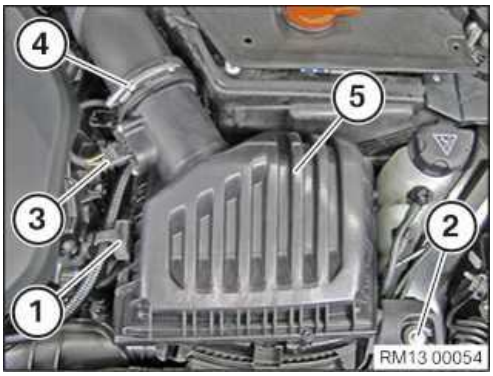
- Feed in and install tension strut (2).
- Tighten the screws (1).

Tension strut to spring strut dome/battery tray

M8		Tightening torque	19 Nm

84 – Installing intake silencer housing

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- Insert the intake silencer housing (5) into the rubber mounts and install it.
  Intake filter housing (5) must engage audibly.
- Tighten down screw (2).

Intake silencer housing to lock bridge

M6X30		Tightening torque	8 Nm

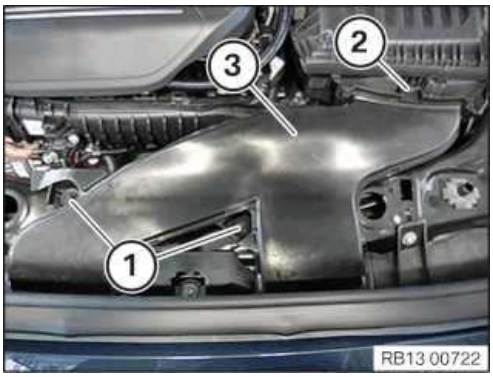
- Tighten clamp (4).

Clean air pipe to intake silencer housing

Clamp		Tightening torque	3 Nm

- Connect and lock the connector (3).
  The connector (3) must engage audibly.
- Insert and install the holder (1).

85 – Install the intake neck for the intake filter housing

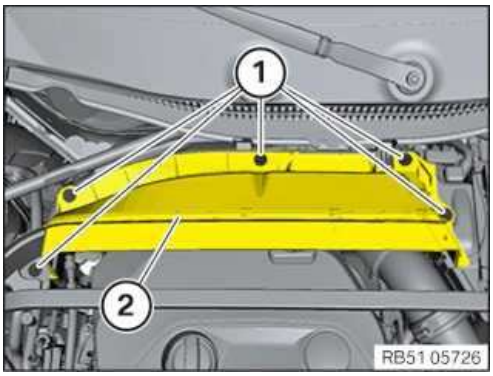


- Insert and install the intake neck (3).
  The lock (2) must audibly engage.
- Tighten nuts (1).

Intake neck to cross connection

M6		Tightening torque	8 Nm

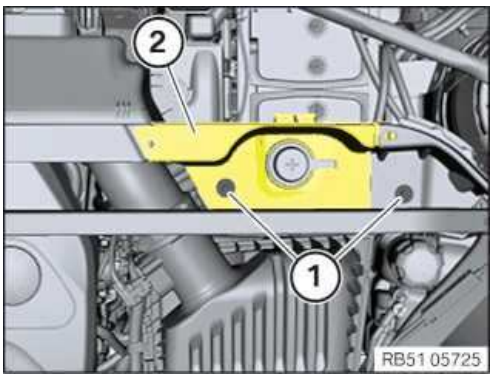
86 – Installing the upper bulkhead cover



- Feed in and install cover (2) of the bulkhead at the top.
- Tighten the screws (1).

Cover of top bulkhead

Screw		Tightening torque	2,6 Nm



- Guide in and install cover (2).
- Tighten down screw (1).

Cover of remote positive terminal

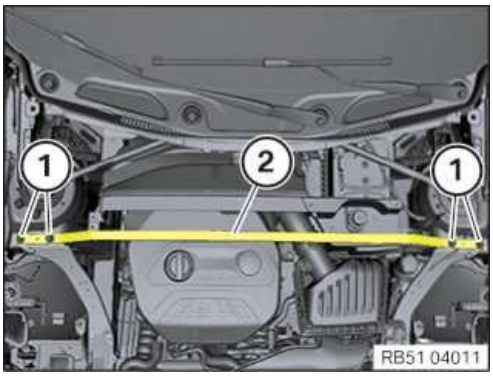
Screw		Tightening torque	2,6 Nm

87 – Install strut brace

TECHNICAL INFORMATION

Driving without the strut brace/front end or tension strut is not permitted.

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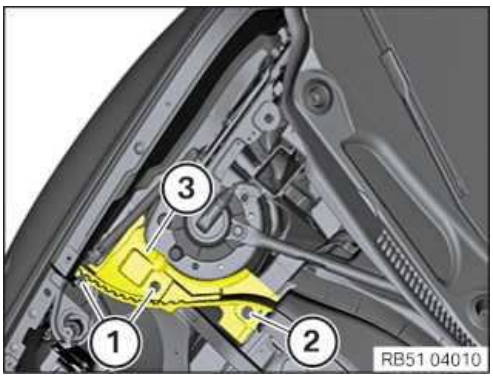


- Install the strut brace (2).
- Renew screws (1).

  Parts: Bolts
- Tighten the screws (1).

Cross-brace to spring strut dome

	Renew screw.	Jointing torque	28 Nm
		Angle of rotation	180 °



NOTICE

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

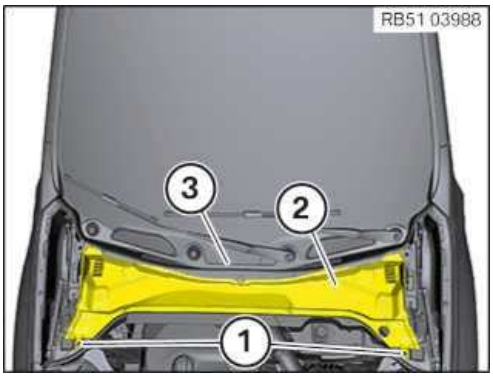
- Install the cover (3).
- Tighten down screw (2).

Cover on body

Hexagon screw		Tightening torque	3 Nm

- Install the expanding rivet (1).

88 – Installing front cowl panel cover

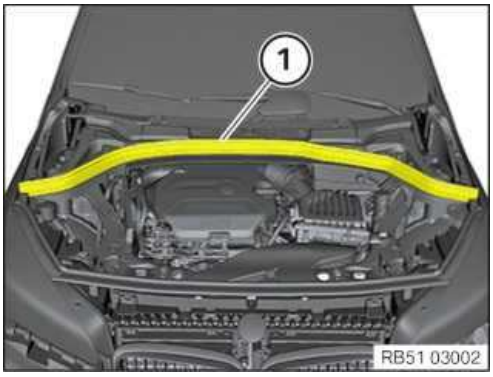


- Insert and install cowl panel cover at front (2) into cowl panel cover at rear (3).
- Check cowl panel cover at front is correctly seated (2).
- Secure expanding rivet (1).

89 – Install the seal for the bonnet

NOTICE

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



- Install bonnet seal at rear (1).
- Ensure that the rear bonnet seal (1) is fitted correctly.

90 – Disconnecting all battery earth leads

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- See additional information.

91 – Evacuate and fill air conditioning

- See additional information.

Additional Information

Overview of Tightening Torques

Ground cable to body — Used in step 48

Hexagon nut		Tightening torque	8,0 Nm

Heating and air-conditioning unit on the support for the instrument panel — Used in step 49

M6x20 screw	Renew screw	Tightening torque	8 Nm
NutM6	Replace nut	Tightening torque	8 Nm

Footwell ventilation duct — Used in step 49

Screw			2,4 Nm

Support for the instrument panel — Used in step 49

Screw		Tightening torque	21 Nm
Nut		Tightening torque	21 Nm

Lower steering shaft to steering column — Used in step 49

Clamping bolt M8	Recut screw thread. Renew clamping bolt. No retorquing permitted!	Tightening torque	28 Nm

Battery terminal with IBS positive battery terminal / negative battery terminal — Used in step 49

NutM6			5 Nm

Cover of remote positive terminal — Used in step 49 86

Screw		Tightening torque	2,6 Nm

Instrument panel trim to carrier support — Used in step 50

Screw		Tightening torque	2,4 Nm

Fold-down compartment to instrument panel — Used in step 51

Screw		Tightening torque	1,8 Nm

Instrument cluster to instrument panel — Used in step 52

Screw			1,7 Nm

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Steering column switch cluster (SZL) on the steering column — Used in step 53

Screw TS5x20		Tightening torque	3 Nm

Steering wheel to steering column — Used in step 56

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

Side trim panel bottom left to holder — Used in step 60

Screw		Tightening torque	3 Nm

Lever for bonnet release to the holder — Used in step 60

Screw		Tightening torque	3 Nm

A-pillar trim panel to body — Used in step 62

M5x42 screw	Renew screw	Tightening torque	2,2 Nm

Head unit to instrument panel — Used in step 66

Screw		Tightening torque	1,8 Nm

Speaker to support / support to instrument panel / support to body — Used in step 67

Screw		Tightening torque	1,8 Nm

Glove box to instrument panel — Used in step 70

Screw		Tightening torque	1,8 Nm

Knee airbag to body — Used in step 71

M8	Renew screws.	Tightening torque	8 Nm

Screw connection for centre console — Used in step 73 75 76

Oval-head screw		Tightening torque	1,8 Nm

Centre armrest to support — Used in step 73

Nut M8		Tightening torque	21,4 Nm

Parking brake button — Used in step 75

Oval-head screw		Tightening torque	1,5 Nm

Trim to centre console — Used in step 76 78

Oval-head screw		Tightening torque	1,8 Nm

Bottom left footwell trim to instrument panel — Used in step 79

M5 hexagon nut		Tightening torque	2 Nm

Refrigerant lines to expansion valve — Used in step 81

M6		Tightening torque	8 Nm

Battery terminal rail to battery tray — Used in step 82

M8			19 Nm

Electronics box to battery tray — Used in step 83

M8X16		Tightening torque	15 Nm

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Wiring harness to cylinder head cover — Used in step 83

TS5x20		Tightening torque	3,5 Nm

Cover to electronics box — Used in step 83

RF5x26.5		Tightening torque	2,5 Nm

Positive battery terminal to battery — Used in step 83

NutM6		Tightening torque	5 Nm

Tension strut to spring strut dome/battery tray — Used in step 83

M8		Tightening torque	19 Nm

Intake silencer housing to lock bridge — Used in step 84

M6X30		Tightening torque	8 Nm

Clean air pipe to intake silencer housing — Used in step 84

Clamp		Tightening torque	3 Nm

Intake neck to cross connection — Used in step 85

M6		Tightening torque	8 Nm

Cover of top bulkhead — Used in step 86

Screw		Tightening torque	2,6 Nm

Cross-brace to spring strut dome — Used in step 87

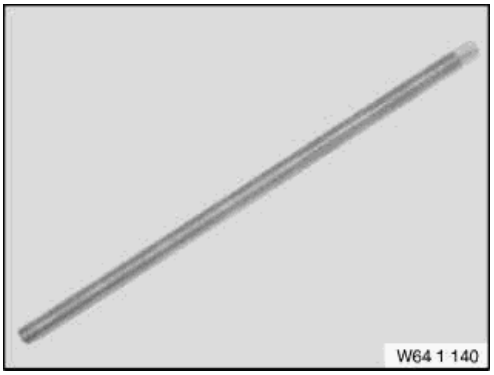
	Renew screw.	Jointing torque	28 Nm
		Angle of rotation	180 °

Cover on body — Used in step 87

Hexagon screw		Tightening torque	3 Nm

Overview of Special Tools

0 495 815 (64 1 140) Rod

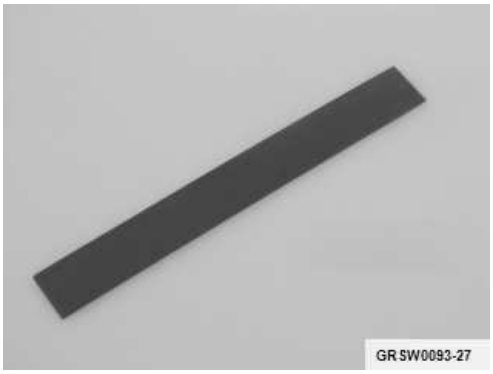


Common — Used in step 11 81

Usage	(threaded rod) For securing threaded plate when removing expansion valve
Included in the tool or work	
Storage location	C86
Replaced by	
In connection with	
SI-Number	01 23 06 (308)

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0 496 571 (00 9 327) Wedge



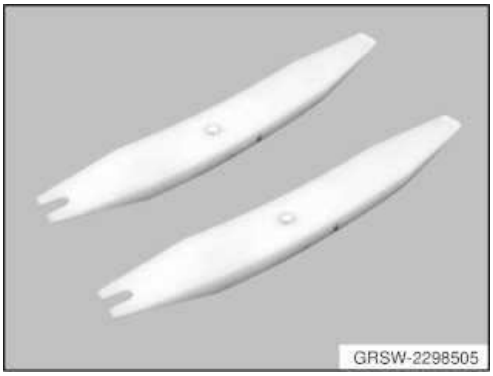
Common	Used in step 16 25
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 496 569 (00 9 325) Wedge



Common	Used in step 17 19 21 23 27 28 32 34
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)

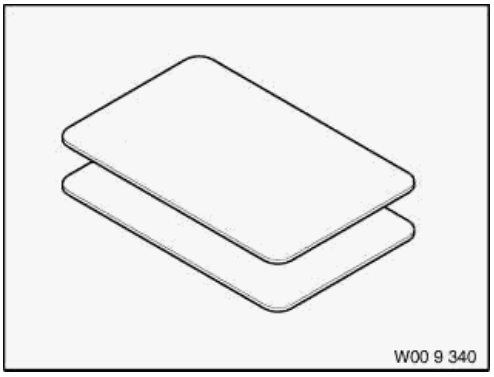
2 298 505 Wedge



Common	Used in step 24
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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0 493 687 (00 9 340) Removal aid



Common Used in step 29

Usage	(Removal aid (2 x)) For levering out switch block on driver's door.
Included in the tool or work	
Storage location	C2
Replaced by	
In connection with	
SI-Number	01 15 99 (483)

Consisting of

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

2 298 504 Wedge



Common Used in step 38

Usage	Wedge with angled lug
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

Links

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	31 62
64 52 ... Instructions for opening and part exchange in refrigerant circuit	
64 50 ... Note for handling R134a refrigerant	
12 00 ... Instructions for removal and replacement of control units	

Repair instructions	Used in step
64 50 010 Extract, evacuate and fill air conditioning system	1 91
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 91

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64 50 010 Drawing off, evacuating and filling air conditioning (R134a) 1 91
64 50 ... Notes on repairs to air conditioning 1 91
64 50 010 Drawing off, evacuating and filling air conditioning (R1234yf) 1 91
64 50 ... Safety information for handling refrigerant R1234yf 1 91
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a 1 91
64 50 ... Safety informations for handling refrigerant oil 1 91
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 2 90
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 2 90
61 20 900 Disconnect and connect battery earth lead (Plug-in Hybrid Electric Vehicle) 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
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61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 20 900 Disconnecting and connecting battery earth lead 2 90
61 35 ... Notes on ESD protection (Electro Static Discharge) 9
61 35 ... Notes on ESD protection (Electro Static Discharge)
72 12 ... Unlocking/locking airbag plug connections 43 50
64 50 ... Safety information for handling refrigerant R1234yf
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a

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64 12 670 Replacing electric auxiliary heater -front-

RISK OF DAMAGE

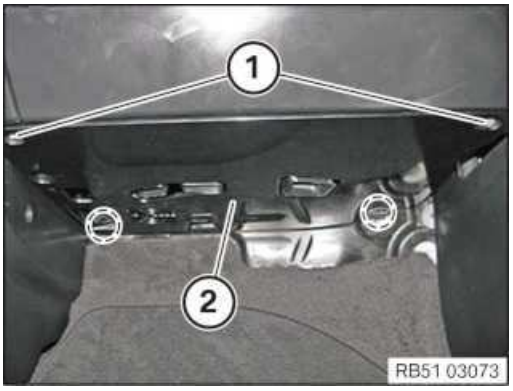
Scratches.

Tools and sharp-edged components can cause scratches.

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

PRELIMINARY WORK

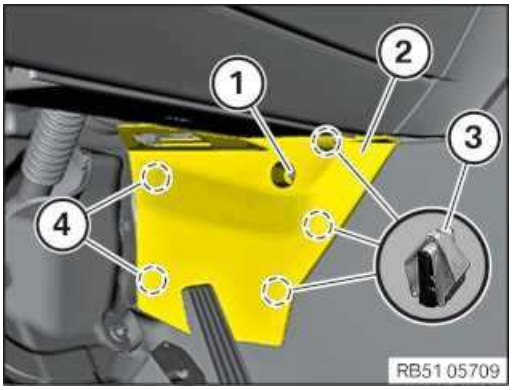
1 – Removing the instrument panel trim at bottom right



- Loosen nuts (1).
- Lower the instrument panel trim slightly at the bottom right (2) and disconnect the plug connection behind it.
- Guide the instrument panel trim at the bottom right (2) from the front guides and remove it.

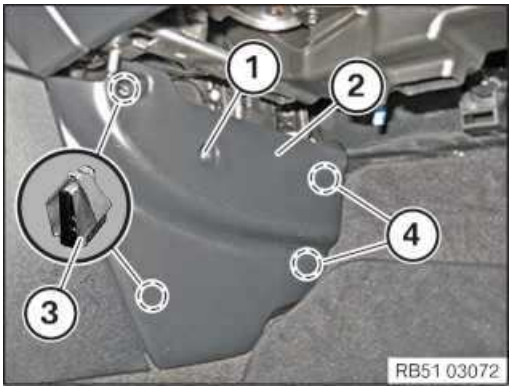
2 – Removing the side trim panel for the left and right centre console

▶ **Removing side trim panel for the left centre console**



- Loosen screw (1).
- Release side trim panel (2) for the centre console from retaining clips (3).
- Remove side trim panel (2) for the centre console from guides (4) and remove it.

▶ **Removing side trim panel for the centre console on the right side**



- Loosen screw (1).
- Release the side trim panel for centre console (2) from retaining clips (3).
- Remove the side trim panel for centre console (2) from guides (4) and remove it.

3 – Remove gearshift lever cover

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- Use wedges (1) to unclip the gaiter and pull it off upward.



- Remove the gearshift lever knob and the gaiter by means of a powerful jolt vertically upwards.

  In doing so, the tie rod must not be bent or damaged.
- Ensure that the gearshift lever knob is not twisted when removing, otherwise the anti-twist lock in the gearshift lever knob will be sheared off.

4 – Remove the decorative trim from the centre console

RISK OF DAMAGE

Scratches.

Tools and sharp-edged components can cause scratches.

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

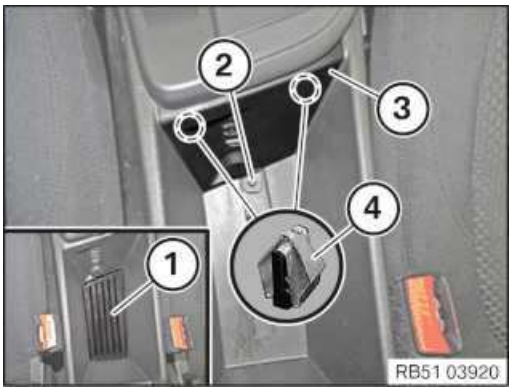


- Lever out and remove cover (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screws (2).



- Lever out and remove cover (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screws (2).

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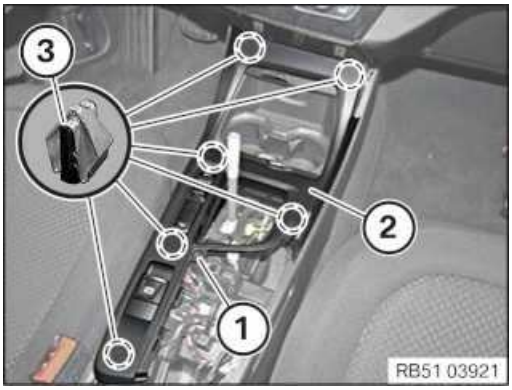


- Remove insert (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screw (2).
- Lever out trim (3) from clamps (4) towards the rear with the special tool **0 496 571 (00 9 327)**.
- Unfasten plug connection.
- Remove the trim (3).

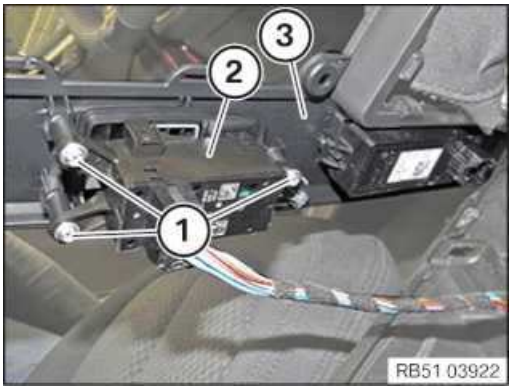


- Loosen screw (1).
- Remove decorative trim (2) and disconnect all the plug connections.
- Remove decorative trim (2).

5 – Remove the centre console trim



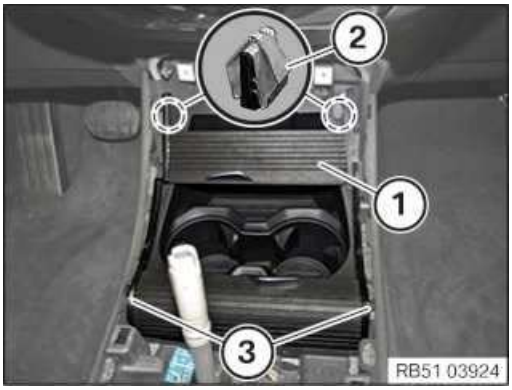
- Loosen screw (1).
- Release centre console trim (2) from clamps (3) with the special tool **0 496 569 (00 9 325)**.
- Lift centre console trim (2).



- Loosen screws (1).
- Remove parking brake button (2) from centre console trim (3) and place it down.

  The plug connection must not be disconnected.
- Disconnect the remaining plug connections and remove centre console trim (3).

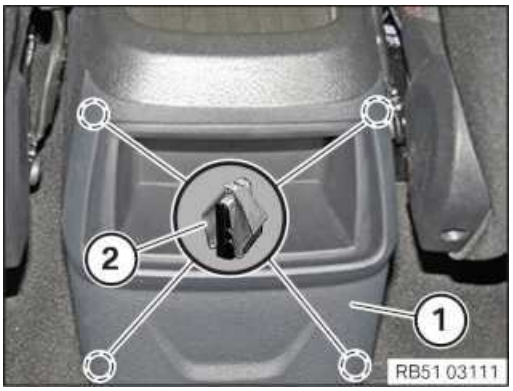
6 – Removing the front storage compartment



- Lever storage compartment (1) at top from the clamps (2).
- Fold storage compartment (1) so far back that it can be lifted from the guides (3).
- Disconnect plug connections and remove the storage compartment (1).

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7 – Removing the rear centre console trim



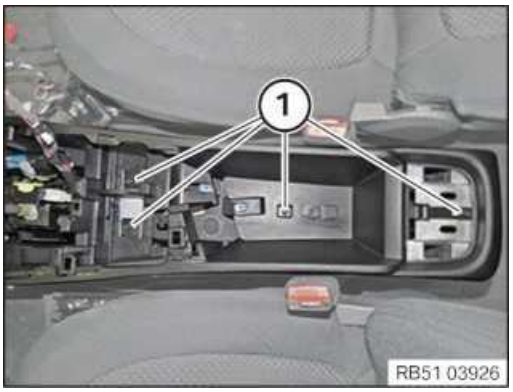
- Lever out and remove centre console trim (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2).

8 – Removing centre console fully with centre armrest

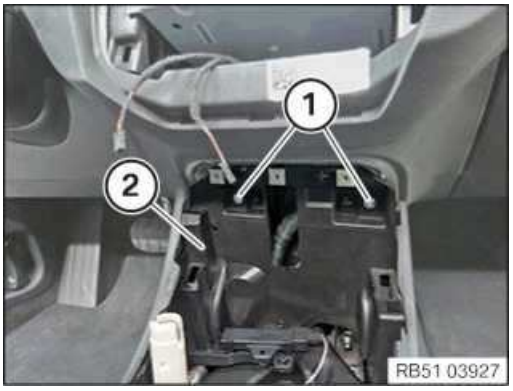
▶ **Removing the centre armrest**



- Release nuts (1) and remove centre armrest upwards.



- Loosen screws (1).

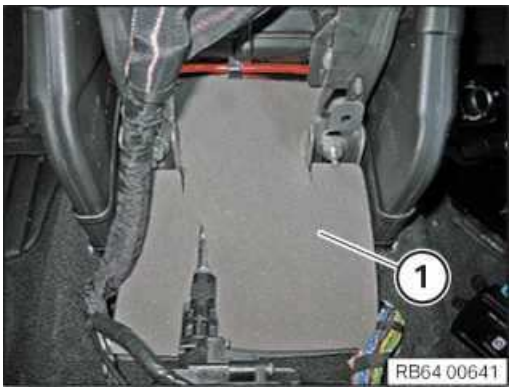


- Loosen screws (1).
- Lift the rear centre console (2) and in this process, disconnect all plug connections.
- Guide out the wiring harness and remove centre console (2) from the vehicle.

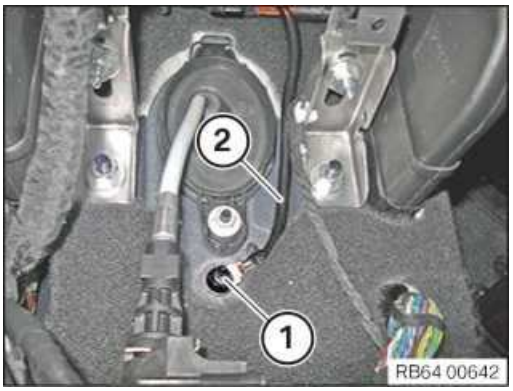
MAIN WORK

9 – Remove electric auxiliary heater

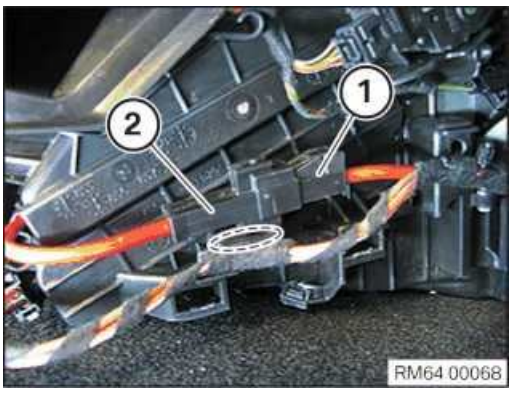
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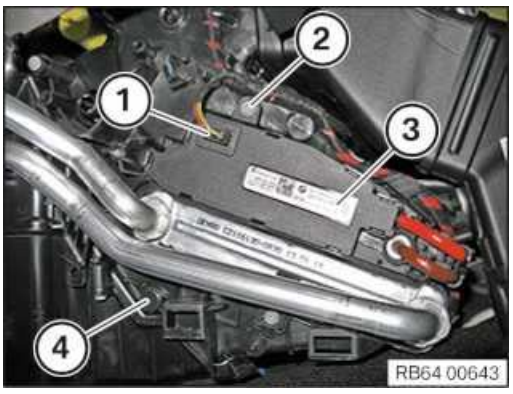
- Remove foam material (1).



- Unfasten nut (1).
- Thread out ground cable (2).

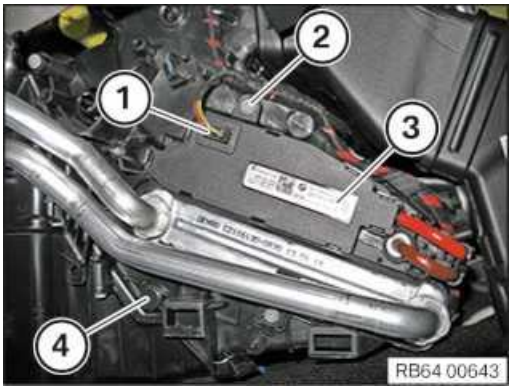


- Unlock plug connection (1) and disconnect.
- Disengage connector housing (2) in the marked area.



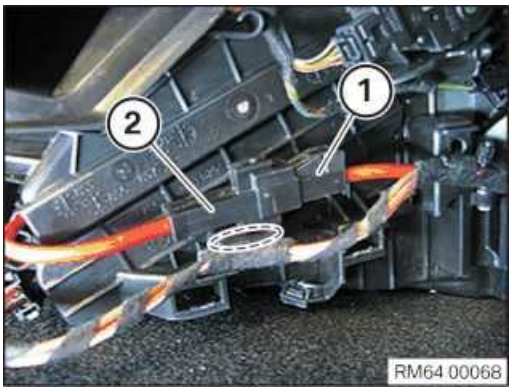
- Unlock plug connection (1) and disconnect.
- Loosen screw (2).
- Pull electric auxiliary heater (3) out of heating and air-conditioning unit (4).

10 – Installing the electric auxiliary heater

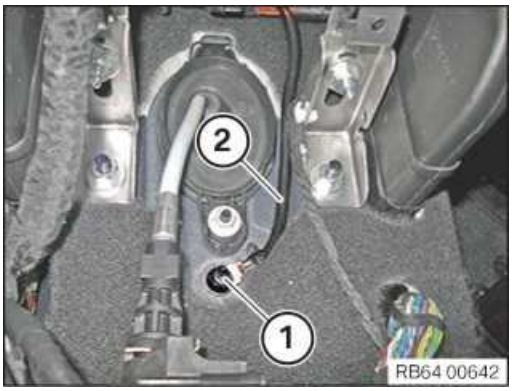


- Install the electric auxiliary heater (3) in the heating and air-conditioning unit (4).
- Tighten down screw (2).
- Connect connectors (1) and lock.

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- Engage connector housing (2) in marked area.
- Connect connectors (1) and lock.



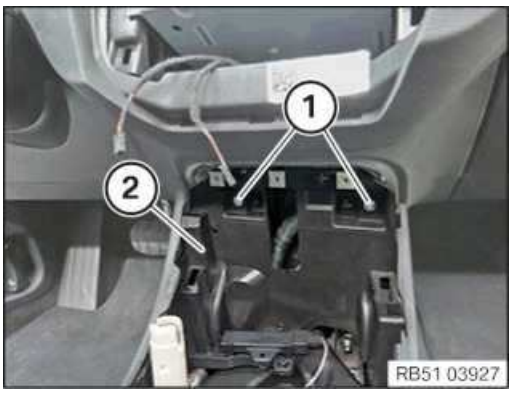
- Guide in ground cable (2) and position correctly.
- Tighten nut (1).



- Insert the foam material (1).

POSTPROCESSES

11 – Installing centre console fully with centre armrest

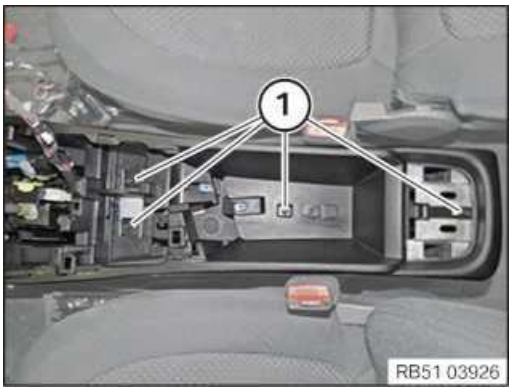


- Lift rear centre console (2), guide it forwards and connect all the connectors.
- Insert the wiring harness into the centre console (2).
- Tighten the screws (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

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- Tighten the screws (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

▶ **Installing the centre armrest**

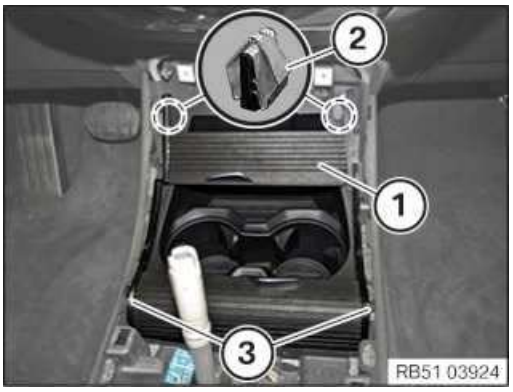


- Install the centre armrest and tighten nuts (1).

Centre armrest to support

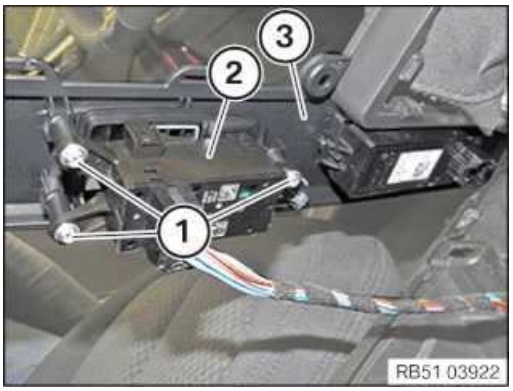
Nut M8		Tightening torque	21,4 Nm

12 – Installing the front storage compartment



- Install storage compartment (1) and connect the connectors.
- Insert the storage compartment (1) into the guides (3) and fold forward.
- Engage storage compartment (1) in the clamps (2) at top.

13 – Install the centre console trim

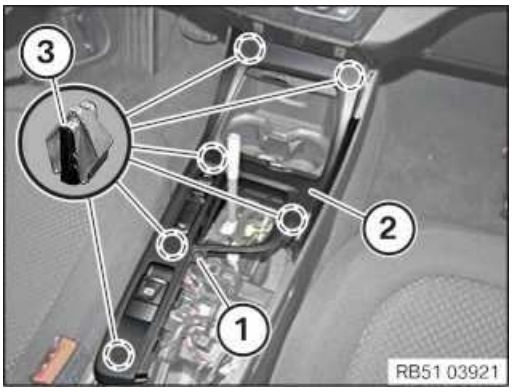


- Install centre console trim (3) and connect and lock the corresponding connectors.
- Install parking brake button (2) on centre console trim (3).
- Tighten the screws (1).

Parking brake button

Oval-head screw		Tightening torque	1,5 Nm

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- Install centre console trim (2) and engage it into clamps (3).
- Tighten down screw (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

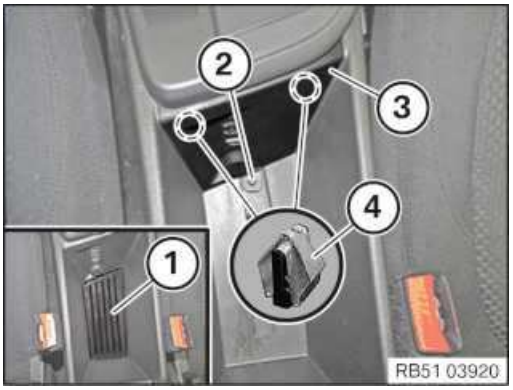
14 – Installing the decorative trim to the centre console



- Connect all connectors.
- Install decorative trim (2).
- Tighten down screw (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

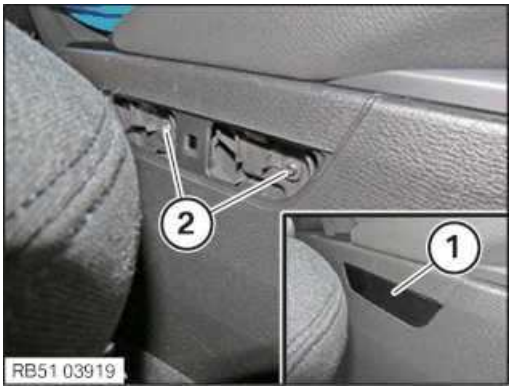


- Position trim (3) and connect all the connectors.
- Install trim (3) and engage it into clamps (4).
- Tighten down screw (2).

Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

- Insert the insert (1).



- Tighten down screws (2).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

- Install cover (1) and engage.



- Tighten down screws (2).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

- Install cover (1) and engage.

15 – Installing the gearshift lever cover

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- Place the gearshift lever knob on gearshift lever and align by lightly pressing in the direction of travel.

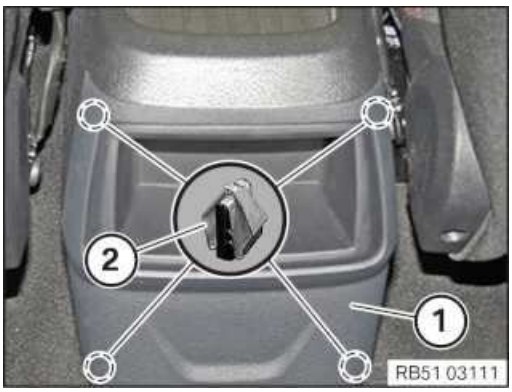
  The anti-twist lock must bite.
- Press the gearshift lever knob with the palm of the hand until it can be felt to engage.

  When installing, the tie rod of the gearshift lever must not be bent.



- Clip in gaiter (arrows).

16 – Installing the rear centre console trim



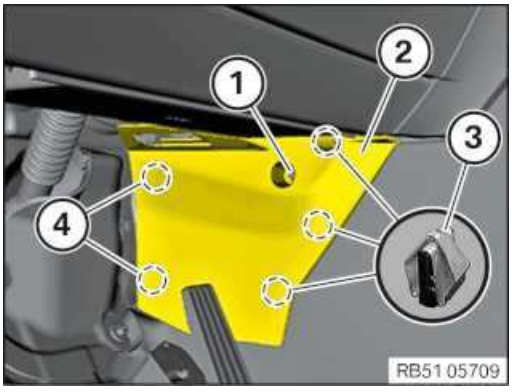
- Install centre console trim (1) and engage it into clamps (2).

17 – Installing side trim panel for the left and right centre console

▸ **Installing side trim panel for the left centre console**

TECHNICAL INFORMATION

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



- Install the side trim panel (2) for the centre console and feed it into the guides (4).
- Engage the side trim panel (2) for the centre console into retaining clips (3).
- Tighten down screw (1).

Trim to centre console

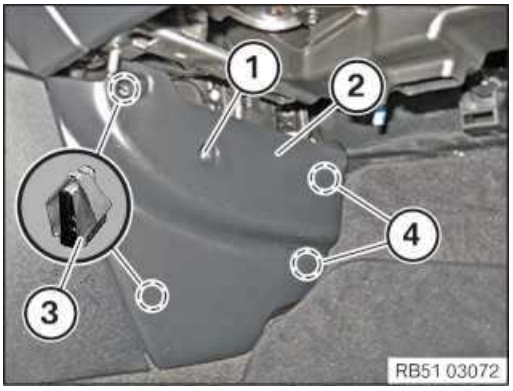
Oval-head screw		Tightening torque	1,8 Nm

▸ **Installing side trim panel for the right centre console**

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TECHNICAL INFORMATION

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



- Install the side trim panel for the centre console (2) and feed it into the guides (4).
- Engage the side trim panel for the centre console (2) into retaining clips (3).
- Tighten down screw (1).

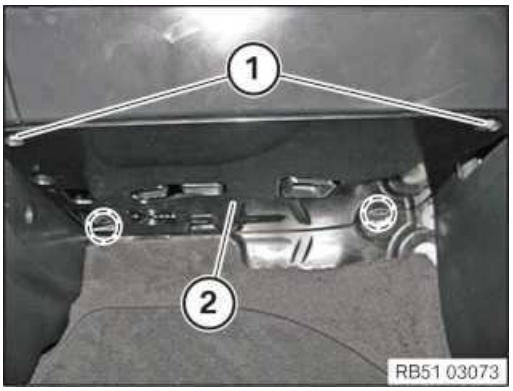
Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

18 – Installing the botto right instrument panel trim

TECHNICAL INFORMATION

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



- Install the lower right instrument panel trim (2) and connect and lock the plug connection.
- Insert the lower right instrument panel trim (2) into the front guides.
- Tighten nuts (1).

Bottom left footwell trim to instrument panel

M5 hexagon nut		Tightening torque	2 Nm

Additional Information

Overview of Tightening Torques

Screw connection for centre console — Used in step 11 13 14

Oval-head screw		Tightening torque	1,8 Nm

Centre armrest to support — Used in step 11

Nut M8		Tightening torque	21,4 Nm

Parking brake button — Used in step 13

Oval-head screw		Tightening torque	1,5 Nm

Trim to centre console — Used in step 14 17

Oval-head screw		Tightening torque	1,8 Nm

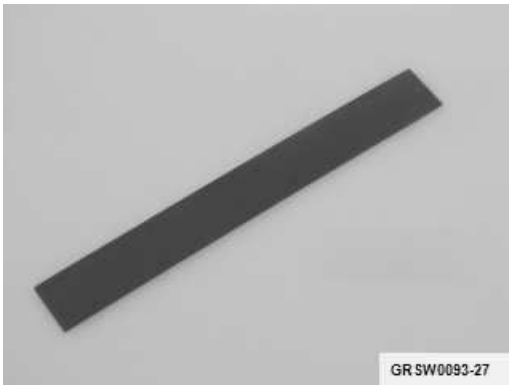
Bottom left footwell trim to instrument panel — Used in step 18

M5 hexagon nut		Tightening torque	2 Nm

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Overview of Special Tools

0 496 571 (00 9 327) Wedge



Common	Used in step 4
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)

0 496 569 (00 9 325) Wedge



Common	Used in step 5 7
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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64 22 164 Removing and installing centre fresh air grille

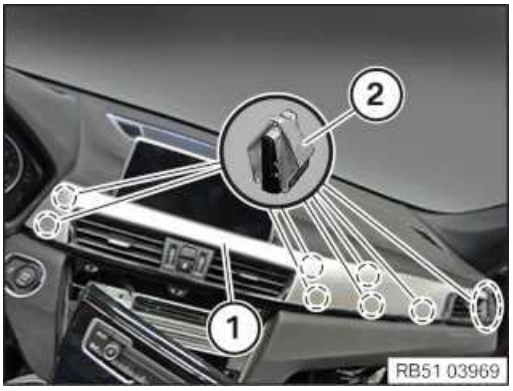
PRELIMINARY WORK

1 – Removing trim of the audio operating unit



- Unclip the trim (1) using special tool **2 298 505**.

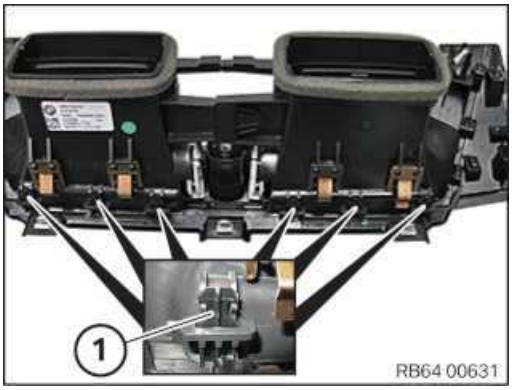
2 – Remove the finisher on the right instrument panel



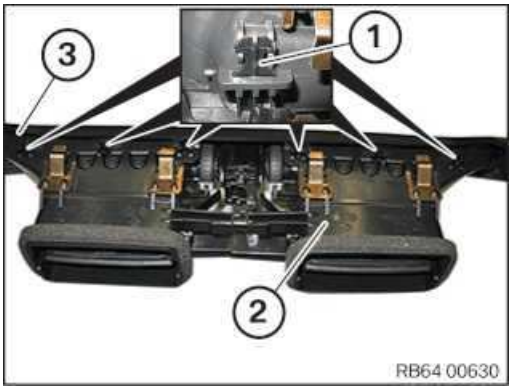
- Carefully release the decorative strip (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2) starting from the side.
- Lift up the decorative strip (1) and disconnect the plug connections behind it.
- Remove the decorative strip (1).

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3 – Removing the centre fresh air grille

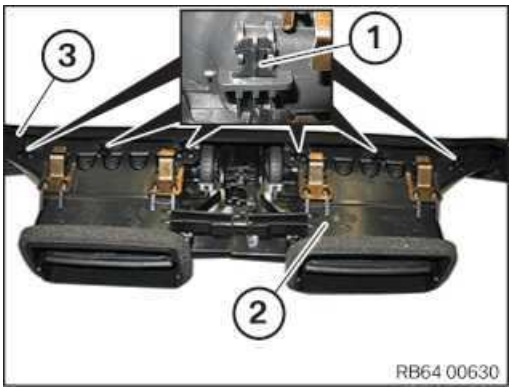


- Disengage the latch mechanisms (1).



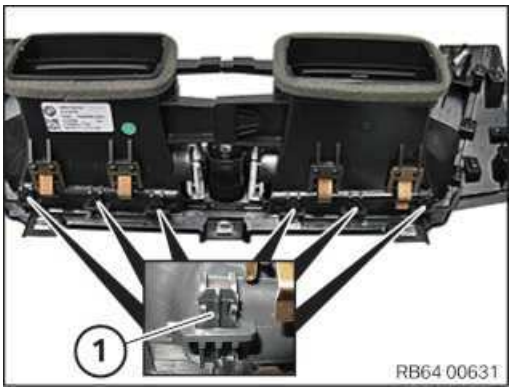
- Disengage the latch mechanisms (1).
- Remove the fresh air grille (2) from the decorative strip (3).

4 – Installing the centre fresh-air grille



- Position the fresh air grille (2) correctly and engage it in the decorative strip (3).

  Note: Make sure the latch mechanisms on the decorative strip (1) are not faulty.
- Make sure the fresh air grille (2) is correctly latched on the decorative strip (3).



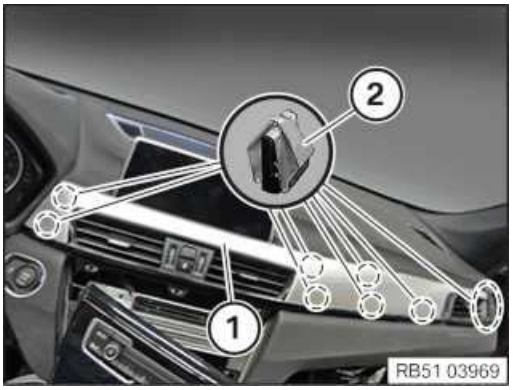
- **Note:** Latch mechanisms (1) must not be damaged. Ensure correct locking.

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5 – Install the finisher on the right instrument panel

TECHNICAL INFORMATION

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



- Install the decorative strip (1).
- Connect connector.
- Engage the decorative strip (1) on the clamps (2).

6 – Installing the audio operating unit trim



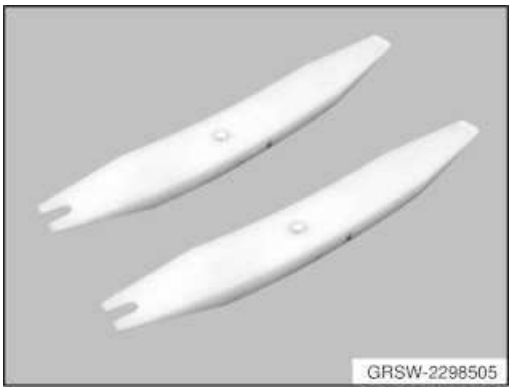
- Correctly position trim (1) and clip it into the instrument panel (2).

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Additional Information

Overview of Special Tools

2 298 505 Wedge



Common	Used in step 1
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)

0 496 569 (00 9 325) Wedge



Common

Used in step 2

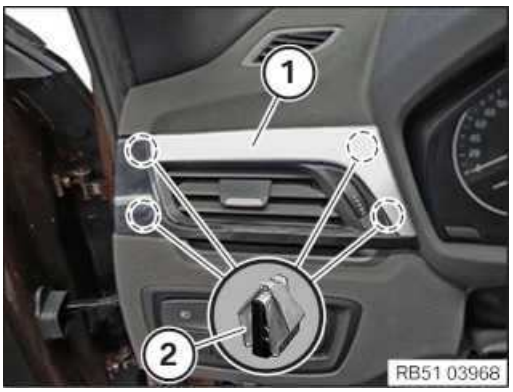
Usage	(Panel wedge) From 11/2008 this special tool replaces panel wedge 00 9 317 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	41 01 09 (507)

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64 22 114 Removing and installing left fresh air grille

PRELIMINARY WORK

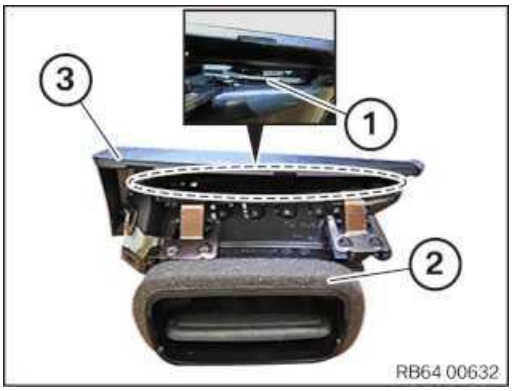
1 – Remove decorative strip from instrument panel



- Release the decorative strip (1) using the special tool **0 496 569 (00 9 325)** from the clamps (2) and remove.

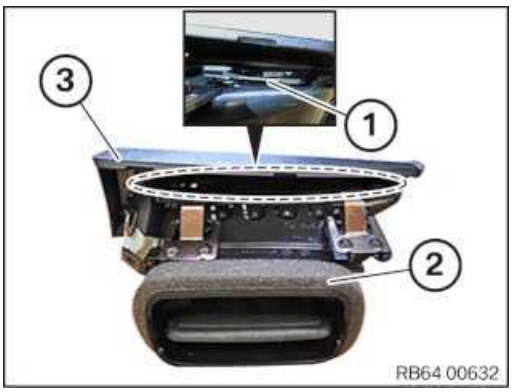
MAIN WORK

2 – Removing left fresh air grille



- Disengage latch mechanism (1) in the marked area.
- Remove the fresh air grille (2) from the decorative strip (3).

3 – Installing the left fresh air grille



- Position the fresh air grille (2) correctly and insert it in the decorative strip.

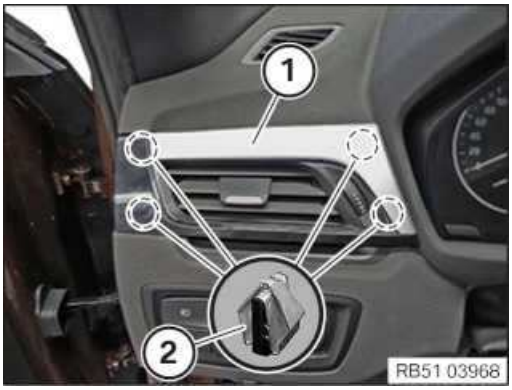
  Note: Make sure the latch mechanisms on the decorative strip (2) are not faulty.
- Make sure the fresh air grille (1) is securely fitted in the decorative strip (2).

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4 – Install decorative strip from instrument panel

TECHNICAL INFORMATION

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



- Install decorative strip (1) a snap into the clamps (2).

Additional Information

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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64 22 124 Removing and installing right fresh air grille

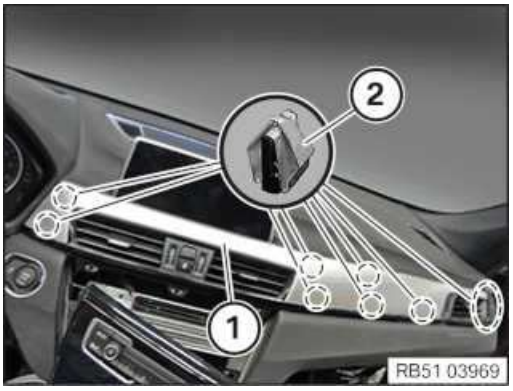
PRELIMINARY WORK

1 – Removing trim of the audio operating unit



- Unclip the trim (1) using special tool **2 298 505**.

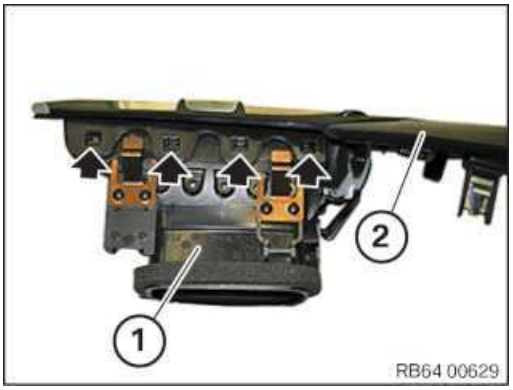
2 – Remove the finisher on the right instrument panel



- Carefully release the decorative strip (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2) starting from the side.
- Lift up the decorative strip (1) and disconnect the plug connections behind it.
- Remove the decorative strip (1).

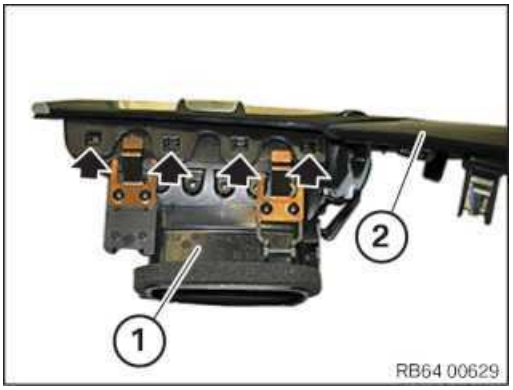
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3 – Removing the right fresh air grille



- Disengage the latch mechanisms (arrows).
- Remove the fresh air grille (1) from the decorative strip (2).

4 – Installing the right fresh-air grille



- Correctly position the fresh air grille (1) and engage it in the decorative strip (2).

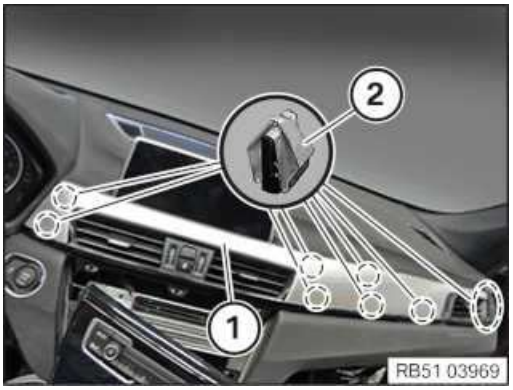
  Note: Make sure the latch mechanisms on the decorative strip (2) are not faulty.
- Make sure the fresh air grille (1) is securely fitted in the decorative strip (2).

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5 – Install the finisher on the right instrument panel

TECHNICAL INFORMATION

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



- Install the decorative strip (1).
- Connect connector.
- Engage the decorative strip (1) on the clamps (2).

6 – Installing the audio operating unit trim



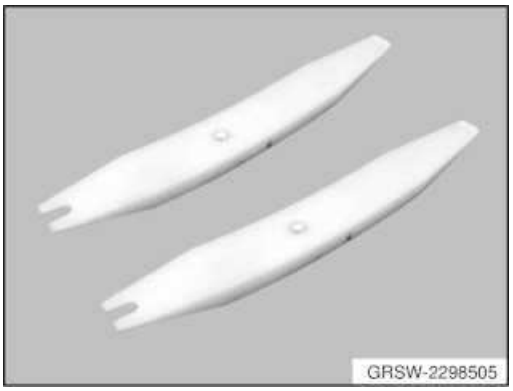
- Correctly position trim (1) and clip it into the instrument panel (2).

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Additional Information

Overview of Special Tools

2 298 505 Wedge



Common	Used in step 1
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)

0 496 569 (00 9 325) Wedge



Common

Used in step 2

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

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64 22 190 Removing and installing/replacing rear cabin fresh-air grille

1 – Remove the fresh air grille in the rear passenger compartment



- Disengage the fresh air grille (1) with the special tool **2 298 505** and remove it.

2 – Install the fresh air grille of the rear passenger compartment

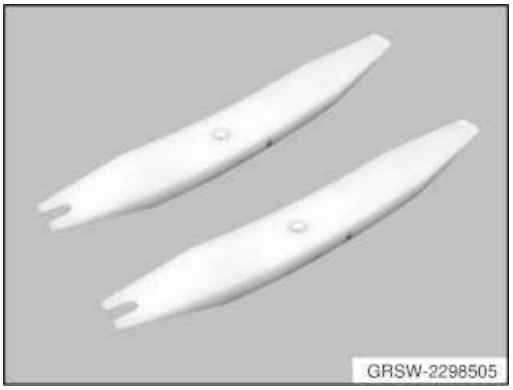


- Latch mechanisms on the fresh air grille (1) must not be damaged or missing.
- Correctly position and engage the fresh air grille (1).

Additional Information

Overview of Special Tools

2 298 505 Wedge



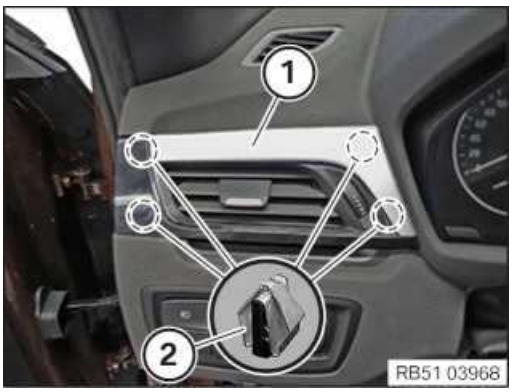
Common	Used in step 1
Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

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64 22 117 Replace fresh air grille, left

PRELIMINARY WORK

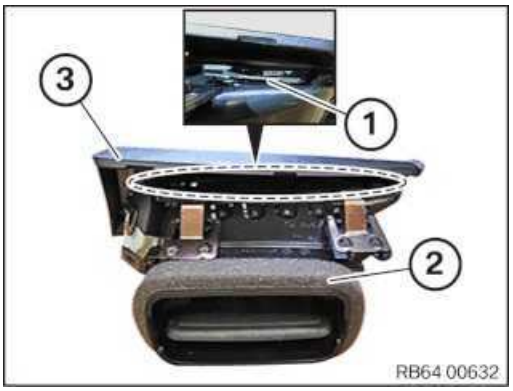
1 – Remove decorative strip from instrument panel



- Release the decorative strip (1) using the special tool **0 496 569 (00 9 325)** from the clamps (2) and remove.

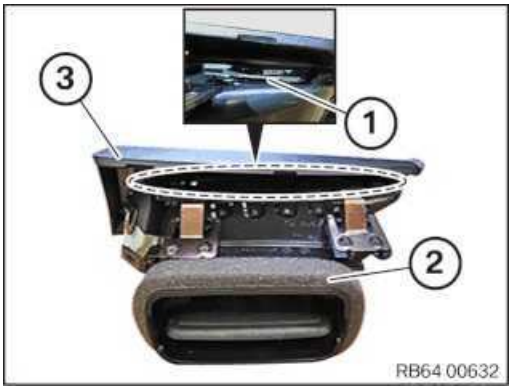
MAIN WORK

2 – Removing left fresh air grille



- Disengage latch mechanism (1) in the marked area.
- Remove the fresh air grille (2) from the decorative strip (3).

3 – Installing the left fresh air grille



- Position the fresh air grille (2) correctly and insert it in the decorative strip.

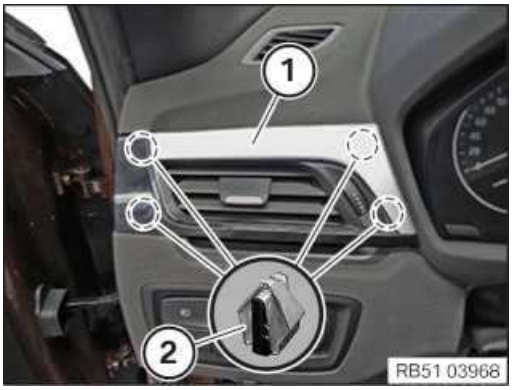
  Note: Make sure the latch mechanisms on the decorative strip (2) are not faulty.
- Make sure the fresh air grille (1) is securely fitted in the decorative strip (2).

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4 – Install decorative strip from instrument panel

TECHNICAL INFORMATION

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



- Install decorative strip (1) a snap into the clamps (2).

Additional Information

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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64 22 127 Replace fresh air grille, right

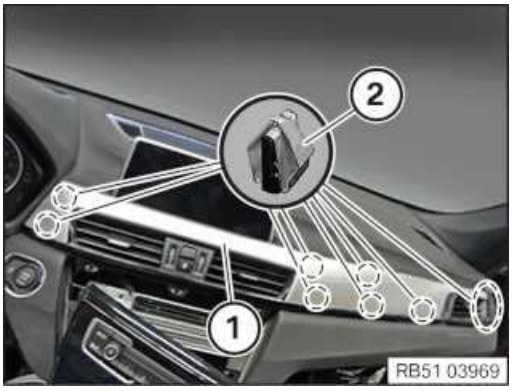
PRELIMINARY WORK

1 – Removing trim of the audio operating unit



- Unclip the trim (1) using special tool **2 298 505**.

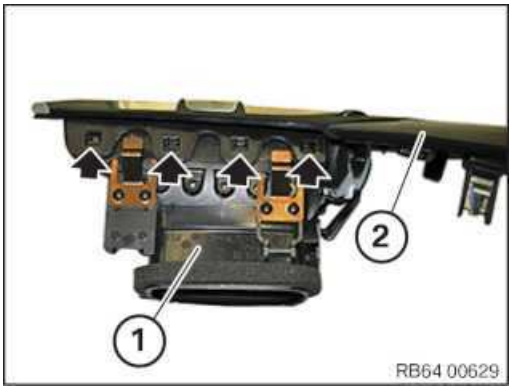
2 – Remove the finisher on the right instrument panel



- Carefully release the decorative strip (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2) starting from the side.
- Lift up the decorative strip (1) and disconnect the plug connections behind it.
- Remove the decorative strip (1).

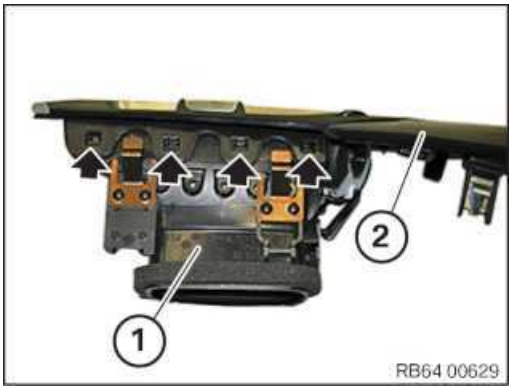
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3 – Removing the right fresh air grille



- Disengage the latch mechanisms (arrows).
- Remove the fresh air grille (1) from the decorative strip (2).

4 – Installing the right fresh-air grille



- Correctly position the fresh air grille (1) and engage it in the decorative strip (2).

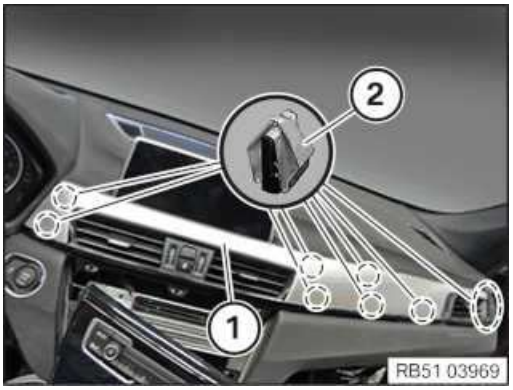
  Note: Make sure the latch mechanisms on the decorative strip (2) are not faulty.
- Make sure the fresh air grille (1) is securely fitted in the decorative strip (2).

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5 – Install the finisher on the right instrument panel

TECHNICAL INFORMATION

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



- Install the decorative strip (1).
- Connect connector.
- Engage the decorative strip (1) on the clamps (2).

6 – Installing the audio operating unit trim



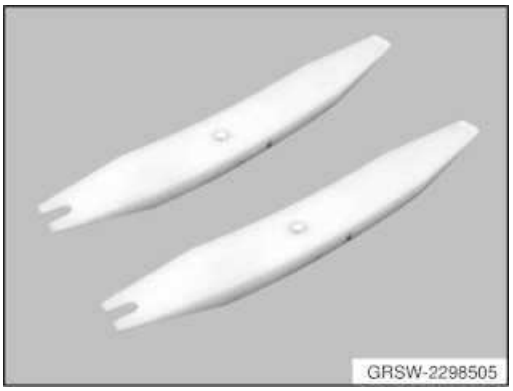
- Correctly position trim (1) and clip it into the instrument panel (2).

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Additional Information

Overview of Special Tools

2 298 505 Wedge



Common	Used in step 1
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)

0 496 569 (00 9 325) Wedge



Common

Used in step 2

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

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64 22 166 Replacing middle fresh air grille

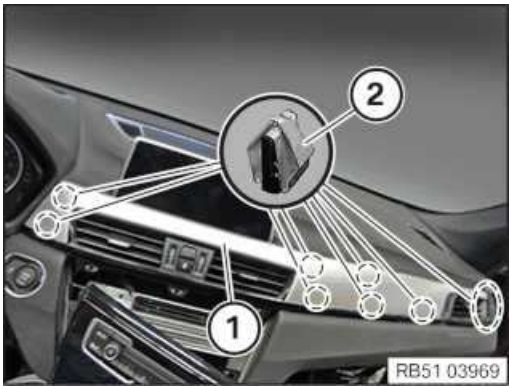
PRELIMINARY WORK

1 – Removing trim of the audio operating unit



- Unclip the trim (1) using special tool **2 298 505**.

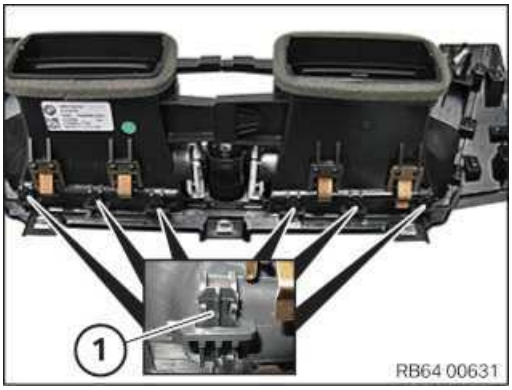
2 – Remove the finisher on the right instrument panel



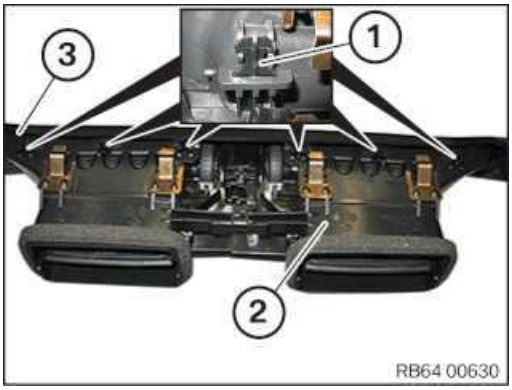
- Carefully release the decorative strip (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2) starting from the side.
- Lift up the decorative strip (1) and disconnect the plug connections behind it.
- Remove the decorative strip (1).

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3 – Removing the centre fresh air grille

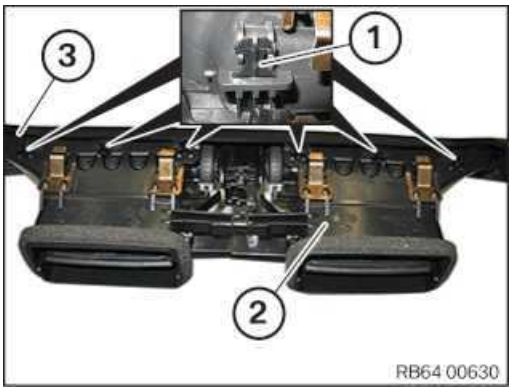


- Disengage the latch mechanisms (1).



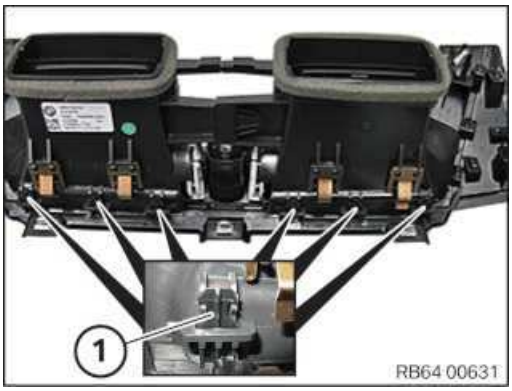
- Disengage the latch mechanisms (1).
- Remove the fresh air grille (2) from the decorative strip (3).

4 – Installing the centre fresh-air grille



- Position the fresh air grille (2) correctly and engage it in the decorative strip (3).

  Note: Make sure the latch mechanisms on the decorative strip (1) are not faulty.
- Make sure the fresh air grille (2) is correctly latched on the decorative strip (3).



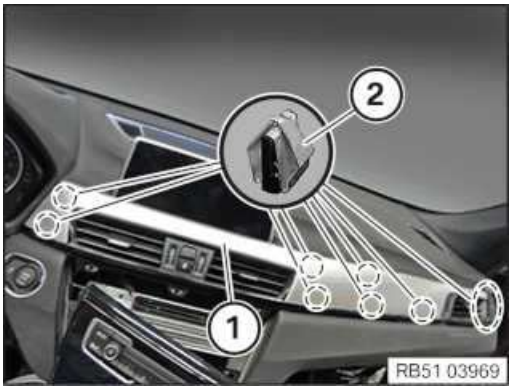
- **Note:** Latch mechanisms (1) must not be damaged. Ensure correct locking.

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5 – Install the finisher on the right instrument panel

TECHNICAL INFORMATION

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



- Install the decorative strip (1).
- Connect connector.
- Engage the decorative strip (1) on the clamps (2).

6 – Installing the audio operating unit trim



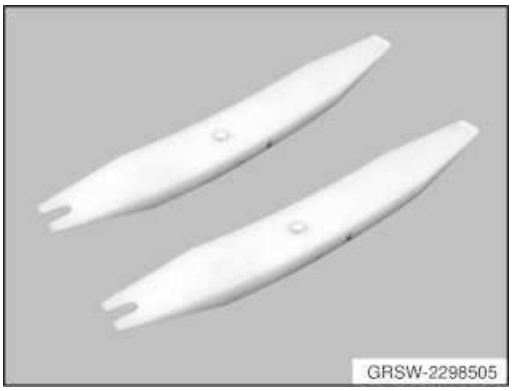
- Correctly position trim (1) and clip it into the instrument panel (2).

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Additional Information

Overview of Special Tools

2 298 505 Wedge



Common	Used in step 1
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)

0 496 569 (00 9 325) Wedge



Common

Used in step 2

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

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64 31 010 Replacing microfilter for interior ventilation

RISK OF DAMAGE

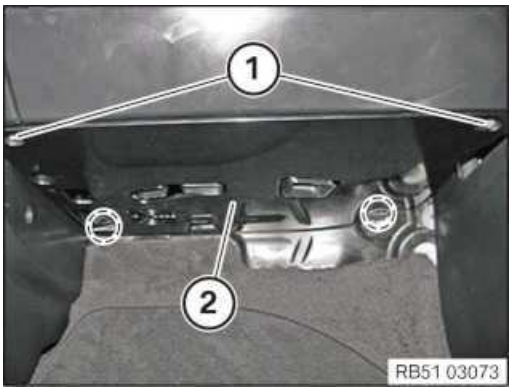
Damage to the heating and air conditioning system.

Use of unapproved microfilters may cause impairment of functions in the air conditioning.

- Only operate the heating and air conditioning system with the specified microfilter.

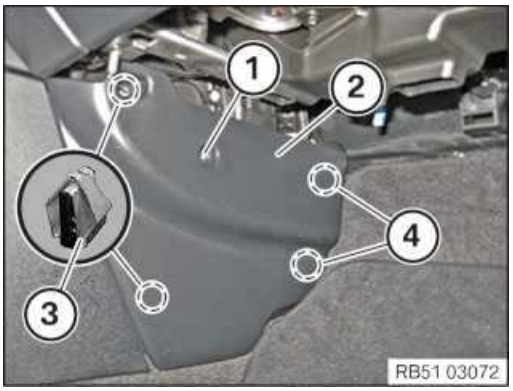
PRELIMINARY WORK

1 – Removing the instrument panel trim at bottom right



- Loosen nuts (1).
- Lower the instrument panel trim slightly at the bottom right (2) and disconnect the plug connection behind it.
- Guide the instrument panel trim at the bottom right (2) from the front guides and remove it.

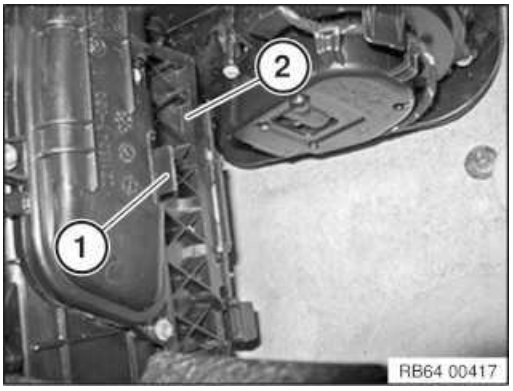
2 – Removing side trim panel for the centre console on the right side



- Loosen screw (1).
- Release the side trim panel for centre console (2) from retaining clips (3).
- Remove the side trim panel for centre console (2) from guides (4) and remove it.

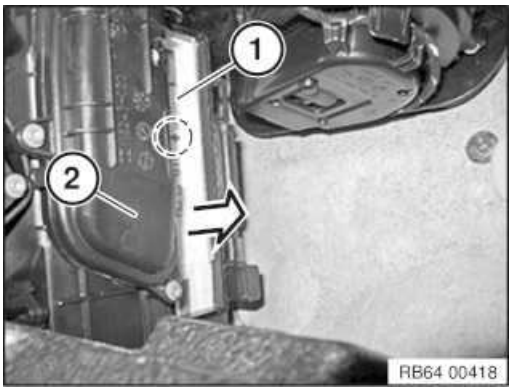
MAIN WORK

3 – Remove microfilter for passenger compartment ventilation

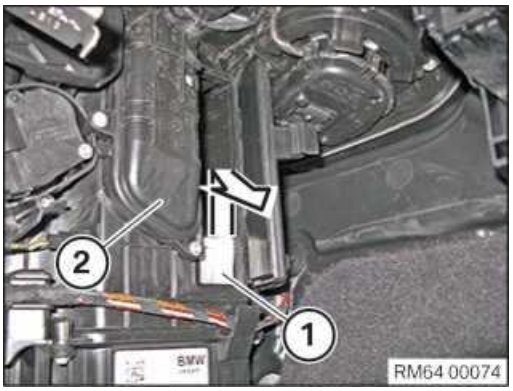


- Unlock the lock (1).
- Open flap (2).

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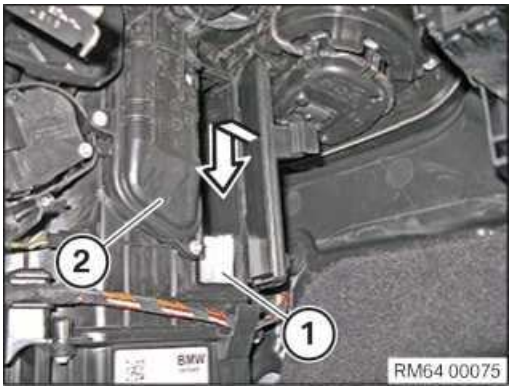


- Remove the upper microfilter (1) from the heating and air-conditioning unit (2) in direction of arrow.



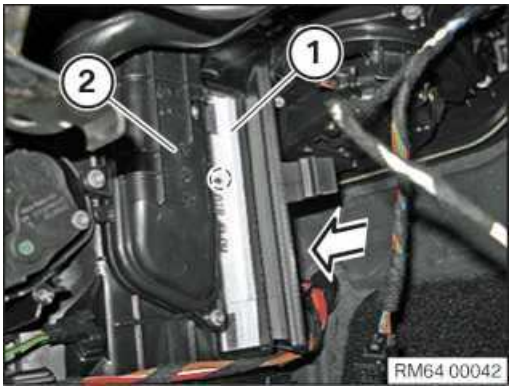
- Remove the lower microfilter (1) from the heating and air-conditioning unit (2) in direction of arrow.

4 – Installing the microfilter for the interior ventilation



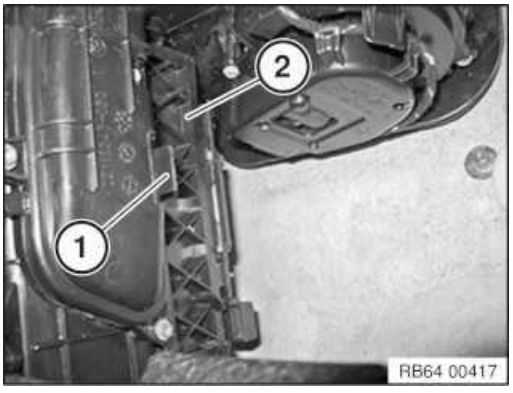
- Install the lower microfilter (1) in the heating and air-conditioning unit (2) in direction of arrow.

  Note: Pay attention to the direction of installation of the lower microfilter (1).



- Install the upper microfilter (1) in the heating and air-conditioning unit (2) in direction of arrow.

  Note: Pay attention to the direction of installation of the upper microfilter (1) in the marked area.



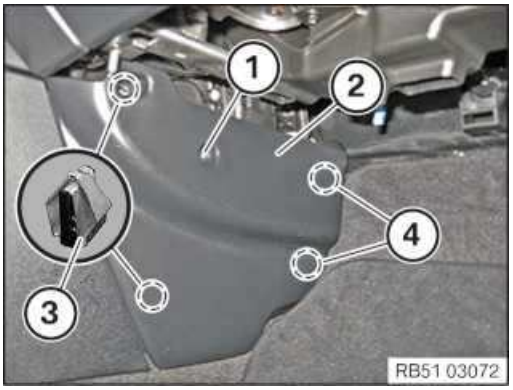
- Close flap (2).
- Lock the lock (1).

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5 – Installing side trim panel for the right centre console

TECHNICAL INFORMATION

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



- Install the side trim panel for the centre console (2) and feed it into the guides (4).
- Engage the side trim panel for the centre console (2) into retaining clips (3).
- Tighten down screw (1).

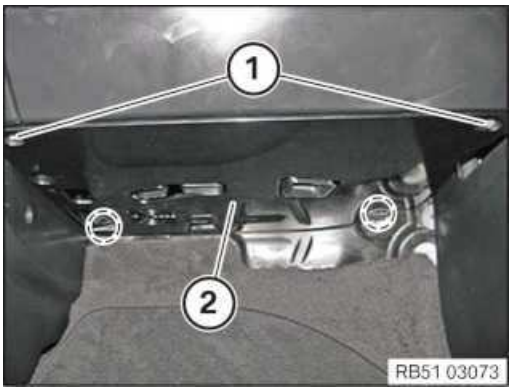
Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

6 – Installing the botto right instrument panel trim

TECHNICAL INFORMATION

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



- Install the lower right instrument panel trim (2) and connect and lock the plug connection.
- Insert the lower right instrument panel trim (2) into the front guides.
- Tighten nuts (1).

Bottom left footwell trim to instrument panel

M5 hexagon nut		Tightening torque	2 Nm

Additional Information

Overview of Tightening Torques

Trim to centre console — Used in step 5

Oval-head screw		Tightening torque	1,8 Nm

Bottom left footwell trim to instrument panel — Used in step 6

M5 hexagon nut		Tightening torque	2 Nm

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64 50 ... A/C performance test

Observe the following conditions prior to the A/C performance test:

1. Connect diagnosis system. Check of the fault memory (no faults in the fault memory).
2. Attach a thermometer with separate display element to the head restraint. Lay display element outwards out of passenger compartment.
3. Perform the test in a suitable workshop area with an ambient temperature above 18° C.
4. Vehicle temperature should be approximately the same as the ambient temperature in the workshop.
5. Engine must be at operating temperature (does not apply for electric vehicles).
6. ECO PRO mode must not be switched on.

Heat passenger compartment:

- ”A/C button” is **not** activated during the heating process
- Close all side windows and doors
- Set air recirculation function.
- Select air distribution mode for footwell and defrosting.
- *On vehicles with CID*: In A/C menu (CID) in Air distribution index tab: select 100 % footwell for driver and front passenger and 100 % defrosting for driver (this applies here to driver and front passenger)
- Maximum temperature setting
- Maximum blower speed
- Start engine (does not apply for electric vehicles)

Cool down passenger compartment:

Switch on air conditioning compressor with "A/C button" at a vehicle interior temperature of 45 °C (measured at the head restraint).

On vehicles with MAX-AC button:

- Activation of MAX-AC (= maximum cooling power)

On vehicles without MAX-AC button:

- Set maximum cooling power by means of following steps:
  - Setting minimum temperature
  - Blower setting maximum
  - Stratification maximum cold (4 blue bars)
  - Only ventilation open
  - Close remaining flaps (air outlet **only** from centre fresh air grille, left and right)

After 5 min, measure both ventilation temperatures with a thermometer at the same time (centre, left and right fresh air grille). The measured temperature must be ≤ 16 °C and the difference between right and left may not be greater than 2 °C.

If one or both temperature specifications is not reached drain off heating and air conditioning system. Measure the amount of refrigerant drawn off and compare with the nominal fill amount.

Check whether refrigerant loss is present:

- If there is a permissible loss of refrigerant, fill the refrigerant circuit with the nominal fill amount.
- If there is an impermissible loss of refrigerant, check the refrigerant circuit for tightness. After rectifying the leak, fill the refrigerant circuit with the nominal fill amount.
- If there is no refrigerant loss, continue troubleshooting using the pressure measurement (only possible for vehicles with unregulated air conditioning compressor up to series E46/E53).

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64 50 010 Drawing off, evacuating and filling heating and air conditioning system (R1234yf)



Warning!

Only persons in possession of a professional certificate of competence for the maintenance and repair of heating and air conditioning systems are authorised to carry out repair work on the refrigerant circuit. It must be available no later than 04 July 2010 (applies only to EU countries; follow country-specific regulations in non-EU countries).

Refrigerant circuit is under high pressure!

- If the protective caps on the filling valves are difficult to open, there is a danger of injury from leaking valve inserts.

Repairs may only be carried out on a depressurised refrigerant circuit!

- Before conducting repairs, check the actual pressure drop on the pressure gauge of the A/C service station

Avoid contact with refrigerant and refrigerant oil.

- Observe safety information for handling refrigerant R1234yf
- Follow safety information for handling refrigerant oil.



Attention!

Risk of damage!

Only BMW-approved R1234yf refrigerant may be used (refer to sourcing reference: Operating Fluids).

Restart engine only when air conditioning has been correctly filled.

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Vehicle-specific notes:

Only I01:

To access the connections for the refrigerant lines, remove front luggage compartment well.

Only I12:

Attention!

Risk of damage!

Risk of paint damage and scratches!

Open engine compartment lid to access the connections of the refrigerant lines.

Open and close the engine compartment lid as specified in the instructions without exception!

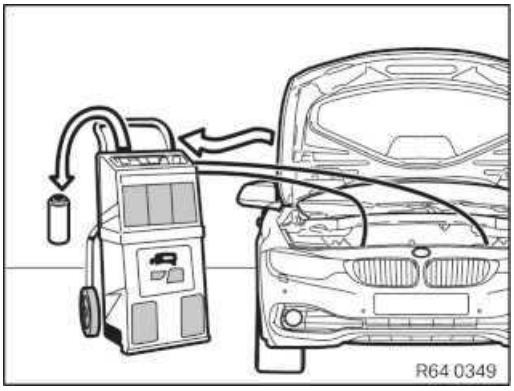
BMW i, Plug-in Hybrid Electric Vehicle and vehicles with rear passenger compartment air conditioning:

To ensure almost full draining of the refrigerant circuit or the hybrid battery cooling system, run the following test module:

- Body
- Air conditioning function
- Drain / fill the refrigerant circuit
- Drain/fill the refrigerant circuit (without I01 with heat pump)
- Drain/fill the refrigerant circuit of the heat pump (I01 with heat pump)

After filling the refrigerant circuit, delete the fault memory.

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Attention!

For R1234yf, an A/C service station especially suited for this refrigerant must be used!

A/C service station for R134a must not be used!

Comply with the notes on refrigerant (R134a, R1234yf) and refrigerant oil (Sanden SP-A2).

Risk of damage!

Carefully move the climate service station!

Comply with the operating instructions and service interval for the A/C service station!

Make sure that the hoses of the A/C service station are drained after the drawing off or filling procedure!

The climate service station contains highly sensitive components, such as scales. These components will be damaged due to improper handling, such as fast driving over a bump. This will result in a significant reduction of the measuring accuracy when drawing off and filling.

Attention!

The vehicle must be parked on the floor during all drawing off, evacuation and filling procedures!

Filling a raised vehicle will result in insufficient filling levels.

Note:
Perform A/C performance test in event of customer complaint!

If the system fails the test, draw off, evacuate and fill the air conditioning in accordance with the operating instructions of the relevant service station.

Instructions for drawing off air conditioning:
Before evacuation, the A/C service station will investigate the refrigerant.

If the refrigerant is consistent with the requirements, evacuation is continued.

If the refrigerant fails to meet the requirements, then a special procedure must be complied with when drawing off and disposing of this refrigerant.

In order to enhance the separation of refrigerant and refrigerant oil, allow the Air conditioning to run for a few minutes before drawing off.

The limits the entrainment of refrigerant oil while it is drawn off.

Drawn-off refrigerant oil must be changed and reintroduced via the A/C service station.

During drawing off, set the blower of the heating and air-conditioning unit to the middle blower speed. This ensures that drawing off is more effective since the pressure on the low pressure side increases.

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Recycling:

Dispose of drawn-off refrigerant oil as hazardous waste.

Observe country-specific waste disposal regulations.

Note in case of contaminated refrigerant R1234yf:
If the A/C service station for R1234yf refrigerant identifies contaminated refrigerant in the refrigerant circuit of the vehicle before evacuation, then a special procedure to draw off and dispose of this refrigerant must be followed.



Instructions for evacuating off air conditioning:

Before each filling, evacuate the refrigerant circuit.

Observe an evacuation time of at least 30 minutes.

The evacuation procedure removes all traces of ambient air, water vapour and any other gases present from the heating and air conditioning system. This enables subsequent system filling with refrigerant.

If the vacuum does not remain stable when the system is off, run the procedure for leaks in the refrigerant circuit.

During evacuation, set the blower of the heating and air-conditioning unit to the middle blower speed. This ensures that evacuation is more effective since the pressure on the low pressure side increases.

Notes for filling heating and air conditioning system:

In certain cases, Sanden SP-A2 refrigerant oil must be injected into the refrigerant circuit.

Before filling with refrigerant, replace the refrigerant oil entrained during drawing off.

Also top up any lost fluid as indicated in the table:

Loss of R1234yf refrigerant

Table 1 indicates the permitted loss of refrigerant after a specific period of time. There is no leak. refrigerant oil may not be topped up.

Table 2 indicates the amount of refrigerant oil must be topped up with an unapproved loss of refrigerant due to a leak after a specific period of time.

Different cases:

a. Loss of refrigerant per **Table 1** is not exceeded
   - Top up lost R1234yf refrigerant
   - It is not permitted to top up the refrigerant oil

b. Loss of refrigerant per **Table 1** is exceeded
   - Top up lost R1234yf refrigerant
   - refrigerant oil must be topped up **additionally** per Table 2

Table 1: **Number of years since last filling**	0 - 1	1 - 2	2 - 3	3 - 4	4 - 5
Permissible loss [g] --> Do not top up refrigerant oil	≤ 30	≤ 60	≤ 90	≤ 120	≤ 150

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Table 2: Number of years since last filling	Loss of R1234yf refrigerant [g]	Top up quantity refrigerant oil
0 -1	< 120	0
	120 - 150	10
	> 150	20
1 - 2	< 180	0
	180 - 210	10
	> 210	20
2 - 3	< 240	0
	240 - 270	10
	> 270	20
3 - 4	< 300	0
	300 - 330	10
	> 330	20
4 - 5	< 360	10
	> 360	20



Follow notes for opening and replacing parts in refrigerant circuit.

Depending on the type of component replaced on the heating and air conditioning system, it may be necessary to the top up the refrigerant oil, even if no measurable losses have occurred during drawing off. Follow the notes provided by the air conditioning manufacturer, taking account of the tolerances (and inaccuracies) indicated in the operating instructions of the relevant service station.

Information on the required refrigerant capacity for the entire air conditioning is contained on the type plate (1) in the engine compartment.

If necessary, refer to the Technical Data for capacities.

Installation note:

Reseal refrigerant filler necks on vehicle with sealing caps.

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64 50 010 Drawing off, evacuating and filling heating and air conditioning system (R134a)



Warning!

Only persons in possession of a professional certificate of competence for the maintenance and repair of heating and air conditioning systems are authorised to carry out repair work on the refrigerant circuit. It must be available no later than 04 July 2010 (applies only to EU countries; follow country-specific regulations in non-EU countries).

Refrigerant circuit is under high pressure!

- If the protective caps on the filling valves are difficult to open, there is a danger of injury from leaking valve inserts.

Repair work may only be carried out on a depressurised refrigerant circuit!

- Before conducting repairs, check the actual pressure drop on the pressure gauge of the A/C service station

Avoid contact with refrigerant and refrigerant oil.

- Follow safety instructions for handling R134a refrigerant.
- Follow safety information for handling refrigerant oil.



Attention!

Risk of damage!

Only BMW-approved R134a refrigerant may be used. (refer to sourcing reference: Operating Fluids)

Restart engine only when air conditioning has been correctly filled.

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Vehicle-specific notes:

E60/E61 M5only:

To access refrigerant line connections, the right intake silencer housing must be removed.

Only F01/F02/F03/F04/F06/F12/F13 (N63) from 07/2012:

To access refrigerant line connections, the right intake port must be removed.

Only F02/F03/F04 and all Plug-in Hybrid Electric Vehicles:

To guarantee a complete draining of refrigerant from the automatic rear passenger compartment air conditioning or the hybrid battery cooling system,

Run the following test module:

- Car body service
- Air conditioning function
- Drain / fill up refrigerant circuit

F23 / F33 / F87 only:

To access refrigerant line connections, the left front end strut must be removed.

Only M3 F8x:

In order to access the connections of the refrigerant lines, undo charge air cooler and place to one side.

Only F20, F21, F22, F23, F30, F31 with B38 engine:

To access refrigerant line connections, the electronics box must be removed.

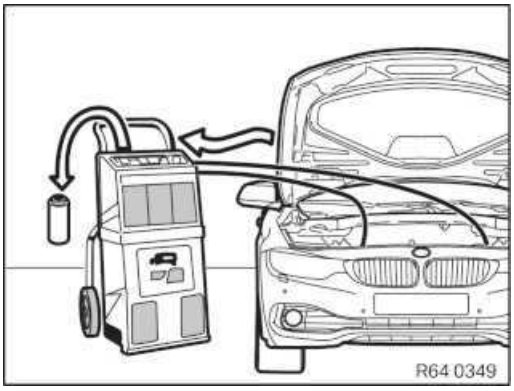


Note:
On the F01, F02, F10, F11, an additional refrigerant low pressure connection (2) may be installed specific to the engine and model year.

This refrigerant low pressure connection (2) is not to be used in the inspection!

Use exclusively refrigerant connections (1) for drawing off, evacuating and filling!

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Attention!

Risk of damage!

Comply with SI 08 07 10 (669)!

Carefully move the climate service station!

Comply with the operating instructions and service interval for the A/C service station!

Make sure that the hoses of the A/C service station are drained after the drawing off or filling procedure!

The climate service station contains highly sensitive components, such as scales. These components will be damaged due to improper handling, such as fast driving over a bump. This will result in a significant reduction of the measuring accuracy when drawing off and filling.

Attention!

The vehicle must be parked on the floor during all drawing off, evacuation and filling procedures!

Filling a raised vehicle will result in insufficient filling levels.

Note:
Comply with the notes on refrigerant (R134a, R1234yf) and refrigerant oil (Sanden SP-A2).

Note:
In the event of complaints, perform A/C performance test!

If the system fails the test, draw off, evacuate and fill the air conditioning in accordance with the operating instructions of the relevant service station.

Instructions for drawing off air conditioning:

To help separation of refrigerant and refrigerant oil, run engine at low speed (800-1200 rpm) and with air conditioning switched on for a few minutes.

The limits the entrainment of refrigerant oil while it is drawn off.

Drawn-off refrigerant oil must be changed and reintroduced via the A/C service station.

During drawing off, set the blower of the heating and air-conditioning unit to the middle blower speed. This ensures that drawing off is more effective since the pressure on the low pressure side increases.

Recycling:

Dispose of drawn-off refrigerant oil as hazardous waste.

Observe country-specific waste disposal regulations.

Instructions for evacuating off air conditioning:

Before each filling, evacuate the refrigerant system.

Observe an evacuation time of at least 30 minutes.

The evacuation procedure removes all traces of ambient air, water vapour and any other gases present from the heating and air conditioning system. This enables subsequent system filling with

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refrigerant.

If the vacuum does not remain stable when the system is off, run the procedure for leaks in the refrigerant circuit.

During evacuation, set the blower of the heating and air-conditioning unit to the middle blower speed. This ensures that evacuation is more effective since the pressure on the low pressure side increases.

Notes for filling heating and air conditioning system:

In certain cases, Sanden SP-A2 refrigerant oil must be injected into the refrigerant circuit.

Before filling with refrigerant, replace the refrigerant oil entrained during drawing off.

Also top up any lost fluid as indicated in the table:

Loss of R134a refrigerant

Table 1 indicates the permitted loss of refrigerant after a specific period of time. There is no leak. refrigerant oil may not be topped up.

Table 2 indicates the amount of refrigerant oil must be topped up with an unapproved loss of refrigerant due to a leak after a specific period of time.

Different cases:

a. Loss of refrigerant per **Table 1** is not exceeded
   - Top up lost R134a refrigerant
   - It is not permitted to top up the refrigerant oil

b. Loss of refrigerant per **Table 1** is exceeded
   - Top up lost R134a refrigerant
   - refrigerant oil must be topped up **additionally** per Table 2

Table 1: **Number of years since last filling**	0 - 1	1 - 2	2 - 3	3 - 4	4 - 5
Permissible loss [g] --> Do not top up refrigerant oil	≤ 30	≤ 60	≤ 90	≤ 120	≤ 150

Table 2: **Number of years since last filling**	**R134a loss of coolant [g]**	**Top up quantity refrigerant oil**
0 -1	< 120	0
	120 - 150	10
	> 150	20
1 - 2	< 180	0
	180 - 210	10
	> 210	20
2 - 3	< 240	0
	240 - 270	10
	> 270	20
3 - 4	< 300	0

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	300 - 330	10
	> 330	20
4 - 5	< 360	10
	> 360	20

Attention!

Only **F10/F11** with **B47 engine** and production date **to 02/2015**:

For these vehicles, an **additional 30 g** must be added to the drawn off/determined amount of refrigerant oil!



Follow notes for opening and replacing parts in refrigerant circuit.

Depending on the type of component replaced on the heating and air conditioning system, it may be necessary to the top up the refrigerant oil, even if no measurable losses have occurred during drawing off. Follow the notes provided by the air conditioning manufacturer, taking account of the tolerances (and inaccuracies) indicated in the operating instructions of the relevant service station.

Information on the required refrigerant capacity of the air conditioning is found on the type plate (1).

If necessary, refer to the Technical Data for capacity.

Installation note:

Reseal refrigerant filler necks on vehicle with sealing caps.

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64 50 ... Instructions for handling R1234yf refrigerant

Work on the refrigerant circuit may only be carried out by experts!

Avoid all contact with liquid or gaseous R1234yf. Wear protective goggles and gloves when working on the refrigerant circuit.

- Follow safety information for handling refrigerant R1234yf!

Warning!

> Although R1234yf at normal temperature is non-toxic, non-flammable and not explosive in air in any mixture ratio, it is still essential to follow various safety precautions. **At higher temperatures, R1234yf is inflammable.**

As a gas, R1234yf is colourless, odourless and heavier than air. If it enters the atmosphere, this may result in an imperceptible danger of asphyxiation or in cardiac palpitations, especially in workshop pits. Ventilate rooms adequately; if necessary, turn on installed extractor systems.

Store filled refrigerant pressure flasks so that they are not subject to direct sunlight or other heat sources (at maximum 45 °C). Also avoid exposing them to mechanical stress (e.g. by dropping).

Do not weld or solder on to filled air conditioning systems or in rooms into which R1234yf may have leaked. Exposure to flames or high temperatures (≥ 50 °C) may give rise to toxic products of decomposition (hydrofluoric acid). For this reason, do not smoke either.

In the event of fire, carbon dioxide (CO2), extinguishing powder and a sprayed water jet are deemed to be suitable extinguishing agents. Cool reservoirs at risk with a sprayed water jet (risk of bursting!).

If the protective caps on the filler valves are difficult to open, there is a risk of injury from leaking valve inserts (high pressure).

The filled refrigerant circuit of the A/C system is subject to excess pressure. Before carrying out repairs on the A/C system, it is absolutely essential to draw off the refrigerant.

- Before conducting repairs, check the actual pressure drop on the pressure gauge of the A/C service station

R1234yf must be drawn off, cleaned and returned to the A/C system using an A/C service station following the relevant operating instructions.

For a properly functioning A/C system, it is essential to have the greatest possible levels of cleanliness when working on the A/C system and the longest possible evacuation (at least 30 minutes dehumidification from refrigerant circuit) before each filling of the A/C system.

R1234yf easily absorbs moisture. Therefore, seal off opened pipes, air conditioning condenser, evaporator, air conditioning compressor and dryer flask immediately with seal plugs.

- If air conditioning has been completely drained by a leak, accident or repair, the desiccant insert must be replaced as excessive moisture may have entered the system.

With replacement parts, the plugs may only be removed immediately before the lines are connected. In the event of warranty claims, the old parts must be provided with plugs to be able to determine the cause of the damage.

Installation note:

After each refilling of an air conditioning, check that protective caps of filling valves are hand-tight. They serve as additional seals.

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64 53 ... Instructions for replacement of air conditioning capacitors and radiator/coolers

Attention!

Even when they are correctly installed or due to normal driving, radiators (oil cooler, radiator, charge air cooler) or air conditioning condensers may show slight impressions or deformations on their discs (1).

A slight sag with a large radius for the air conditioning condenser is also permissible.

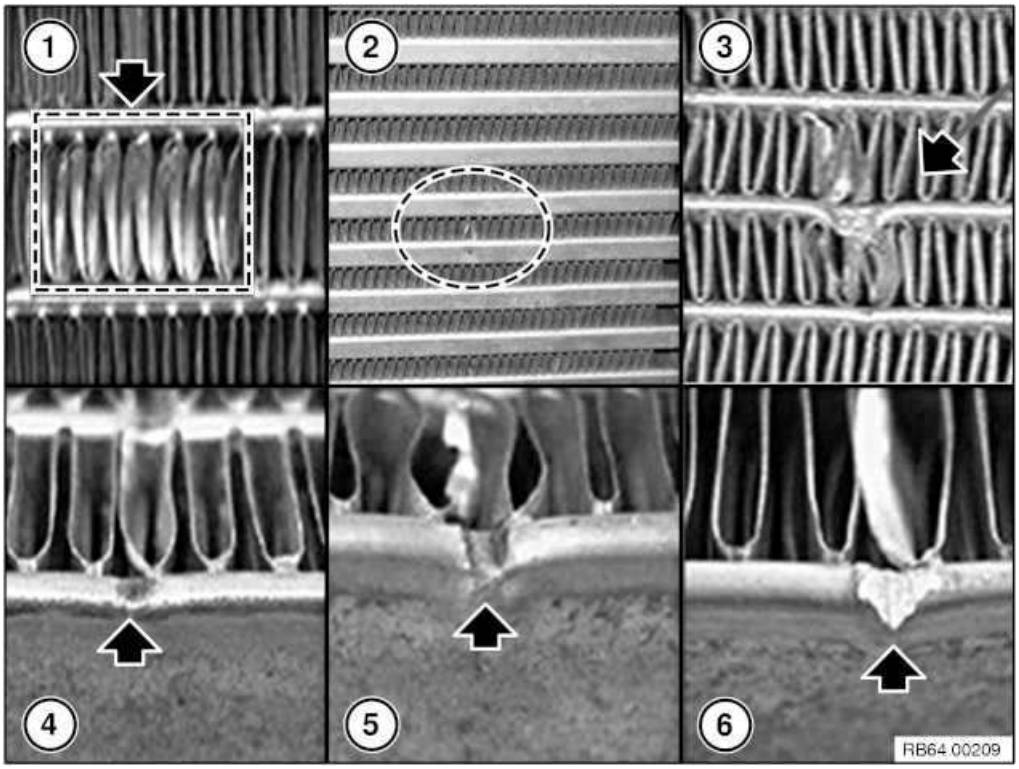
As long as tightness/function are not degraded and an adequate distance of a few mm between the radiator and air conditioning condenser remains in place, **this is not damage in either case.**

Radiators or air conditioning condensers are not to be replaced in these cases!

Note:

The deformations shown in Fig.Â (1) can be bent back with a standard fin comb..

Damage to lines carrying media or on the flat pipe require exchange of the radiator or air conditioning condenser (2-6).



Dryer flask (integrated in the air conditioning condenser):

Round dents/depressions are permitted.

The air conditioning condenser is not to be replaced in this case.

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64 50 ... Leak detection with forming gas



Note:
Leak detection with forming gas replaces the leak detection that is restricted in EU countries using UV.

Observe national regulations in all other countries!



Attention!

Compliance with the manufacturer's operating instructions provided in the equipment case is absolutely mandatory!

Comply with SI 08 08 10 (670)!

Read and comply with the manufacturer's operating instructions provided with the special tool particularly with regard to accident prevention, health protection and environmental protection.

Only the basic procedure is described in the following!



Attention!

Wear personal protective clothing/equipment!



Note:
Determine the customer's use behaviour prior to leak detection!

Certain user behaviours can lead to a loss of refrigerant from the refrigerant circuit even if there is no leak. This may occur if the customer has not used the air conditioning for a period of more than six months. This may cause O-rings to harden and refrigerant may escape. In this case, it will be sufficient to fill the refrigerant circuit again and switch on the air conditioning for approximately 10 minutes while the engine is running.

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Necessary preliminary work:

- **If components of the refrigerant circuit are contaminated, clean the engine compartment. Otherwise, the sensor head of the leak detector will become contaminated.**

  Comply with notes and instructions on handling high pressure cleaner.
- Drain off air conditioning system
- Fill the air conditioning with forming gas
- Set pressure to 5 bar

To reach the components of the refrigerant circuit with leak detector, specific parts must be removed depending on the vehicle.

Remove the following parts first immediately before the check of the respective components:

- Drive belt from air conditioning compressor
- Centre fresh air grille
- Covers
- Trim panels
- Air duct
- Intake silencer
- Bulkheads
- Parts of the interior equipment (automatic rear air-conditioning system)

In some vehicles it is necessary to open the air flaps of the automatic air flap control.

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Vehicle-specific notes:

Only I01:

To access the connections for the refrigerant lines, remove front luggage compartment well.

Only I12:

Attention!

Risk of damage!

Risk of paint damage and scratches!

Open engine compartment lid to access the connections of the refrigerant lines.

Open and close the engine compartment lid as specified in the instructions without exception!

Only BMW i and hybrid vehicles:

To ensure almost full draining of the refrigerant circuit or the hybrid battery cooling system, run the following test module:

- Body
- Air conditioning function
- Drain / fill the refrigerant circuit
- Drain / fill the refrigerant circuit
- Drain/fill refrigerant circuit of heat pump (only I01 with heat pump)

Delete fault memory after filling refrigerant circuit.

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Attention!

Always perform the leak detection with a pressure of **5 bar at first**!

This is absolutely necessary to find certain leaks, such as in the area of the O-rings.

If no leak is detected, repeat the leak detection with **10 bar**.

Attention!

The leak detection may not be performed **more than 3 h** after filling the refrigerant circuit with forming gas!

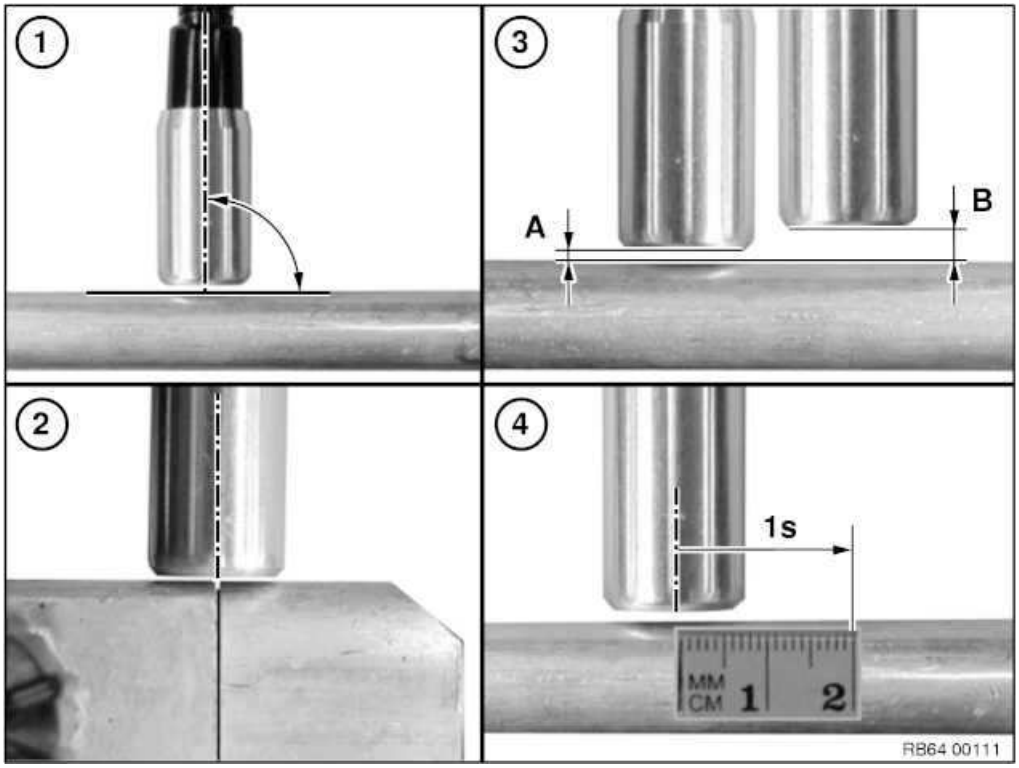
Forming gas consists of 95% nitrogen and 5% hydrogen. The leak detector will detect hydrogen. If this is leaking from the refrigerant circuit even though the pressure remains, the leak detection bears no results.

Attention!

Risk of damage!

Maximum approved pressure: **10 bar**

Do not start the engine during the entire procedure!



Notes for handling the leak detector:

1. Sensor head should always stand vertical to the surface to be checked.
2. Sensor head must always be aligned to the centre of the point to be checked. Slowly guide the sensor head around the point (e.g. connection point, sealing surface, etc.).
3. The optimal distance (A) between sensor head and surface to be checked should permanently be approximately 1 mm.

   Maximum distance (B) at points that are difficult to access approximately 5 mm.
4. Checking speed may not be more than maximum 2 cm per s.

Note:
If the leak detector displays a leak, remove the sensor head from the leak for approximately 10 s.
Then check if the leak is still displayed at the same point. Repeat the process up to three times,
to ensure that a leak is actually present at this point.

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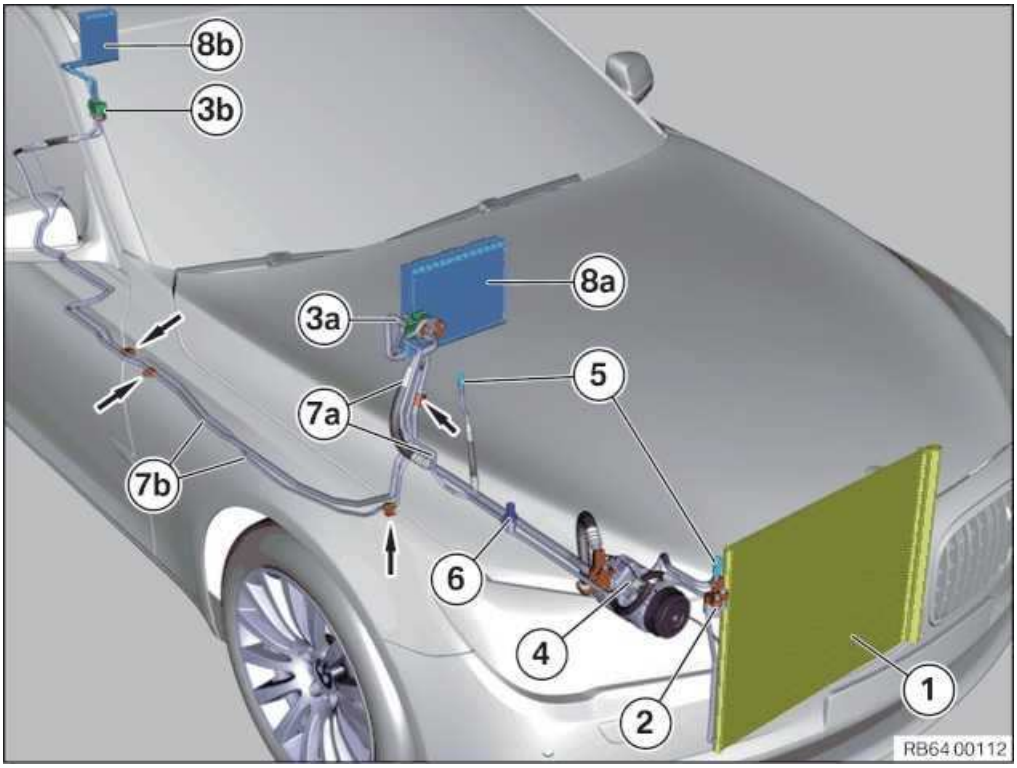
Note:
Replace the leaking component. Relieve the pressure from the refrigerant circuit prior to replacement.

Attention!

Compliance with the instructions above is absolutely mandatory!

Non-compliance will significantly reduce the efficiency of leak detection!

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Note:
The graphic shows the example of the refrigerant circuit on the F02 with the automatic rear air-conditioning system optional equipment .

Refrigerant circuits on other vehicles may differ from the graphic.

Refrigerant circuits of BMW i vehicles differ a lot from the figure:

Overview components refrigerant circuitI01

Overview components refrigerant circuitI12

Note additional components during leak detection in these vehicles!

Overview of positions to be checked:

1. Air conditioning condenser
2. Connection point between air conditioning condenser and refrigerant line
3. a) Expansion valve, front (vehicles with and without automatic rear air-conditioning system)

   b) Expansion valve, rear (vehicles with automatic rear air-conditioning system)
4. Air conditioning compressor
5. Filler neck high pressure and low pressure
6. Refrigerant pressure sensor
7. a) Refrigerant line, front (vehicles with and without automatic rear air-conditioning system)

   b) Refrigerant line, rear (vehicles with automatic rear air-conditioning system)
8. a) Evaporator, front (vehicles with and without automatic rear air-conditioning system)

   b) Evaporator, rear (vehicles with automatic rear air-conditioning system)

Note:
Refrigerant line connection points are identified by arrows.

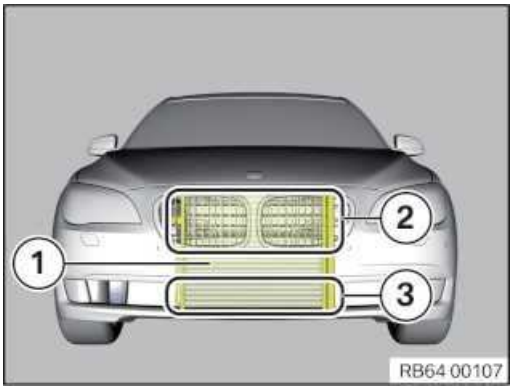
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Checking sequence:

1. Check of components 1, 2, 3a, 4, 5, 6, 7a and 8a of the automatic front air-conditioning system.

   If no fault found:

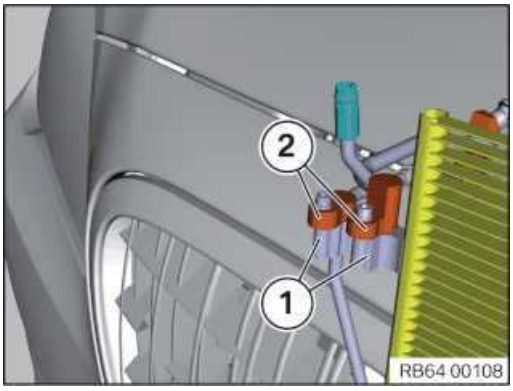
2. Check of components 3b, 7b, 8b and connection points of the automatic rear air-conditioning system.



1. Air conditioning condenser:

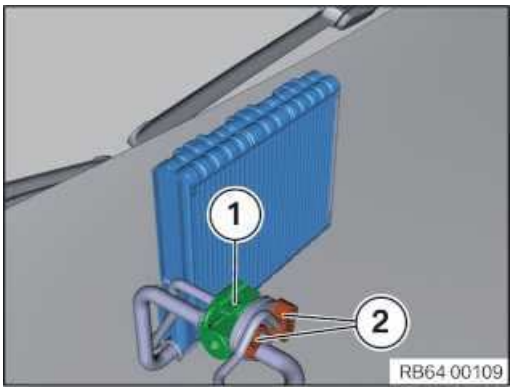
Damage caused by stone chipping, etc. is the most frequent cause of air conditioning condenser leaks (1):

1. Visual inspection in the area of the radiator grille (2) and air inlet grille, centre (3).
2. Check damaged points first.
3. Check the remainder of the air conditioning condenser.



2. Connection point capacitor - refrigerant line

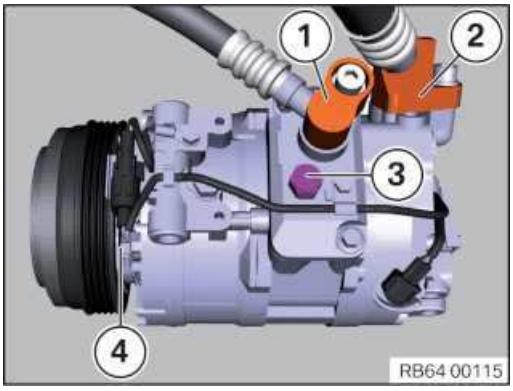
Check the connection point between the connection at the air conditioning condenser (1) and refrigerant lines (2).



3. Expansion valve:

Check the connection point between the expansion valve (1) and refrigerant lines (2).

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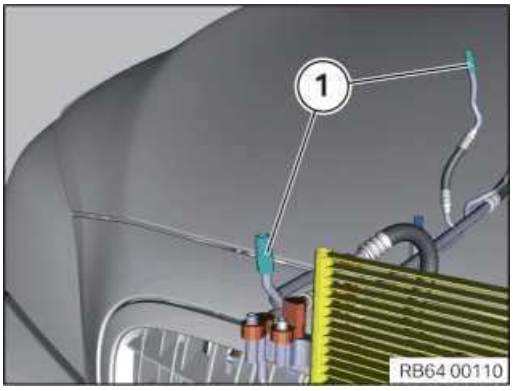


4. A/C compressor:

Remove drive belt from air conditioning compressor.

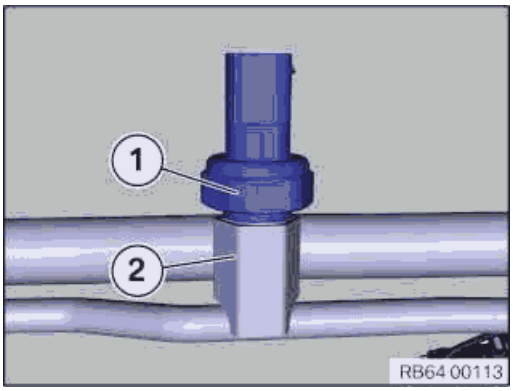
Check the following components on the air conditioning compressor:

1. High-pressure connection
2. Low pressure connection
3. Pressure relief valve
4. Radial shaft seal of the magnetic coupling: Turn the magnetic coupling several times by hand during the leak detection.



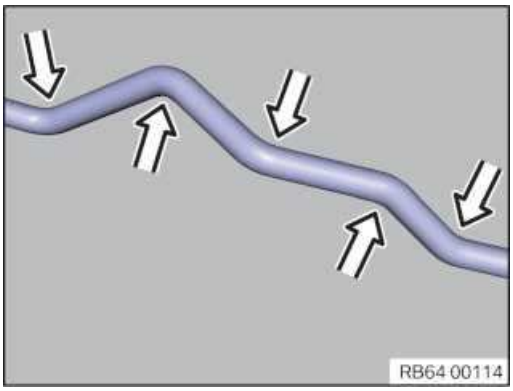
5. Filler neck

Blow out the fuel filler neck (1) prior to checking.



6. Refrigerant pressure sensor

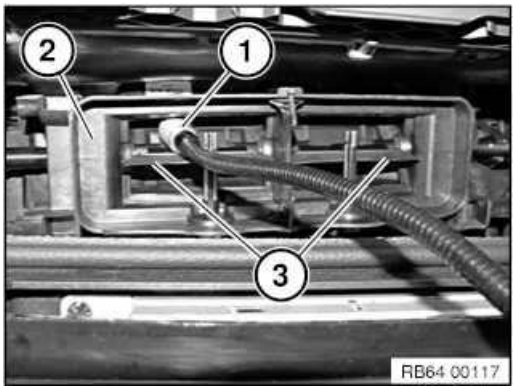
Check the sealing surface between the refrigerant pressure sensor (1) and the refrigerant line (2).



7. Refrigerant lines:

1. Perform visual inspection
2. Check damaged points first.
3. Check bending points at points marked with an arrow. Leaks occur especially frequently at these points.
4. Check the remainder of the refrigerant line.

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8. Evaporator:

Remove the centre fresh air grille.

Compliance with the following settings is **absolutely** required:

- Air recirculation function On
- Lowest blower speed
- Lowest temperature
- Set the air distribution to ventilation (air may only flow out of the centre fresh air grille)

Position sensor head (1) in air duct of middle fresh air grille (2) as illustrated and move slowly from inside to outside above and below air flap (3). Carry out this operation on the left and right fresh air grilles.

Attention!

Some vehicles have an expansion valve directly next to the fresh air intake for the passenger compartment.

In this case the expansion valve must be covered!

Following the completed leak detection:

- Evacuate and fill heating and air conditioning system

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64 50 ... Note for handling R134a refrigerant

Work on the refrigerant circuit may only be carried out by experts!

Avoid all contact with liquid or gaseous R134a. Wear protective goggles and gloves when working on the refrigerant circuit.

- Follow safety information for handling R134a refrigerant

Warning!

> Although R134a at normal temperature is non-toxic, not inflammable and not explosive in air in any mixture ratio, it is still essential to follow various safety precautions.

As a gas, R134a is colourless, odourless and heavier than air. If it enters the atmosphere, this may result in an imperceptible danger of asphyxiation or in cardiac palpitations, especially in workshop pits. Ventilate rooms adequately; if necessary, turn on installed extractor systems.

Store filled refrigerant pressure flasks so that they are not subject to direct sunlight or other heat sources (at maximum 45 °C). Also avoid exposing them to mechanical stress (e.g. by dropping).

Do not weld or solder on to filled heating and air conditioning systems or in rooms into which R134a may have escaped. Exposure to flames or high temperatures (≥ 50 °C) may give rise to toxic decomposition products (fluorine gas). For this reason, do not smoke either.

In the event of fire, carbon dioxide (CO2), extinguishing powder and a sprayed water jet are deemed to be suitable extinguishing agents. Cool reservoirs at risk with a sprayed water jet (risk of bursting!).

If the protective caps on the filler valves are difficult to open, there is a risk of injury from leaking valve inserts (high pressure).

The filled refrigerant circuit of the A/C system is subject to excess pressure. Before carrying out repairs on the A/C system, it is absolutely essential to draw off the refrigerant.

- Before conducting repairs, check the actual pressure drop on the pressure gauge of the A/C service station

R134a must be drawn off, cleaned and returned to the air conditioning using an A/C service station following the relevant operating instructions.

For a properly functioning A/C system, it is essential to have the greatest possible levels of cleanliness when working on the A/C system and the longest possible evacuation (at least 30 minutes dehumidification from refrigerant circuit) before each filling of the A/C system.

R134a absorbs very small amounts of moisture. Therefore, seal off opened pipes, air conditioning condenser, evaporator, air conditioning compressor and dryer flask immediately with seal plugs.

- If air conditioning has been completely drained by a leak, accident or repair, the desiccant insert must be replaced as excessive moisture may have entered the system.

With replacement parts, the plugs may only be removed immediately before the lines are connected. In the event of warranty claims, the old parts must be provided with plugs to be able to determine the cause of the damage.

Installation note:

After each refilling of an air conditioning, check that protective caps of filling valves are hand-tight. They serve as additional seals.

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64 50 ... Notes on the refrigerant (R134a, R1234yf) and refrigerant oil



Attention!

Specific to the country , **2 different refrigerants** (R134a, R1234yf) are used.

Specific to the country, the vehicle and the year of manufacture **2 different refrigerant oils** (ND-8, Sanden SP-A2) are used.

Before carrying out repairs on the refrigerant circuit, always determine which refrigerant/refrigerant oil is used in the vehicle!

Refrigerant: This information can be found on the **type plate** on the bonnet.

Refrigerant oil: This information can be found on the **type plate** on the front flap in vehicles with a production date from 2013.



R1234yf refrigerant is used **in the following countries**:

Observe notes on handling R1234yf refrigerant!

Europe				Asia	America
Belgium	Great Britain	Malta	Sweden	Israel	USA
Bosnia and Herzegovina	Ireland	Macedonia	Switzerland	Turkey	Canada
Bulgaria	Iceland	The Netherlands	Slovakia	India*	
Denmark	Italy	Norway	Slovenia	South Korea	
Germany	Croatia	Austria	Spain		
Estonia	Latvia	Poland	Czech Republic		
Finland	Liechtenstein	Portugal	Hungary		
France	Lithuania	Romania	Cyprus		
Greece	Luxembourg	Serbia			

*Only applies to vehicle models with Europe version. All other vehicle models have R134a.

Introduction of R1234yf refrigerant:

European countries listed in the table, Turkey and Israel:

- BMW i as of 09/2013
- from 07/2016, BMW, MINI, RR

USA and Canada:

- from 07/2016 BMW, BMW i, MINI

South Korea:

- from 11/2018 BMW, BMW i, MINI

The introduction date may vary slightly according to the specific country and model.

The refrigerant R134a will continue to be used **in all other countries**.

Observe notes on handling R134a refrigerant!

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Refrigerant oil Sanden SP-A2 is used for both, R1234yf and R134a.

Observe notes on handling refrigerant oil!

Attention!

I01, I12 with production date up to 08/2014:

In the national-market version with R134a a **wrong refrigerant oil** is present on the type plate

Always use Sanden SP-A2

(Part number of Sanden SP-A2: 2 339 920)

Attention!

Only vehicles with a production date from 09/2013 and **R1234yf** refrigerant/Sanden **SP-A2** refrigerant oil can be filled using the A/C service station for **R1234yf**.

In addition to vehicles with a production date from 09/2013, also all previous vehicles **without the electric A/C compressor** with **R134a** refrigerant and both **ND-8** and Sanden **SP-A2** refrigerant oil can be filled using the A/C service station for **R134a**.

Exception:

BMW i and hybrid vehicles (with an electric A/C compressor) that are filled with **R134a** refrigerant/Sanden **SP-A2** refrigerant oil. These vehicles must be injected with Sanden **SP-A2** refrigerant oil.

When filling the refrigerant circuit with R134a, always ensure you use the correct, vehicle-specific refrigerant oil type!

The previous ND-8 refrigerant oil must not be mixed with Sanden SP-A2 refrigerant oil!

In other words, the refrigerant oil ND-8 must not be filled in refrigerant circuits which were filled with Sanden SP-A2 in the factory.

Sanden SP-A2 refrigerant oil may be mixed with ND-8 refrigerant oil in vehicles without an electric A/C compressor.

In other words, the refrigerant oil Sanden SP-A2 must be filled in refrigerant circuits which were filled with ND-8 in the factory.

However, this is permitted **only** in vehicles **starting from** F-series.

Note the overview of the refrigerant oil to be filled.

To prevent inadmissibly mixing the different refrigerant oil types, rinse the A/C service station hoses after each drawing off/filling procedure!

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64 50 ... Safety information for handling refrigerant R1234yf



Warning!

Danger of injury!

Refrigerant circuit is under high pressure! Work on the refrigerant circuit may only be carried out by experts!

Draw off refrigerant without fail BEFORE all repair work on the refrigerant circuit.

The refrigerant circuit is depressurised AFTER drawing off.

- The pressure gauge on the A/C service unit must be checked for the actual pressure drop prior to repair work.

It is absolutely essential to read and observe the relevant operating instructions for the A/C service unit used!

At high temperatures, R1234yf is inflammable!



Protective measures/rules of conduct:

- Wear safety goggles
- Wear oil-resistant protective gloves
- Do not smoke!
- Observe country-specific safety regulations.



First aid measures:

- Eye contact: In the event of contact with the eyes, rinse immediately with plenty of running water and consult an ophthalmologist.
- Skin contact: In the event of contact with skin, remove affected clothing immediately and rinse with plenty of water.
- After inhalation: If refrigerant vapours are inhaled in greater concentrations, remove the person affected to an area of fresh air and keep them under supervision. Call for a doctor. If breathing problems are experienced, breathe additional oxygen. If the person affected is breathing with difficulty or has stopped breathing, incline the person's head at the neck and administer the kiss of life.

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64 50 ... Safety informations for handling refrigerant oil



Warning!

Danger of injury!

Refrigerant circuit is under high pressure! Work on the refrigerant circuit may only be carried out by experts!

Draw off refrigerant without fail BEFORE all repair work on the refrigerant circuit.

The refrigerant circuit is depressurised AFTER drawing off!

- Before conducting repairs, check the actual pressure drop on the pressure gauge of the A/C service station

Read and comply with the relevant operating instructions for the A/C service station used!



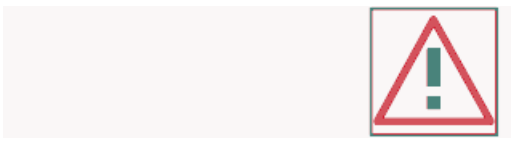
Protective measures/rules of conduct:

- Wear safety goggles
- Wear oil-resistant protective gloves
- Do not smoke!
- Observe country-specific safety regulations.



First aid measures:

- If swallowed: Do NOT induce vomiting, unless expressly instructed to do so by medical personnel. Do not administer anything to an unconscious person through their mouth. Consult a doctor immediately if larger quantities of this substance are swallowed. Loosen tight-fitting items of clothing (e.g. collar, tie, belt or similar).
- Eye contact: Remove contact lenses if worn. In the event of eye contact, rinse eyes for at least 15Â minutes with plenty of water. It is essential to use WARM WATER. Consult a doctor.
- Skin contact: In the event of skin contact, rinse immediately with plenty of water. Remove contaminated clothes and shoes. Wash affected clothes before wearing again. Clean shoes thoroughly before reusing. **Call for a doctor**.
- After inhalation: If inhaled, take the person affected outside into fresh air immediately and keep them under supervision. **Call for a doctor**. If breathing difficulties are experienced, administer additional oxygen. If the person affected stops breathing, administer the kiss of life.



Important!

Refrigerant is hygroscopic and must therefore be stored in suitable containers that are sealed airtight!

refrigerant oil is non-combustible and non-explosive at normal temperatures. Nevertheless, the following points must be observed:

- Do not store in the vicinity of flames, heat sources or strongly oxidising materials
- Suitable extinguishants are carbon dioxide (CO_2) dry extinguishant and foam

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Recycling

Catch and dispose of emerging refrigerant oil.

Observe country-specific waste disposal regulations.

Absorb escaping refrigerant oil with fluid-binding material.

Notify the relevant authorities if larger amounts of refrigerant are discharged into aboveground water supplies, drainage systems or subsoil.

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64 50 ... Safety informations for handling tetrafluorethane refrigerant R134a



Warning!

Danger of injury!

Refrigerant circuit is under high pressure! Work on the refrigerant circuit may only be carried out by experts!

Draw off refrigerant without fail BEFORE all repair work on the refrigerant circuit.

The refrigerant circuit is depressurised AFTER drawing off.

- The pressure gauge on the A/C service unit must be checked for the actual pressure drop prior to repair work.

It is absolutely essential to read and observe the relevant operating instructions for the A/C service unit used!



Protective measures/rules of conduct:

- Wear safety goggles
- Wear oil-resistant protective gloves
- Do not smoke!
- Observe country-specific safety regulations.



First aid measures:

- Eye contact: In the event of contact with the eyes, rinse immediately with plenty of running water and consult an ophthalmologist.
- Skin contact: In the event of contact with skin, remove affected clothing immediately and rinse with plenty of water.
- After inhalation: If refrigerant vapours are inhaled in greater concentrations, remove the person affected to an area of fresh air and keep them under supervision. Call for a doctor. If breathing problems are experienced, breathe additional oxygen. If the person affected is breathing with difficulty or has stopped breathing, incline the person's head at the neck and administer the kiss of life.

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64 51 001 Cleaning evaporator



Special tools required:

- 2 413 653



Warning!

When handling cleaning agent, observe following protective measures:

Wear protective rubber gloves and protective goggles.

If cleaning agent comes into contact with eyes or skin, wash immediately with lots of water.

Observe notes for handling cleaning agents.



Note:
For information on cleaning agent and rinsing again, refer to Service Information.

For spraying device, observe Service Information Spraying device for the air conditioning system.



Recycling:

Carry out the cleaning operation in a suitable washing bay as the emerging cleaning agent escapes through the drain openings in the transmission tunnel.



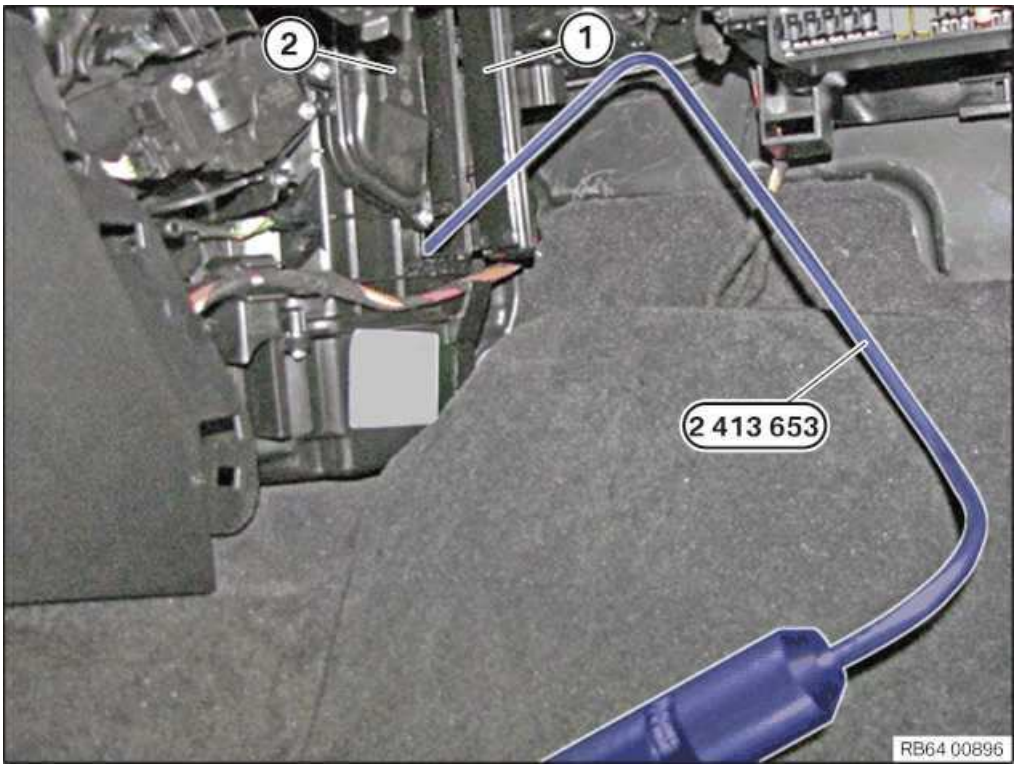
Necessary preliminary work:

To avoid dirtying vehicle interior:

- Close all the ventilation outlets
- Set air conditioning to air recirculation function
- Cover carpet in work area

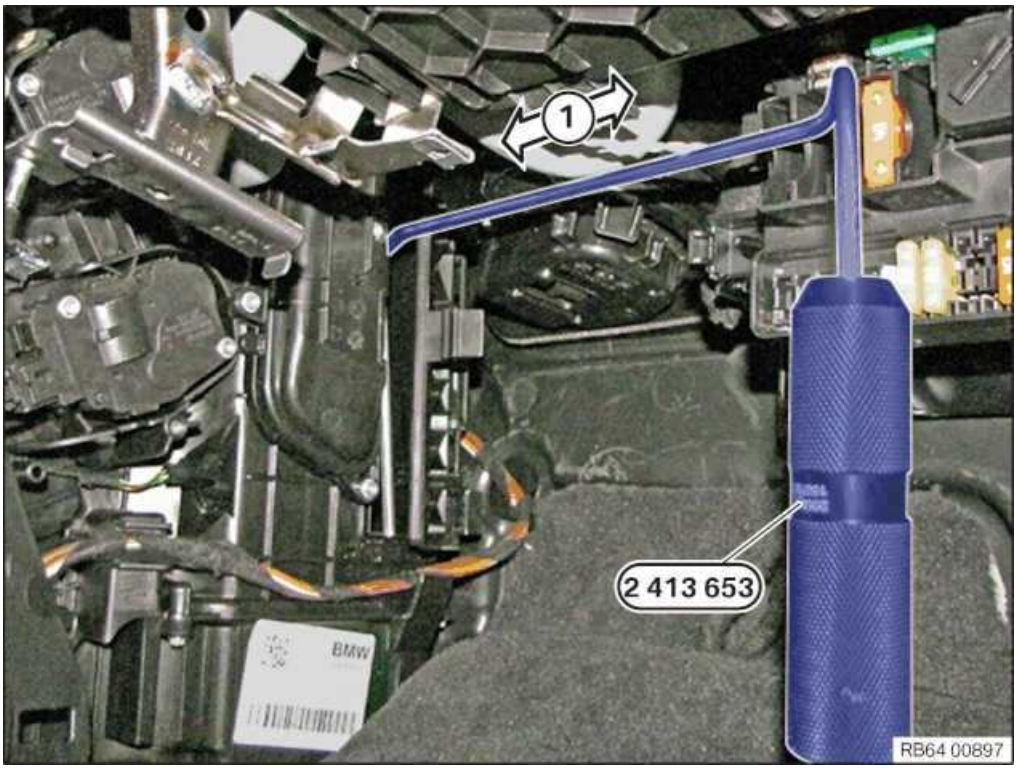
- F39, F4x, F5x: Remove underbody protection
- Remove I01: stiffening plate
- All vehicles: Remove microfilter for passenger compartment ventilation

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Open flap (1).

Insert special tool 2 413 653 into the microfilter housing (2) as shown.



Position special tool 2 413 653 up against the top right limit position as shown.

Move special tool 2 413 653 from right to left (1) to limit position.

Move special tool 2 413 653 back and forth until the A/C system cleaner has been completely sprayed.

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After termination of the cleaning operation:

1. Let the vehicle drip off for about 5 minutes.
2. All vehicles: Install microfilter for the interior ventilation.
3. Set air conditioning to footwell ventilation and fresh air mode. Open side windows/doors.
4. Start the vehicle and let the air conditioning run for approx. 5 minutes at maximum blower output.
5. F39, F4x, F5x: Install underbody protection.

   Install I01: stiffening plate.
6. In order to eliminate last remnants of cleaning agent, repeat steps 3 and 4 before handover to the customer.

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64 51 ... Perform leakage test for evaporator

Special tools required:

- 00 9 030
- 64 5 121
- 64 5 126
- 2 414 889
- 0 496 223

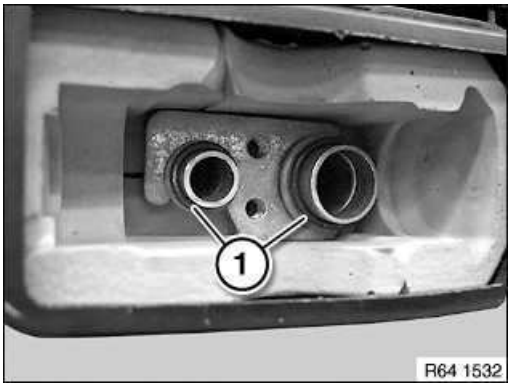
Warning!

Comply with the standard national safety regulations on handling nitrogen.

Ensure that employees are advised of how to handle pressurised vessels and nitrogen gas correctly (danger of asphyxiation). For this purpose, follow the notes and instructions in the technical safety specifications available from the gas supplier.

Necessary preliminary tasks:

- Remove expansion valve



Note:
Graphic similar.

Renew sealing rings.

Use special tool 00 9 030 to mount sealing rings without damaging them.



Use vehicle screws (1) to screw the special tool 2 414 889 to the retaining clip of the removed expansion valve.

Tightening torque 64 53 9AZ.

Screw special tool 0 496 223 together with special tool 2 414 889 .

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Important!

Risk of damage: Use only nitrogen pressure bottles with pressure reducers for leak-testing.

Pressurise evaporator to 10 bar **slowly** only. Excessively fast pressurisation and pressures in excess of 20 bar may cause damage to the evaporator.

Connect nitrogen pressure bottle with pressure reducer to pressure gauge and then connect to special tool 0 496 223 (connecting hose).

Note:

- Testing device must be leakproof.
- Ambient temperature and temperature of vehicle must not change during the test procedure
- Do not move the vehicle during this period

Apply test pressure of **10 bar slowly** and close nitrogen pressure bottle.

Check leak-tightness of testing device and of connection to refrigerant line.

The test pressure is set to 10 bar and must not drop by more than 1.5 bar to 8.5 bar over a test period of 2 hours.

If the pressure loss is greater than 1.5 bar, this indicates that there is a leak in the evaporator unit.

Warning!

After the leakage test, unscrew special tool 0 496 223 **slowly** from special tool 2 414 889 to reduce pressure.

After the leakage test:

- Renew sealing rings. Use special tool 00 9 030 to mount sealing rings without damaging them.
- Install expansion valve
- Evacuate and fill air conditioning

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This documentation refers to special tools that were not yet available when going to press.

64 51 580 Perform leakage test for evaporator

WARNING

Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

CAUTION

Refrigerant circuit under high pressure.

Danger of injury!

- Note and follow safety information on containers.
- Avoid contact with refrigerant; wear safety goggles and protective gloves.
- For more information see: 64 50 Handling refrigerant and 6450 Notes on repair work on air conditioning

PRELIMINARY WORK

1 – Drawing off the air conditioning

- See additional information.

MAIN WORK

2 – Perform leakage test for evaporator

Prerequisite

The vehicle must be cooled down. Ambient temperature and temperature of vehicle must not change during the test procedure. The vehicle must not be moved during the test procedure. Testing device must be tight.

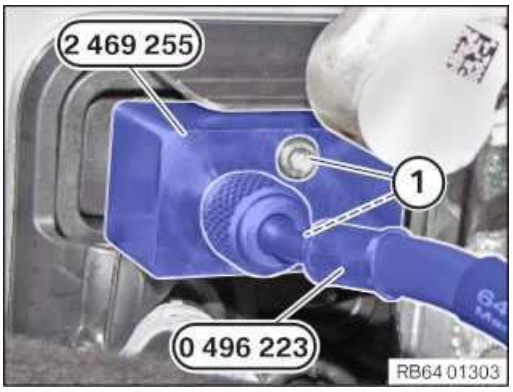
WARNING

Pressure vessel with nitrogen.

Danger of injury! Risk of asphyxiation!

- Ensure there us sufficient ventilation in the surrounding area and protect the pressure vessel against overheating.
- Note information in safety data sheet for nitrogen.

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- Install the new sealing rings with special tool **0 496 714 (00 9 030)** without damaging them.
- Secure special tool with the expansion valve retaining clip with on-board screws (1).
- Connect special tool **0 496 223 (64 5 121)** to special tool .

- Connect nitrogen pressure cylinder with pressure reducer to pressure gauge.
- Connect special tool **0 496 223 (64 5 121)** to pressure reducer.
- Slowly apply test pressure of **maximum 10 bar**.
- Close nitrogen pressure cylinder.

Check

- Check tightness of the testing device and of the connection to the refrigerant circuit by means of e.g. soapy water.

Result

» Leak was detected.

Measure

- Seal the connections prior to the leakage test of the evaporator.

Check

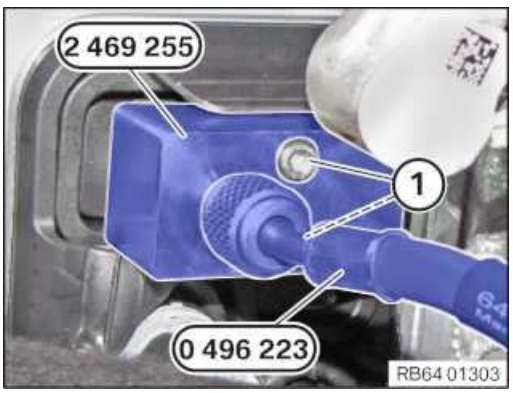
- Evaporator is tight if the adjusted test pressure of 10 bar **drops by 1.5 bar to 8.5 bar** over a test period of 2 h.

Result

» After a test period of 2 h, the pressure drop is more than 1.5 bar.

Measure

- Renew evaporator.



- Slowly unscrew special tool **0 496 223 (64 5 121) for the pressure drop** from special tool after the leakage test.
- Loosen screws (1).
- Remove special tool .

POSTPROCESSES

3 – Evacuate and fill air conditioning

- See additional information.

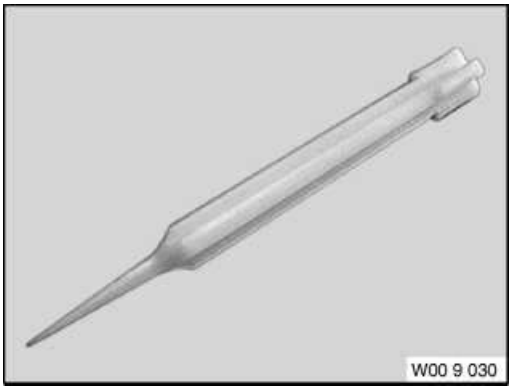
Additional Information

Overview of Tightening Torques

Overview of Special Tools

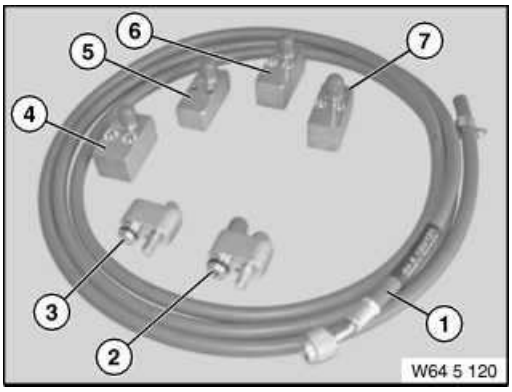
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0 496 714 (00 9 030) Wedge



Common	Used in step 2
Usage	For dismantling O-rings, gaskets and trim panels. This special tool replaces special tool 00 9 316.
Included in the tool or work	
Storage location	A50
Replaced by	
In connection with	
SI-Number	01 20 09 (581)

0 496 223 (64 5 121) Hose



Common	Used in step 2
Usage	(Connection hose with clamp)
Included in the tool or work	0 496 222
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 04 08 (435)

Overview Technical Data

Links

Repair instructions	Used in step
64 50 010 Extract, evacuate and fill air conditioning system	1 3
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 3
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 3
64 50 ... Notes on repairs to air conditioning	1 3
64 50 010 Drawing off, evacuating and filling air conditioning (R1234yf)	1 3
64 50 ... Safety information for handling refrigerant R1234yf	1 3
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	1 3
64 50 ... Safety informations for handling refrigerant oil	1 3

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64 51 520 Removing and installing or replacing expansion valve

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.
- For additional batteries: Detach all battery earth leads from additional batteries.

PRELIMINARY WORK

1 – Drawing off the air conditioning

- See additional information.

2 – Disconnecting all battery earth leads

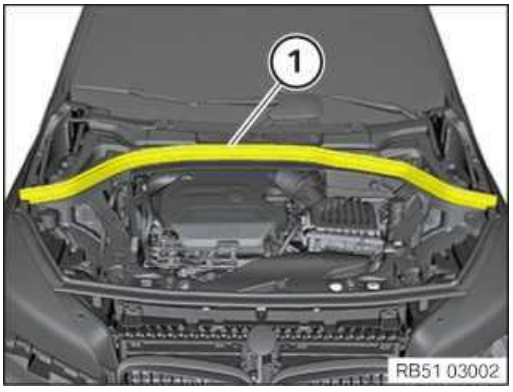


- See additional information.

3 – Remove the seal for the rear bonnet

NOTICE

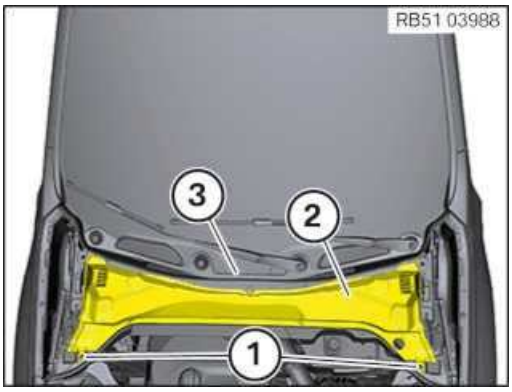
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull off rear bonnet seal (1) towards the top and remove.

4 – Removing front cowl panel cover

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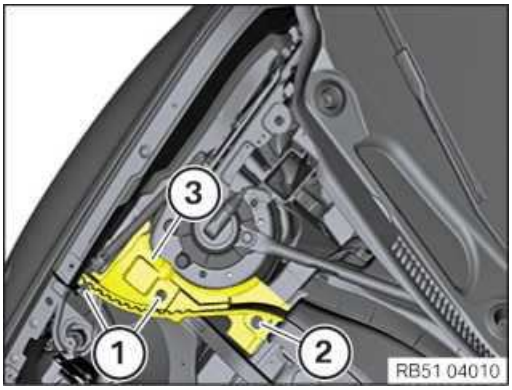


- Loosen the expanding rivet (1).
- Feed out and remove front cowl panel cover (2) from the rear cowl panel cover(3).

5 – Remove suspension cross-brace

TECHNICAL INFORMATION

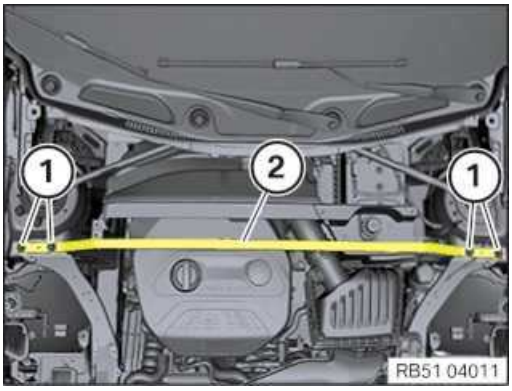
Driving without the strut brace/front end or tension strut is not permitted.



NOTICE

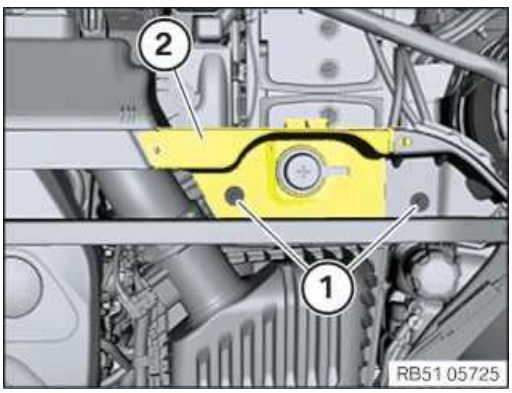
Description is for right component only. The procedure on the left side is identical.

- Loosen expanding rivet (1).
- Loosen screw (2).
- Remove the cover (3).



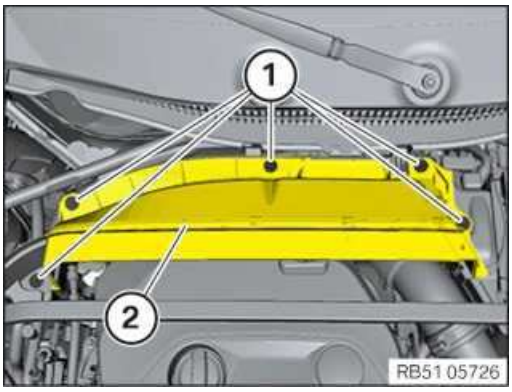
- Loosen screws (1).
- Remove strut brace (2).

6 – Removing the upper bulkhead cover



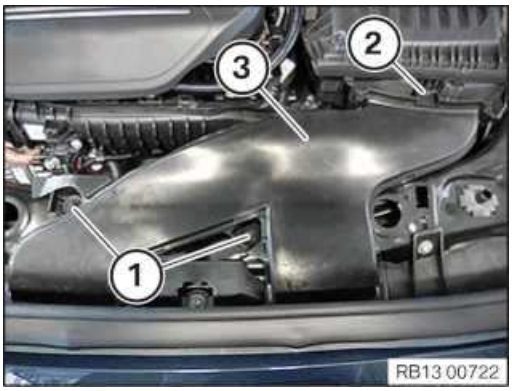
- Loosen screws (1).
- Guide out and remove the cover (2).

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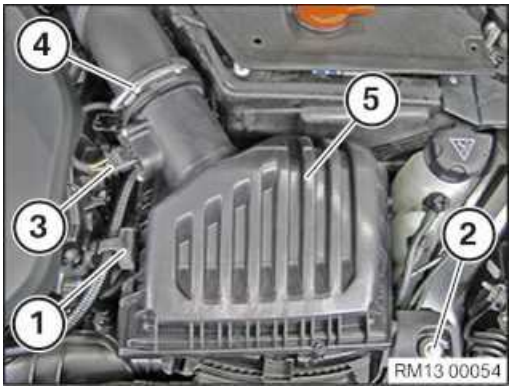
- Loosen screws (1).
- Feed out and remove the upper bulkhead cover (2).

7 – Remove the intake neck for intake silencer housing



- Loosen nuts (1).
- Loosen the lock (2).
- Guide the intake neck (3) out and remove it.

8 – Removing intake silencer housing



- Loosen the holder (1).
- Loosen screw (2).
- Unlock and loosen connector (3).
- Unfasten clamp (4).
- Pull out and remove the intake silencer housing (5) from the rubber mounts towards the top.

9 – Remove electronics box

Prerequisite

Battery earth lead is disconnected.

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 Information on electrostatic discharge (ESD) protection.

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RISK OF DAMAGE

Damage to wires when disconnecting connectors and plug connections.

Sheared wires can cause a short circuit.

- Do not pull on the wires when disconnecting connectors and plug connections.

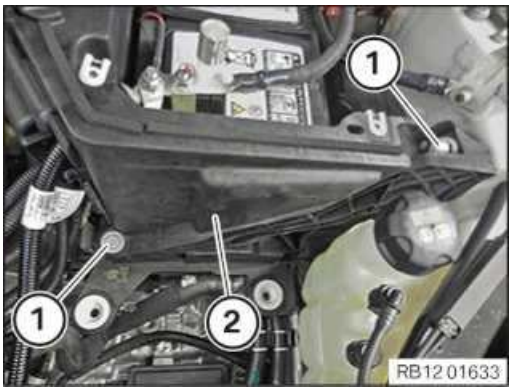
TECHNICAL INFORMATION

Follow instructions for removing and installing control units.

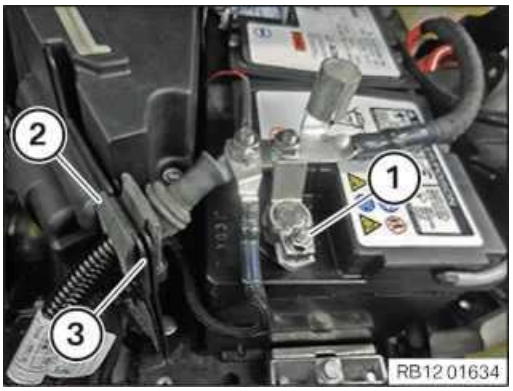
For additional information see: 12 00 ... Notes on removal and installation of control units

TECHNICAL INFORMATION

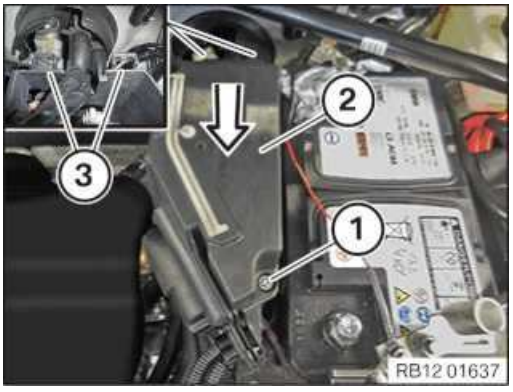
Disconnecting control units may cause fault code entries and functional limitations. Fault code entries must be read out and deleted if necessary.



- Loosen screws (1).
- Guide out the tension strut (2) toward the top and remove it.

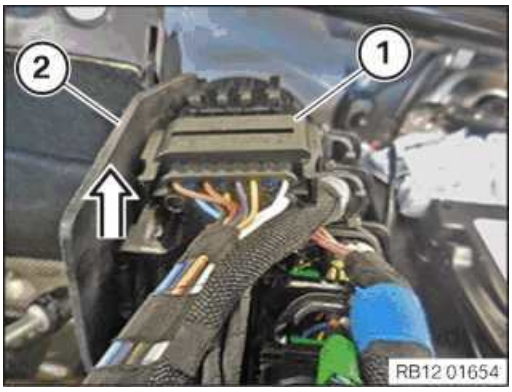


- Undo positive battery terminal (1).
- Feed out positive battery terminal (1) and set aside.
- Guide the positive battery cable (2) out of the holder (3) and lay to one side.

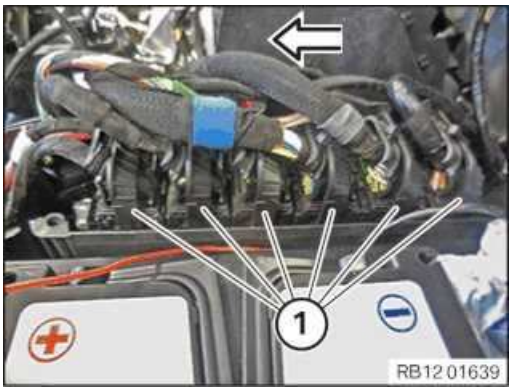


- Loosen screw (1).
- Unlock cover (2) and feed out and remove from the guides (3) in the direction of arrow.

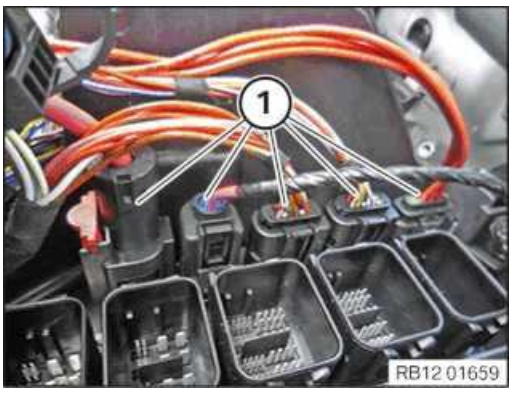
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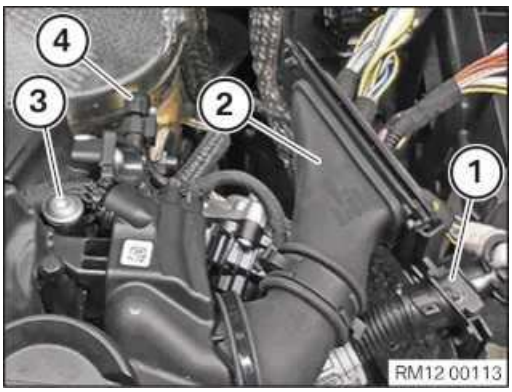
- Feed out connector (1) from the electronics box (2) and remove in the direction of arrow.
- Unlock and loosen connector (1).



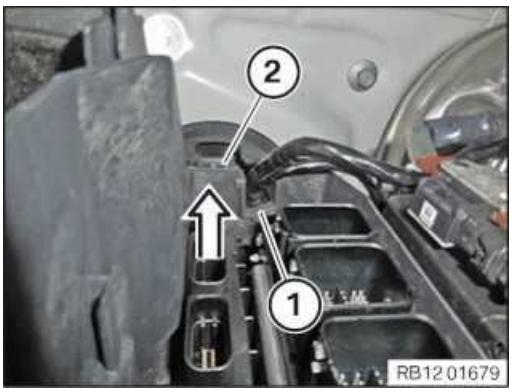
- Unlock and remove the connector (1) in the direction of the arrow.
- Feed out connector (1) and place to one side.



- Unlock and loosen connector (1).

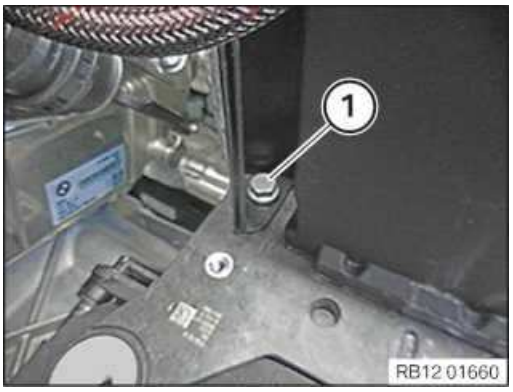


- Detach the wiring harness (1) from the electronics box.
- Detach the wiring harnesses (2) from electronics box.
- Loosen screw (3).
- Set wiring harnesses (1) and (2) aside.
- Unlock the connector (4) and disconnect it from the differential pressure sensor.

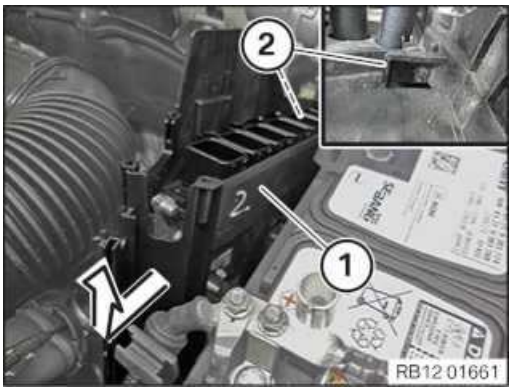


- Unlock and loosen holder (1).
- Guide the holder (1) out of the electronics box (2) in direction of arrow and set it aside.

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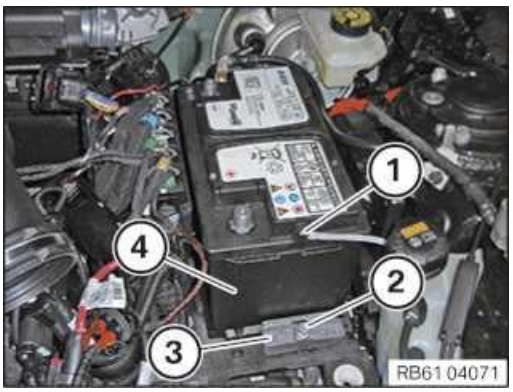


- Loosen screw (1).



- Guide the electronics box (1) out of the guide (2) in direction of arrow and remove.

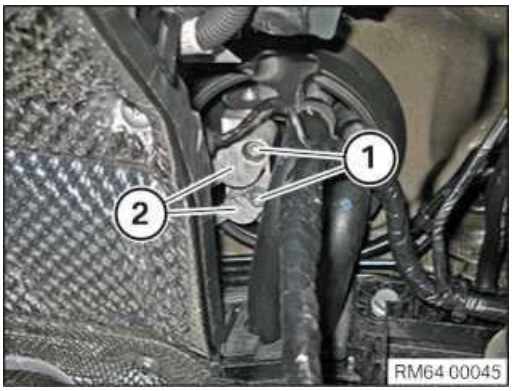
10 – Partially remove vehicle battery



- Pull off the vent hose (1).
- Unscrew the screw (2) and remove the holder (3).
- Remove vehicle battery (4).

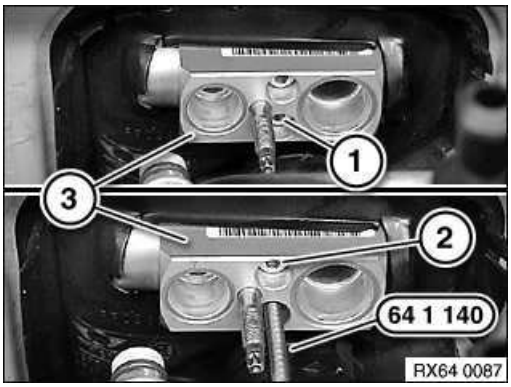
MAIN WORK

11 – Remove expansion valve



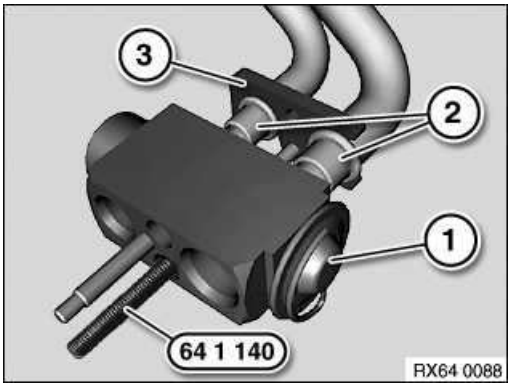
- Loosen screws (1).
- Take off refrigerant line (2).

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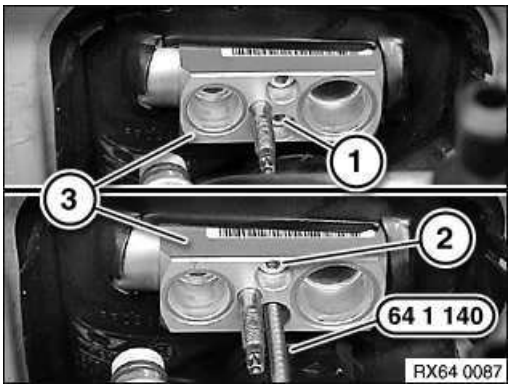
- Loosen screw (1) and screw the special tool **0 495 815 (64 1 140)** in.
- Loosen screw (2) then slide the expansion valve (3) forwards and remove.

12 – Install expansion valve

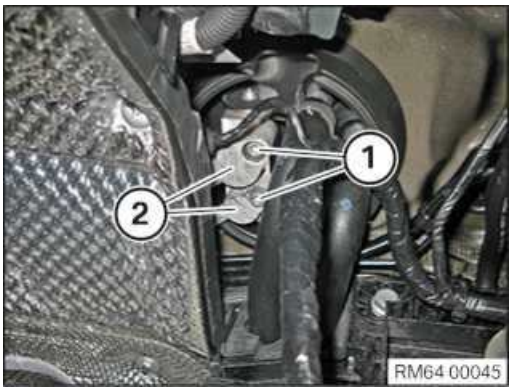


- Renew O-rings on the pipes (2).

  Parts: O-rings
- Brace mounting plate (3) with the special tool **0 495 815 (64 1 140)**.
- Secure expansion valve (1)with a screw.



- Release special tool **0 495 815 (64 1 140)**.
- Tighten the screws (1) and (2) on the expansion valve (3).



- Replace O-rings.

  Parts: O-rings
- Position refrigerant line (2) correctly.
- Tighten the screws (1).

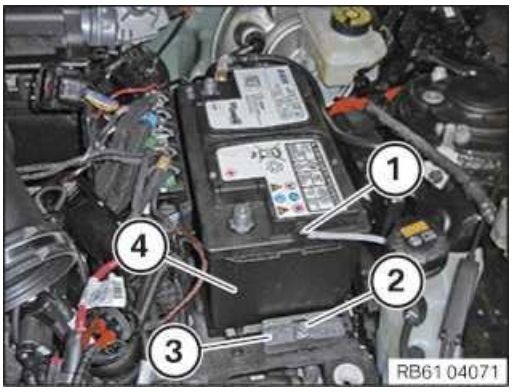
Refrigerant lines to expansion valve

M6		Tightening torque	8 Nm

POSTPROCESSES

13 – Partially install vehicle battery

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- Install vehicle battery (4).
- Correctly position the holder (3).
- Tighten down screw (2).

Battery terminal rail to battery tray

M8		19 Nm

- Fit and clip the vent hose (1) in.

▸ **Check the vent holes of the battery**

WARNING

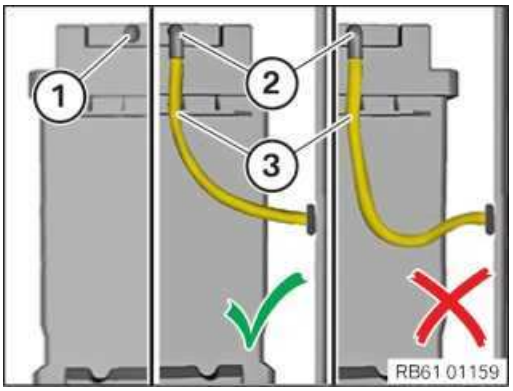
Gas emission.

Danger of injury! Danger of explosion!

- Assign the vent holes correctly.
- Route the vent hose correctly.

TECHNICAL INFORMATION

The battery has two vent holes, opposite:
One vent hole (1) must be closed correctly with a dummy plug.
The vent hose (3) must be correctly connected and routed at the other vent hole (2).



Check

- Check if the vent hole (1) is correctly closed with a dummy plug.

Result

» No dummy plug.

Measure

- Close the vent hole (1) correctly with a dummy plug.

Check

- Check if the vent hole (2) has a correctly connected vent hose (3).

Result

» The vent hose (3) is not correctly connected.

Measure

- At the vent hole (2), connect the vent hose (3) correctly.

Check

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- Check if the vent hose (3) is routed to the outside with a downhill gradient (**no siphon formation!**).

Result

» The vent hose (3) is not correctly routed as shown in the image on the right.

Measure

- Route the vent hose (3) correctly as shown in the centre image.

14 – Install electronics box

Prerequisite

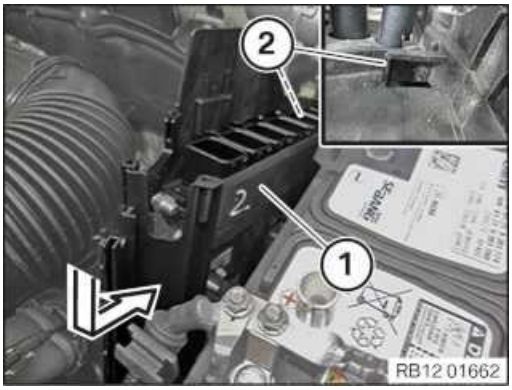
Battery earth lead is disconnected.

RISK OF DAMAGE

Improper routing of cables and wiring harnesses.

Trapped, crushed or damaged cables may cause short circuits and malfunctions.

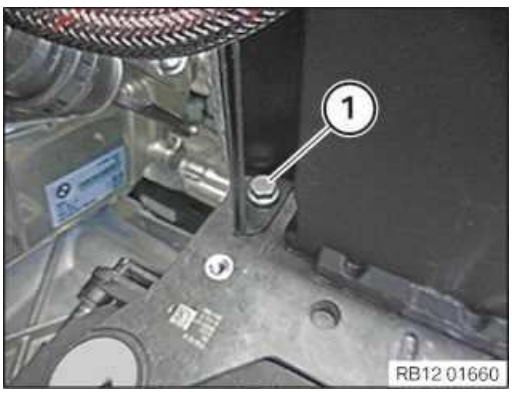
- Route all cables without abrasions, do not trap and crush.



- Guide in and install the electronics box (1) into the guide (2) in direction of arrow.



- Make sure that the electronics box (1) is positioned correctly on the bulkhead (2).

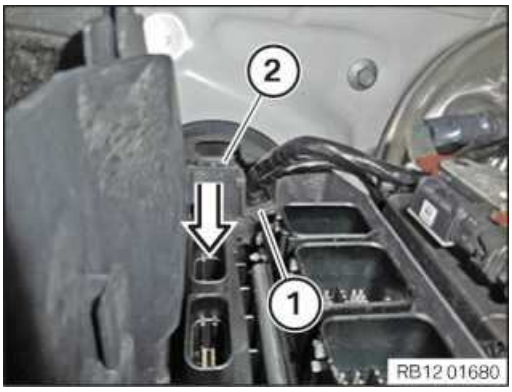


- Tighten down screw (1).

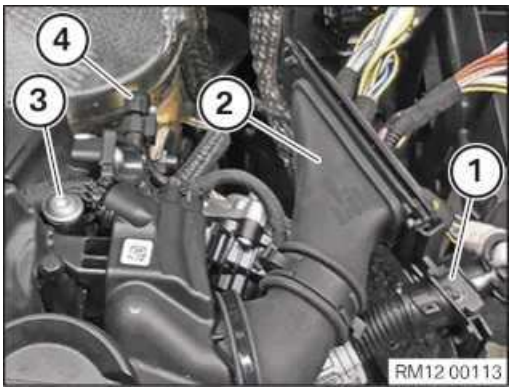
Electronics box to battery tray

M8X16		Tightening torque	15 Nm

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- Guide in and install the holder (1) in the electronics box (2) in direction of arrow.
- Make sure the bracket (1) engages audibly.

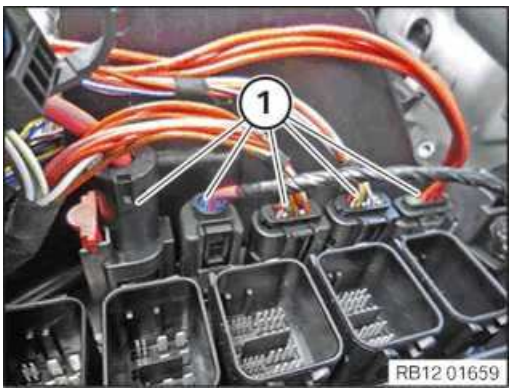


- Lay vehicle wiring harnesses (1) and (2) and mount on electronics box.
- Tighten down screw (3).

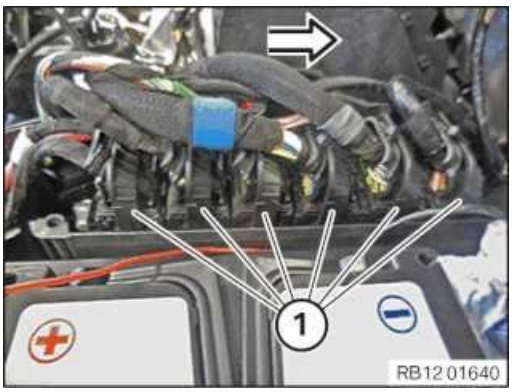
Wiring harness to cylinder head cover

TS5x20		Tightening torque	3,5 Nm

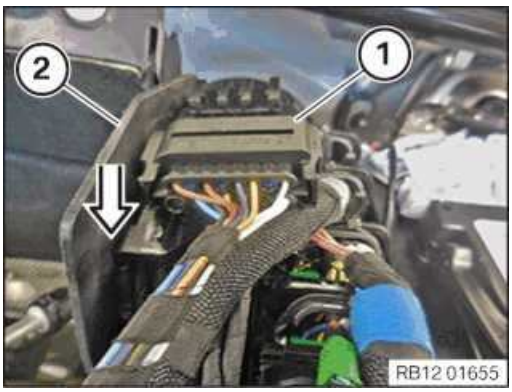
- Attach connector (4) to the differential pressure sensor and lock it audibly.



- Connect and lock the connector (1).
- Make sure the connectors (1) engage audibly.

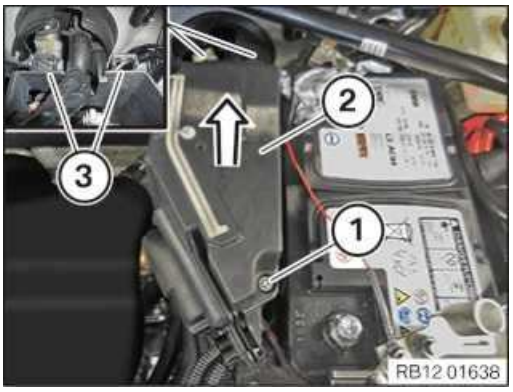


- Connect connector (1) in direction of arrow and lock.
- Make sure the connectors (1) engage audibly.



- Connect and lock the connector (1).
- Make sure the connector (1) engages audibly.
- Insert the connector (1) in the direction of arrow at the electronics box (2) and install.

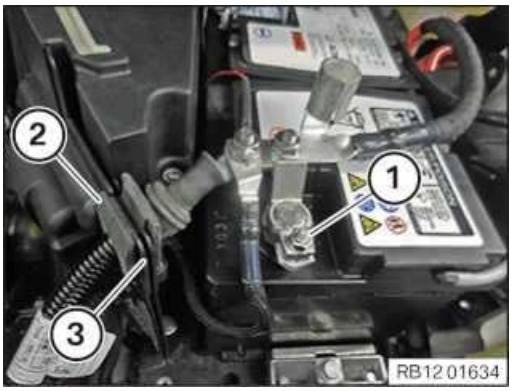
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- Insert the cover (2) into the guides (3) in the direction of arrow and install.
- Make sure the cover audibly engages (2) in the guides (3).
- Tighten down screw (1).

Cover to electronics box

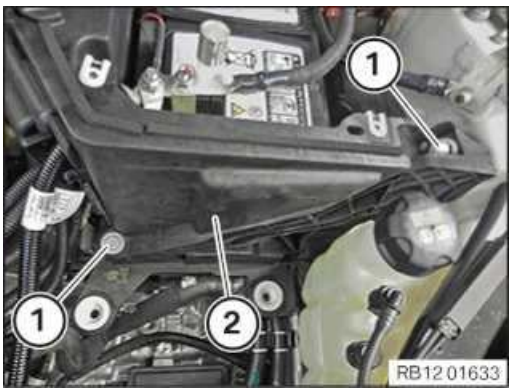
RF5x26.5		Tightening torque	2,5 Nm



- Thread in positive battery cable (2) on holder (3) and install.
- Feed in and install positive battery terminal (1).
- Tighten positive battery terminal (1).

Positive battery terminal to battery

NutM6		Tightening torque	5 Nm

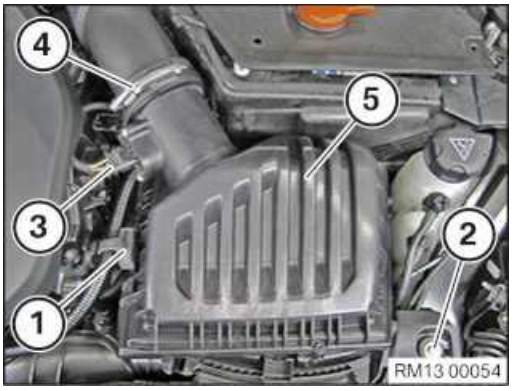


- Feed in and install tension strut (2).
- Tighten the screws (1).

Tension strut to spring strut dome/battery tray

M8		Tightening torque	19 Nm

15 – Installing intake silencer housing



- Insert the intake silencer housing (5) into the rubber mounts and install it.

  Intake filter housing (5) must engage audibly.
- Tighten down screw (2).

Intake silencer housing to lock bridge

M6X30		Tightening torque	8 Nm

- Tighten clamp (4).

Clean air pipe to intake silencer housing

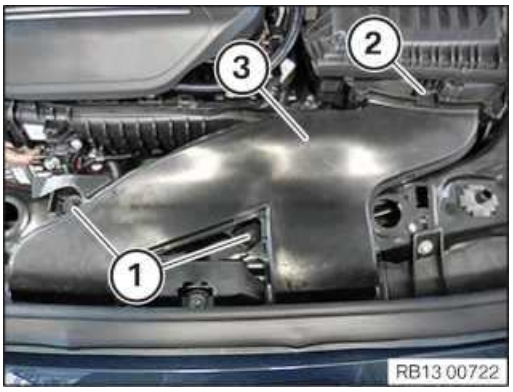
Clamp		Tightening torque	3 Nm

- Connect and lock the connector (3).

  The connector (3) must engage audibly.
- Insert and install the holder (1).

16 – Install the intake neck for the intake filter housing

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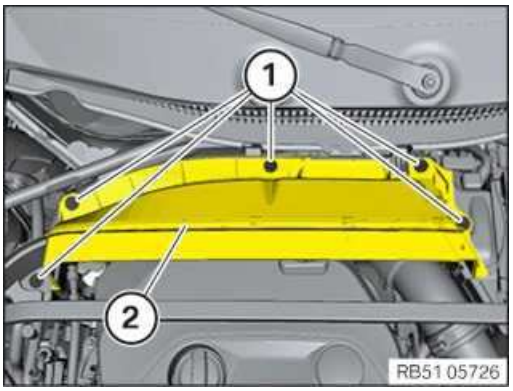
- Insert and install the intake neck (3).

  The lock (2) must audibly engage.
- Tighten nuts (1).

Intake neck to cross connection

M6		Tightening torque	8 Nm

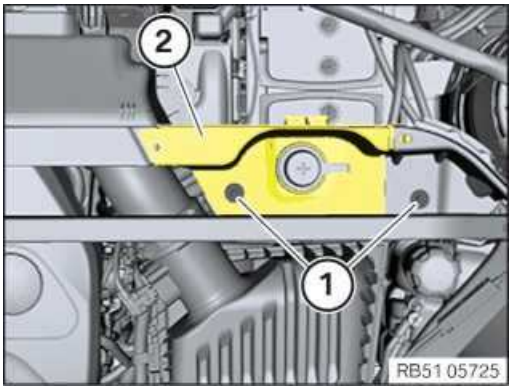
17 – Installing the upper bulkhead cover



- Feed in and install cover (2) of the bulkhead at the top.
- Tighten the screws (1).

Cover of top bulkhead

Screw		Tightening torque	2,6 Nm



- Guide in and install cover (2).
- Tighten down screw (1).

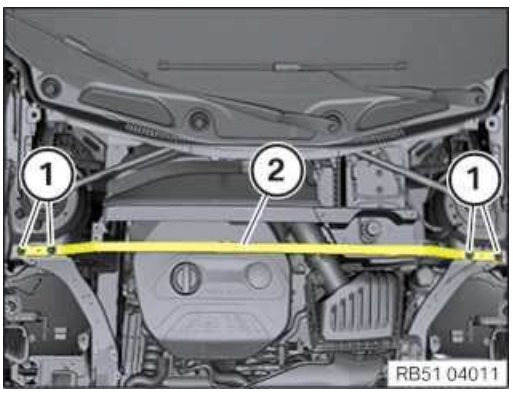
Cover of remote positive terminal

Screw		Tightening torque	2,6 Nm

18 – Install strut brace

TECHNICAL INFORMATION

Driving without the strut brace/front end or tension strut is not permitted.



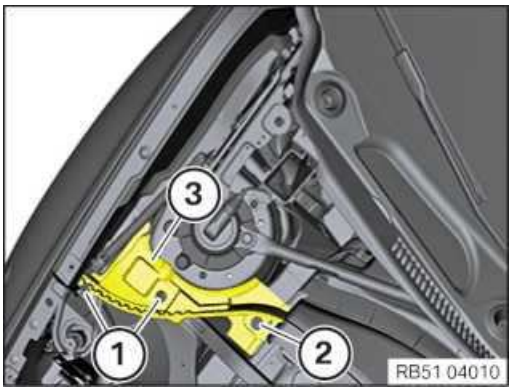
- Install the strut brace (2).
- Renew screws (1).

  Parts: Bolts
- Tighten the screws (1).

Cross-brace to spring strut dome

	Renew screw.	Jointing torque	28 Nm
		Angle of rotation	180 °

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NOTICE

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

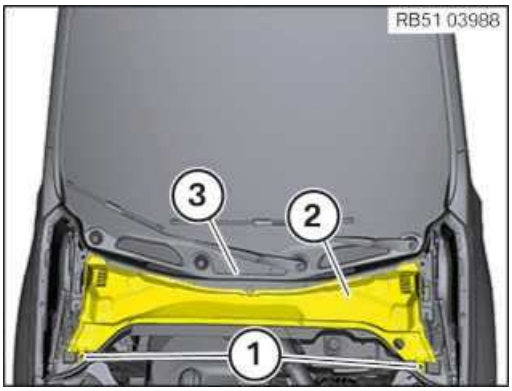
- Install the cover (3).
- Tighten down screw (2).

Cover on body

Hexagon screw		Tightening torque	3 Nm

- Install the expanding rivet (1).

19 – Installing front cowl panel cover

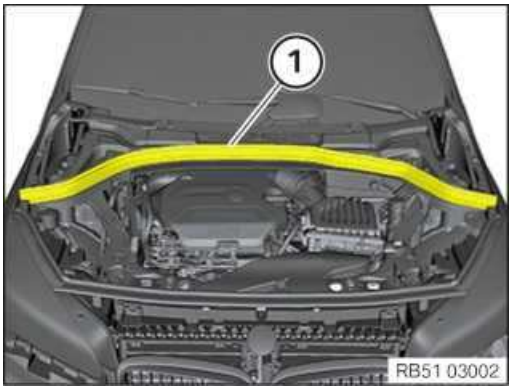


- Insert and install cowl panel cover at front (2) into cowl panel cover at rear (3).
- Check cowl panel cover at front is correctly seated (2).
- Secure expanding rivet (1).

20 – Install the seal for the bonnet

NOTICE

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



- Install bonnet seal at rear (1).
- Ensure that the rear bonnet seal (1) is fitted correctly.

21 – Disconnecting all battery earth leads

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- See additional information.

22 – Evacuate and fill air conditioning

- See additional information.

Additional Information

Overview of Tightening Torques

Refrigerant lines to expansion valve			Used in step 12
M6		Tightening torque	8 Nm

Battery terminal rail to battery tray			Used in step 13
M8			19 Nm

Electronics box to battery tray			Used in step 14
M8X16		Tightening torque	15 Nm

Wiring harness to cylinder head cover			Used in step 14
TS5x20		Tightening torque	3,5 Nm

Cover to electronics box			Used in step 14
RF5x26.5		Tightening torque	2,5 Nm

Positive battery terminal to battery			Used in step 14
NutM6		Tightening torque	5 Nm

Tension strut to spring strut dome/battery tray			Used in step 14
M8		Tightening torque	19 Nm

Intake silencer housing to lock bridge			Used in step 15
M6X30		Tightening torque	8 Nm

Clean air pipe to intake silencer housing			Used in step 15
Clamp		Tightening torque	3 Nm

Intake neck to cross connection			Used in step 16
M6		Tightening torque	8 Nm

Cover of top bulkhead			Used in step 17
Screw		Tightening torque	2,6 Nm

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Cover of remote positive terminal — Used in step 17

Screw		Tightening torque	2,6 Nm

Cross-brace to spring strut dome — Used in step 18

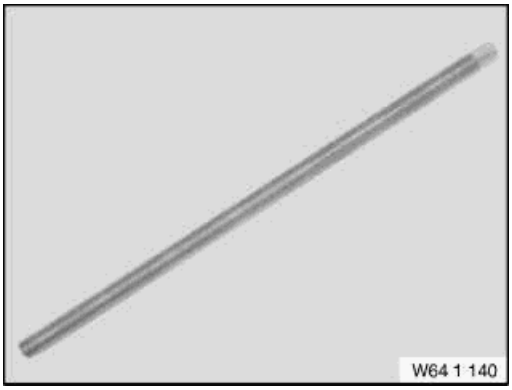
	Renew screw.	Jointing torque	28 Nm
		Angle of rotation	180 °

Cover on body — Used in step 18

Hexagon screw		Tightening torque	3 Nm

Overview of Special Tools

0 495 815 (64 1 140) Rod



Common — Used in step 11 12

Usage	(threaded rod) For securing threaded plate when removing expansion valve
Included in the tool or work	
Storage location	C86
Replaced by	
In connection with	
SI-Number	01 23 06 (308)

Links

General repair instructions	Used in step
12 00 ... Instructions for removal and replacement of control units	
64 52 ... Instructions for opening and part exchange in refrigerant circuit	
64 50 ... Note for handling R134a refrigerant	

Repair instructions	Used in step
64 50 010 Extract, evacuate and fill air conditioning system	1 22
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 22
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 22
64 50 ... Notes on repairs to air conditioning	1 22
64 50 010 Drawing off, evacuating and filling air conditioning (R1234yf)	1 22
64 50 ... Safety information for handling refrigerant R1234yf	1 22
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	1 22
64 50 ... Safety informations for handling refrigerant oil	1 22
61 20 900 Disconnecting and connecting battery earth lead	2 21
61 20 900 Disconnecting and connecting battery earth lead	2 21
61 20 900 Disconnecting and connecting battery earth lead	2 21
61 20 900 Disconnecting and connecting battery earth lead	2 21
61 20 900 Disconnecting and connecting battery earth lead	2 21
61 20 900 Disconnecting and connecting battery earth lead	2 21
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 21
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 21

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61 20 900 Disconnecting and connecting battery earth lead 2 21
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 2 21
61 20 900 Disconnect and connect battery earth lead (Plug-in Hybrid Electric Vehicle) 2 21
61 20 900 Disconnecting and connecting battery earth lead 2 21
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61 20 900 Disconnecting and connecting battery earth lead 2 21
61 20 900 Disconnecting and connecting battery earth lead 2 21
61 20 900 Disconnecting and connecting battery earth lead 2 21
61 20 900 Disconnecting and connecting battery earth lead 2 21
61 35 ... Notes on ESD protection (Electro Static Discharge) 9
64 50 ... Safety information for handling refrigerant R1234yf
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a

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64 51 597 Replacing evaporator

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.
- For additional batteries: Detach all battery earth leads from additional batteries.

RISK OF DAMAGE

Scratches.

Tools and sharp-edged components can cause scratches.

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

PRELIMINARY WORK

1 – Drawing off the air conditioning

- See additional information.

2 – Disconnecting all battery earth leads

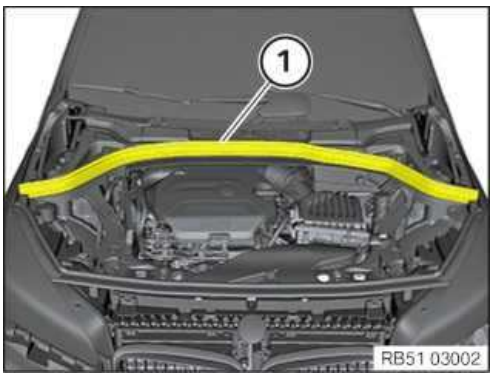


- See additional information.

3 – Remove the seal for the rear bonnet

NOTICE

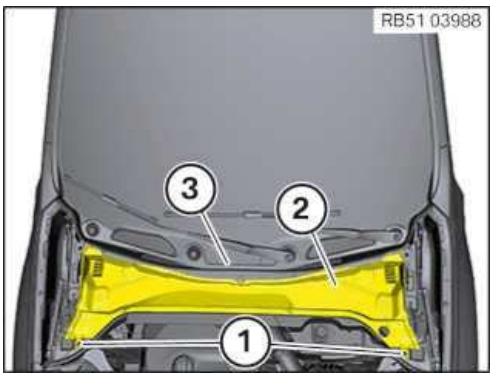
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull off rear bonnet seal (1) towards the top and remove.

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4 – Removing front cowl panel cover

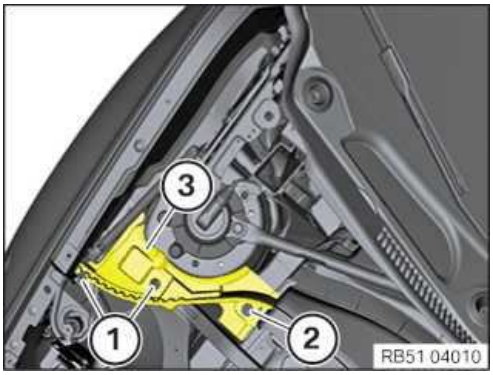


- Loosen the expanding rivet (1).
- Feed out and remove front cowl panel cover (2) from the rear cowl panel cover(3).

5 – Remove suspension cross-brace

TECHNICAL INFORMATION

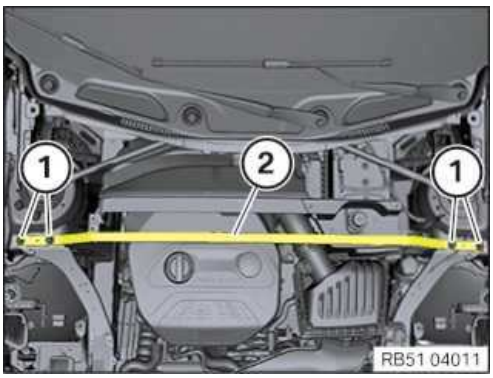
Driving without the strut brace/front end or tension strut is not permitted.



NOTICE

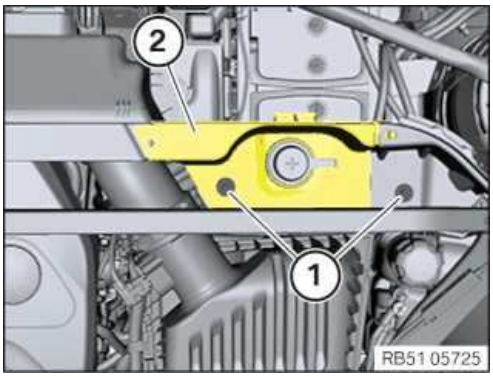
Description is for right component only. The procedure on the left side is identical.

- Loosen expanding rivet (1).
- Loosen screw (2).
- Remove the cover (3).



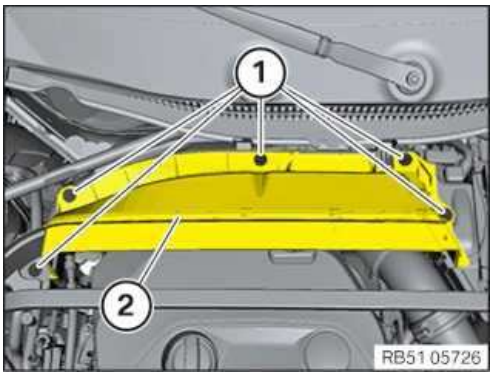
- Loosen screws (1).
- Remove strut brace (2).

6 – Removing the upper bulkhead cover



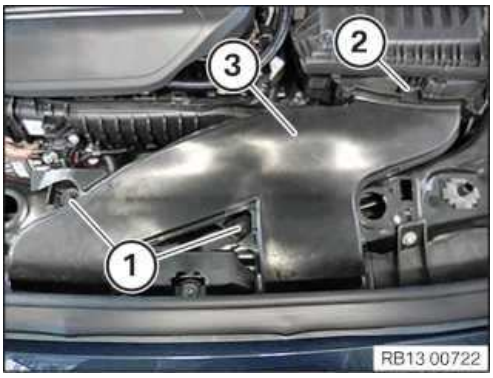
- Loosen screws (1).
- Guide out and remove the cover (2).

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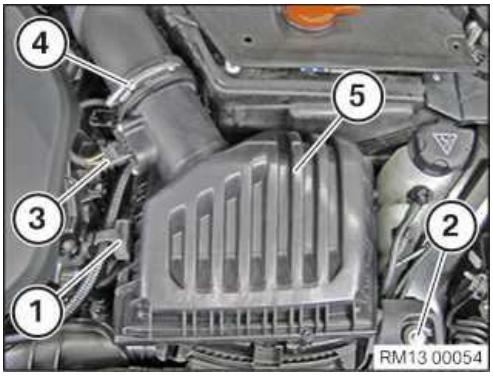
- Loosen screws (1).
- Feed out and remove the upper bulkhead cover (2).

7 – Remove the intake neck for intake silencer housing



- Loosen nuts (1).
- Loosen the lock (2).
- Guide the intake neck (3) out and remove it.

8 – Removing intake silencer housing



- Loosen the holder (1).
- Loosen screw (2).
- Unlock and loosen connector (3).
- Unfasten clamp (4).
- Pull out and remove the intake silencer housing (5) from the rubber mounts towards the top.

9 – Remove electronics box

Prerequisite

Battery earth lead is disconnected.

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 Information on electrostatic discharge (ESD) protection.

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RISK OF DAMAGE

Damage to wires when disconnecting connectors and plug connections.

Sheared wires can cause a short circuit.

- Do not pull on the wires when disconnecting connectors and plug connections.

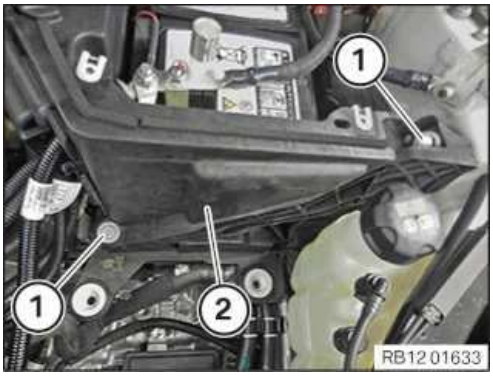
TECHNICAL INFORMATION

Follow instructions for removing and installing control units.

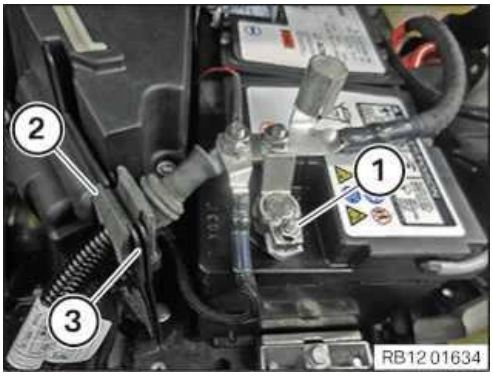
For additional information see: 12 00 ... Notes on removal and installation of control units

TECHNICAL INFORMATION

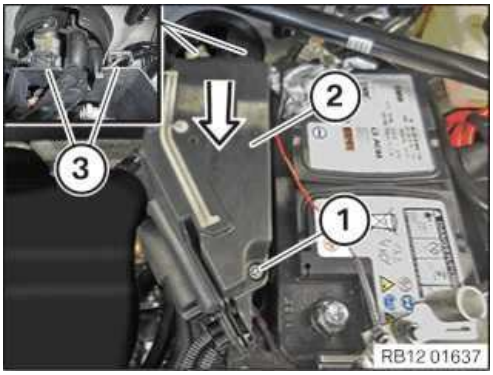
Disconnecting control units may cause fault code entries and functional limitations. Fault code entries must be read out and deleted if necessary.



- Loosen screws (1).
- Guide out the tension strut (2) toward the top and remove it.

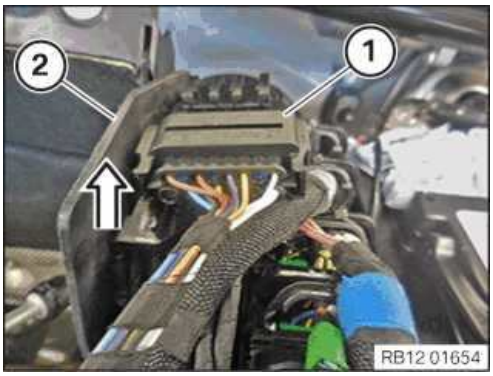


- Undo positive battery terminal (1).
- Feed out positive battery terminal (1) and set aside.
- Guide the positive battery cable (2) out of the holder (3) and lay to one side.

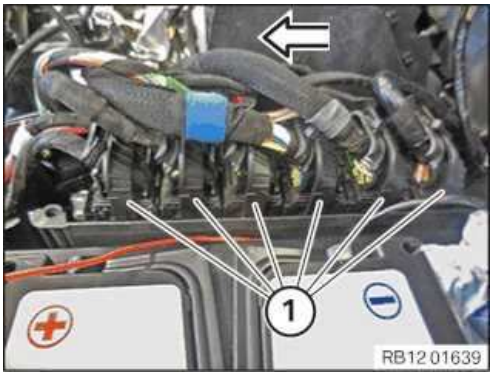


- Loosen screw (1).
- Unlock cover (2) and feed out and remove from the guides (3) in the direction of arrow.

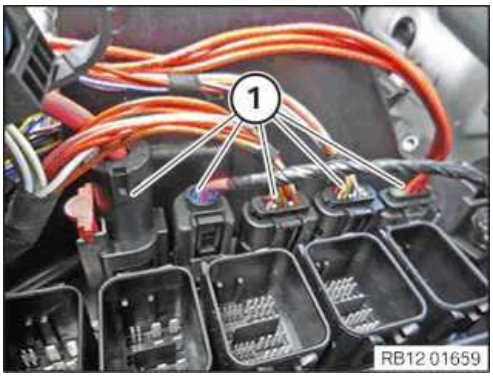
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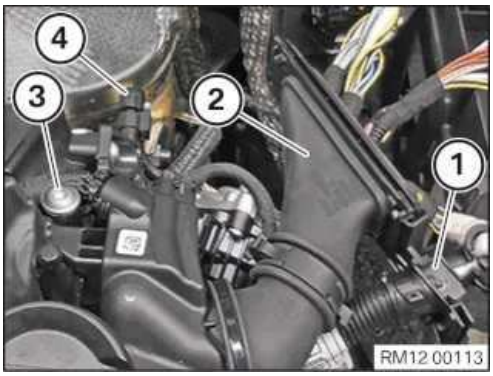
- Feed out connector (1) from the electronics box (2) and remove in the direction of arrow.
- Unlock and loosen connector (1).



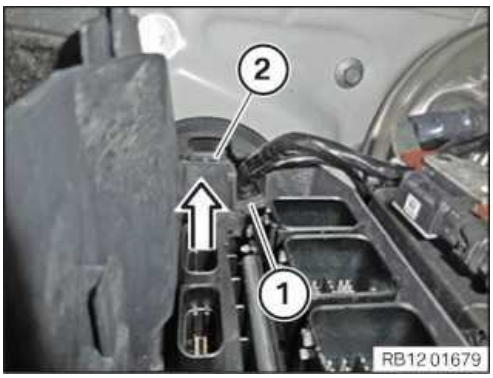
- Unlock and remove the connector (1) in the direction of the arrow.
- Feed out connector (1) and place to one side.



- Unlock and loosen connector (1).

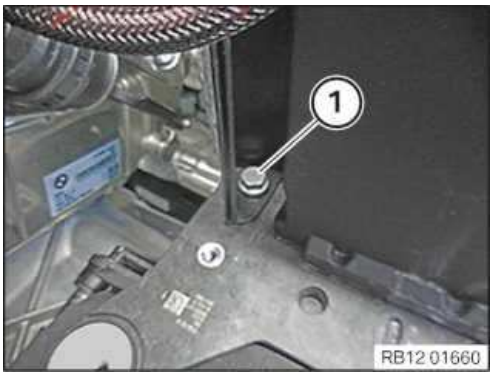


- Detach the wiring harness (1) from the electronics box.
- Detach the wiring harnesses (2) from electronics box.
- Loosen screw (3).
- Set wiring harnesses (1) and (2) aside.
- Unlock the connector (4) and disconnect it from the differential pressure sensor.

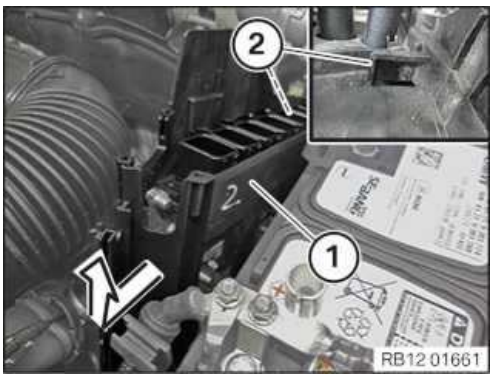


- Unlock and loosen holder (1).
- Guide the holder (1) out of the electronics box (2) in direction of arrow and set it aside.

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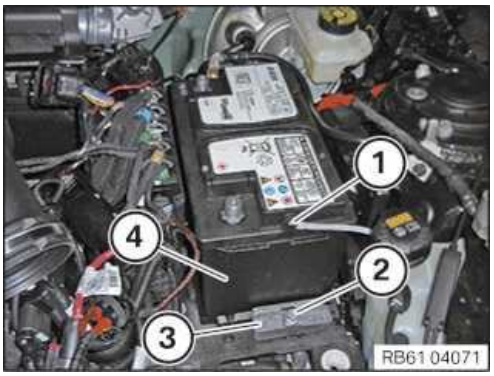


- Loosen screw (1).



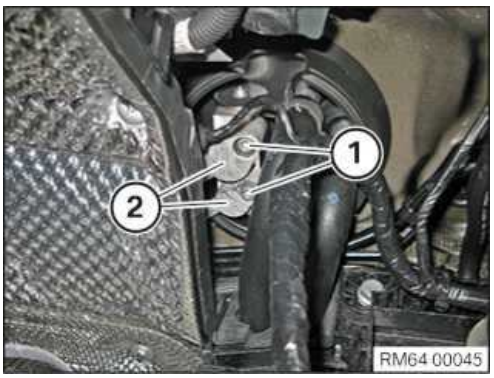
- Guide the electronics box (1) out of the guide (2) in direction of arrow and remove.

10 – Partially remove vehicle battery

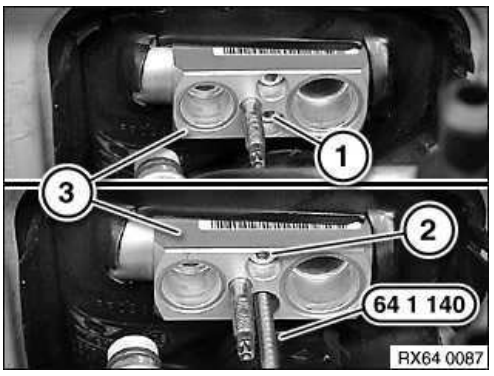


- Pull off the vent hose (1).
- Unscrew the screw (2) and remove the holder (3).
- Remove vehicle battery (4).

11 – Remove expansion valve



- Loosen screws (1).
- Take off refrigerant line (2).



- Loosen screw (1) and screw the special tool **0 495 815 (64 1 140)** in.
- Loosen screw (2) then slide the expansion valve (3) forwards and remove.

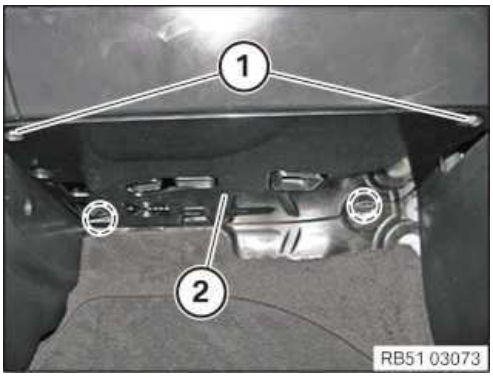
12 – Adjust the steering column position

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- Adjust the length of the steering column to the maximum length in the direction of arrow (1).
- Move the steering column to the lowest steering column position in the direction of arrow (2).

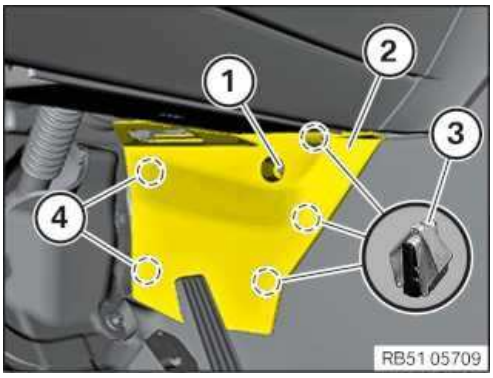
13 – Removing the instrument panel trim at bottom right



- Loosen nuts (1).
- Lower the instrument panel trim slightly at the bottom right (2) and disconnect the plug connection behind it.
- Guide the instrument panel trim at the bottom right (2) from the front guides and remove it.

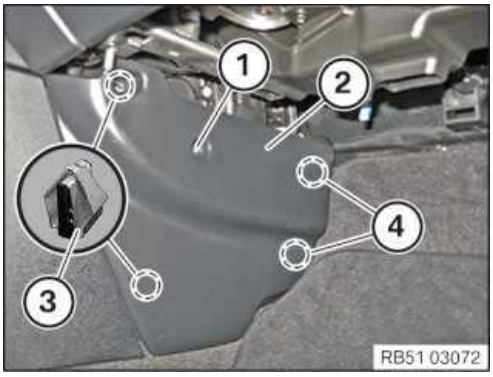
14 – Removing the side trim panel for the left and right centre console

► **Removing side trim panel for the left centre console**



- Loosen screw (1).
- Release side trim panel (2) for the centre console from retaining clips (3).
- Remove side trim panel (2) for the centre console from guides (4) and remove it.

► **Removing side trim panel for the centre console on the right side**



- Loosen screw (1).
- Release the side trim panel for centre console (2) from retaining clips (3).
- Remove the side trim panel for centre console (2) from guides (4) and remove it.

15 – Remove gearshift lever cover

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- Use wedges (1) to unclip the gaiter and pull it off upward.



- Remove the gearshift lever knob and the gaiter by means of a powerful jolt vertically upwards.

  In doing so, the tie rod must not be bent or damaged.
- Ensure that the gearshift lever knob is not twisted when removing, otherwise the anti-twist lock in the gearshift lever knob will be sheared off.

16 – Remove the decorative trim from the centre console

RISK OF DAMAGE

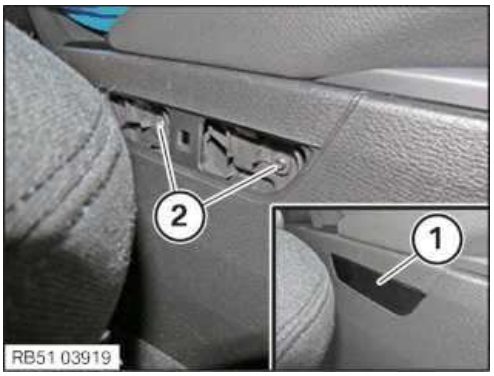
Scratches.

Tools and sharp-edged components can cause scratches.

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

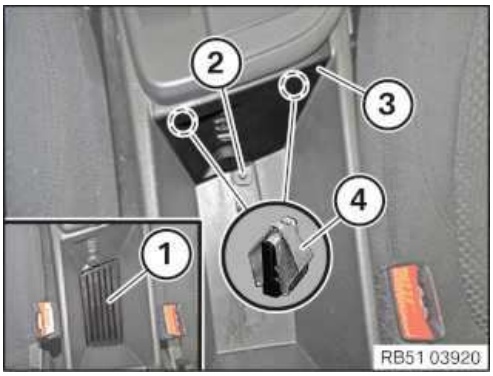


- Lever out and remove cover (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screws (2).



- Lever out and remove cover (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screws (2).

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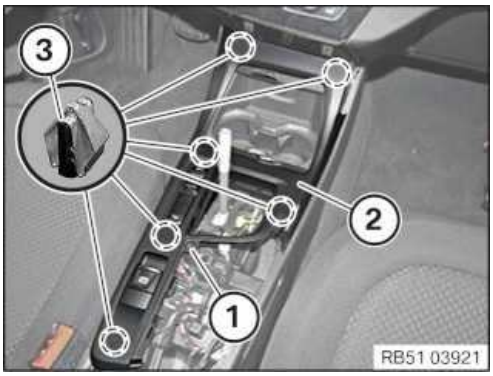


- Remove insert (1) with the special tool **0 496 571 (00 9 327)**.
- Loosen screw (2).
- Lever out trim (3) from clamps (4) towards the rear with the special tool **0 496 571 (00 9 327)**.
- Unfasten plug connection.
- Remove the trim (3).

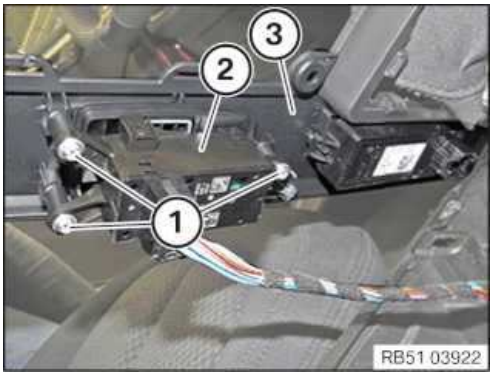


- Loosen screw (1).
- Remove decorative trim (2) and disconnect all the plug connections.
- Remove decorative trim (2).

17 – Remove the centre console trim



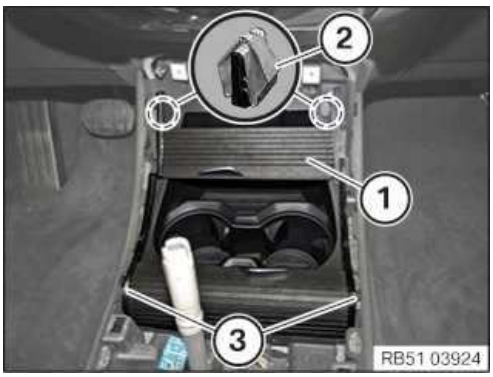
- Loosen screw (1).
- Release centre console trim (2) from clamps (3) with the special tool **0 496 569 (00 9 325)**.
- Lift centre console trim (2).



- Loosen screws (1).
- Remove parking brake button (2) from centre console trim (3) and place it down.

  The plug connection must not be disconnected.
- Disconnect the remaining plug connections and remove centre console trim (3).

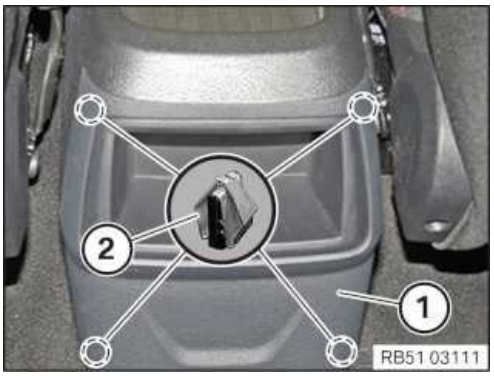
18 – Removing the front storage compartment



- Lever storage compartment (1) at top from the clamps (2).
- Fold storage compartment (1) so far back that it can be lifted from the guides (3).
- Disconnect plug connections and remove the storage compartment (1).

19 – Removing the rear centre console trim

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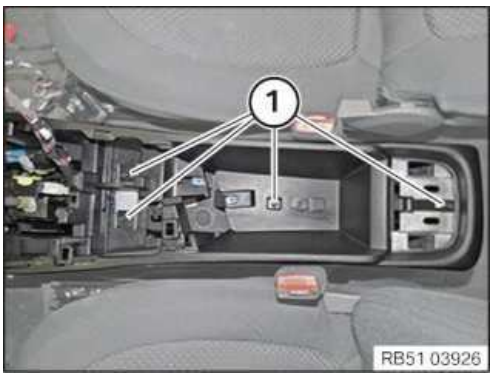
- Lever out and remove centre console trim (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2).

20 – Removing centre console fully with centre armrest

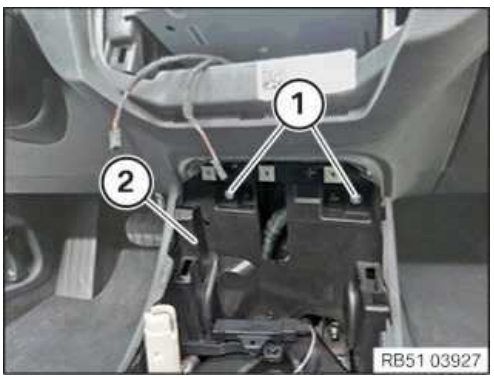
▶ **Removing the centre armrest**



- Release nuts (1) and remove centre armrest upwards.



- Loosen screws (1).



- Loosen screws (1).
- Lift the rear centre console (2) and in this process, disconnect all plug connections.
- Guide out the wiring harness and remove centre console (2) from the vehicle.

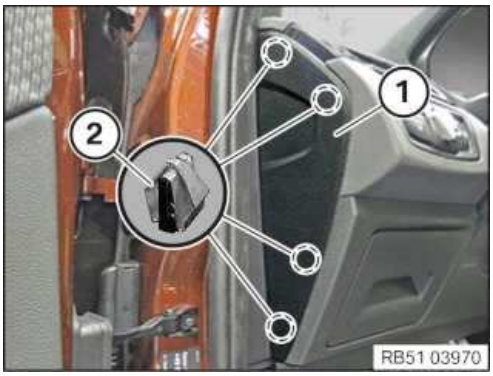
21 – Remove the side panel on the left and right of the instrument panel

NOTICE

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

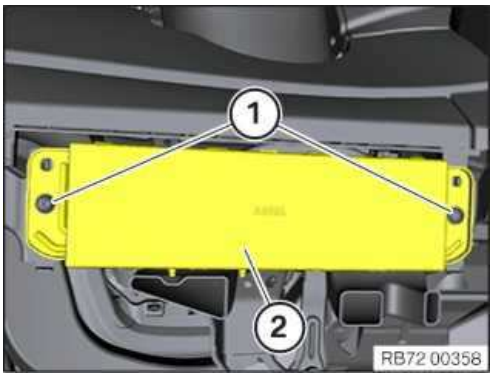
▶ **Remove side panel on the instrument panel**

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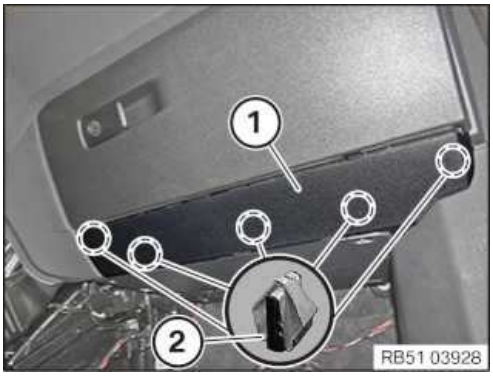
- Lift out the side panel (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2) and slide it out to the rear at an angle.

22 – Removing knee airbag

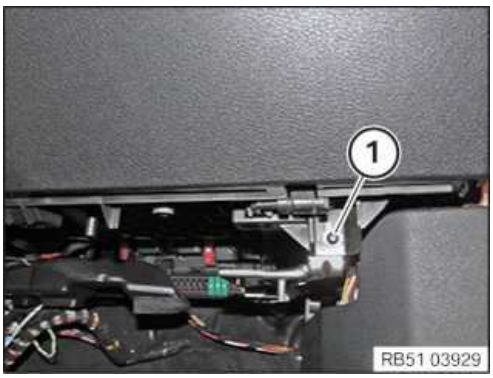


- Unlock plug connection on knee airbag (2) and disconnect.
- Loosen screws (1).
- Remove knee airbag (2).

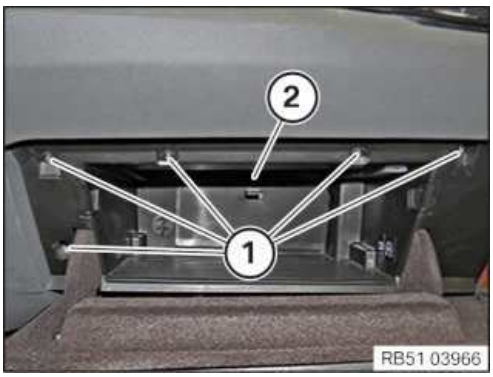
23 – Remove right glove box



- Release the trim (1) with the special tool **0 496 569 (00 9 325)** toward the bottom from the clamps (2) and remove.



- Loosen screw (1).



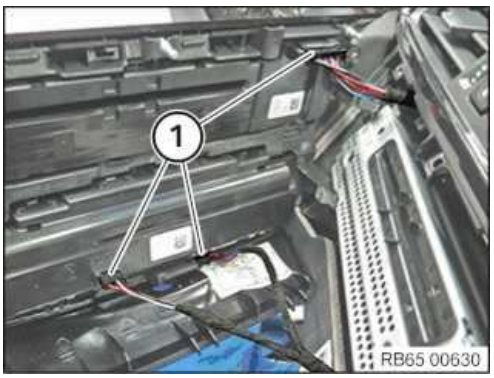
- Loosen screws (1).
- Remove glove box (2) to the inside and disconnect associated plug connections.

24 – Removing the audio operating unit and the air conditioning control panel

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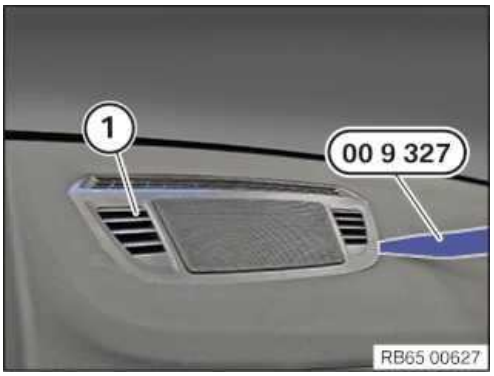


- Unclip the trim (1) using special tool **2 298 505**.

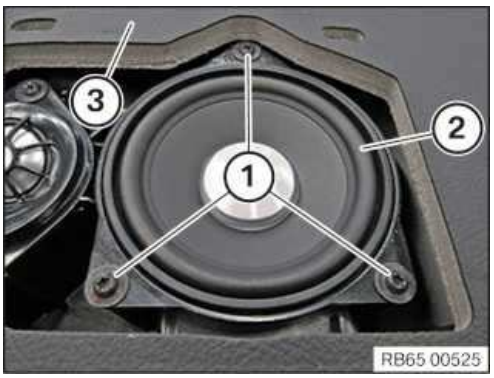


- Unlock plug connection (1) and disconnect.
- Remove the audio operating unit and the air conditioning control panel.

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



- Unclip the speaker cover (1) using the special tool **0 496 571 (00 9 327)** and remove upwards.



- Loosen screws (1).
- Disconnect plug connection underneath.
- Guide the mid-range speaker (2) out of the instrument panel (3) and remove it.

26 – Remove Head Unit High (HU-H)

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RISK OF DAMAGE

Electrostatic discharge.

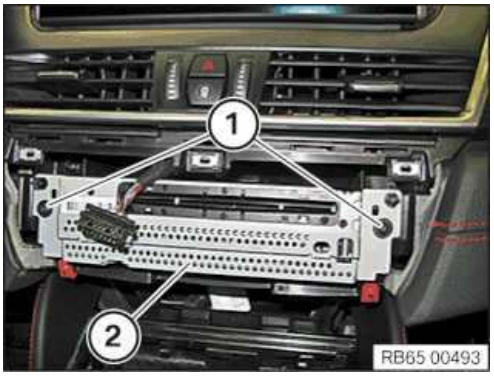
Damage to or destruction of electrical components.

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



- Remove the wiring harness (1).

  In the factory, the wiring harness (1)is routed such that not enough excess length exists to remove the head unit.

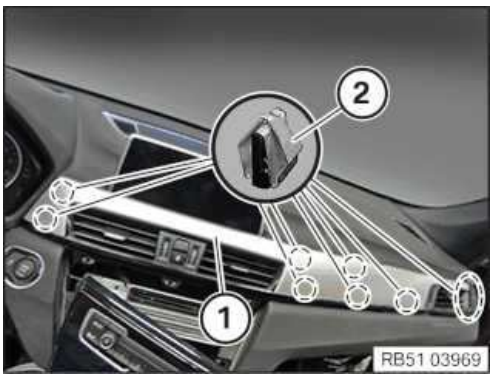


- Loosen screws (1).
- Pull out the head unit (2) a bit.



- Unlock and disconnect all connectors in the marked area.
- Remove head unit (1).

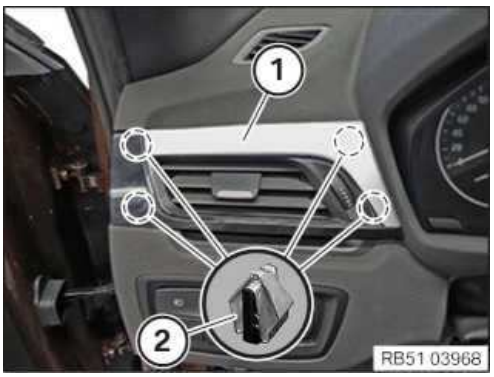
27 – Remove the finisher on the right instrument panel



- Carefully release the decorative strip (1) with the special tool **0 496 569 (00 9 325)** from the clamps (2) starting from the side.
- Lift up the decorative strip (1) and disconnect the plug connections behind it.
- Remove the decorative strip (1).

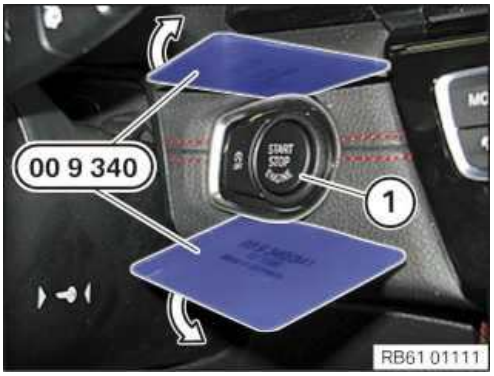
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28 – Remove decorative strip from instrument panel

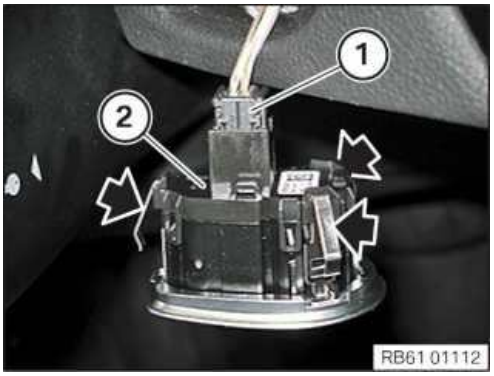


- Release the decorative strip (1) using the special tool **0 496 569 (00 9 325)** from the clamps (2) and remove.

29 – Removing the START-STOP button



- Remove START-STOP button (1) using the special tool **0 493 687 (00 9 340)**.



- Disconnect the connector (1) and remove the START-STOP button (2).

30 – Removing the light operating unit



- Unclip the light operating unit (1) in the marked area.
- Unlock and disconnect associated connector.

31 – Removing the left and right A-pillar trim panels

NOTICE

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

▸ **Remove the A-pillar trim panel**

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WARNING

Airbag unit.

Danger! Life-threatening injuries!

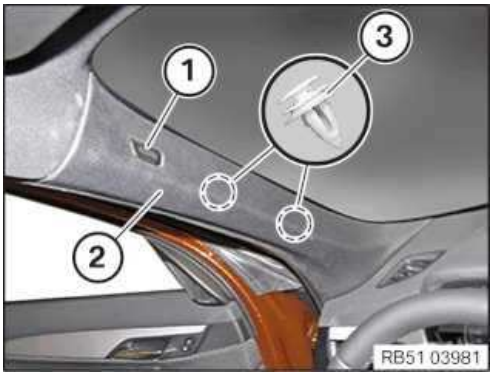
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

WARNING

Pyrotechnic components.

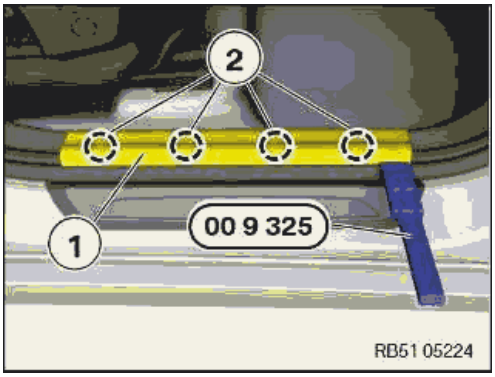
Danger! Life-threatening injuries!

- 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.

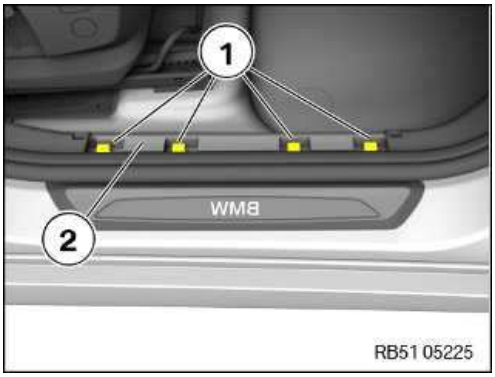


- Unclip cover (1) and unscrew the screw below it.
- Release the A-pillar trim panel (2) from the clips (3) and guide out upwards.

32 – Remove front entrance cover strip



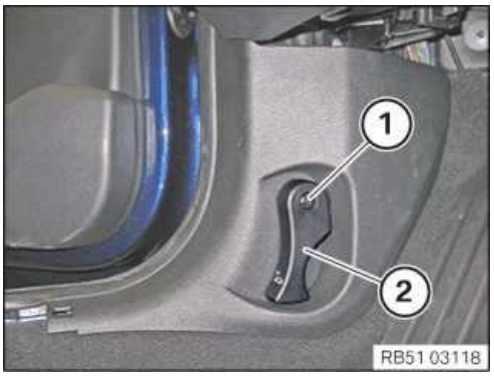
- Unclip the door sill cover strip (1) at the clips **0 496 569 (00 9 325)** using special tool (2) starting from the rear.



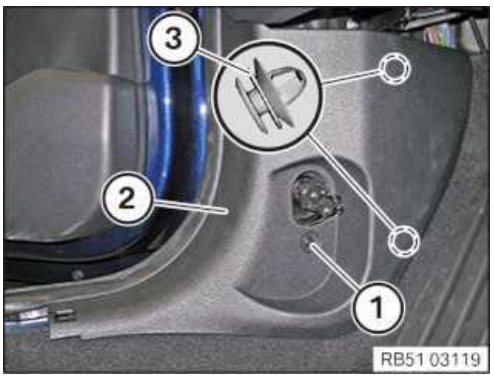
- If applicable, loosen clips (1) from floor panel (2) and mount on the door sill cover strip.

33 – Removing the side trim panel in the footwell at the A-pillar

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- Loosen screw (1).
- Remove bonnet release lever (2).

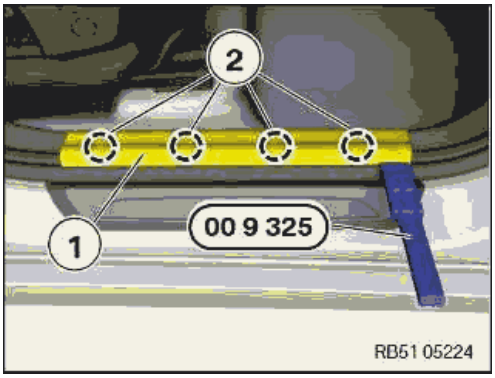


- Loosen screw (1).
- Unclip side trim panel (2) from the clips (3) and remove.

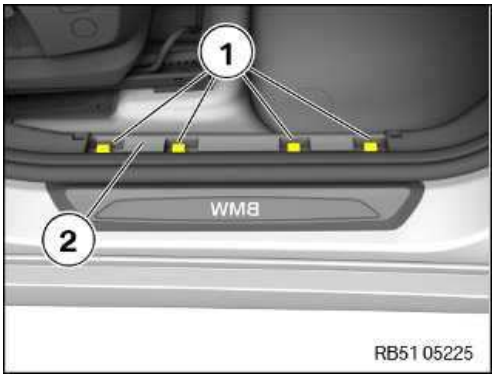
34 – Remove front right door sill cover strip

NOTICE

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



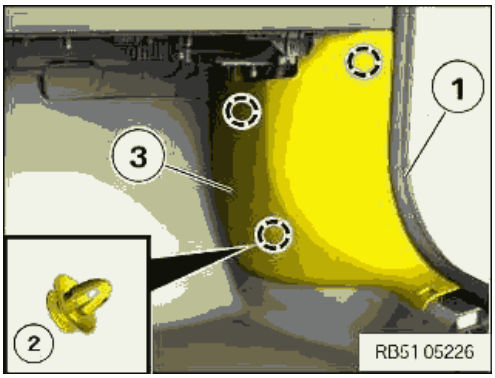
- Unclip the door sill cover strip (1) at the clips **0 496 569 (00 9 325)** using special tool (2) starting from the rear.



- If applicable, release clips (1) from floor panel (2) and mount on the door sill cover strip.

35 – Removing the side trim panel in the footwell at the right-hand A-pillar

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- Guide side trim panel (3) under the sealing lip out of the edge protection (1).
- Unclip and remove the side trim panel (3) at the clips (2).

36 – Removing airbag unit of the steering wheel/sports steering wheel

WARNING

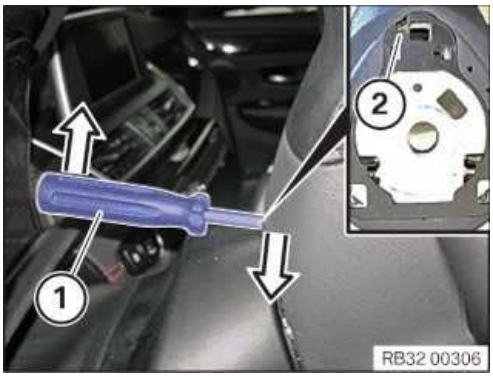
Airbag unit.

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



- Turn the steering wheel (1) through 180° from the "straight-ahead driving position".



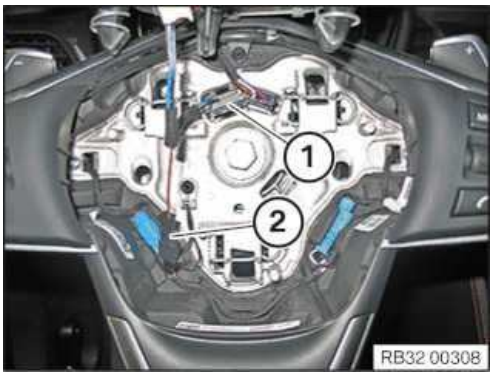
- Insert the slotted screwdriver (1) into the elongated hole on the rear side on the steering wheel.
- Push the slotted screwdriver (1) up and thereby push the retaining spring down (2).

  The airbag unit is unlocked.



- (1) Push unlocked airbag unit up.
- (2) At the same time, pull off the top airbag unit in the opposite direction of travel.

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- Unlock and disconnect the plug connections (1) and (2).
- Remove airbag unit.

37 – Removing steering wheel/sports steering wheel



- Move the steering wheel/sports steering wheels to the straight-ahead position.
- **Unlock plug connection and disconnect.**
- Release the screw (1) and remove the steering wheel/sports steering wheel.

38 – Removing steering column shroud upper section



NOTICE

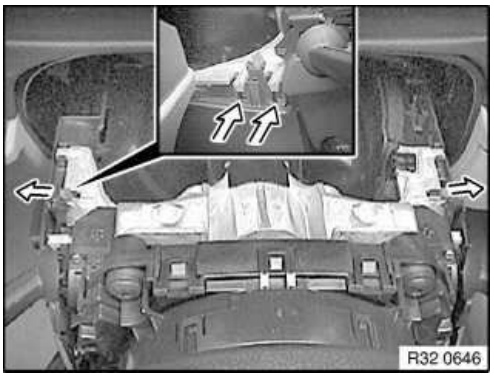
Perform the operations on the left and right side.

- Unclip the steering column shroud upper section (1) with the special tool **2 298 504** in area (2).
- Fold the steering column shroud upper section (1) up.



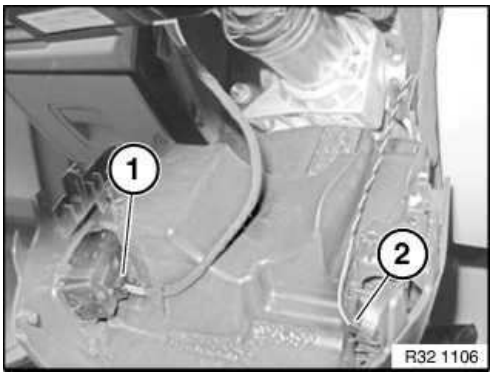
- Release the gap cover of the steering column (1) from the brackets (arrows) of the steering column shroud upper section.
- Remove steering column shroud upper section.

39 – Removing steering column shroud lower section



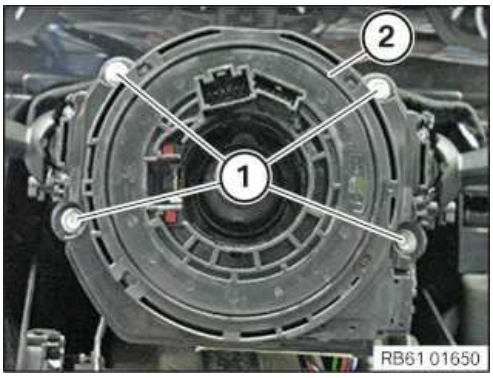
- Press the retaining lugs (arrows) a little outwards and unclip the steering column shroud lower section in a downward direction.

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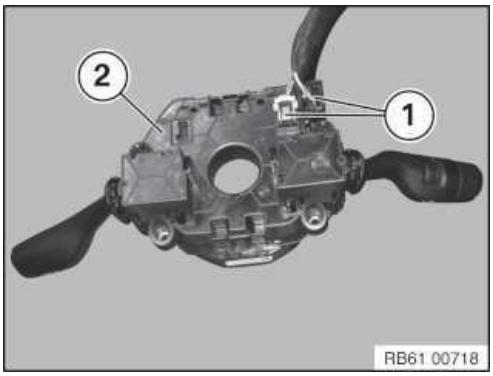


- Tilt steering column shroud lower section in downward direction.
- Unlock and disconnect the plug connections (1) and (2).
- Remove steering column shroud lower section.

40 – Removing the steering column switch cluster (SZL)



- Loosen screws (1).
- Remove the steering column switch cluster (SZL) (2).



- Unlock and disconnect the connector (1) on the steering column switch cluster (SZL) (2).

41 – Removing the instrument cluster (KOMBI)

RISK OF DAMAGE

Scratches.

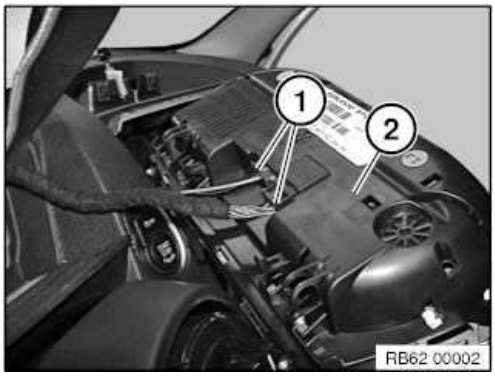
Tools and sharp-edged components can cause scratches.

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



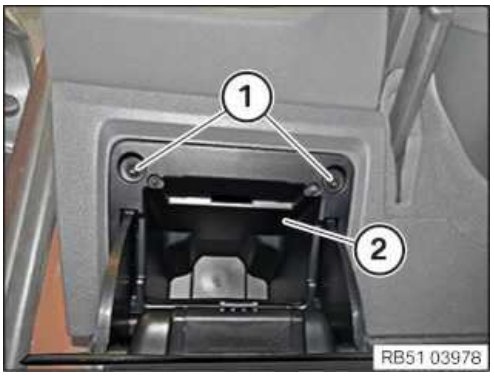
- Loosen both screws (1).
- Thread out instrument cluster (KOMBI) in direction of arrow.

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- Disconnect all plug connections (1).
- Removing the instrument cluster (KOMBI) (2).

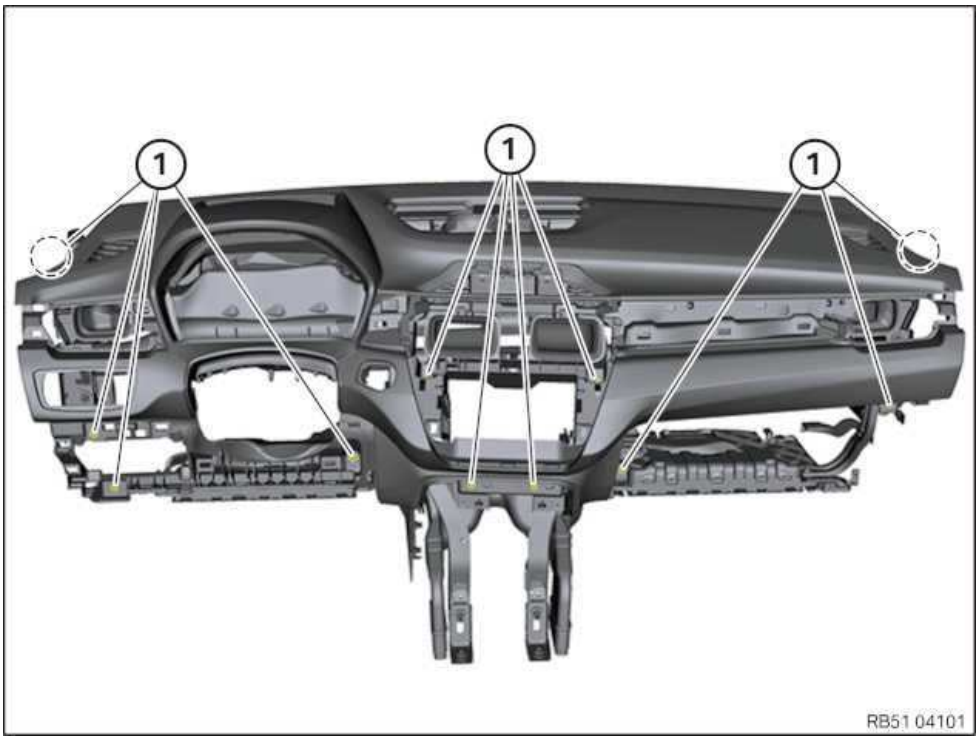
42 – Removing the left fold-down compartment



- Loosen screws (1).
- Guide out and remove the fold-down compartment (2) downward from the instrument panel.

43 – Remove instrument panel trim

Instrument panel



TECHNICAL INFORMATION

Notes on unlocking/locking airbag plug connections form the basis for these repair instructions and must be observed without fail.

For additional information see: 72 00 ... Notes on unlocking/locking airbag plug connections

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- Loosen screws (1).
- Unlock and disconnect the plug connection of the front passenger airbag.
- Guide out the instrument panel trim with the help of an auxiliary person and unlock and disconnect all the plug connections.
- Release the wiring harness from the instrument panel trim.
- Guide out the instrument panel trim through the door aperture from the vehicle.

44 – Removing the support for the instrument panel

▶ **Disconnect positive battery cable**

Prerequisite

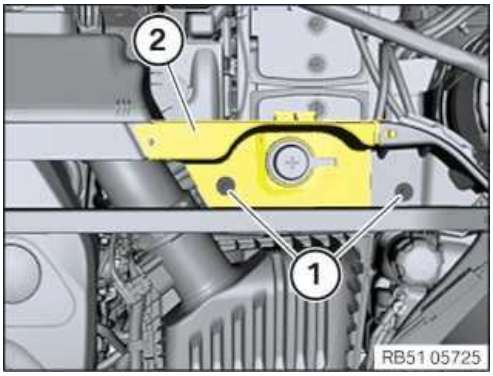
Ignition is switched off.

WARNING

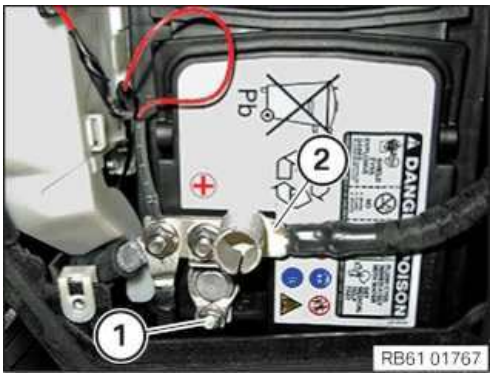
Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.
- For additional batteries: Detach all battery earth leads from additional batteries.



- Loosen screws (1).
- Guide out and remove the cover (2).



- Slacken nut (1).
- Remove positive battery cable (2).

WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Fasten positive battery cable (2) laterally.

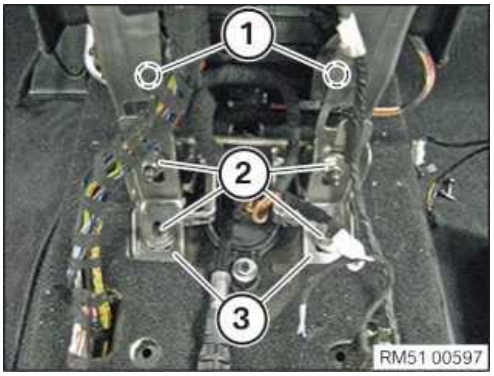


- Release the screw (1) on bulkhead.

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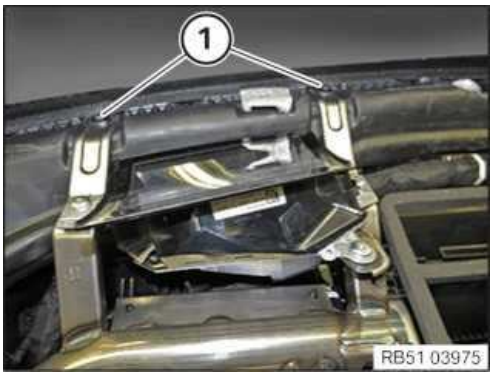
- Release the clamping bolt (1) of steering shaft on the steering column.
- Pull the steering shaft off of the steering column.



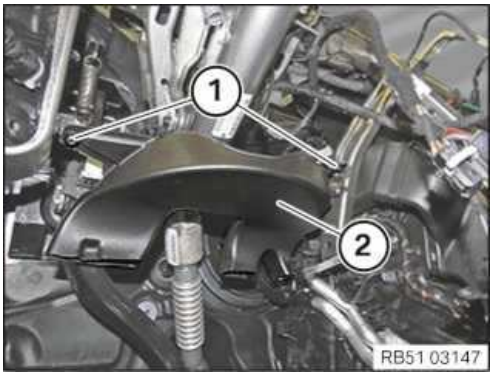
- Loosen nuts (2).
- Remove retaining bracket (3).
- Loosen screws (1).



- Loosen the nuts (1) on the left and right.

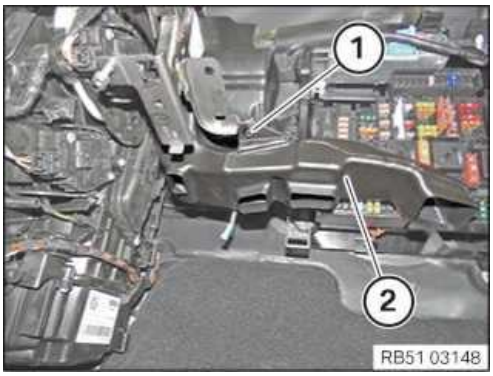


- Loosen screws (1).

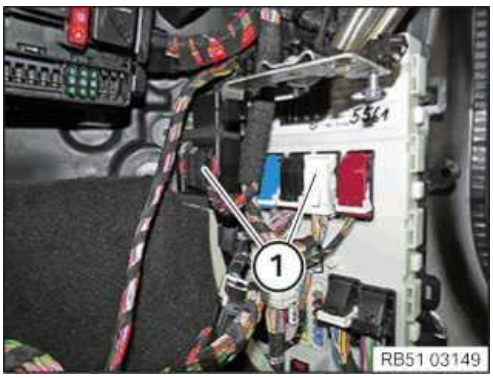


- Loosen screws (1).
- Remove the air duct (2).

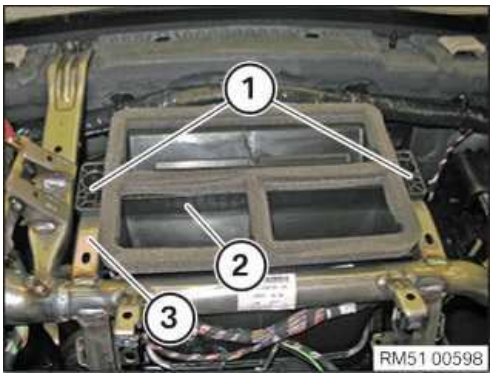
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- Loosen screw (1).
- Remove the air duct (2).

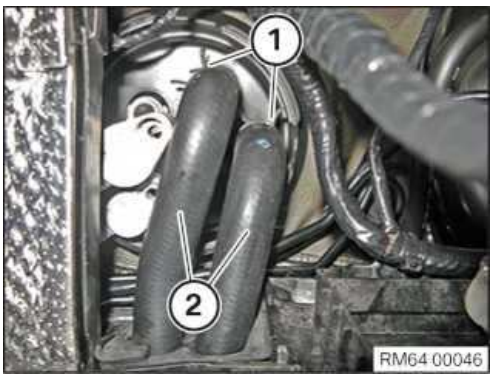


- Unlock and disconnect plug connections (1).

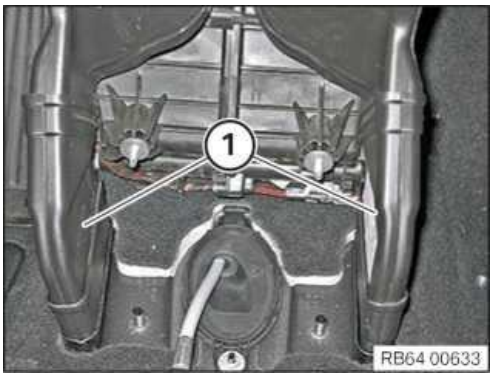


- Loosen screws (1).
- Raise heating and air-conditioning unit (2) slightly and guide out the support (3) towards rear.
- If necessary, release additional cables and all cable clips and remove support (3).

45 – Removing the heating and air-conditioning unit

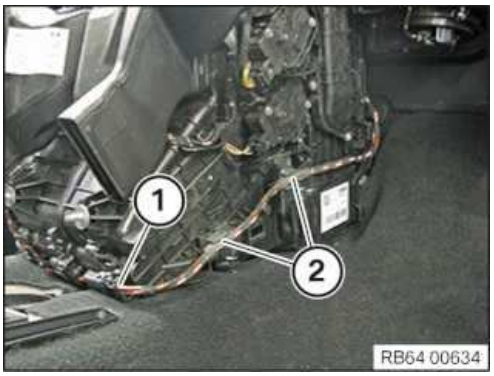


- Mark the coolant hoses (2) before removing.
- Release the hose clamps (1) using special tool and pull off the coolant hoses (2).

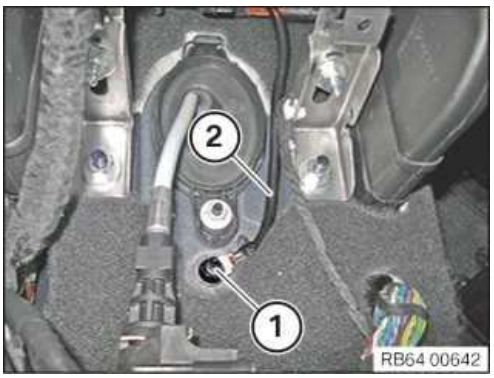


- Remove the air duct (1) on the left and right.

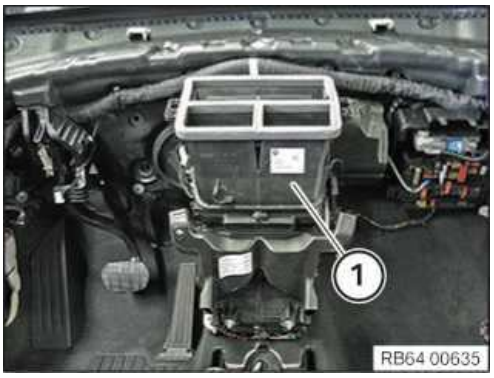
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- Unlock plug connection (1) and disconnect.
- Loosen the cable clip (2).



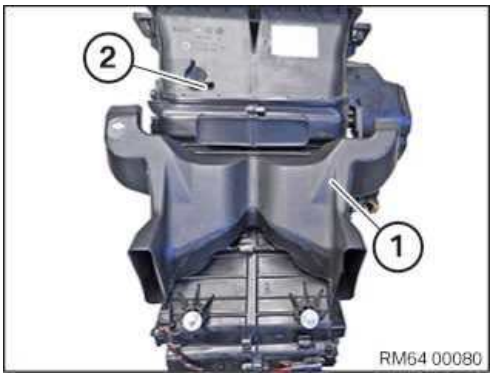
- **For equipment specifications with electric auxiliary heater:** Release the nut (1) and remove the ground cable (2).



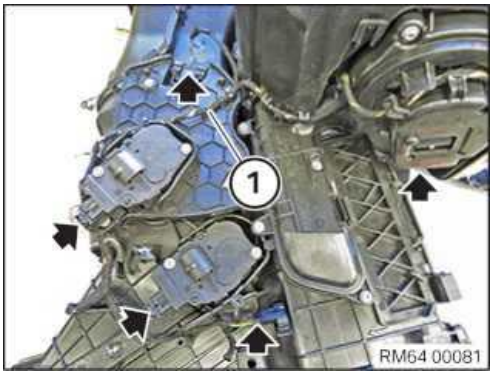
- Feed out and remove the heating and air-conditioning unit (1).

MAIN WORK

46 – Removing the evaporator



- Disengage and remove the air duct (1) from the heating and air-conditioning unit (2).

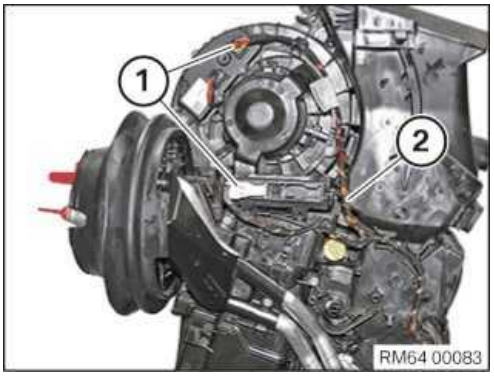


- Unlock and disconnect the connector on the highlighted points.
- Remove the wiring harness (1).

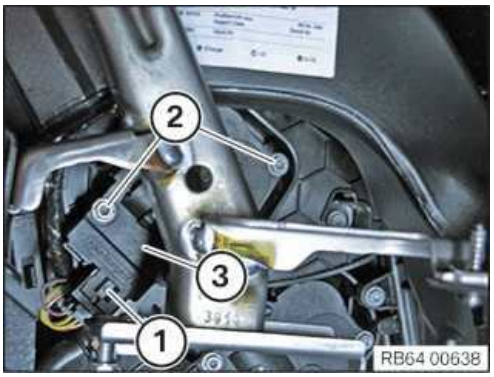
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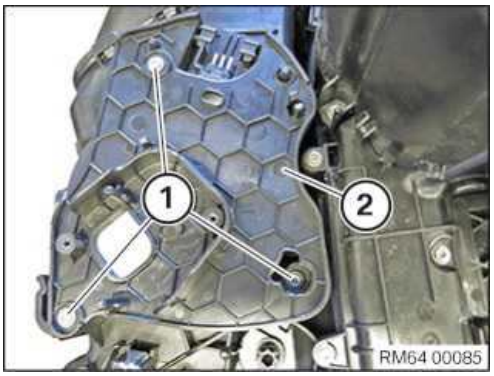
- Unlock and remove the connector housing (1).
- Remove the wiring harness (2).



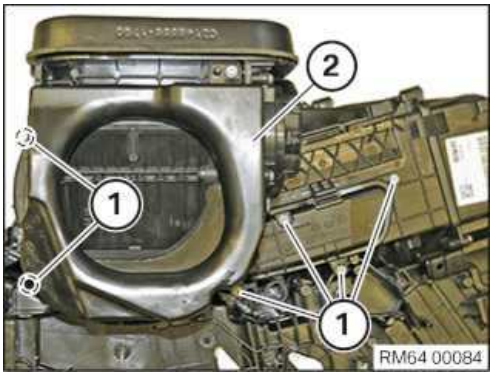
- Unlock and disconnect connector (1).
- Remove the vehicle wiring harness (2).



- **On version with central kinematics:**
- Unlock and disconnect connector (1).
- Loosen screws (2).
- Detach the controller drive for the footwell flap (3).



- **On version with central kinematics:**
- Loosen screws (1).
- Remove the central kinematics (2).

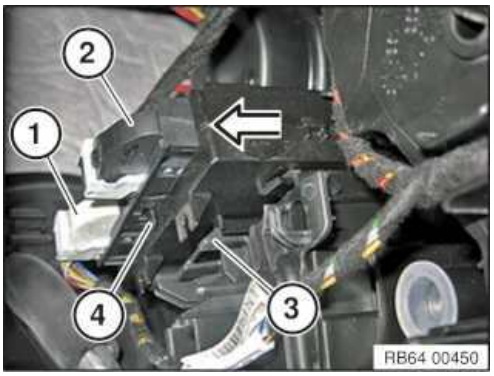


- Loosen screws (1).
- Remove the housing of the fresh air / air recirculation function (2).

47 – If replacing, remount the mounted parts on the heating and air-conditioning unit

▸ **Removing the air conditioning control unit**

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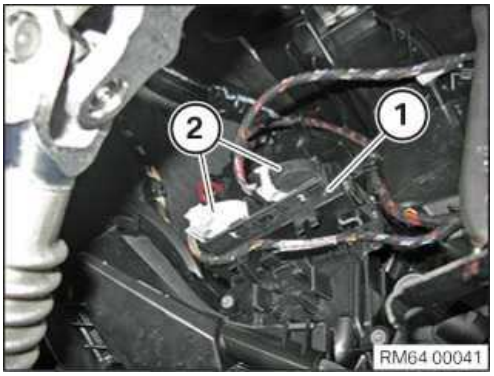


- Unlock and disconnect the plug connections (1) and (2).

Note: The control unit for the air conditioning system is located in the footwell on the left next to the air conditioning unit.

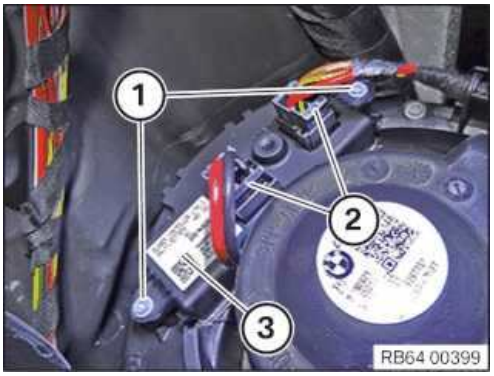
- Unlock the latch mechanism (3) towards the bottom.
- Pull out the control unit (4) in the direction of arrow and remove it.

► **Install control unit for heating and air conditioning system**



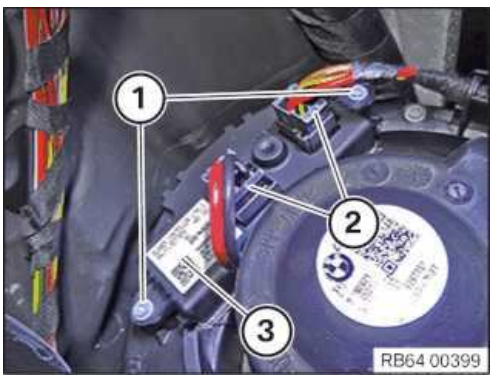
- Install the control unit (1) and position it correctly.
- Lock the control unit (1).
- Connect connectors (2) and lock.

► **Removing controller for the blower**



- Loosen screws (1).
- Unlock and disconnect plug connections (2).
- Guide out the controller (3) and remove it.

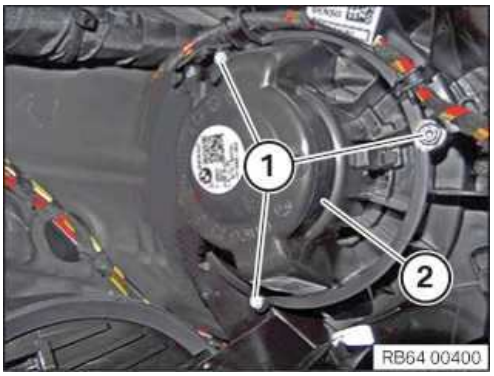
► **Installing the controller for the blower**



- Feed in and install the controller (3).
- Connect connectors (2) and lock.
- Tighten the screws (1).

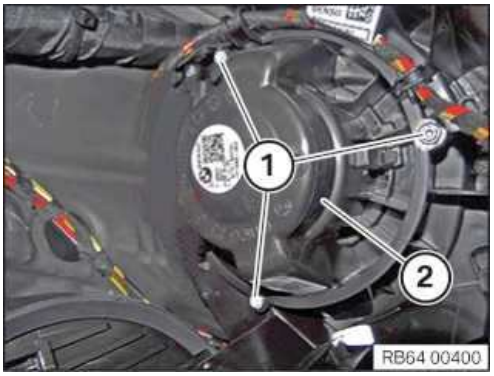
► **Remove the blower for the heating and air-conditioning unit**

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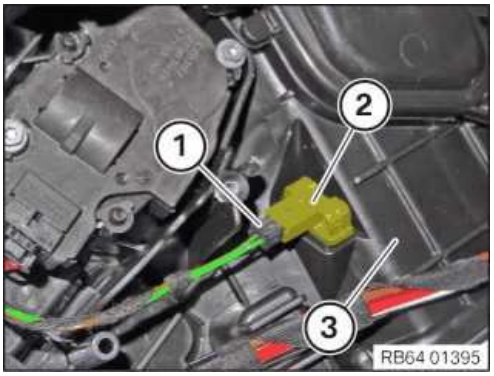
- Loosen screws (1).
- Feed out and remove the blower (2).

► **Install the blower for the heating and air-conditioning unit**



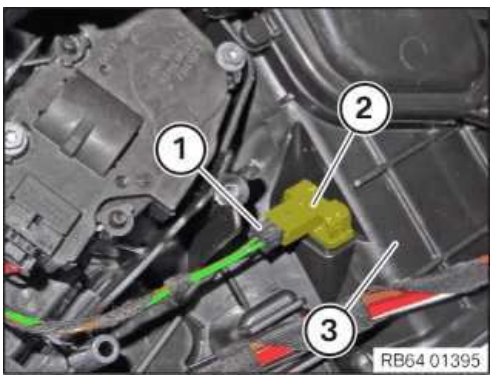
- Feed in the blower (2) and correctly position it.
- Tighten the screws (1).

► **Remove evaporator temperature sensor**



- Unlock and disconnect connector (1).
- Pull the evaporator temperature sensor (2) out of the heating and air-conditioning unit (3) and remove.

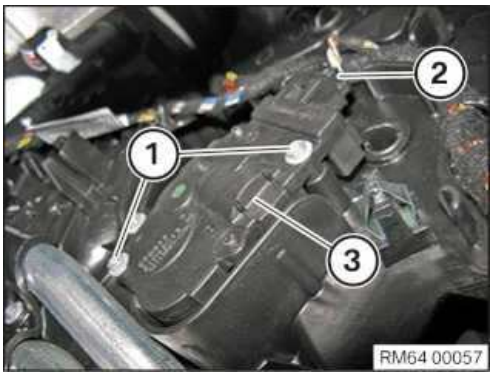
► **Install evaporator temperature sensor**



- Fit evaporator temperature sensor (2) correctly in the heating and air-conditioning unit (3).
- Connect connectors (1) and lock.

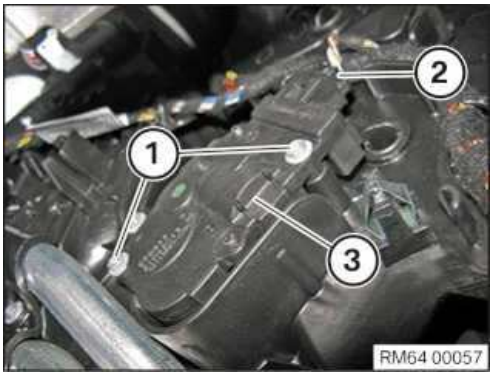
► **Removing the left mixed air flap motor**

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- Loosen screws (1).
- Unlock plug connection (2) and disconnect.
- Remove mixed air flap motor (3).

▶ **Install the left mixed air flap motor**

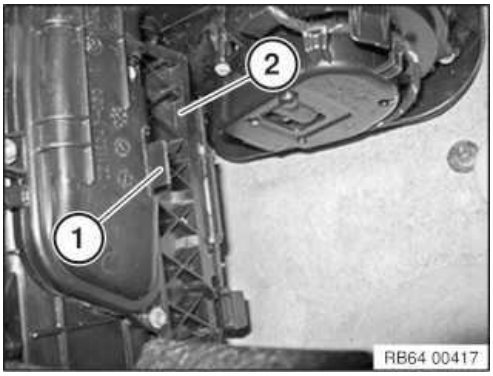


- Correctly position mixed air flap motor (3).
- Connect connectors (2) and lock.
- Tighten the screws (1).

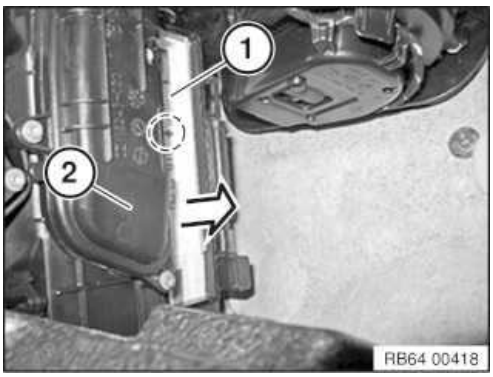
Controller drive to heating and air-conditioning unit

Screw		Tightening torque	1,2 Nm

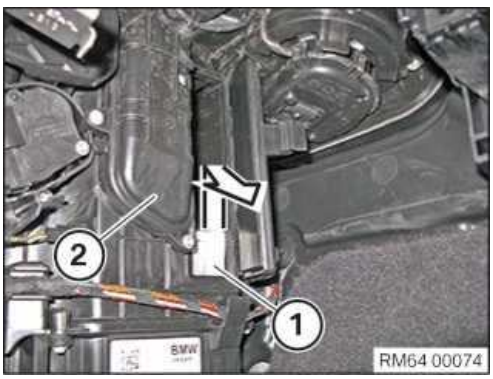
▶ **Remove microfilter for passenger compartment ventilation**



- Unlock the lock (1).
- Open flap (2).



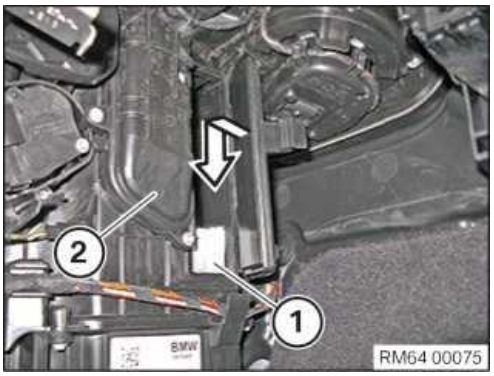
- Remove the upper microfilter (1) from the heating and air-conditioning unit (2) in direction of arrow.



- Remove the lower microfilter (1) from the heating and air-conditioning unit (2) in direction of arrow.

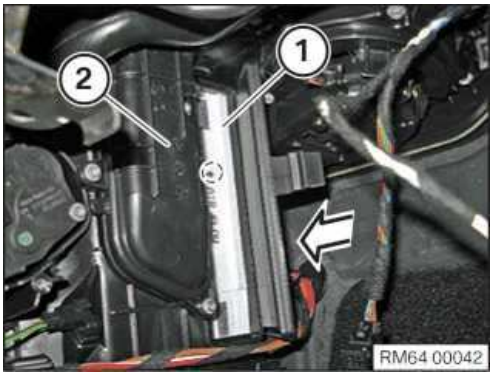
▶ **Installing the microfilter for the interior ventilation**

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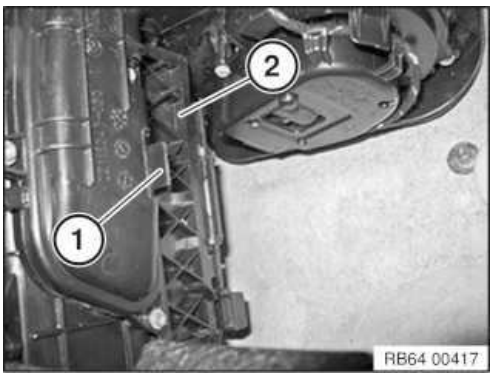
- Install the lower microfilter (1) in the heating and air-conditioning unit (2) in direction of arrow.

  Note: Pay attention to the direction of installation of the lower microfilter (1).



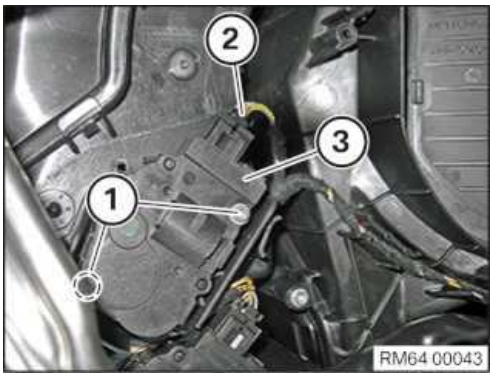
- Install the upper microfilter (1) in the heating and air-conditioning unit (2) in direction of arrow.

  Note: Pay attention to the direction of installation of the upper microfilter (1) in the marked area.



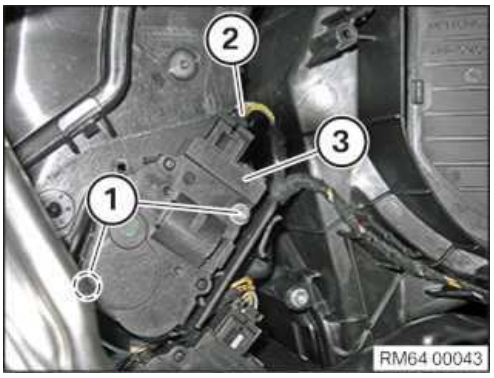
- Close flap (2).
- Lock the lock (1).

► **Remove defroster flap motor**



- Loosen screws (1).
- Unlock plug connection (2) and disconnect.
- Remove defroster flap motor (3).

► **Install the defroster flap motor**



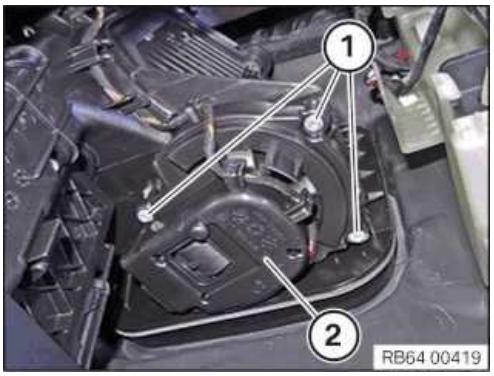
- Correctly position the defroster flap motor (3).
- Connect connectors (2) and lock.
- Tighten the screws (1).

Controller drive to heating and air-conditioning unit

Screw		Tightening torque	1,2 Nm

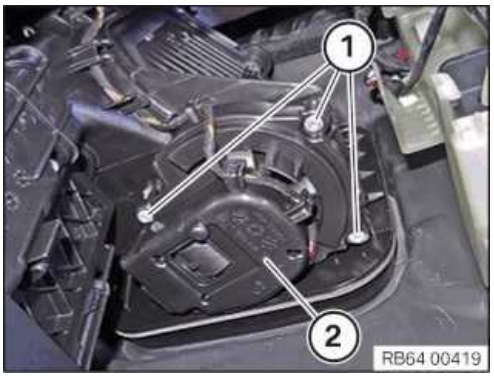
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► **Removing the fresh air/recirculated air flap motor**



- Loosen screws (1).
- Unlock associated plug connection and disconnect.
- Remove fresh air/recirculated air flap motor with holder (2).

► **Install the fresh air/recirculated air flap motor**



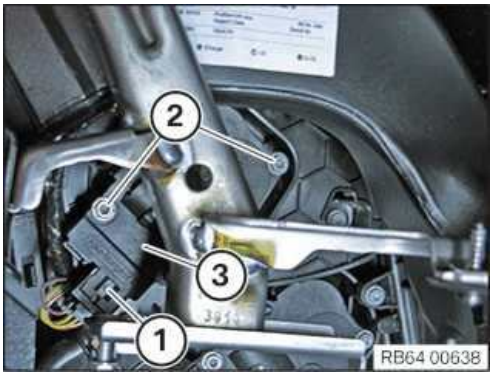
- Correctly position the fresh air/recirculated air flap motor with holder (2).
- Tighten the screws (1).

Controller drive to heating and air-conditioning unit

Screw		Tightening torque	1,2 Nm

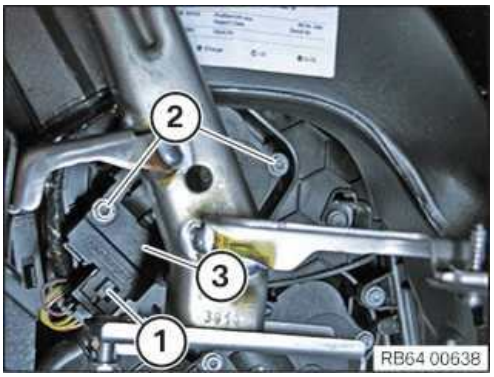
- Connect and lock corresponding connectors.

► **Remove right-hand foot well flap motor**



- Unlock plug connection (1) and disconnect.
- Loosen screws (2).
- Remove foot well flap motor (3).

► **Install the right-hand foot well flap motor**



- Correctly position the foot well flap motor (3).
- Tighten the screws (2).

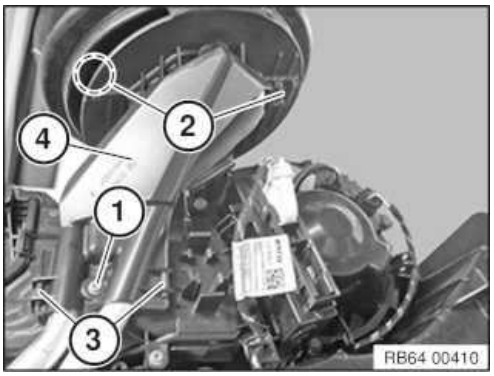
Controller drive to heating and air-conditioning unit

Screw		Tightening torque	1,2 Nm

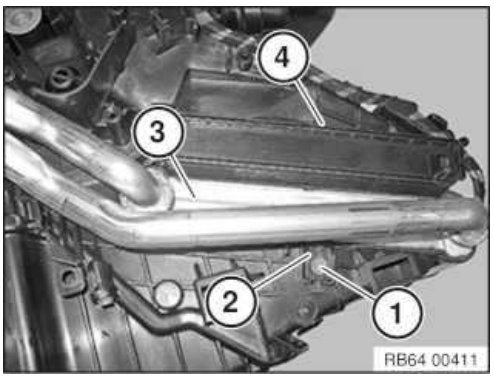
- Connect connectors (1) and lock.

► **Remove the heat exchanger for heating system**

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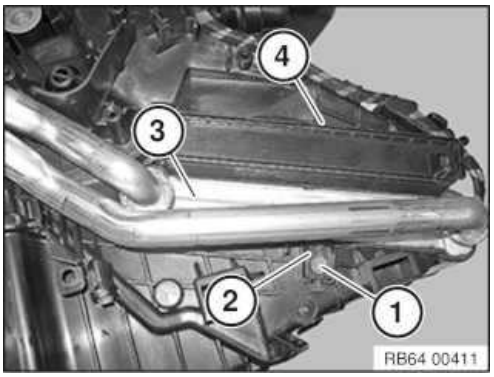


- Loosen screws (1).
- Unlock latch mechanisms (2) and (3).
- Remove the cover (4).

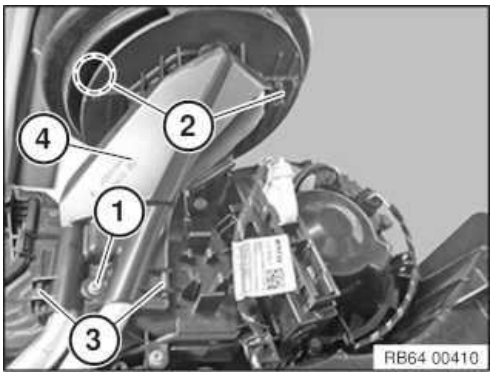


- Loosen screw (1).
- Remove the holder (2).
- Pull out the heat exchanger for heating system (3) from the heating and air-conditioning unit (4).

► **Install heat exchanger for heating system**



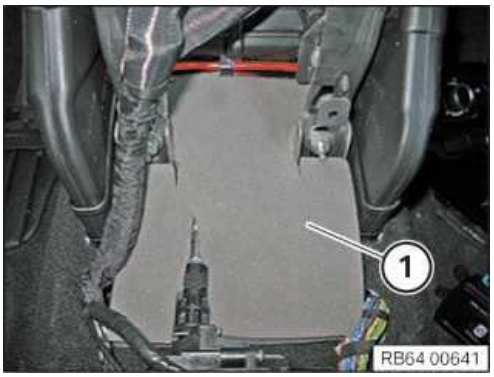
- Insert the heat exchanger for heating system (3) in the heating and air-conditioning unit (4).
- Correctly position the holder (2).
- Tighten down screw (1).



- Correctly position the cover (4).
- Engage the latch mechanisms (2) and (3).
- Tighten the screws (1).

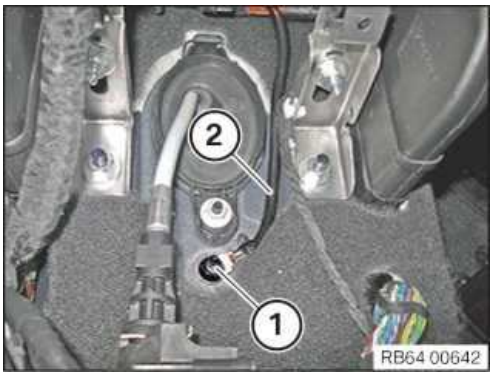
- **For diesel engines only:**

► **Remove electric auxiliary heater**

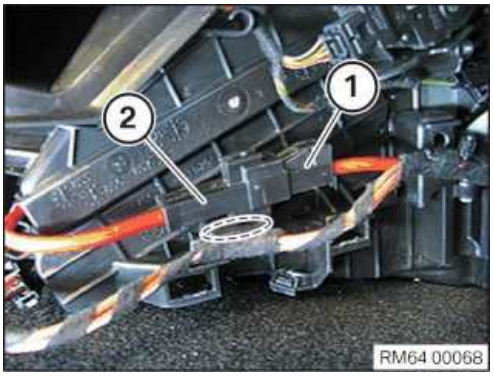


- Remove foam material (1).

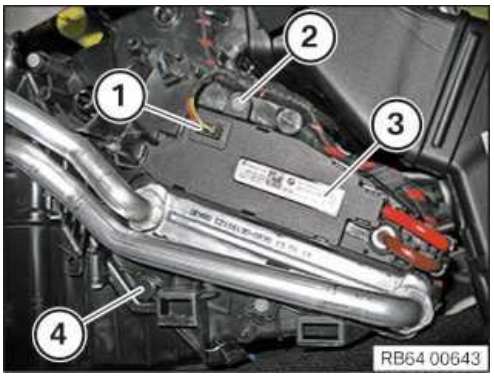
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- Unfasten nut (1).
- Thread out ground cable (2).

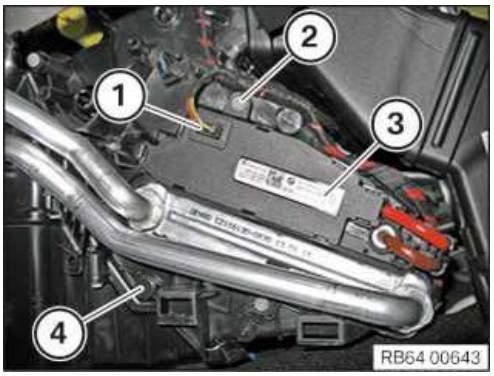


- Unlock plug connection (1) and disconnect.
- Disengage connector housing (2) in the marked area.

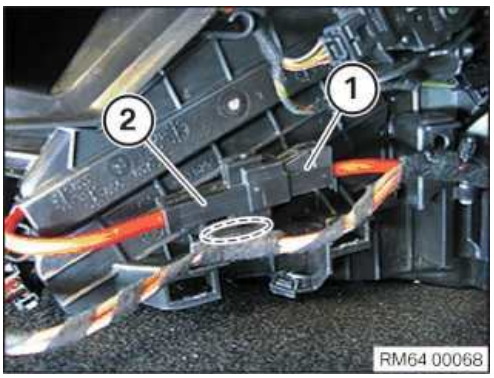


- Unlock plug connection (1) and disconnect.
- Loosen screw (2).
- Pull electric auxiliary heater (3) out of heating and air-conditioning unit (4).

► **Installing the electric auxiliary heater**

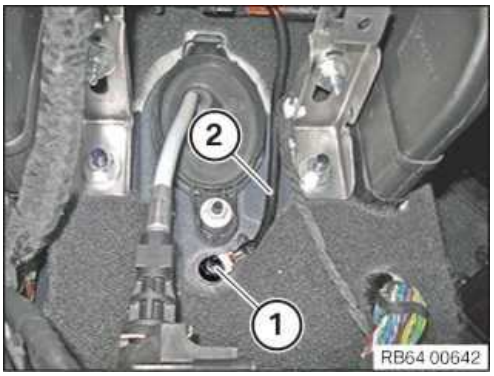


- Install the electric auxiliary heater (3) in the heating and air-conditioning unit (4).
- Tighten down screw (2).
- Connect connectors (1) and lock.

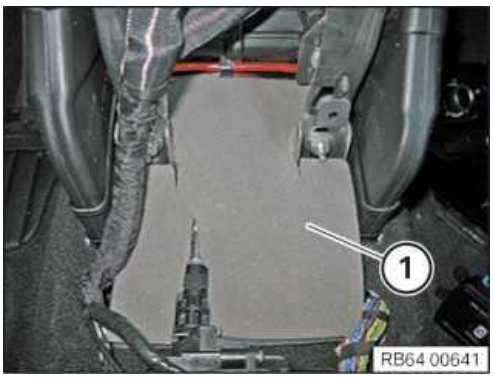


- Engage connector housing (2) in marked area.
- Connect connectors (1) and lock.

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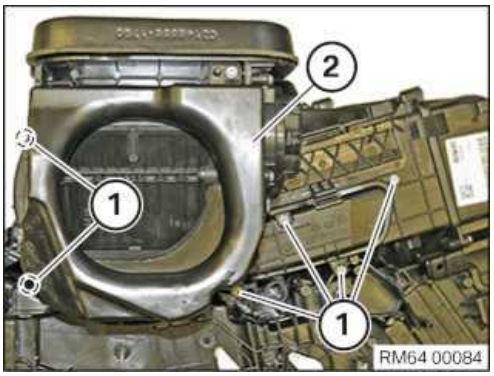


- Guide in ground cable (2) and position correctly.
- Tighten nut (1).

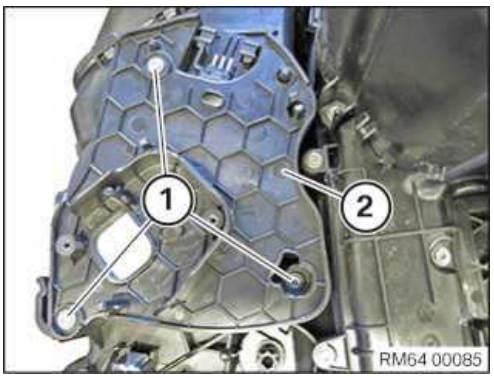


- Insert the foam material (1).

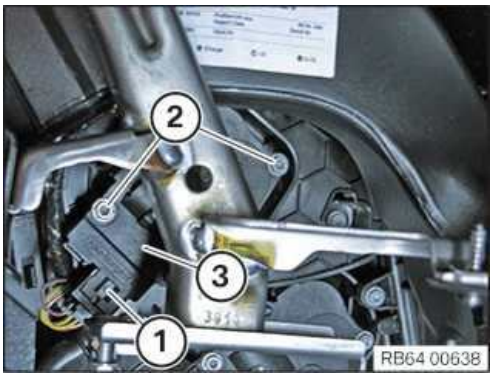
48 – Installing the evaporator



- Position the housing for fresh air/air recirculation function (2).
- Tighten the screws (1).

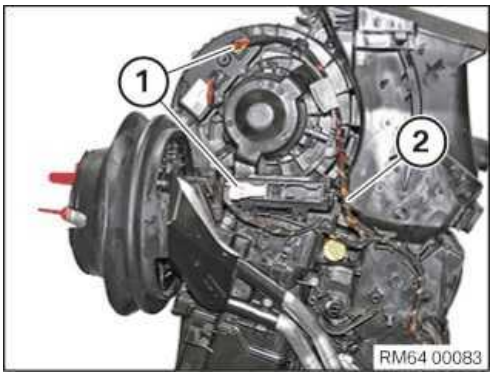


- **On version with central kinematics:**
- Position the central kinematics (2).
- Tighten the screws (1).



- **On version with central kinematics:**
- Position the controller drive of the footwell flap (3).
- Connect connectors (1) and lock.
- Tighten down screws (2).

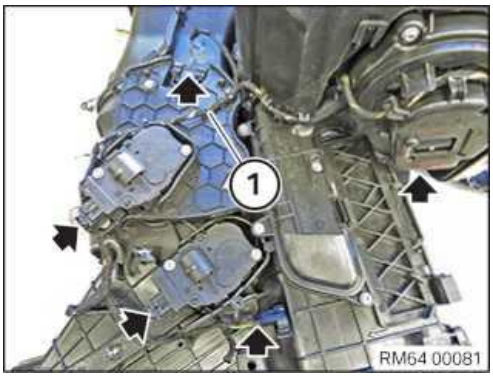
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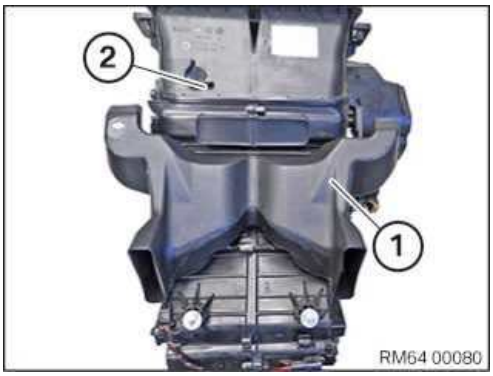
- Feed in the wiring harness (2) and route it correctly.
- Connect connectors (1) and lock.



- Insert the wiring harness (2).
- Engage the connector housing (1).



- Insert the wiring harness (1).
- Connect the connector on the highlighted points and lock.

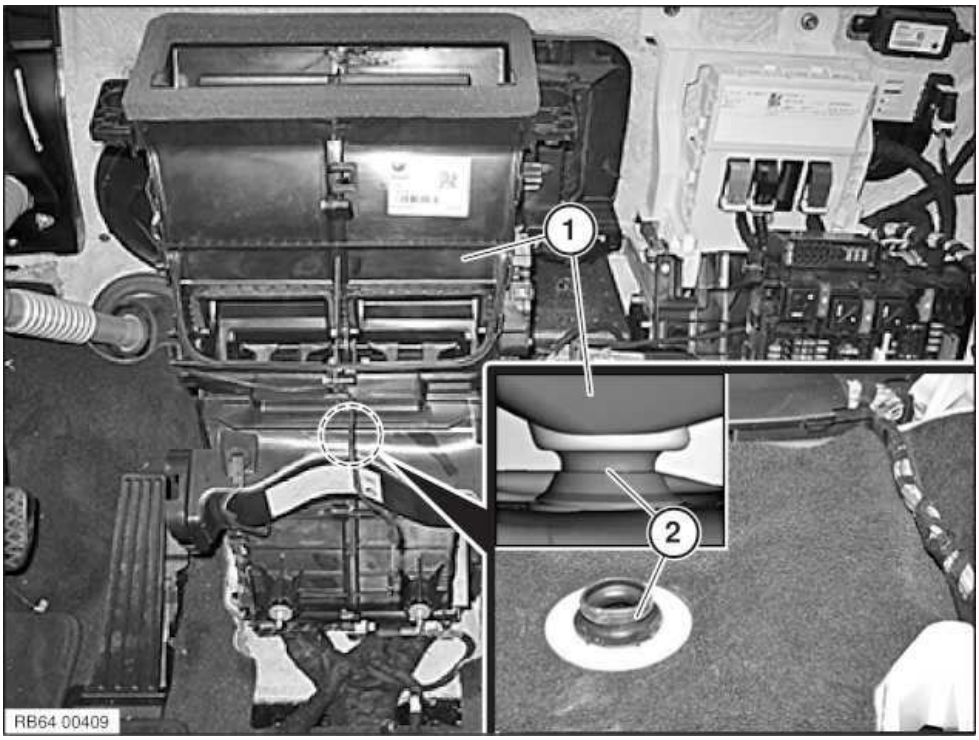


- Insert and lock the air duct (1) correctly in the heating and air-conditioning unit (2).

POSTPROCESSES

49 – Installing the heating and air-conditioning unit

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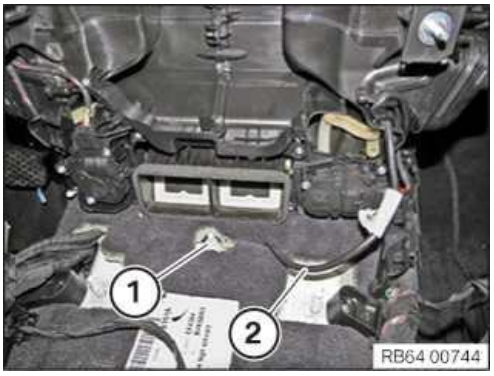


- Coat the condensate drain (2) with lubricant before installing the heating and air-conditioning unit (1).

Assembly aids

Lubricants G14	900 ml, Can	8323236041

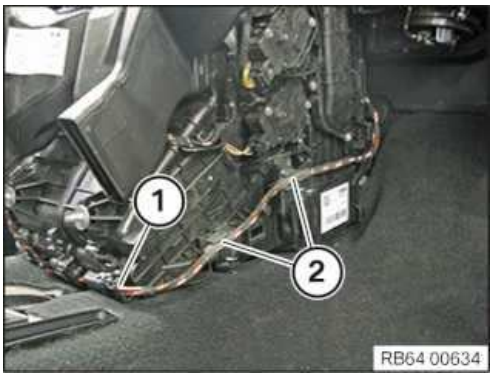
- Insert the heating and air-conditioning unit (1).
- ensure that the heating and air-conditioning unit (1) is positioned exactly on the condensate drain (2).
- Perform a visual inspection after installing the heating and air-conditioning unit (1).



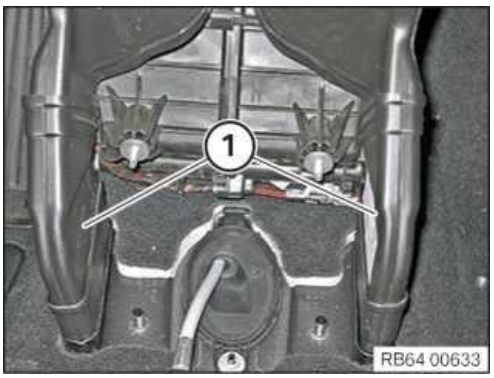
- **For equipment specifications with electric auxiliary heater:** Correctly position the ground cable (2) and tighten the nut (1).

Ground cable to body

Hexagon nut		Tightening torque	8,0 Nm

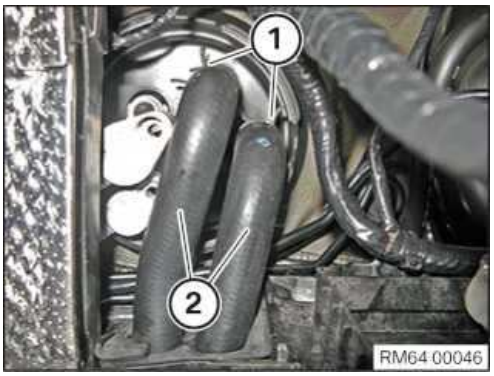


- Engage the cable clip (2).
- Connect connectors (1) and lock.



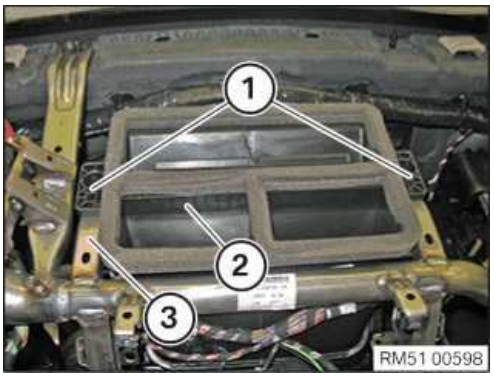
- Install air duct (1) on left and right.

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- Slide the marked coolant hoses (2) correctly before the disassembly.
- Secure hose clamps (1) using the special tool .

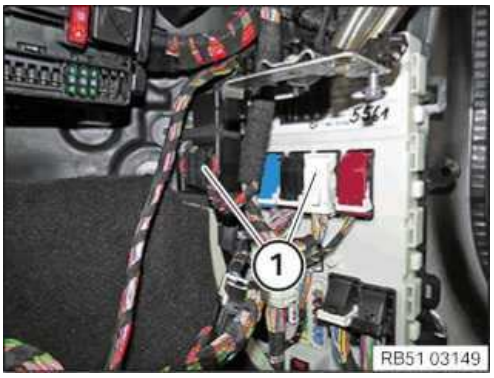
50 – Installing the support for instrument panel



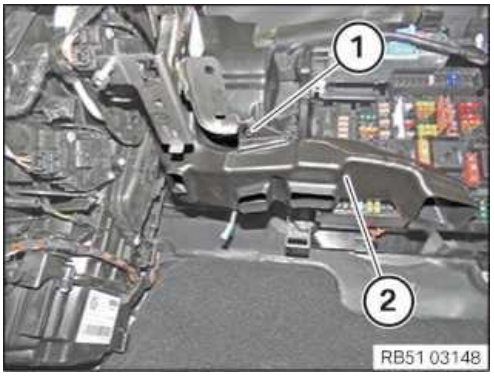
- Install the support (3).
- Correctly position the heating and air-conditioning unit (2) in the area of the screw connection (1) on the support (3).
- Make sure that cable routing is correct and clip in all cable clips on the support.
- Tighten the screws (1).

Heating and air-conditioning unit on the support for the instrument panel

M6x20 screw	Renew screw	Tightening torque	8 Nm
NutM6	Replace nut	Tightening torque	8 Nm



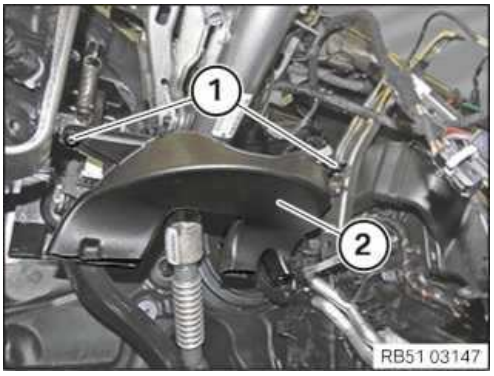
- Connect connectors (1) and lock.



- Install air duct (2).
- Tighten down screw (1).

Footwell ventilation duct

Screw			2,4 Nm

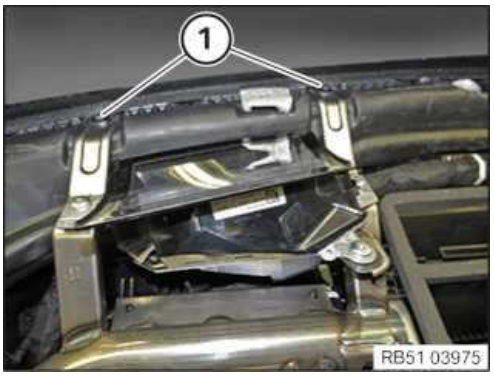


- Install air duct (2).
- Tighten the screws (1).

Footwell ventilation duct

Screw			2,4 Nm

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- Tighten the screws (1).

Support for the instrument panel

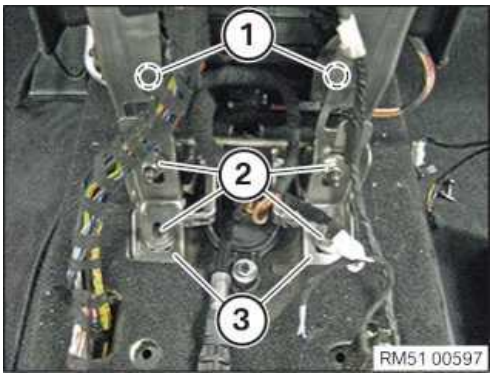
Screw		Tightening torque	21 Nm
Nut		Tightening torque	21 Nm



- Tighten the nuts(1) on the left and right.

Support for the instrument panel

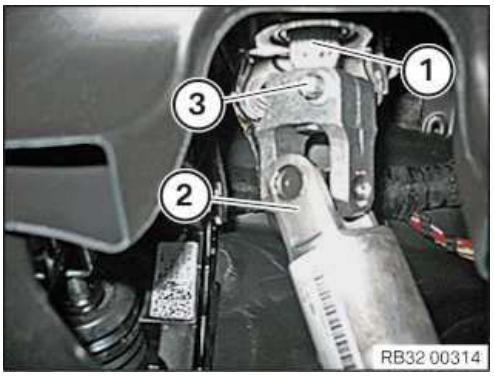
Screw		Tightening torque	21 Nm
Nut		Tightening torque	21 Nm



- Install retaining bracket (3).
- Tighten nuts (2).
- Tighten the screws (1).

Heating and air-conditioning unit on the support for the instrument panel

M6x20 screw	Renew screw	Tightening torque	8 Nm
NutM6	Replace nut	Tightening torque	8 Nm



- Pull the steering column spindle (1) out to the maximum length.
- Push universal joint (2)onto the spindle (1)of the steering column.

  Brace the spindle (1) on the steering column.
- Renew the clamping bolt (3).

  Parts: Clamping bolt
- Tighten the clamping bolt (3).

Lower steering shaft to steering column

Clamping bolt M8	Recut screw thread. Renew clamping bolt. No retorquing permitted!	Tightening torque	28 Nm



- Tighten the screw (1) on the bulkhead.

Support for the instrument panel

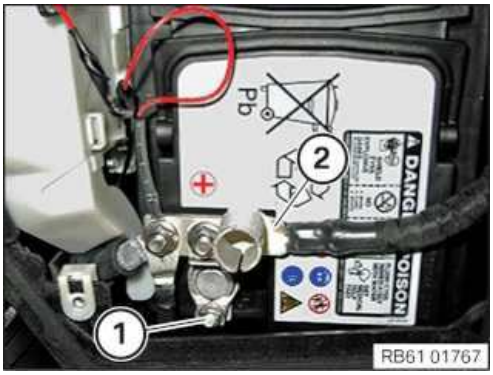
Screw		Tightening torque	21 Nm
Nut		Tightening torque	21 Nm

▸ **Connect positive battery cable**

Prerequisite

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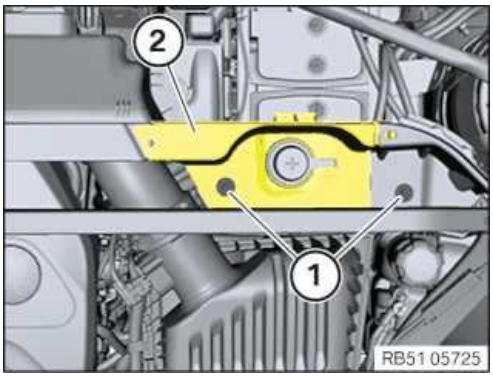
Ignition is switched off.



- Mount the positive battery cable (2) and position correctly.
- Tighten nut (1).

Battery terminal with IBS positive battery terminal / negative battery terminal

NutM6		5 Nm



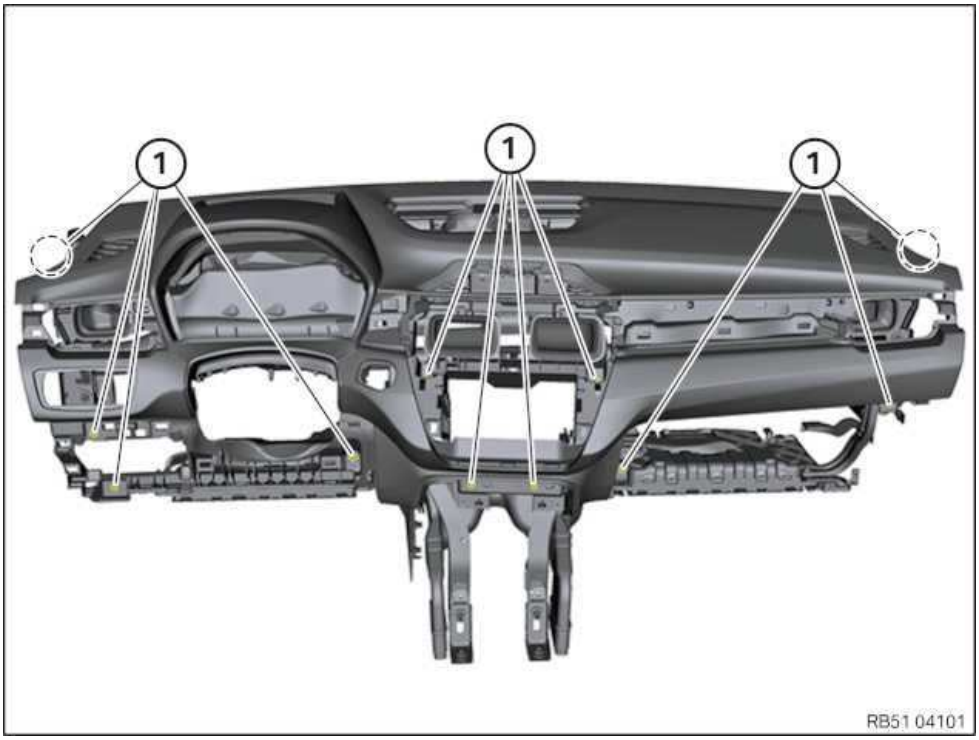
- Feed in cover (2) and position correctly.
- Tighten the screws (1).

Cover of remote positive terminal

Screw		Tightening torque	2,6 Nm

51 – Install instrument panel trim

Instrument panel



TECHNICAL INFORMATION

Notes on unlocking/locking airbag plug connections form the basis for these repair instructions and must be observed without fail.

For additional information see: 72 00 ... Notes on unlocking/locking airbag plug connections

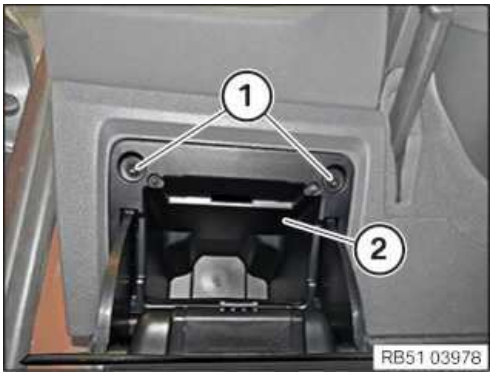
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- Guide the instrument panel trim through the door aperture with the help of an auxiliary person.
- Install the instrument panel trim, and while doing so secure the wiring harness and connect and lock all the connectors.
- Connect and lock the plug connection of the front passenger airbag.
- Make sure guides on instrument panel are correctly seated in respective mountings of bulkhead.
- Make sure seals for the air ducts are correctly seated.
- Make sure wiring harness is correctly laid.
- Tighten the screws (1).

Instrument panel trim to carrier support

Screw		Tightening torque	2,4 Nm

52 – Installing the left fold-down compartment



- Guide in the fold-down compartment (2) on the instrument panel.
- Tighten the screws (1).

Fold-down compartment to instrument panel

Screw		Tightening torque	1,8 Nm

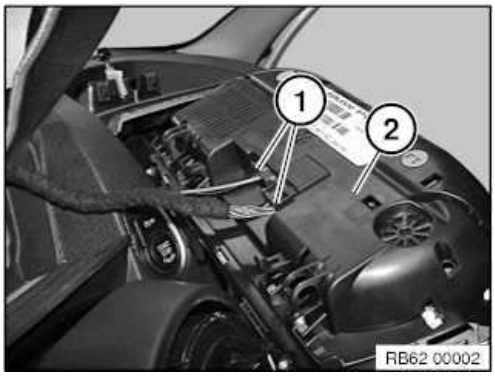
53 – Installing the instrument cluster (KOMBI)

RISK OF DAMAGE

Scratches.

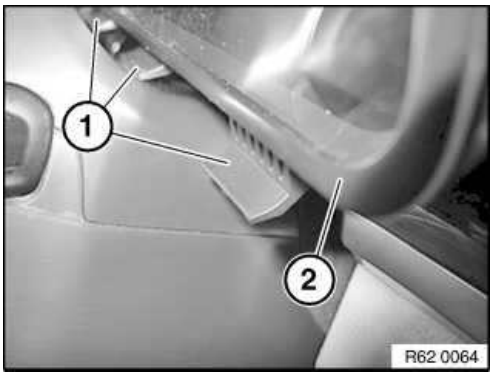
Tools and sharp-edged components can cause scratches.

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

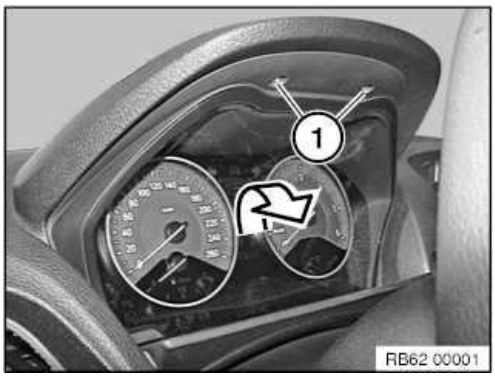


- Connect and lock all connectors (1) to the instrument cluster (KOMBI).

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- Make sure that the retaining tabs (1) of the instrument cluster (KOMBI) (2) are seated exactly in mountings of the instrument panel.

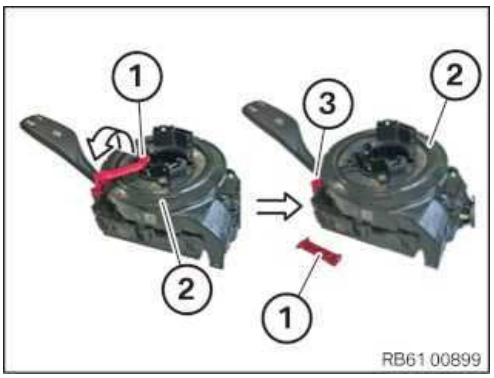


- Position the instrument cluster (KOMBI) position in the opposite direction of the arrow.
- Tighten the screws (1).

Instrument cluster to instrument panel

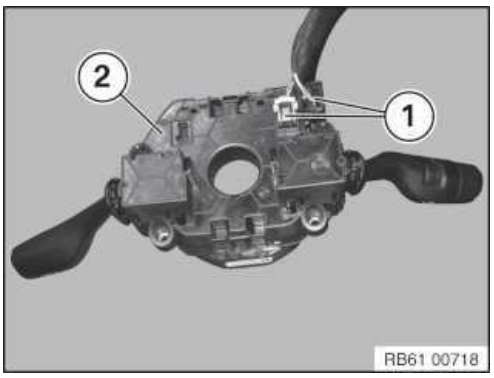
Screw		1,7 Nm

54 – Installing the steering column switch cluster (SZL)



- **Replacement:** Break off the transportation retainer (1) on the steering column switch cluster (SZL) (2) in direction of arrow.

  The broken-off piece of (3) the transportation retainer (1) remains in the steering column switch cluster (SZL) (2).



- Connect the connector (1) with the steering column switch cluster (SZL) (2).

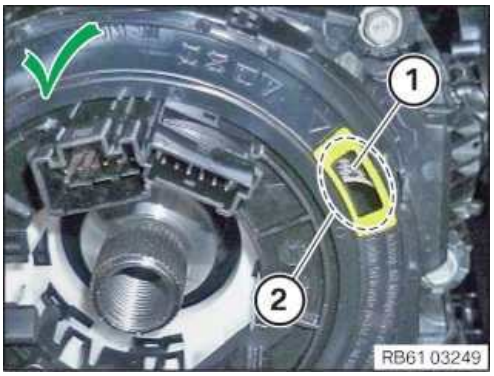
▸ **Check the neutral position of the clock spring**

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

Check

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- **Version A:**

  Check the mark (1) on the coil spring in the inspection glass (2).

Result

» The mark (1) on the coil spring is not visible.

Measure

- Turn the coil spring cassette until the mark (1) on the coil spring becomes visible in the inspection glass (2).

Check



- **Version B:**

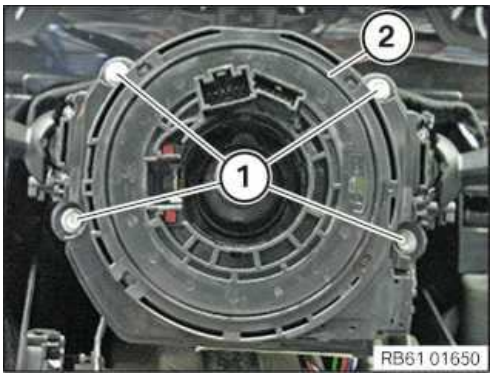
  Check the mark (1) on the coil spring in the inspection glass (2).

Result

» The mark (1) on the coil spring is not visible.

Measure

- Turn the coil spring cassette until the mark (1) on the coil spring becomes visible in the inspection glass (2).

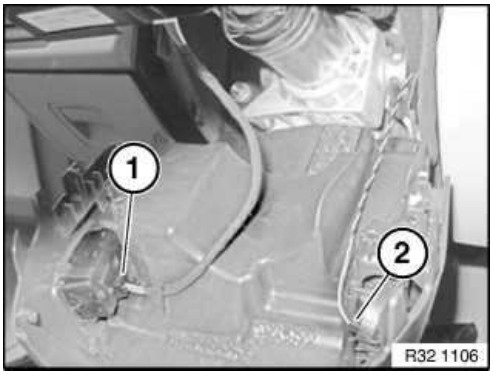


- Position the steering column switch cluster (SZL) (2).
- Tighten the screws (1).

Steering column switch cluster (SZL) on the steering column

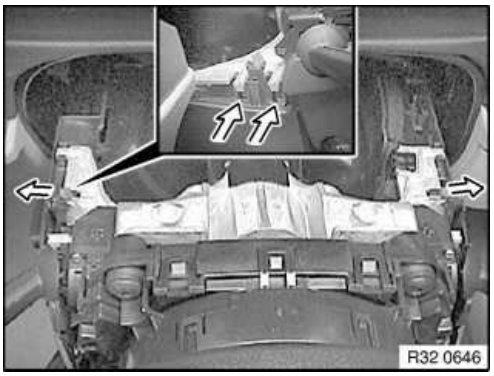
Screw TS5x20		Tightening torque	3 Nm

55 – Install steering column shroud lower section



- Position the steering column shroud lower section .
- Connect available connectors (1) and (2) and lock.

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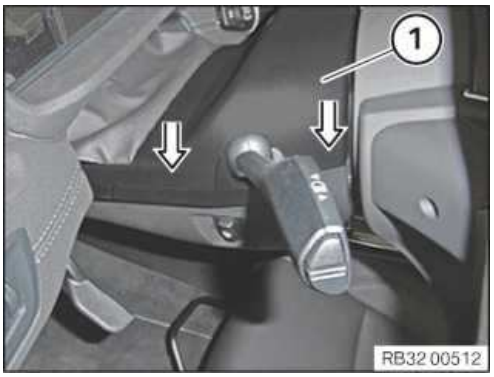


- Position the steering column shroud lower section with the retaining lugs (arrows).
- Press steering column shroud lower section completely towards the top until the retaining lugs (arrows) engage.

56 – Fit steering column shroud upper section



- Position the steering column shroud upper section.
- Attach gap cover of the steering column (1) on the brackets (arrows).



- Position the steering column shroud upper section (1).

NOTICE

Perform the operations on the left and right side.

- Press the upper section of the steering column shroud (1) downwards in direction of arrow.

  The upper section of the steering column shroud must engage audibly and perceptibly.

57 – Installing the steering wheel/sports steering wheel

▶ **Check the neutral position of the clock spring**

- Ensure that the coil spring is not twisted.

  There are clock springs installed without a mechanical anti-twist lock.

  Coil springs without a mechanical anti-twist lock are identifiable on the inspection glass for the neutral position mark.
- Check the neutral position of the clock spring on the steering column switch cluster (SZL).

  The neutral position is correct if the yellow or green mark (1) is clearly visible.

Check



- Check the mark (1) in the inspection glass.

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Result

» The mark (1) is not visible.

Measure

- Turn the coil spring until mark (1) is visible in the inspection glass.

Check



- A micro-encapsulated screw (1) may be fitted.
- Checked threaded connection

Result

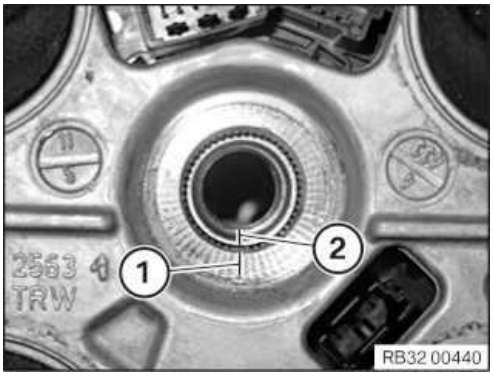
» Screw (1) is micro-encapsulated.

Measure

- Clean thread in the steering column.

  Renew the screw (1).

  Parts: Screw



- Align and connect the steering wheel/sports steering wheel according to the mark (1) with the steering column mark (2).



- Tighten down screw (1).

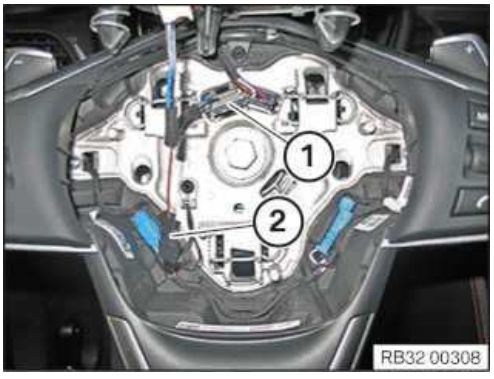
Steering wheel to steering column

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

- **Connect connectors and lock.**

  Make sure connecting lines are correctly routed.

58 – Installing airbag unit of steering wheel/sports steering wheel



- Connect and lock connectors (1) and (2) of the airbag unit.

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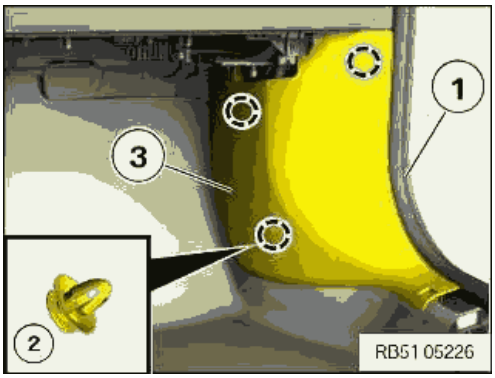
- Before installing the airbag unit, align the wiring harness (1) to the centre so that the latch mechanisms (arrows) are exposed!



- Position airbag unit (1).
- Press the airbag unit (1) with even pressure in each case in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

59 – Installing side trim panel in footwell on right A-pillar

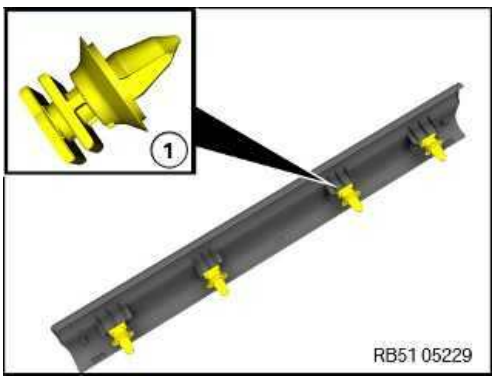


- Check clips (2) for damage, and replace if necessary.
- Feed the side trim panel (3) under the sealing lip of the edge protection (1).
- Clip in the side trim panel (3) with the clips (2).

60 – Install the front right door sill cover strip

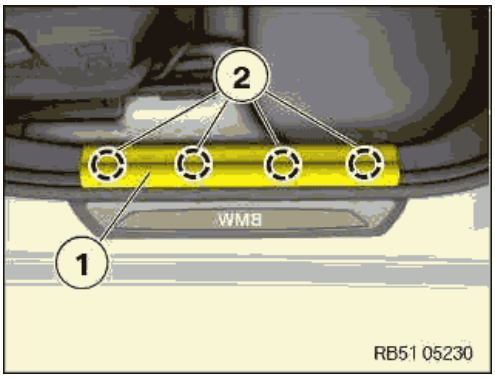
NOTICE

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



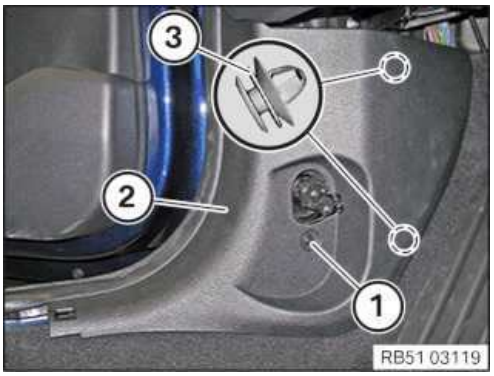
- Check the clips (1) for damage and renew where required.

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- Clip the door sill cover strip (1) into the floor panel with the clips (2).

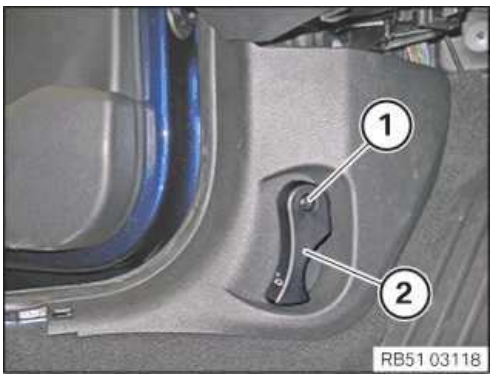
61 – Installing side trim panel in the footwell at A-pillar



- Position the side trim panel (2) and clip it to the clips (3).
- Make sure the edge protection on the side trim panel (2) fits correctly.
- Tighten down screw (1).

Side trim panel bottom left to holder

Screw		Tightening torque	3 Nm

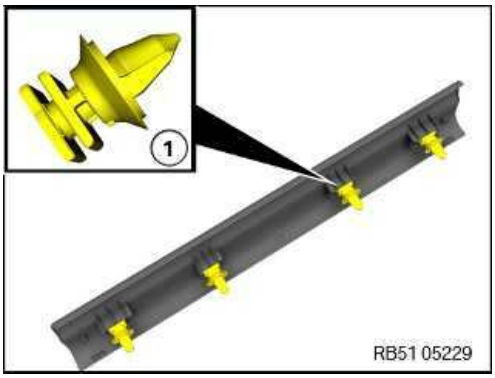


- Install lever for the bonnet release (2)l.
- Tighten down screw (1).

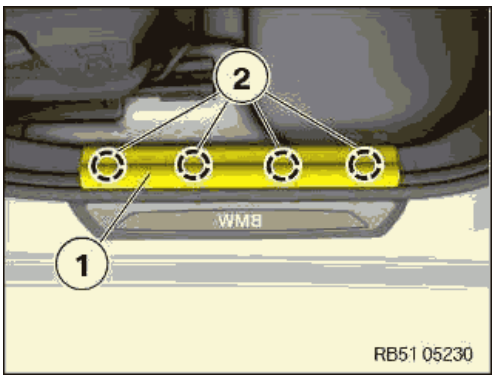
Lever for bonnet release to the holder

Screw		Tightening torque	3 Nm

62 – Install the front door sill cover strip



- Check the clips (1) for damage and renew where required.



- Clip the door sill cover strip (1) into the floor panel with the clips (2).

63 – Installing the left and right A-pillar trim panels

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NOTICE

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

▶ **Install the A-pillar trim panel**

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

WARNING

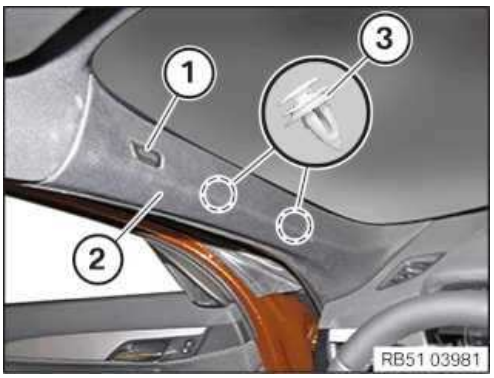
Pyrotechnic components.

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.

TECHNICAL INFORMATION

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



- Thread in the A-pillar trim panel (2) and clip it in at the clips (3).
- Renew screw.

  Parts: Screw
- Tighten down screw.

A-pillar trim panel to body

M5x42 screw	Renew screw	Tightening torque	2,2 Nm

- Clip in the cover (1).

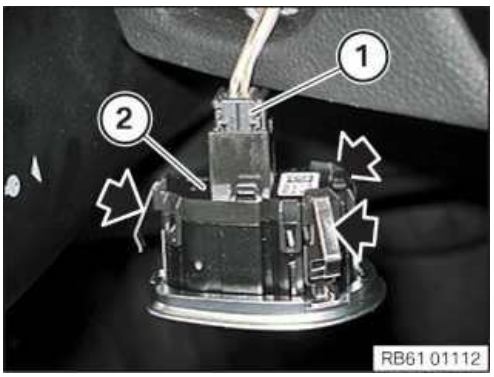
64 – Installing the light operating unit



- Connect associated connector.
- Position light operating unit (1) correctly and clip in where marked.

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65 – Installing the START-STOP button



- Connect connector (1) with START-STOP button (2).

  The retaining clips (arrows) must not be damaged or missing.



- Install START-STOP button (1) in the instrument panel trim.

66 – Install decorative strip from instrument panel

TECHNICAL INFORMATION

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



- Install decorative strip (1) a snap into the clamps (2).

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

RISK OF DAMAGE

Electrostatic discharge.

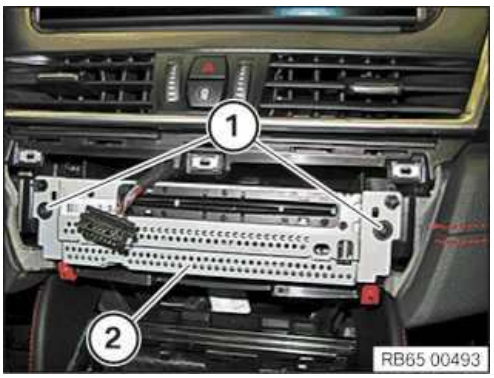
Damage to or destruction of electrical components.

- 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 Information on electrostatic discharge (ESD) protection.

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



- Slide in the head unit (2) correctly.
- Tighten the screws (1).

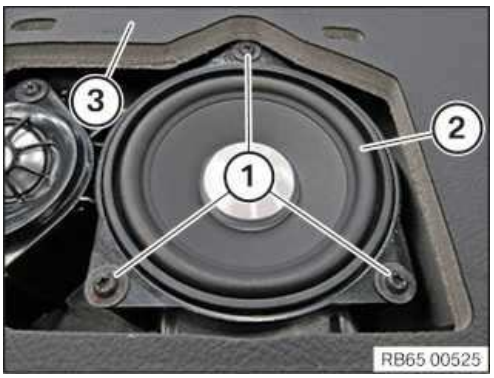
Head unit to instrument panel

Screw		Tightening torque	1,8 Nm



- Route the wiring harness (1) correctly.

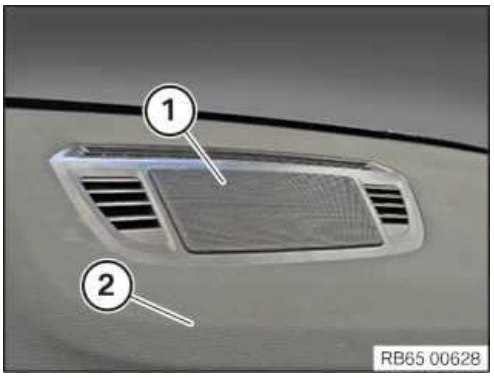
68 – Install the mid-range speakers in the instrument panel



- Connect the connector below it to the mid-range speaker (2).
- Position the mid-range speaker (2) in the instrument panel (3).
- Tighten the screws (1).

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

Screw		Tightening torque	1,8 Nm

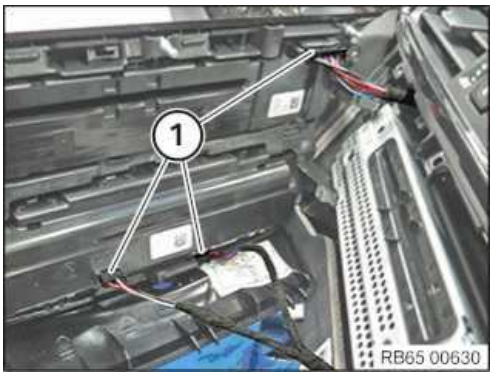


- Check the latch mechanisms on the speaker cover (1) for damage and renew them if necessary.

  The latch mechanisms must not be missing or faulty.
- Engage the speaker cover (1) correctly into the instrument panel (2).

69 – Installing audio operating unit and air conditioning control panel

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- Position audio operating unit and air conditioning control panel.
- Connect plug connection (1) and lock.

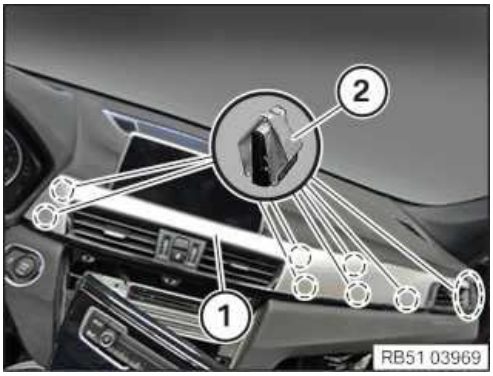


- Correctly position trim (1) and clip it into the instrument panel (2).

70 – Install the finisher on the right instrument panel

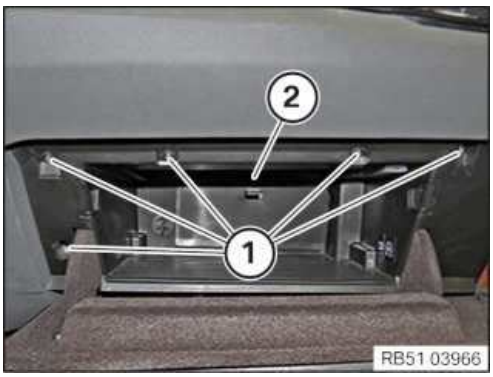
TECHNICAL INFORMATION

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



- Install the decorative strip (1).
- Connect connector.
- Engage the decorative strip (1) on the clamps (2).

71 – Install right glove box

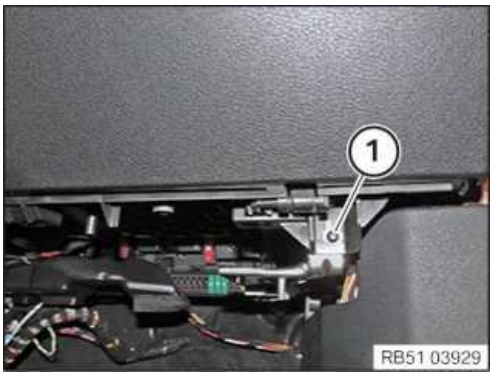


- Install the glove box (2) and connect and lock associated plug connections.
- Tighten the screws (1).

Glove box to instrument panel

Screw		Tightening torque	1,8 Nm

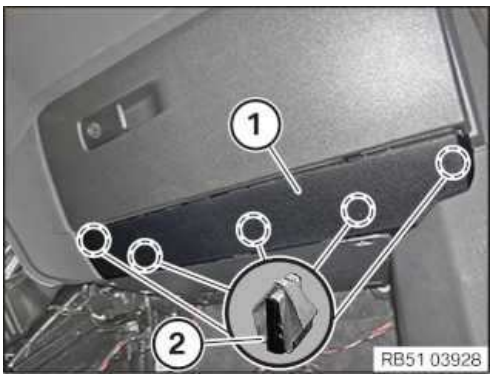
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- Tighten down screw (1).

Glove box to instrument panel

Screw		Tightening torque	1,8 Nm

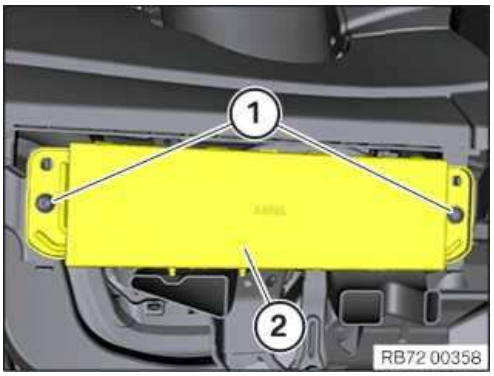


TECHNICAL INFORMATION

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

- Install the trim (1) and lock it at the clamps (2).

72 – Installing knee airbag



- Connect the plug connection to the knee airbag (2) and lock.
- Install knee airbag (2).
- Renew screws (1).

  Parts: Screw
- Tighten the screws (1).

Knee airbag to body

M8	Renew screws.	Tightening torque	8 Nm

73 – Install the side panel on instrument panel on the left and right

NOTICE

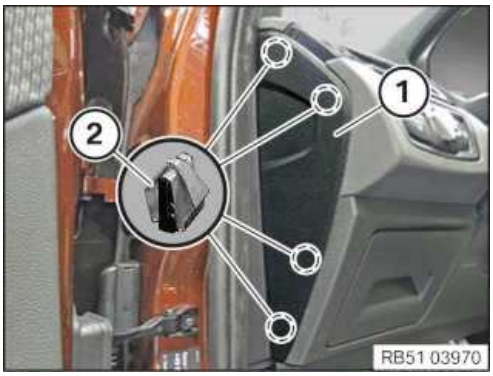
Description is for left component only. Procedure on the right side is identical.

▸ **Install side panel on the instrument panel**

TECHNICAL INFORMATION

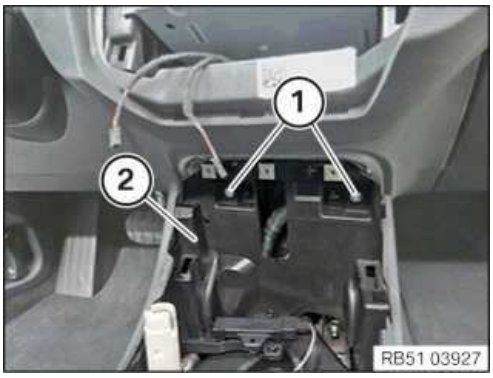
Latch mechanisms, guides and mounting elements must not be damaged or missing.

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- Feed in the side panel (1) at an angle toward the front and lock at the clamps (2).

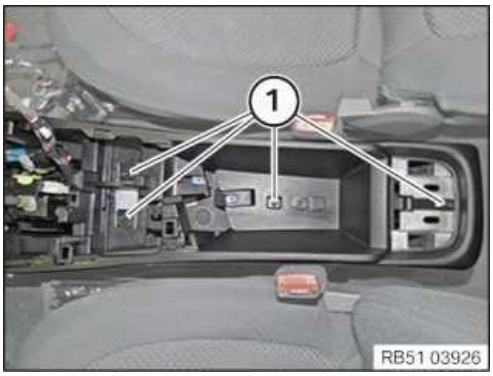
74 – Installing centre console fully with centre armrest



- Lift rear centre console (2), guide it forwards and connect all the connectors.
- Insert the wiring harness into the centre console (2).
- Tighten the screws (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm



- Tighten the screws (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

▸ **Installing the centre armrest**

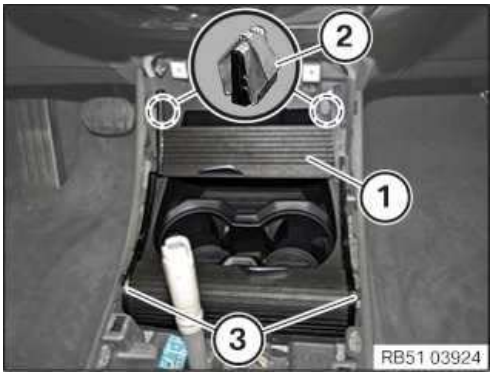


- Install the centre armrest and tighten nuts (1).

Centre armrest to support

Nut M8		Tightening torque	21,4 Nm

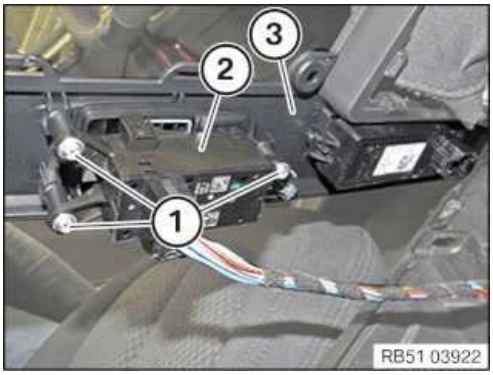
75 – Installing the front storage compartment



- Install storage compartment (1) and connect the connectors.
- Insert the storage compartment (1) into the guides (3) and fold forward.
- Engage storage compartment (1) in the clamps (2) at top.

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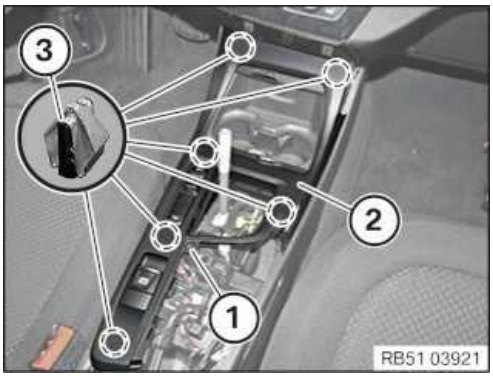
76 – Install the centre console trim



- Install centre console trim (3) and connect and lock the corresponding connectors.
- Install parking brake button (2) on centre console trim (3).
- Tighten the screws (1).

Parking brake button

Oval-head screw		Tightening torque	1,5 Nm



- Install centre console trim (2) and engage it into clamps (3).
- Tighten down screw (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

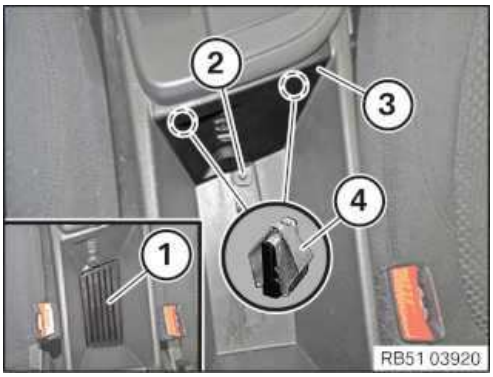
77 – Installing the decorative trim to the centre console



- Connect all connectors.
- Install decorative trim (2).
- Tighten down screw (1).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

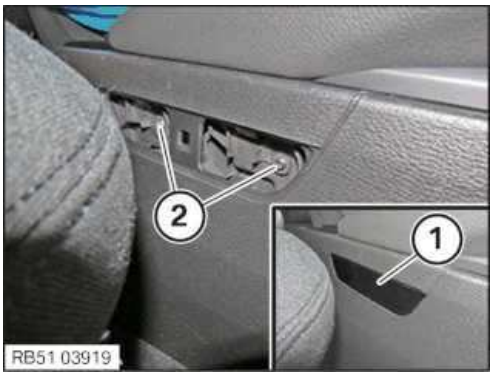


- Position trim (3) and connect all the connectors.
- Install trim (3) and engage it into clamps (4).
- Tighten down screw (2).

Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

- Insert the insert (1).



- Tighten down screws (2).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

- Install cover (1) and engage.

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- Tighten down screws (2).

Screw connection for centre console

Oval-head screw		Tightening torque	1,8 Nm

- Install cover (1) and engage.

78 – Installing the gearshift lever cover



- Place the gearshift lever knob on gearshift lever and align by lightly pressing in the direction of travel.

  The anti-twist lock must bite.
- Press the gearshift lever knob with the palm of the hand until it can be felt to engage.

  When installing, the tie rod of the gearshift lever must not be bent.



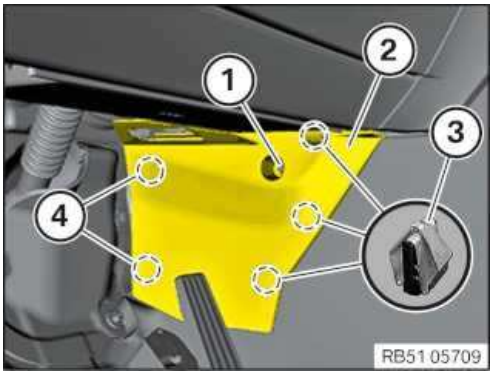
- Clip in gaiter (arrows).

79 – Installing side trim panel for the left and right centre console

▸ **Installing side trim panel for the left centre console**

TECHNICAL INFORMATION

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



- Install the side trim panel (2) for the centre console and feed it into the guides (4).
- Engage the side trim panel (2) for the centre console into retaining clips (3).
- Tighten down screw (1).

Trim to centre console

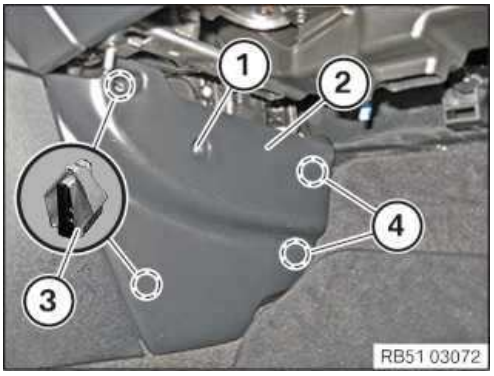
Oval-head screw		Tightening torque	1,8 Nm

▸ **Installing side trim panel for the right centre console**

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TECHNICAL INFORMATION

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



- Install the side trim panel for the centre console (2) and feed it into the guides (4).
- Engage the side trim panel for the centre console (2) into retaining clips (3).
- Tighten down screw (1).

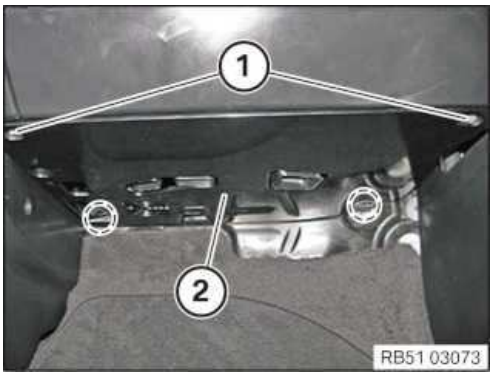
Trim to centre console

Oval-head screw		Tightening torque	1,8 Nm

80 – Installing the botto right instrument panel trim

TECHNICAL INFORMATION

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

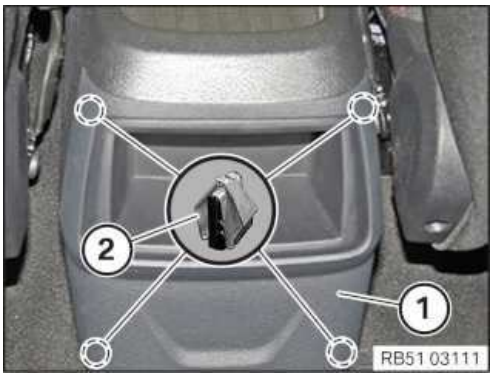


- Install the lower right instrument panel trim (2) and connect and lock the plug connection.
- Insert the lower right instrument panel trim (2) into the front guides.
- Tighten nuts (1).

Bottom left footwell trim to instrument panel

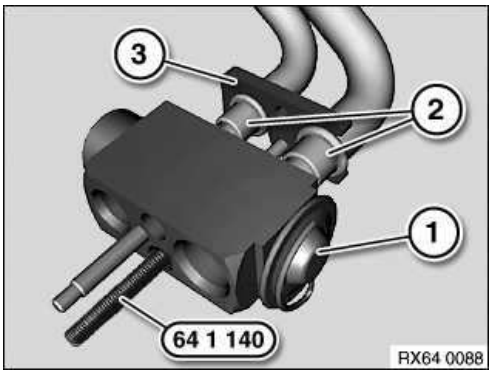
M5 hexagon nut		Tightening torque	2 Nm

81 – Installing the rear centre console trim



- Install centre console trim (1) and engage it into clamps (2).

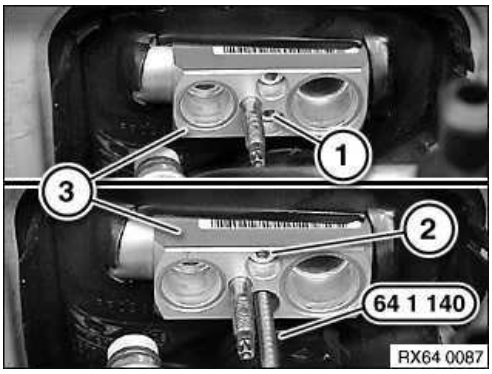
82 – Install expansion valve



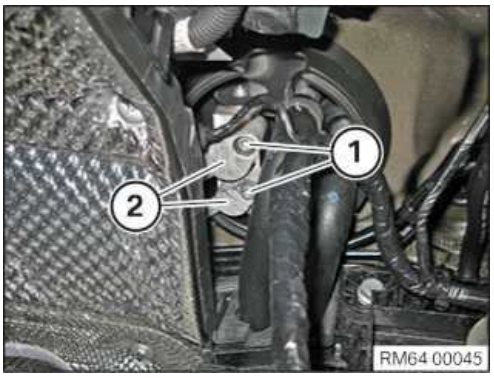
- Renew O-rings on the pipes (2).

  Parts: O-rings
- Brace mounting plate (3) with the special tool **0 495 815 (64 1 140)**.
- Secure expansion valve (1)with a screw.

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- Release special tool **0 495 815 (64 1 140)**.
- Tighten the screws (1) and (2) on the expansion valve (3).



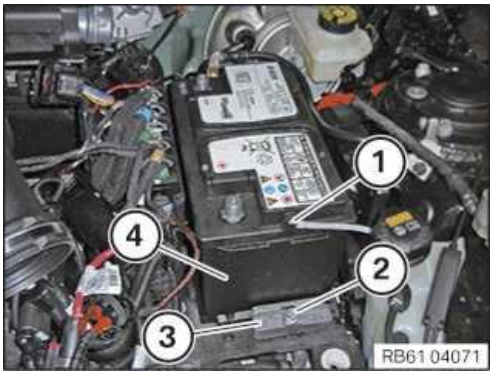
- Replace O-rings.

  Parts: O-rings
- Position refrigerant line (2) correctly.
- Tighten the screws (1).

Refrigerant lines to expansion valve

M6		Tightening torque	8 Nm

83 – Partially install vehicle battery



- Install vehicle battery (4).
- Correctly position the holder (3).
- Tighten down screw (2).

Battery terminal rail to battery tray

M8		19 Nm

- Fit and clip the vent hose (1) in.

▶ **Check the vent holes of the battery**

WARNING

Gas emission.

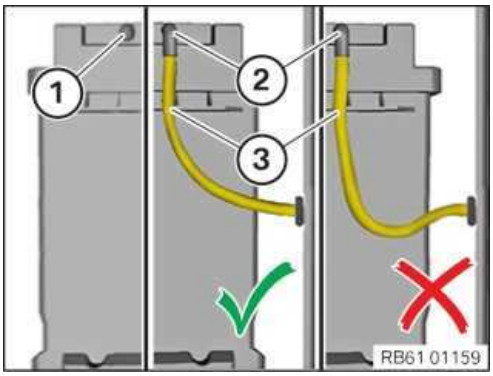
Danger of injury! Danger of explosion!

- Assign the vent holes correctly.
- Route the vent hose correctly.

TECHNICAL INFORMATION

The battery has two vent holes, opposite:
One vent hole (1) must be closed correctly with a dummy plug.
The vent hose (3) must be correctly connected and routed at the other vent hole (2).

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Check
- Check if the vent hole (1) is correctly closed with a dummy plug.

Result

» No dummy plug.

Measure
- Close the vent hole (1) correctly with a dummy plug.

Check
- Check if the vent hole (2) has a correctly connected vent hose (3).

Result

» The vent hose (3) is not correctly connected.

Measure
- At the vent hole (2), connect the vent hose (3) correctly.

Check
- Check if the vent hose (3) is routed to the outside with a downhill gradient (**no siphon formation!**).

Result

» The vent hose (3) is not correctly routed as shown in the image on the right.

Measure
- Route the vent hose (3) correctly as shown in the centre image.

84 – Install electronics box

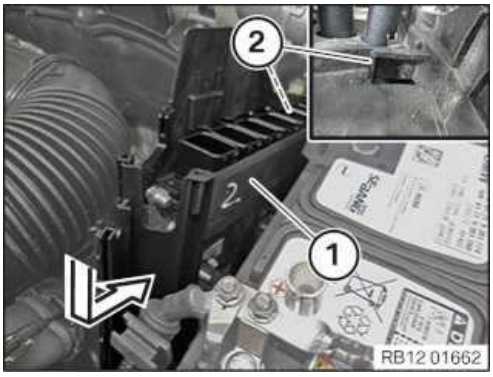
Prerequisite

Battery earth lead is disconnected.

RISK OF DAMAGE

Improper routing of cables and wiring harnesses.

Trapped, crushed or damaged cables may cause short circuits and malfunctions.
- Route all cables without abrasions, do not trap and crush.

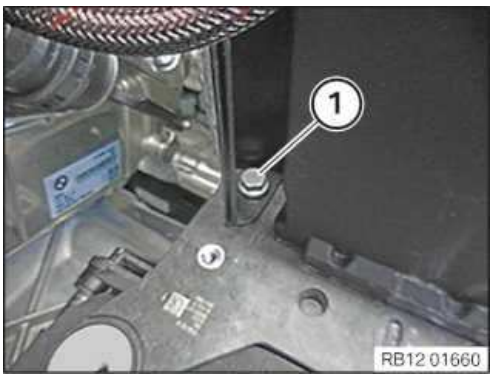


- Guide in and install the electronics box (1) into the guide (2) in direction of arrow.

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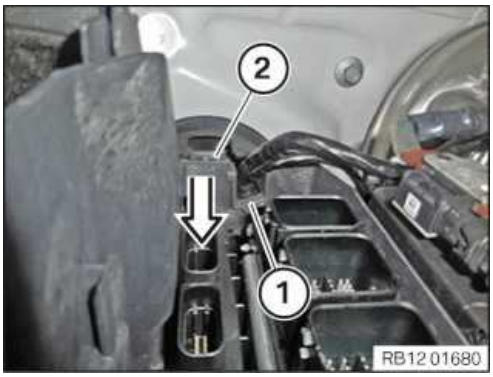
- Make sure that the electronics box (1) is positioned correctly on the bulkhead (2).



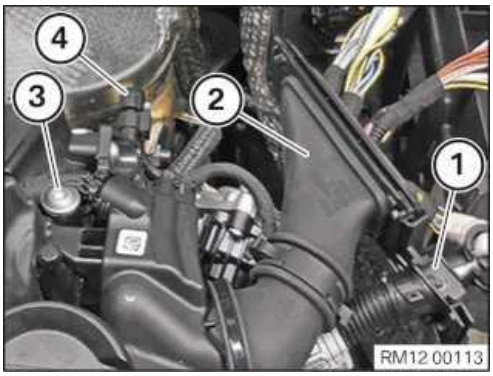
- Tighten down screw (1).

Electronics box to battery tray

M8X16		Tightening torque	15 Nm



- Guide in and install the holder (1) in the electronics box (2) in direction of arrow.
- Make sure the bracket (1) engages audibly.

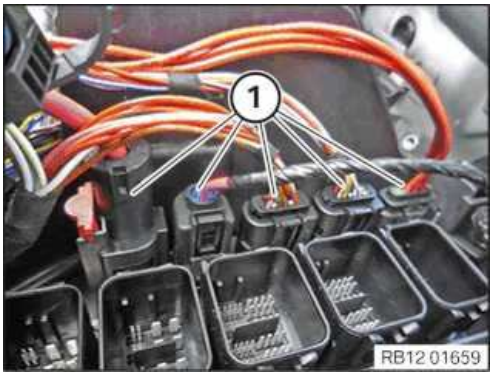


- Lay vehicle wiring harnesses (1) and (2) and mount on electronics box.
- Tighten down screw (3).

Wiring harness to cylinder head cover

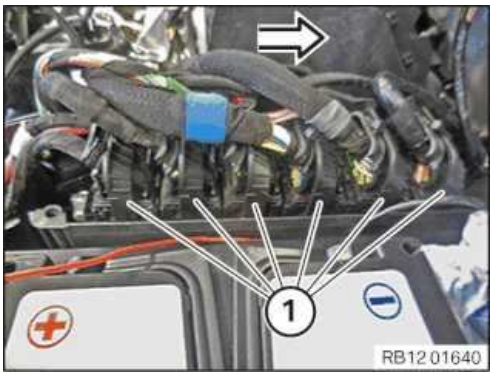
TS5x20		Tightening torque	3,5 Nm

- Attach connector (4) to the differential pressure sensor and lock it audibly.

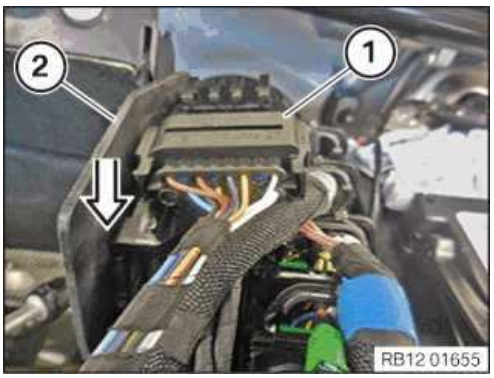


- Connect and lock the connector (1).
- Make sure the connectors (1) engage audibly.

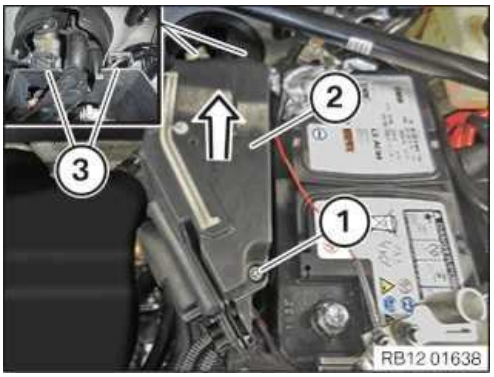
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- Connect connector (1) in direction of arrow and lock.
- Make sure the connectors (1) engage audibly.



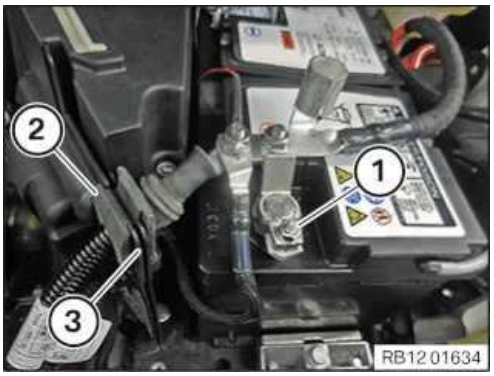
- Connect and lock the connector (1).
- Make sure the connector (1) engages audibly.
- Insert the connector (1) in the direction of arrow at the electronics box (2) and install.



- Insert the cover (2) into the guides (3) in the direction of arrow and install.
- Make sure the cover audibly engages (2) in the guides (3).
- Tighten down screw (1).

Cover to electronics box

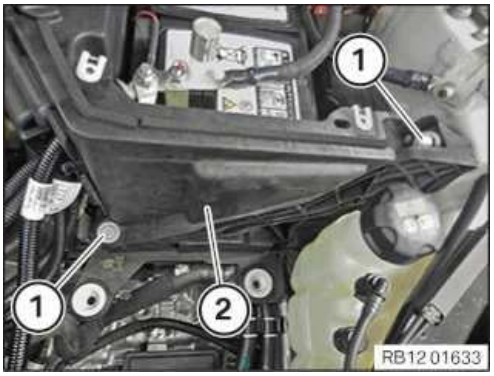
RF5x26.5		Tightening torque	2,5 Nm



- Thread in positive battery cable (2) on holder (3) and install.
- Feed in and install positive battery terminal (1).
- Tighten positive battery terminal (1).

Positive battery terminal to battery

NutM6		Tightening torque	5 Nm



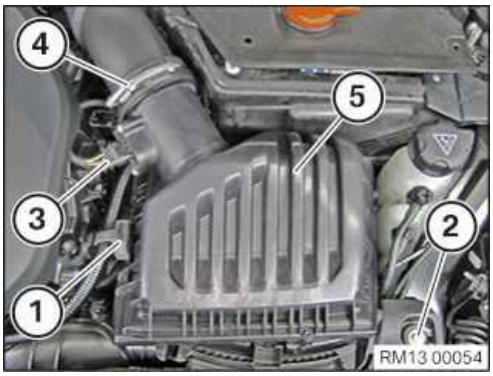
- Feed in and install tension strut (2).
- Tighten the screws (1).

Tension strut to spring strut dome/battery tray

M8		Tightening torque	19 Nm

85 – Installing intake silencer housing

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- Insert the intake silencer housing (5) into the rubber mounts and install it.
  Intake filter housing (5) must engage audibly.
- Tighten down screw (2).

Intake silencer housing to lock bridge

M6X30		Tightening torque	8 Nm

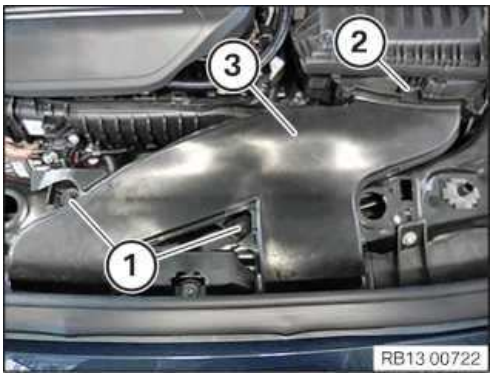
- Tighten clamp (4).

Clean air pipe to intake silencer housing

Clamp		Tightening torque	3 Nm

- Connect and lock the connector (3).
  The connector (3) must engage audibly.
- Insert and install the holder (1).

86 – Install the intake neck for the intake filter housing

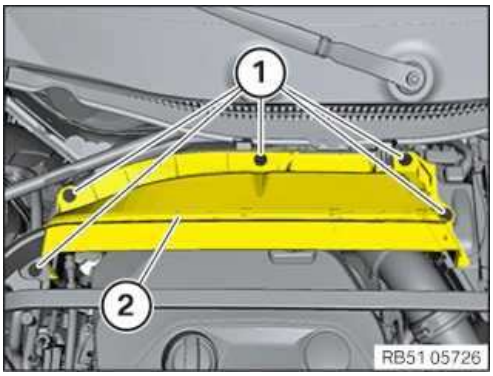


- Insert and install the intake neck (3).
  The lock (2) must audibly engage.
- Tighten nuts (1).

Intake neck to cross connection

M6		Tightening torque	8 Nm

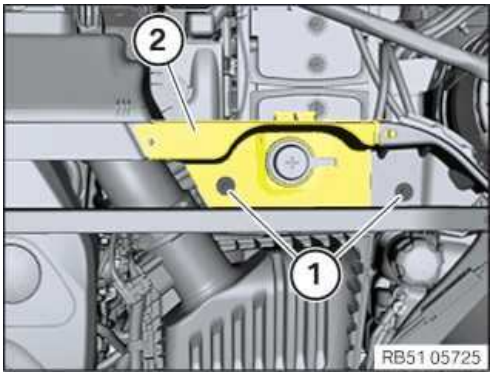
87 – Installing the upper bulkhead cover



- Feed in and install cover (2) of the bulkhead at the top.
- Tighten the screws (1).

Cover of top bulkhead

Screw		Tightening torque	2,6 Nm



- Guide in and install cover (2).
- Tighten down screw (1).

Cover of remote positive terminal

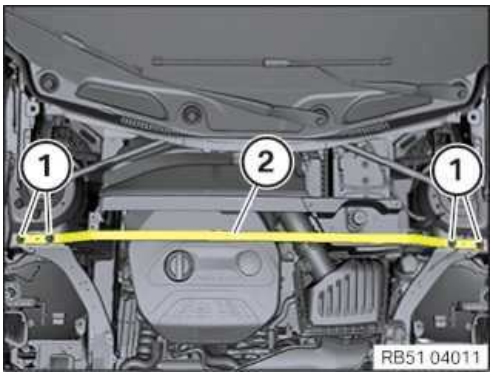
Screw		Tightening torque	2,6 Nm

88 – Install strut brace

TECHNICAL INFORMATION

Driving without the strut brace/front end or tension strut is not permitted.

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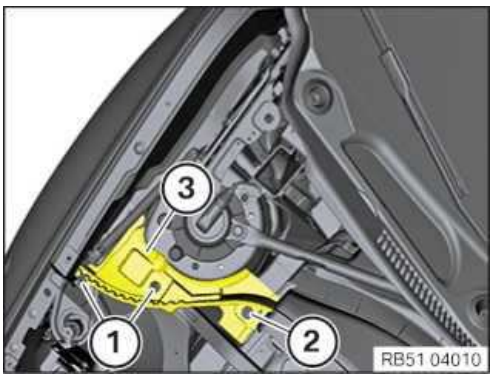


- Install the strut brace (2).
- Renew screws (1).

  Parts: Bolts
- Tighten the screws (1).

Cross-brace to spring strut dome

	Renew screw.	Jointing torque	28 Nm
		Angle of rotation	180 °



NOTICE

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

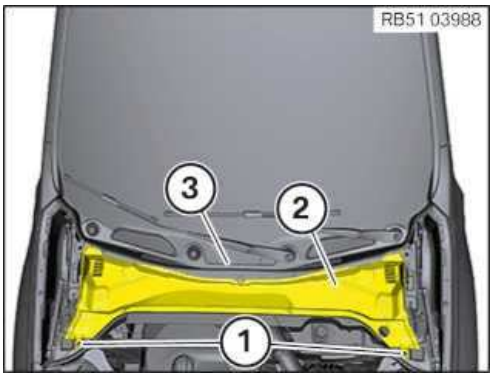
- Install the cover (3).
- Tighten down screw (2).

Cover on body

Hexagon screw		Tightening torque	3 Nm

- Install the expanding rivet (1).

89 – Installing front cowl panel cover

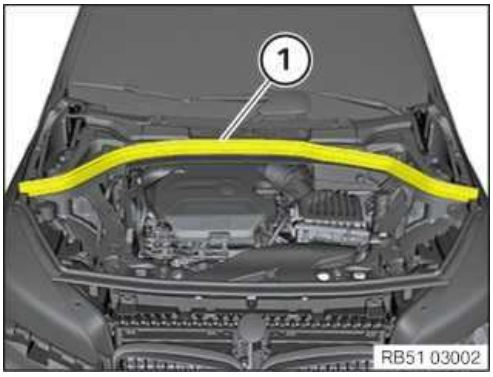


- Insert and install cowl panel cover at front (2) into cowl panel cover at rear (3).
- Check cowl panel cover at front is correctly seated (2).
- Secure expanding rivet (1).

90 – Install the seal for the bonnet

NOTICE

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



- Install bonnet seal at rear (1).
- Ensure that the rear bonnet seal (1) is fitted correctly.

91 – Disconnecting all battery earth leads

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- See additional information.

92 – Evacuate and fill air conditioning

- See additional information.

93 – Address the controller drive

- Carry out the service function as follows:
  - Body
  - Heating and air conditioning function
  - Flap motors
  - Address flap motors

Additional Information

Overview of Tightening Torques

Controller drive to heating and air-conditioning unit — Used in step 47

Screw		Tightening torque	1,2 Nm

Ground cable to body — Used in step 49

Hexagon nut		Tightening torque	8,0 Nm

Heating and air-conditioning unit on the support for the instrument panel — Used in step 50

M6x20 screw	Renew screw	Tightening torque	8 Nm
NutM6	Replace nut	Tightening torque	8 Nm

Footwell ventilation duct — Used in step 50

Screw			2,4 Nm

Support for the instrument panel — Used in step 50

Screw		Tightening torque	21 Nm
Nut		Tightening torque	21 Nm

Lower steering shaft to steering column — Used in step 50

Clamping bolt M8	Recut screw thread. Renew clamping bolt. No retorquing permitted!	Tightening torque	28 Nm

Battery terminal with IBS positive battery terminal / negative battery terminal — Used in step 50

NutM6			5 Nm

Cover of remote positive terminal — Used in step 50 87

Screw		Tightening torque	2,6 Nm

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Instrument panel trim to carrier support

Used in step 51

Screw		Tightening torque	2,4 Nm

Fold-down compartment to instrument panel

Used in step 52

Screw		Tightening torque	1,8 Nm

Instrument cluster to instrument panel

Used in step 53

Screw			1,7 Nm

Steering column switch cluster (SZL) on the steering column

Used in step 54

Screw TS5x20		Tightening torque	3 Nm

Steering wheel to steering column

Used in step 57

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

Side trim panel bottom left to holder

Used in step 61

Screw		Tightening torque	3 Nm

Lever for bonnet release to the holder

Used in step 61

Screw		Tightening torque	3 Nm

A-pillar trim panel to body

Used in step 63

M5x42 screw	Renew screw	Tightening torque	2,2 Nm

Head unit to instrument panel

Used in step 67

Screw		Tightening torque	1,8 Nm

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

Used in step 68

Screw		Tightening torque	1,8 Nm

Glove box to instrument panel

Used in step 71

Screw		Tightening torque	1,8 Nm

Knee airbag to body

Used in step 72

M8	Renew screws.	Tightening torque	8 Nm

Screw connection for centre console

Used in step 74 76 77

Oval-head screw		Tightening torque	1,8 Nm

Centre armrest to support

Used in step 74

Nut M8		Tightening torque	21,4 Nm

Parking brake button

Used in step 76

Oval-head screw		Tightening torque	1,5 Nm

Trim to centre console

Used in step 77 79

Oval-head screw		Tightening torque	1,8 Nm

Bottom left footwell trim to instrument panel

Used in step 80

M5 hexagon nut		Tightening torque	2 Nm

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Refrigerant lines to expansion valve — Used in step 82

M6		Tightening torque	8 Nm

Battery terminal rail to battery tray — Used in step 83

M8			19 Nm

Electronics box to battery tray — Used in step 84

M8X16		Tightening torque	15 Nm

Wiring harness to cylinder head cover — Used in step 84

TS5x20		Tightening torque	3,5 Nm

Cover to electronics box — Used in step 84

RF5x26.5		Tightening torque	2,5 Nm

Positive battery terminal to battery — Used in step 84

NutM6		Tightening torque	5 Nm

Tension strut to spring strut dome/battery tray — Used in step 84

M8		Tightening torque	19 Nm

Intake silencer housing to lock bridge — Used in step 85

M6X30		Tightening torque	8 Nm

Clean air pipe to intake silencer housing — Used in step 85

Clamp		Tightening torque	3 Nm

Intake neck to cross connection — Used in step 86

M6		Tightening torque	8 Nm

Cover of top bulkhead — Used in step 87

Screw		Tightening torque	2,6 Nm

Cross-brace to spring strut dome — Used in step 88

	Renew screw.	Jointing torque	28 Nm
		Angle of rotation	180 °

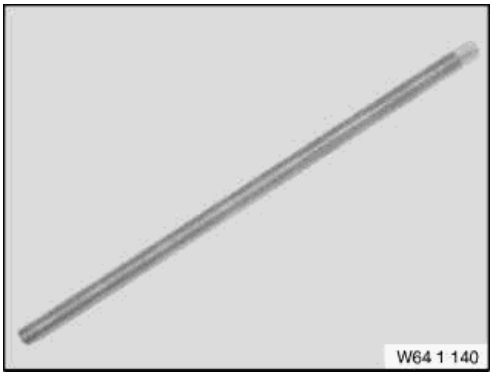
Cover on body — Used in step 88

Hexagon screw		Tightening torque	3 Nm

Overview of Special Tools

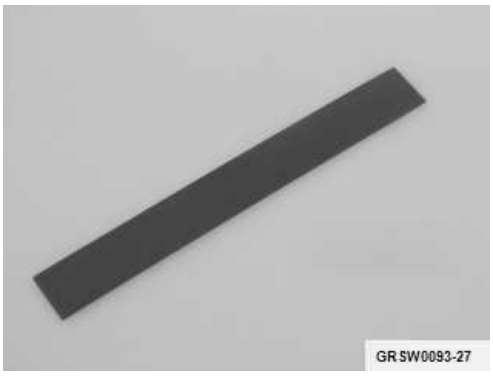
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0 495 815 (64 1 140) Rod



Common	Used in step 11 82
Usage	(threaded rod) For securing threaded plate when removing expansion valve
Included in the tool or work	
Storage location	C86
Replaced by	
In connection with	
SI-Number	01 23 06 (308)

0 496 571 (00 9 327) Wedge



Common	Used in step 16 25
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)

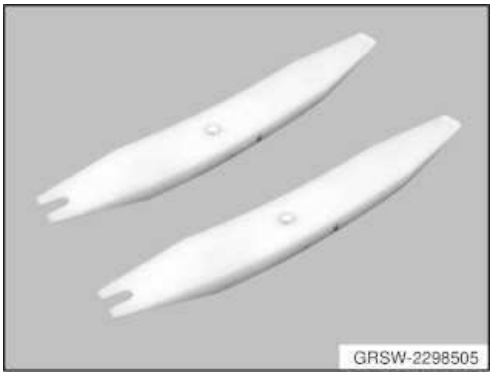
0 496 569 (00 9 325) Wedge



Common	Used in step 17 19 21 23 27 28 32 34
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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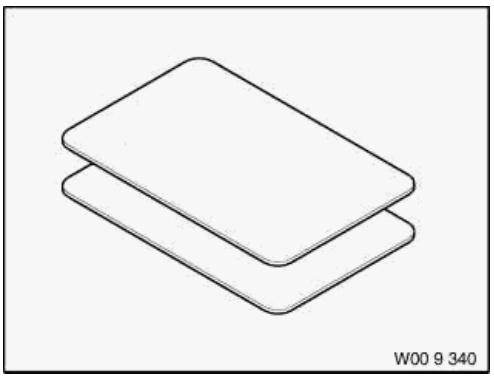
2 298 505 Wedge



Common Used in step 24

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)

0 493 687 (00 9 340) Removal aid



Common Used in step 29

Usage	(Removal aid (2 x)) For levering out switch block on driver's door.
Included in the tool or work	
Storage location	C2
Replaced by	
In connection with	
SI-Number	01 15 99 (483)

Consisting of

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

2 298 504 Wedge



Common Used in step 38

Usage	Wedge with angled lug
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

Links

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General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	31 63
64 52 ... Instructions for opening and part exchange in refrigerant circuit	
64 50 ... Note for handling R134a refrigerant	
12 00 ... Instructions for removal and replacement of control units	

Repair instructions	Used in step
64 50 010 Extract, evacuate and fill air conditioning system	1 92
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 92
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 92
64 50 ... Notes on repairs to air conditioning	1 92
64 50 010 Drawing off, evacuating and filling air conditioning (R1234yf)	1 92
64 50 ... Safety information for handling refrigerant R1234yf	1 92
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	1 92
64 50 ... Safety informations for handling refrigerant oil	1 92
61 20 900 Disconnecting and connecting battery earth lead	2 91
61 20 900 Disconnecting and connecting battery earth lead	2 91
61 20 900 Disconnecting and connecting battery earth lead	2 91
61 20 900 Disconnecting and connecting battery earth lead	2 91
61 20 900 Disconnecting and connecting battery earth lead	2 91
61 20 900 Disconnecting and connecting battery earth lead	2 91
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 91
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 91
61 20 900 Disconnecting and connecting battery earth lead	2 91
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 91
61 20 900 Disconnect and connect battery earth lead (Plug-in Hybrid Electric Vehicle)	2 91
61 20 900 Disconnecting and connecting battery earth lead	2 91
61 20 900 Disconnecting and connecting battery earth lead	2 91
61 20 900 Disconnecting and connecting battery earth lead	2 91
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61 20 900 Disconnecting and connecting battery earth lead	2 91
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61 35 ... Notes on ESD protection (Electro Static Discharge)	9
61 35 ... Notes on ESD protection (Electro Static Discharge)	
72 12 ... Unlocking/locking airbag plug connections	43 51

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64 50 ... Safety information for handling refrigerant R1234yf
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a

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64 52 ... Notes for changing the air conditioning compressor, determining the amount of refrigerant oil (amount of refrigerant oil of new air conditioning compressor known)

Note:
This procedure only applies if the **new air conditioning compressor has a label with the amount of refrigerant oil**.

A different procedure applies for air conditioning compressors **without a label indicating the amount of refrigerant oil**.

Attention!
Risk of damage!

Remove the air conditioning compressor without damaging and without the use of force!

Air conditioning compressors with plastic belt pulleys:

- Avoid impacts/knocks to plastic belt pulley (caused by tools, contact with base).
- Return faulty air conditioning compressors in their original packaging only and with sealed connected branches.

Attention!
In the event of a mechanical air conditioning compressor failure and the resulting ingress of chips into the refrigerant circuit, replace the following parts:

- Air conditioning compressor
- Air conditioning condenser
- Desiccant insert
- Line to the air conditioning condenser
- Refrigerant oil
- BMW i, PHEV: all expansion valves

BMW i, PHEV:

- Rinse the refrigerant circuit

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All vehicles without I01 with heat pump:

The new air conditioning compressor is filled at the factory with refrigerant oil.

The amount of refrigerant oil in the new air conditioning compressor corresponds to the amount of refrigerant oil for the entire new and unfilled refrigerant circuit.

Only I01 with heat pump:

The new air conditioning compressor and new dryer flask are filled at the factory with refrigerant oil.

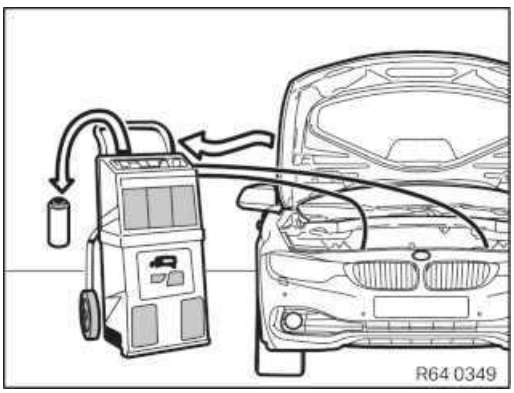
The amount of refrigerant oil in the new air conditioning compressor and in the new dryer flask corresponds to the amount of refrigerant oil for the entire new and unfilled refrigerant circuit.

When replacing the air conditioning compressor it is absolutely essential to adapt the amount of refrigerant oil in accordance with the instructions below!

BMW I01with heat pump: An adaptation is also required for the replacement of the dryer flask.

An adaptation of the amount of refrigerant oil is not required in the following cases:

- Replacement of the complete refrigerant circuit.
- If the refrigerant circuit was rinsed (only BMW i, PHEV).



Step 1:

Determination of the amount of refrigerant oil drawn off from the refrigerant circuit:

- Draw off A/C system.
- Note down the amount of refrigerant oil shown on the A/C service station display.

When evacuating the air conditioning system, refrigerant oil is also extracted and collected in the oil separator of the A/C service station. This amount of refrigerant oil is displayed after the extraction of the air conditioning on the display of the A/C service station.

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The refrigerant oil amount specification is located on the label on the air conditioning compressor.

The position of the label can vary depending on the air conditioning compressor.

Information about the amount of refrigerant oil is provided on the label in g, ml or cc.

Ml are specified throughout these repair instructions for adjusting the amount of refrigerant oil, as g or cc closely correspond to ml.

Step 2:

Compare information of amount of refrigerant oil of the present and new air conditioning compressor:

- Read and record amount of refrigerant oil specified on the previous air conditioning compressor.

  (If there is no label, continue with **Step 3, Case 1** .)
- Read and record amount of refrigerant oil specified on the new air conditioning compressor.
- Compare both amounts of refrigerant oil with each other.

Different cases:

1. The information of the amount of refrigerant oil on the present and new air conditioning compressor **is the same**. In this case continue with **Step 3, Case 1**.
2. The information of the amount of refrigerant oil on the present and new air conditioning compressor **is not the same**:

   Different cases:

   1. Information of the amount of refrigerant oil on the present air conditioning compressor **is higher** than the information of the amount of refrigerant oil on the new air conditioning compressor:

      Difference is not taken into account. In this case continue with **Step 3, Case 1**.
   2. Information of the amount of refrigerant oil on the present air conditioning compressor **is lower** than the information of the amount of refrigerant oil on the new air conditioning compressor:

      Generate and record the difference between both amounts of refrigerant oil. After that continue with **Step 3, Case 2**.

Example:

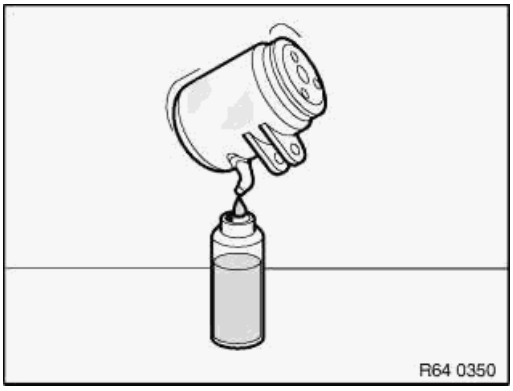
Information of the amount of refrigerant oil of present air conditioning compressor 110 g

Information of the amount of refrigerant oil of new air conditioning compressor 150 g

150 g - 110 g = 40 g correspond to almost 40 ml

Note the difference of 40 ml.

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Step 3:

Determination of the amount of refrigerant oil in the new air conditioning compressor:

- Transfer all of the refrigerant oil remaining in the previous air conditioning compressor into a measuring cup via the oil filler plug.
- Turn the belt pulley during the filling process. This allows more refrigerant oil to flow out of the previous air conditioning compressor.
- Read the amount of refrigerant oil at the measuring cup.

Different cases:

Case 1:

- **Add 10 ml precautionary allowance** to the read amount of refrigerant oil**.**
- Note **at least but a total of 50 ml**.

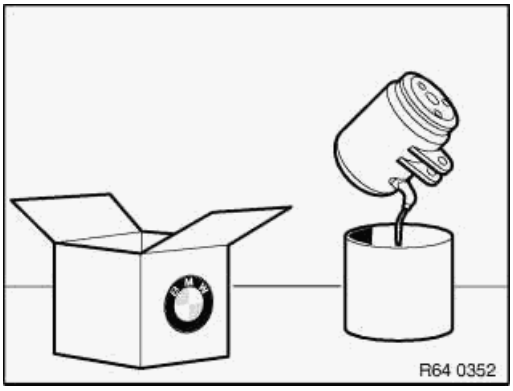
Example:
20 ml read at measuring cup:
20 ml + 10 ml precautionary allowance = 30 ml < 50 ml
determined amount of refrigerant oil for new air conditioning compressor = 50 ml

Case 2:

- Add the **10 ml precautionary allowance** to the read amount of refrigerant oil.
- Add **the difference to that**.
- Note **at least but a total of 50 ml**.

Example:
Difference = 40 ml
20 ml read at measuring cup:
20 ml + 10 ml precautionary allowance = 30 ml
30 ml + 40 ml difference = 70 ml > 50 ml
determined amount of refrigerant oil for new air conditioning compressor = 70 ml

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Step 4:

Determination of the amount of refrigerant oil to be drained from the new air conditioning compressor:

- Open oil filler plug. Tightening torque 64 52 2AZ.
- Drain the following amount of refrigerant oil from the new air conditioning compressor into a clean measuring cup:

Amount of refrigerant oil to be drained from the new air conditioning compressor = amount of refrigerant oil on the label of the new air conditioning compressor - determined amount of refrigerant oil in the new air conditioning compressor

Example:

Amount of refrigerant oil stated on the label of the new air conditioning compressor: 150 ml

determined amount of refrigerant oil of the new air conditioning compressor: 50 ml

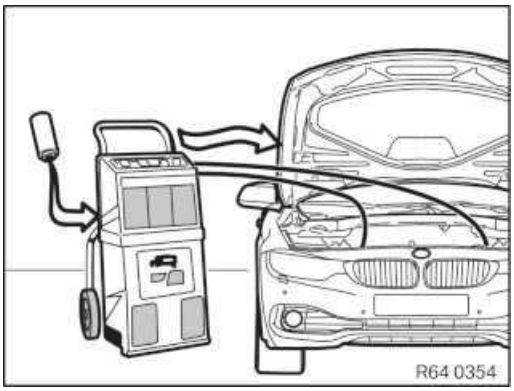
Amount of refrigerant oil to be drained = 150 ml - 50 ml = 100 ml

100 ml must be drained from the new air conditioning compressor.

The drained new refrigerant oil can be filled into the expansion tank of the A/C service station after draining.

If the new, drained refrigerant oil is not filled straight away into the expansion tank of the A/C service station, it must be disposed of properly.

On account of its hygroscopic properties, refrigerant oil must not be stored in open collecting vessels.



Step 5

Fill the refrigerant circuit with the correct amount of refrigerant and refrigerant oil:

- Reassemble the vehicle.
- Evacuate Air conditioning.
- Before filling the air conditioning with refrigerant, again fill in the quantity of refrigerant oil noted in Step 1 as previously drawn off into the system.
- Fill A/C system.

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Step 6

Attention!
Risk of damage!

During initial operation of a new air conditioning compressor, it is absolutely essential to carry out the following breaking-in procedure.

Do not exceed idle speed.

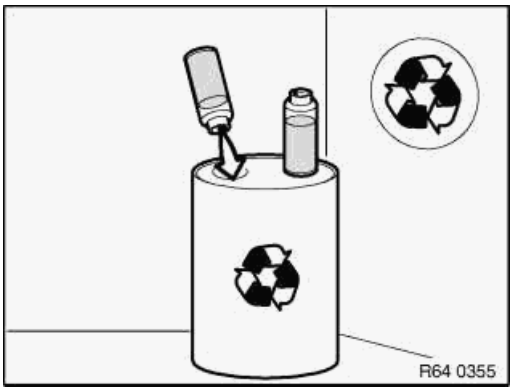
Note:
The breaking-in procedure for the new air conditioning compressor can be carried either manually or with the diagnosis system.

Manual:

- Switch off the air conditioning.
- Set all ventilation outlets in the instrument panel to "OPEN".
- Start engine and let it stabilise at idle speed.
- Set the blower output to a minimum of 75% of the maximum blower output.
- Switch on the air conditioning and allow the engine to run at idle speed for a minimum of 2 minutes.

Carry out the following service function with the diagnosis system:

- Body
- Heating and air conditioning functions
- Run-in protection for A/C compressor



Step 7

Dispose off the drawn off refrigerant oil:

- The refrigerant oil drawn off from the oil separator of the A/C service station and from the previous air conditioning compressor **must not be reused and must be correctly disposed of.**

Observe country-specific waste disposal regulations.

Installation note:
If the refrigerant circuit is open for longer than 24 hours:

- Replace desiccant insert

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64 52 521 Replacing air conditioning compressor (without drawing off, evacuating and filling)

TECHNICAL INFORMATION

- When the engine is stopped after the end of the journey, it may be necessary to run the electric fan. In rare cases, operation of the electric fan can last up to 11 min. This protects the components. In this case, replacing the electric fan will not remedy the problem!

PRELIMINARY WORK

1 – Drawing off the air conditioning

- See additional information.

2 – Disconnecting all battery earth leads



- See additional information.

3 – Removing the acoustic cover

WARNING

Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

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RISK OF DAMAGE

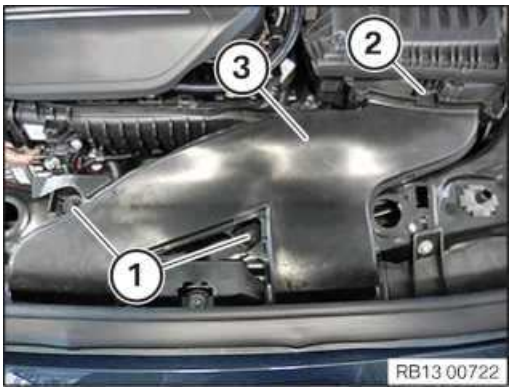
Damage to the acoustic cover.

Jerky movements during disassembly and excessive application of force during installation may result in breakage of the acoustic cover.

- Disassemble or mount the acoustic cover carefully.
- Disassemble or mount snap-lock couplings of the ball pivots one after the other.
- Disassemble or mount acoustic cover only at temperatures >20 °C.
- Use only distilled water as an auxiliary material during installation, no lubricants.

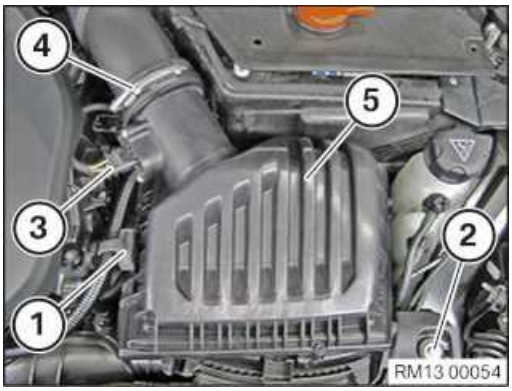
- Unclip the acoustic cover from the marked areas towards the top.

4 – Remove the intake neck for intake silencer housing



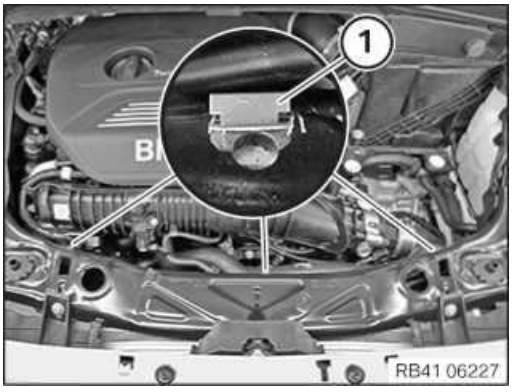
- Loosen nuts (1).
- Loosen the lock (2).
- Guide the intake neck (3) out and remove it.

5 – Removing intake silencer housing



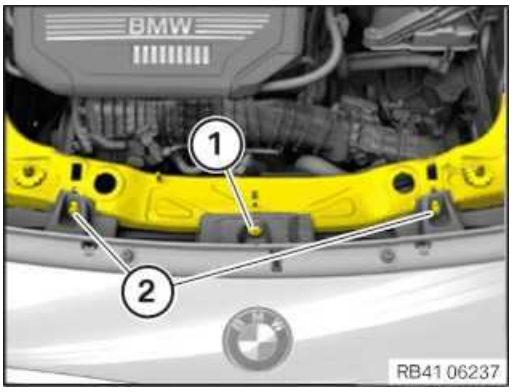
- Loosen the holder (1).
- Loosen screw (2).
- Unlock and loosen connector (3).
- Unfasten clamp (4).
- Pull out and remove the intake silencer housing (5) from the rubber mounts towards the top.

6 – Remove front cross connection

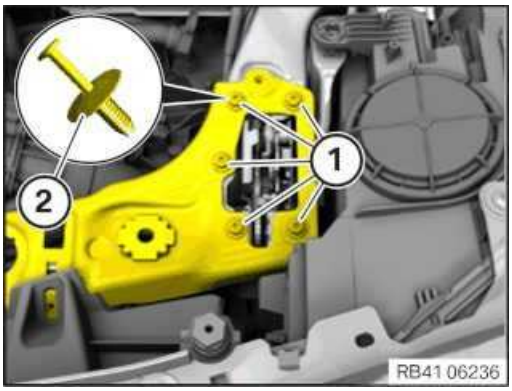


- Detach the clamps (1) for the Bowden cable of the bonnet locks from the cross connection.

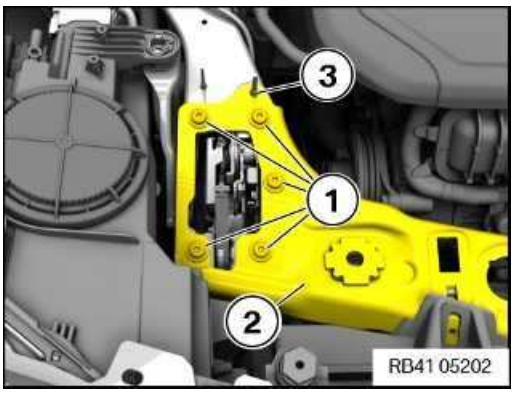
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- Loosen screw (1).
- Loosen screws (2).



- Loosen screws (1).
- Lever out expanding rivet (2).



- Loosen screws (1).
- Unclip the front cross connection (2) from the rubber retainer (3) and remove it upward.

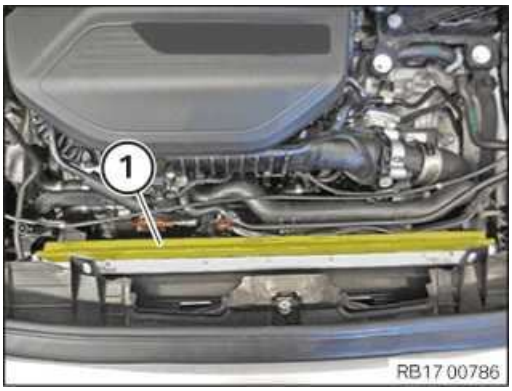
7 – Removing the fan cowl with electric fan

WARNING

Hot surfaces.

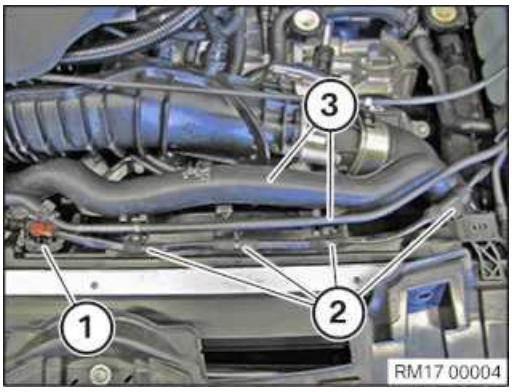
Risk of burning!

- Perform all work only on components that have cooled down.

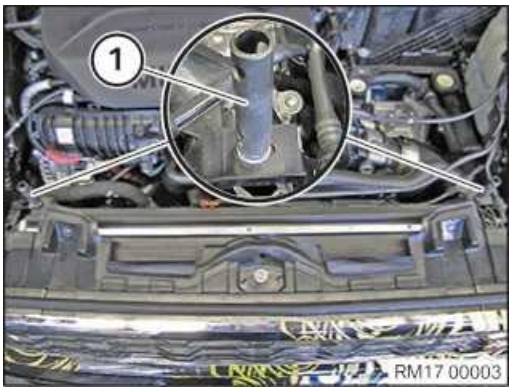


- Feed out and remove the sealing (1) from the radiator.

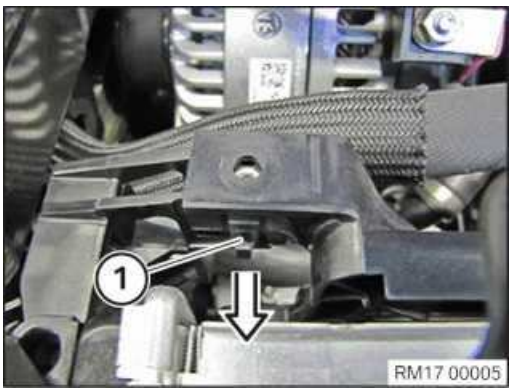
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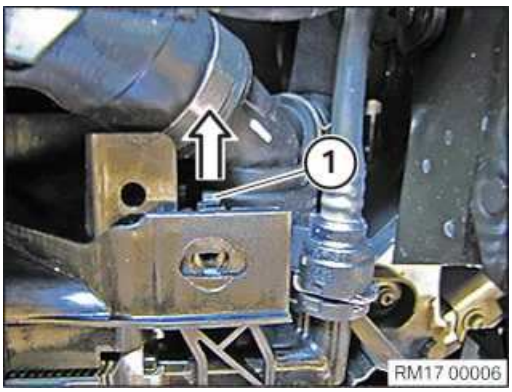
- Unlock plug connection (1) and disconnect.
- Unlock and loosen the clamps (2).
- Feed out connector (1) and place to one side.
- Thread off coolant line (3) and place to the side.



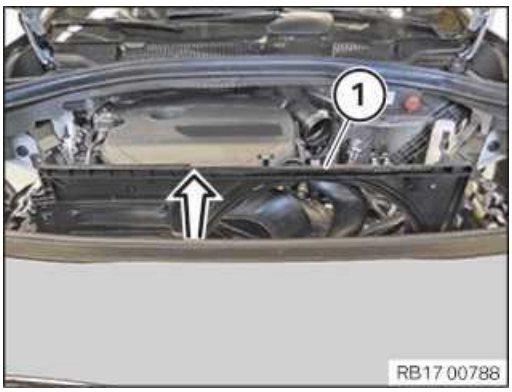
- Loosen screws (1).



- Unlock the right lock (1) on the fan cowl in the direction of the arrow.



- Unlock the left lock (1) on the fan cowl in the direction of the arrow.



- Guide out fan cowl (1) in direction of arrow and remove.

8 – Remove front right wheel

▸ **Removing the wheel**

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- If several wheels are removed simultaneously: Use a piece of chalk to mark on each tyre the axle and side on which the corresponding wheel is fitted.
- Unscrew the wheel bolts (arrows) and remove the wheel.

  Use the matching adapter from tool set (wheel bolt adapter set) to loosen and tighten down the wheel bolt with security code.

9 – Removing the front right wheel arch cover

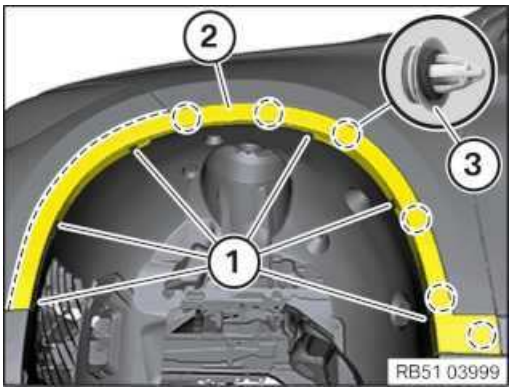
▸ **Remove the front wheel arch trim**

NOTICE

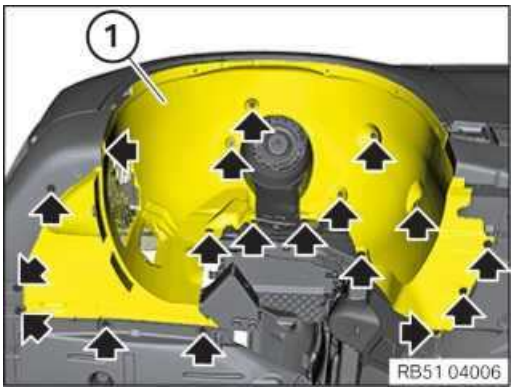
To provide a better overview: Schematic diagram with partially hidden components.

NOTICE

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



- Remove the blind rivets (1).
- Release the wheel arch trim (2) in the area of the side panel from the clips (3).
- Release the wheel arch trim (2) from the latch mechanisms on the bumper and remove.



NOTICE

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

- Unscrew all bolts and nuts (arrows).
- Guide the wheel arch cover (1) out.

10 – Removing the drive belt for alternator

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CAUTION

Spring preload.

Danger of injury!

- The use of the specified special tool (tool) is mandatory.
- The described operation must be carried out properly.

CAUTION

Component with preload.

Danger of injury!

- Reduce preload as far as possible before disassembly. Relieve component.

TECHNICAL INFORMATION

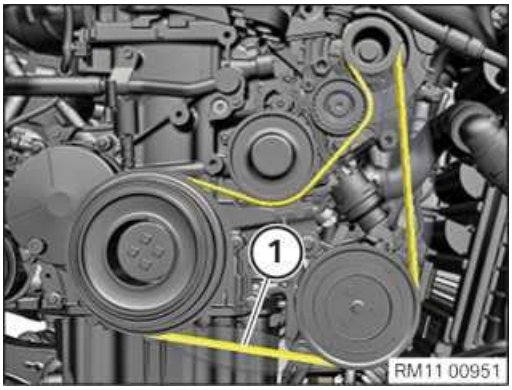
If the drive belt is reused: Mark direction of travel and reinstall drive belt in same direction of travel.

TECHNICAL INFORMATION

The drive belt must be replaced if contaminated with coolant- and oil residues.



- Increase the preload on the belt tensioner in the direction of arrow.
- Secure the belt tensioner with the special tool **0 496 268 (11 0 390)**.

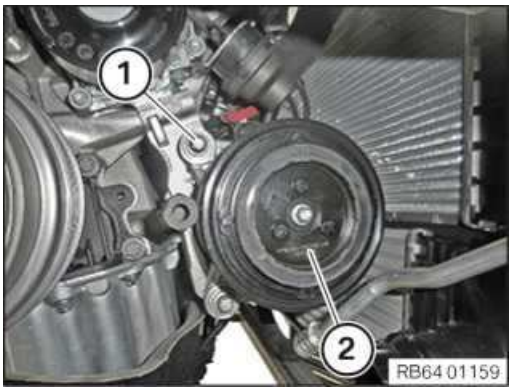


- Guide out the drive belt for the alternator (1) and remove it.

MAIN WORK

11 – Remove air conditioning compressor

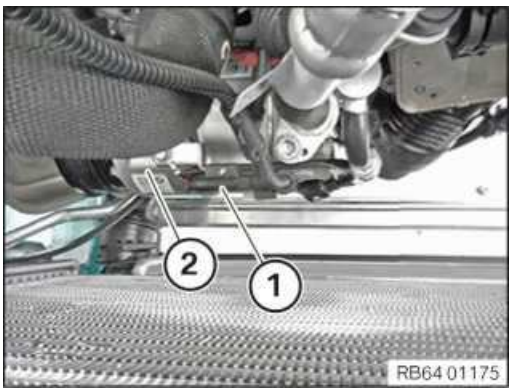
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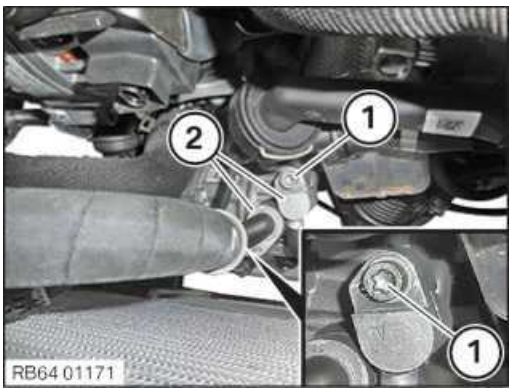
- Release screw (1) on air conditioning compressor (2).



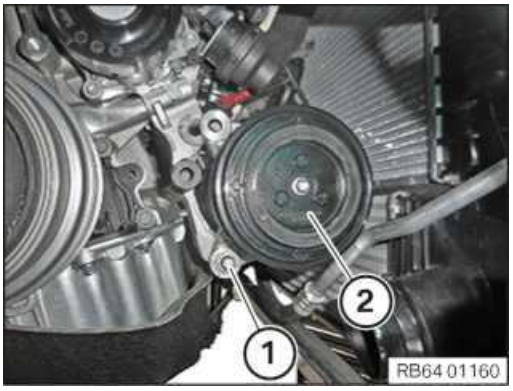
- Slacken screw (1) and slide air conditioning compressor (2) slightly forwards.



- Unlock plug connection (1) at the top on the air conditioning compressor (2) and disconnect.



- Release the screws (1) and remove the refrigerant line (2).



TECHNICAL INFORMATION

Secure component against falling.

- Loosen screw (1).
- Feed out and remove the air conditioning compressor (2).

12 – Lubricating the air conditioning compressor (amount of refrigerant oil in new air conditioning compressor not known)

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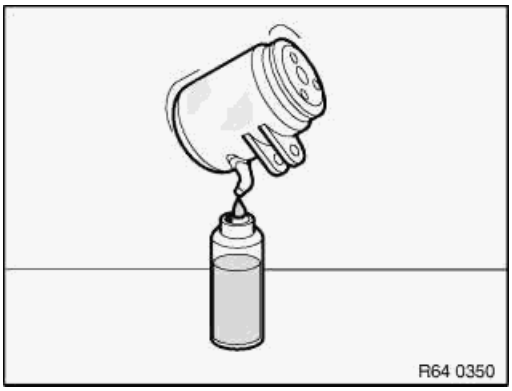
TECHNICAL INFORMATION

The new air conditioning compressor is filled with refrigerant oil at the factory. The amount of refrigerant oil in the new air conditioning compressor corresponds to the amount of refrigerant oil for the entire new and unfilled refrigerant circuit.

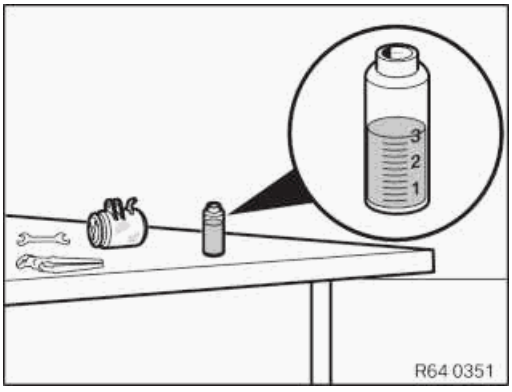
When the air conditioning compressor is replaced, it is essential to adapt the amount of refrigerant oil.

TECHNICAL INFORMATION

The following procedure only applies if the new air conditioning compressor **has** a label indicating the amount of refrigerant oil.

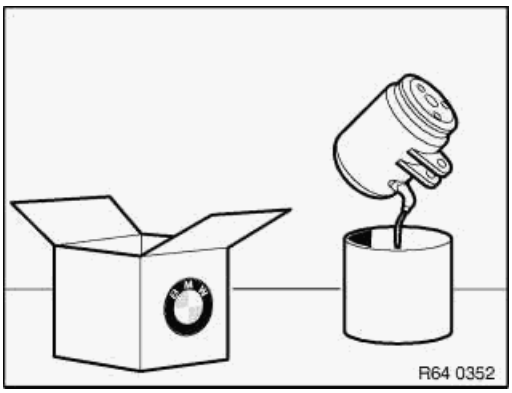


- Open the oil filler plug.
- Transfer all of the refrigerant oil remaining in the **previous** air conditioning compressor into a measuring cup via the oil filler plug.
- Turn the belt pulley during draining.



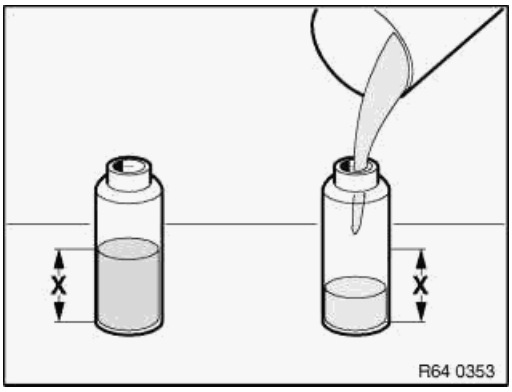
- Read the drained amount of refrigerant oil from the **previous** air conditioning compressor on the measuring cup.
- Add **10 ml extra to the recorded amount of refrigerant oil as a precautionary allowance, but record at least a total of 50 ml.**

Example:
20 ml read at measuring cup:
20 ml + 10 ml precautionary allowance = 30 ml < 50 ml
Amount of refrigerant oil to be filled in the new air conditioning compressor = 50 ml



- Open the oil filler plug.
- Drain the entire refrigerant oil from the **new** air conditioning compressor into a clean collecting vessel.
- Turn the belt pulley during draining.

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- **Immediately** fill the amount of refrigerant oil to be filled from the collecting vessel into a clean measuring cup.
- Fill the amount of refrigerant oil to be filled from the measuring cup into the new air conditioning compressor.
- Renew the sealing ring.
- Tighten oil filler plug.
- **Immediately** after draining, the remaining, new refrigerant oil must be filled into the A/C service station expansion tank.
- The remaining, new refrigerant oil must be disposed of correctly if it is not immediately filled into the expansion tank of the A/C service station.
- Refrigerant oil drained from the previous air conditioning compressor **must not be reused and must be disposed of correctly**.

13 – Lubricating the air conditioning compressor (amount of refrigerant oil in new air conditioning compressor known)

TECHNICAL INFORMATION

The new air conditioning compressor is filled with refrigerant oil at the factory. The amount of refrigerant oil in the new air conditioning compressor corresponds to the amount of refrigerant oil for the entire new and unfilled refrigerant circuit.

When the air conditioning compressor is replaced, it is essential to adapt the amount of refrigerant oil.

TECHNICAL INFORMATION

The following procedure only applies when the new air conditioning compressor has **a label** with the amount of refrigerant oil.

The refrigerant oil amount specification is located on the label on the air conditioning compressor.

The position of the label can vary depending on the air conditioning compressor.

The refrigerant oil specification on the label is in g, ml or cc.

ml are specified throughout these repair instructions for adjusting the amount of refrigerant oil, as g and cc closely correspond to ml.

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- **Step 1**
- Read and record amount of refrigerant oil specified on the previous air conditioning compressor.

  (If no label is present, continue with **step 3, case 1**.)
- Read and record amount of refrigerant oil specified on the new air conditioning compressor.
- Compare both amounts of refrigerant oil with each other:

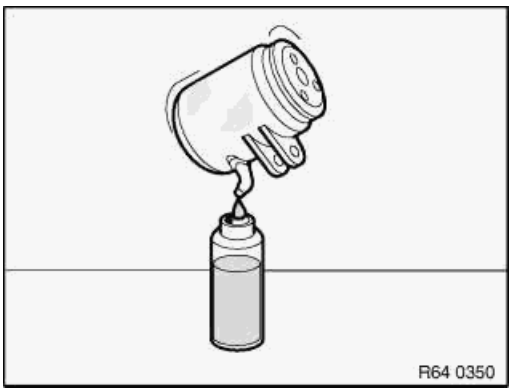
  Different cases:

  - Amount of refrigerant oil specified on the previous and new air conditioning compressor **is same**. In this case, continue with **step 3, case 1**.
  - Amount of refrigerant oil specified on the previous and new air conditioning compressor **is not the same**:

  Different cases:

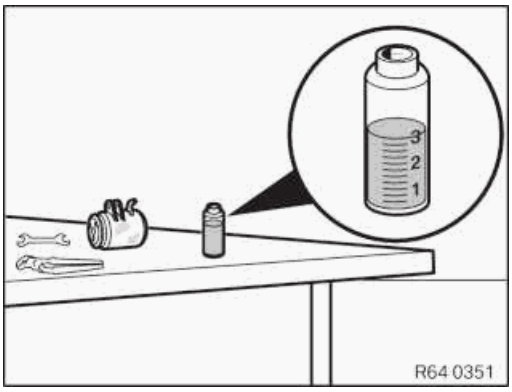
  - Amount of refrigerant oil specified on the previous air conditioning compressor **is higher** than on the new air conditioning compressor. Difference is not taken into account. In this case, continue with **step 3, case 1**.
  - Amount of refrigerant oil specified on the previous air conditioning compressor **is lower** than on the new air conditioning compressor: Generate and record the difference between both amounts of refrigerant oil. Then, continue with **step 3, case 2**.

Example:
Amount of refrigerant oil specified on the *previous* air conditioning compressor 110 g
Amount of refrigerant oil specified on the *new*air conditioning compressor 150 g
150 g - 110 g = 40 g approximately 40 ml
Record the difference 40 ml.



- **Step 2**
- Open the oil filler plug.
- Transfer all of the refrigerant oil remaining in the **previous** air conditioning compressor into a measuring cup via the oil filler plug.
- Turn the belt pulley during draining.

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- **Step 3**
- Read the drained amount of refrigerant oil from the **previous** air conditioning compressor on the measuring cup.

Case 1:

- Add **10 ml extra to the amount of refrigerant oil read as a precautionary allowance.**
- Record **at least but a total of 50 ml**.

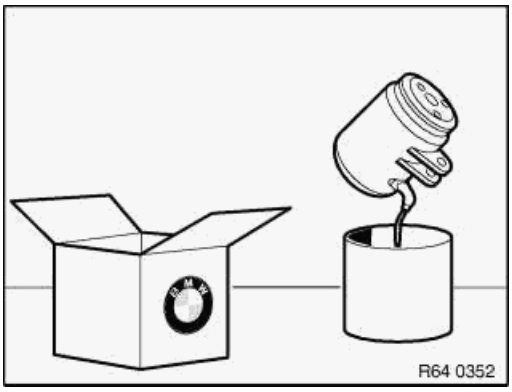
Example:
20 ml read at measuring cup:
20 ml + 10 ml precautionary allowance = 30 ml< 50 ml
Amount of refrigerant oil determined for the new air conditioning compressor = 50 ml

Case 2:

- Add **10 ml extra to the amount of refrigerant oil read as a precautionary allowance.**
- To this **add the difference**.
- Record **at least but a total of 50 ml**.

Example:
Difference = 40 ml
20 ml read at measuring cup:
20 ml + 10 ml precautionary allowance = 30 ml
30 ml + 40 ml difference = 70 ml > 50 ml
Amount of refrigerant oil determined for the new air conditioning compressor = 70 ml

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- **Step 4**
- Open the oil filler plug.
- Drain the following amount of refrigerant oil from the **new** air conditioning compressor into a clean measuring cup:

Amount of refrigerant oil to be drained from the new air conditioning compressor = amount of refrigerant oil on the label for the new air conditioning compressor - amount of refrigerant oil determined for the new air conditioning compressor

Example:
Amount on the new air conditioning compressor refrigerant oil label: 150 ml
Amount of refrigerant oil determined for new air conditioning compressor: 50 ml
Amount of refrigerant oil to be drained = 150 ml - 50 ml = 100 ml
100 ml must be drained from the **new** air conditioning compressor

- Renew the sealing ring.
- Tighten oil filler plug.
- The drained, new refrigerant oil must be filled into the A/C service station expansion tank **immediately** after draining.
- Drained, new refrigerant oil must be disposed of correctly if it is not immediately refilled into the A/C service station expansion tank.
- Refrigerant oil drained from the previous air conditioning compressor **must not be reused and must be disposed of correctly**.

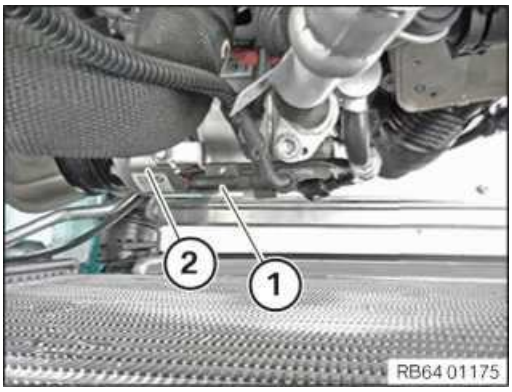
14 – Installing air conditioning compressor



TECHNICAL INFORMATION

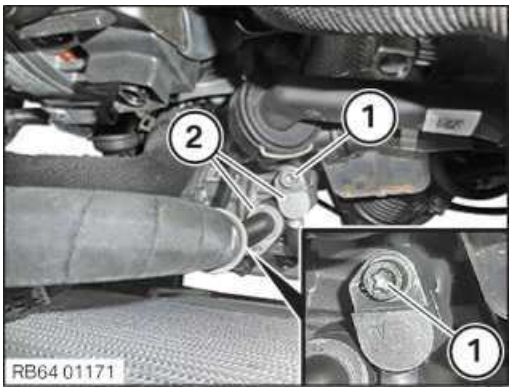
Secure component against falling.

- Feed in air conditioning compressor (2) and position.
- Position the bolt (1).



- Connect plug connection (1) at the top on the air conditioning compressor (2) and lock.

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- Position refrigerant lines (2) at the top on the air conditioning compressor.
- Tighten the screws (1).

Refrigerant line on air conditioning compressor

M8		Tightening torque	19 Nm



- Position air conditioning compressor (2) correctly and tighten screws (1).

Air conditioning compressor in component carrier

M10		Tightening torque	38 Nm

POSTPROCESSES

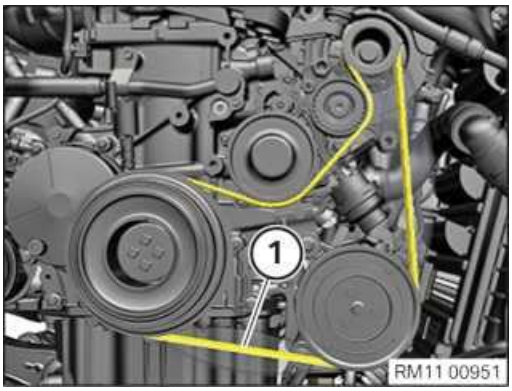
15 – Installing the drive belt for alternator

TECHNICAL INFORMATION

If the drive belt is reused: Mark direction of travel and reinstall drive belt in same direction of travel.

TECHNICAL INFORMATION

The drive belt must be replaced if contaminated with coolant- and oil residues.



- Feed in the drive belt for the alternator (1) and install it.

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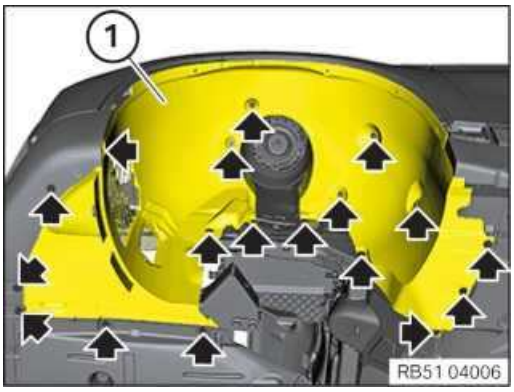


- Increase the preload on the belt tensioner in the direction of arrow.
- Feed the special tool **0 496 268 (11 0 390)** out of the belt tensioner and remove it.

16 – Installing the front right wheel arch cover

NOTICE

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



- Guide the wheel arch cover (1) in.
- Tighten all bolts and nuts (arrows).

Wheel arch cover to body

Screw		Tightening torque	2,5 Nm

Wheel arch cover to body

Plastic nut		Tightening torque	3 Nm

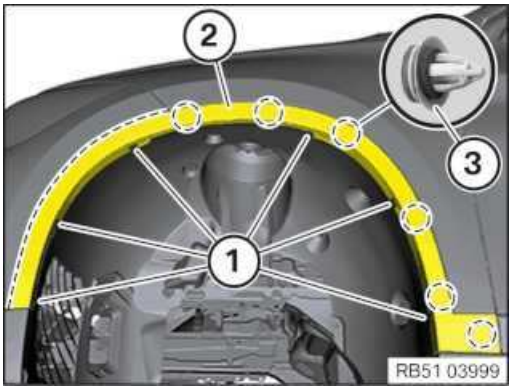
▸ **Installing front wheel arch trim**

NOTICE

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

NOTICE

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



- Check the clips (3) for damage and renew where required.

  The clips (3) must not be damaged or missing.
- Feed in wheel arch trim (2) and engage on the clips (3).
- Engage wheel arch trim (2) into the latch mechanisms on the bumper panel.
- Mount blind rivet (1) using the special tool **0 496 521 (00 2 230)**.

17 – Installing the front right wheel

▸ **Mounting the wheel**

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▷ **Clean the contact surfaces between the brake disc and the wheel rim**



TECHNICAL INFORMATION

The contact surface between the brake disc and the wheel rim must be clean and free from oil and grease. There is otherwise a risk of the wheel becoming loose at a later time.

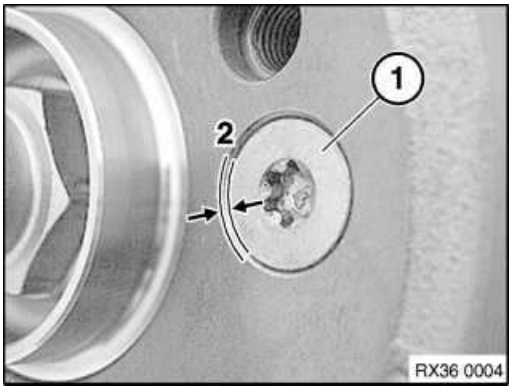
- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool **2 344 011**.

  Do not operate special tool **2 344 011** with an impact screwdriver.
- Degrease the contact surfaces with the universal cleaner (see BMW Group Parts).
- In the event of grease residue in the area of the wheel bolt holes, remove and clean the brake disc.



- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool **2 344 011**.

  Do not operate special tool **2 344 011** with an impact screwdriver.
- Degrease the contact surfaces with the universal cleaner (see BMW Group Parts).



- Renew mounting bolt (1).

  Parts: Mounting bolt
- Check that the mounting bolt (1) for the brake disc is securely seated.

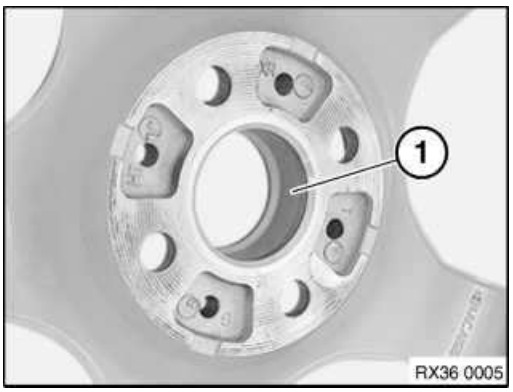
  The mounting bolt (1) for the brake disc may not protrude under any circumstances on the contact surface (2) between the brake disc and the wheel rim.

Brake disc to rear wheel hub

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm



- Lightly grease the wheel centring (1) in the wheel rim; refer to additional information for grease for the wheel centring (1).

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TECHNICAL INFORMATION

Never use impact screwdrivers or electric screwdrivers to screw in and tighten the wheel bolts.

The wheel rim must rest uniformly against the brake disc.

In the case of non-original BMW wheel bolts/wheel rims, it may be necessary to retighten the wheel bolts on account of setting properties (refer to the documentation from the manufacturer).

Do not apply oil to new wheel bolts.

- Renew corroded wheel bolts.

  Parts: Wheel bolts
- Clean the wheel bolts.
- Check the wheel bolts and threads for damage, renew the wheel bolts if necessary.
- Join and tighten the wheel bolts (arrows).

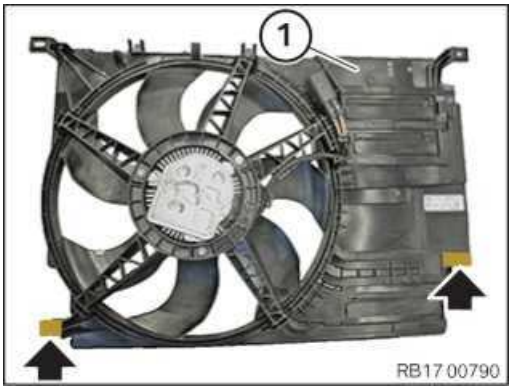
Wheel bolts

M 14/AF 17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim. Tighten wheel bolts to the prescribed tightening torque with a calibrated torque wrench in a crosswise sequence. Check all the wheel bolts in the same order or retighten to the prescribed tightening torque again.	Tightening torque Check	140 Nm 140 Nm

18 – Installing fan cowl with electric fan

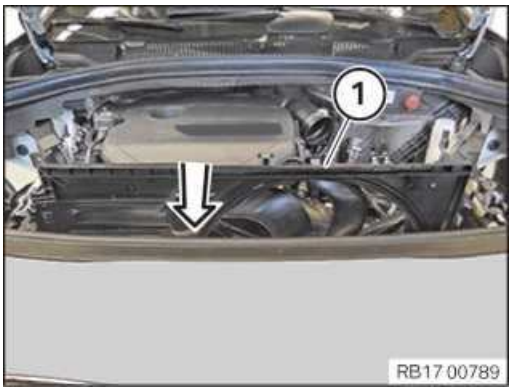
TECHNICAL INFORMATION

Make sure that the connections are locked correctly. The locks must engage audibly.



- Feed the guides (arrows) of the fan cowl (1) into the charge air cooler.

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- Feed in and install the fan cowl (1) in the direction of the arrow.



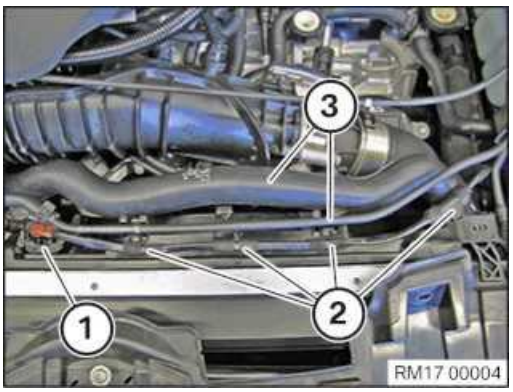
- Lock the left and right locks (arrows).



- Tighten the screws (1).

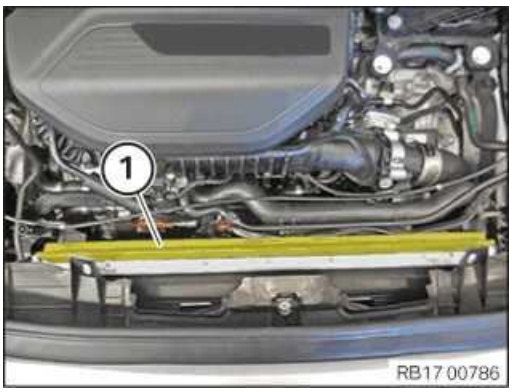
Fan cowl on radiator

M6X12		Tightening torque	6 Nm



- Connect connectors (1) and lock.

  The connector (1) must engage audibly.
- Secure clamps (2).
- Thread in and install coolant line (3).



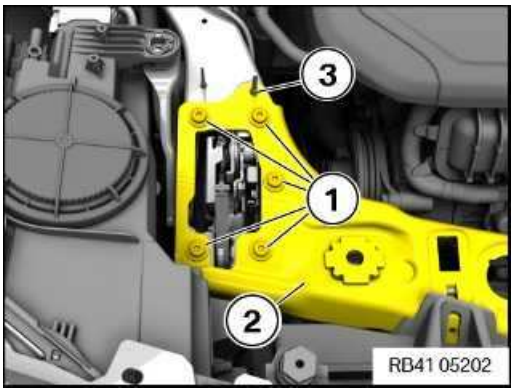
- Guide the sealing (1) on the radiator in and install it.

19 – Install front cross connection

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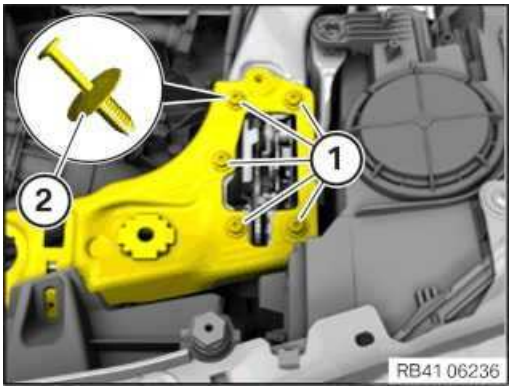
- Right side of vehicle only: Secure spray guard (1) on the cross connection (2) as pictured.



- Position front cross connection (2) and clip front cross connection (2) into the rubber retainer (3) at the same time.
- Tighten the screws (1).

Cross connection to carrier support

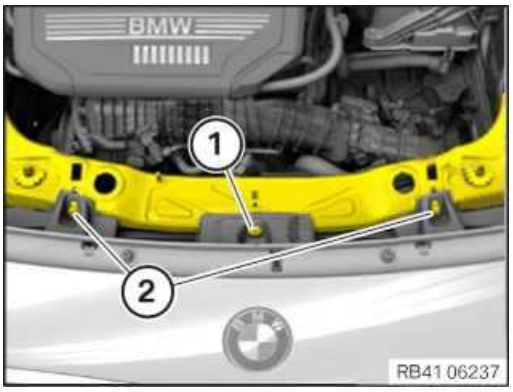
Screws M6x20		Tightening torque	11,8 Nm



- Tighten the screws (1).

Cross connection to carrier support

Screws M6x20		Tightening torque	11,8 Nm



- Position screws (3) on the rubber mounts for the radiator and tighten.

Screw connection for rubber mount of coolant radiator to coolant radiator

Bolt to rubber mount		Tightening torque	8 Nm

- Tighten down screws (2).

Air duct to upper connection

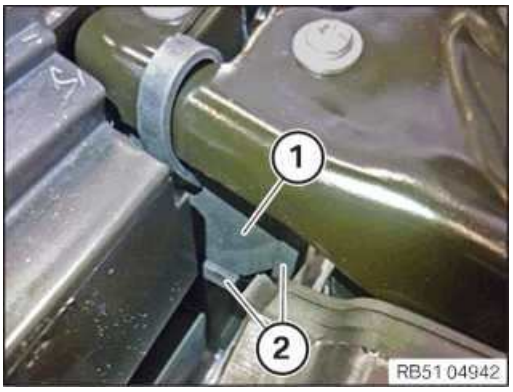
M6x20 screw		Tightening torque	11,8 Nm

- Tighten down screw (1).

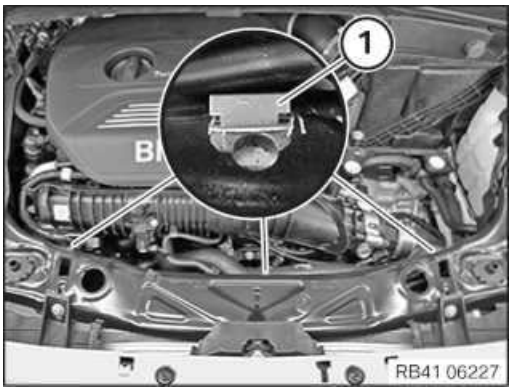
Bracing strut to upper connection

M8x20 screw		Tightening torque	28 Nm

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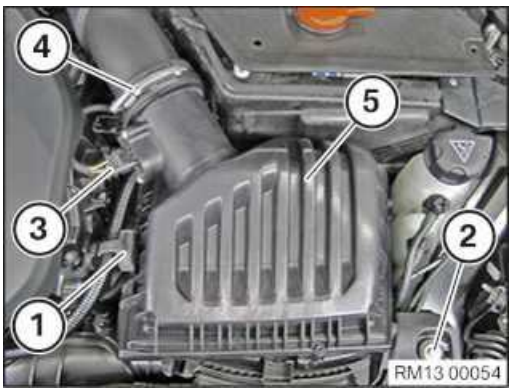


- Right side of vehicle only: Properly mount spray guard (1) to prevent corrosion.
- Secure spray guard (1) to the bridge with retaining tabs (2).



- Fasten the clamps (1) from the Bowden cable of the bonnet lock on the cross connection.

20 – Installing intake silencer housing



- Insert the intake silencer housing (5) into the rubber mounts and install it.

  Intake filter housing (5) must engage audibly.
- Tighten down screw (2).

Intake silencer housing to lock bridge

M6X30		Tightening torque	8 Nm

- Tighten clamp (4).

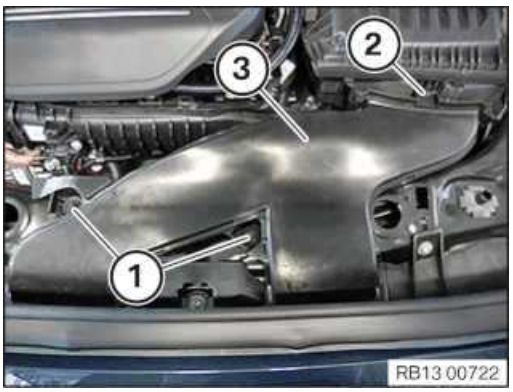
Clean air pipe to intake silencer housing

Clamp		Tightening torque	3 Nm

- Connect and lock the connector (3).

  The connector (3) must engage audibly.
- Insert and install the holder (1).

21 – Install the intake neck for the intake filter housing



- Insert and install the intake neck (3).

  The lock (2) must audibly engage.
- Tighten nuts (1).

Intake neck to cross connection

M6		Tightening torque	8 Nm

22 – Install acoustic cover

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RISK OF DAMAGE

Damage to the acoustic cover.

Jerky movements during disassembly and excessive application of force during installation may result in breakage of the acoustic cover.

- Disassemble or mount the acoustic cover carefully.
- Disassemble or mount snap-lock couplings of the ball pivots one after the other.
- Disassemble or mount acoustic cover only at temperatures >20 °C.
- Use only distilled water as an auxiliary material during installation, no lubricants.



- Check for correct installation of all rubber mounts in the acoustic cover (1).



- Clip in the acoustic cover into the holders in the indicated areas.
- Make sure that the acoustic cover engages audibly.

23 – Disconnecting all battery earth leads



- See additional information.

24 – Evacuate and fill air conditioning

- See additional information.

25 – Running in the new air conditioning compressor

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RISK OF DAMAGE

Mechanical damage to the new air conditioning compressor.

An increased quantity of refrigerant oil in the new air conditioning compressor can cause mechanical damage.

- Perform the running-in procedure.
- Do not exceed the idle speed during running in.

TECHNICAL INFORMATION

The running-in procedure for the new air conditioning compressor can either be performed manually or using the diagnosis system.

- **Manual:**
- Switch off the air conditioning.
- Set all ventilation outlets in the instrument panel to "OPEN".
- Start the engine and allow the idle speed to stabilise.
- Set the blower output to a minimum of 75% of the maximum blower output.
- Switch on the air conditioning and allow the engine to run at **idle speed** for a **minimum of 2 minutes**.
- Switch off the air conditioning and blower.
- Stop engine.



- **Carry out the following service function with the diagnosis system:**
  - Body
  - Heating and air conditioning functions
  - Run-in protection for A/C compressor

Additional Information

Overview of Tightening Torques

Refrigerant line on air conditioning compressor — Used in step 14

M8		Tightening torque	19 Nm

Air conditioning compressor in component carrier — Used in step 14

M10		Tightening torque	38 Nm

Wheel arch cover to body — Used in step 16

Screw		Tightening torque	2,5 Nm

Wheel arch cover to body — Used in step 16

Plastic nut		Tightening torque	3 Nm

Brake disc to rear wheel hub — Used in step 17

M8	Renew screw.	Tightening torque	16 Nm

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Brake disc to front wheel hub — Used in step 17

M8	Renew screw.	Tightening torque	16 Nm

Wheel bolts — Used in step 17

M 14/AF 17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim. Tighten wheel bolts to the prescribed tightening torque with a calibrated torque wrench in a crosswise sequence. Check all the wheel bolts in the same order or retighten to the prescribed tightening torque again.	Tightening torque Check	140 Nm 140 Nm

Fan cowl on radiator — Used in step 18

M6X12		Tightening torque	6 Nm

Cross connection to carrier support — Used in step 19

Screws M6x20		Tightening torque	11,8 Nm

Screw connection for rubber mount of coolant radiator to coolant radiator — Used in step 19

Bolt to rubber mount		Tightening torque	8 Nm

Air duct to upper connection — Used in step 19

M6x20 screw		Tightening torque	11,8 Nm

Bracing strut to upper connection — Used in step 19

M8x20 screw		Tightening torque	28 Nm

Intake silencer housing to lock bridge — Used in step 20

M6X30		Tightening torque	8 Nm

Clean air pipe to intake silencer housing — Used in step 20

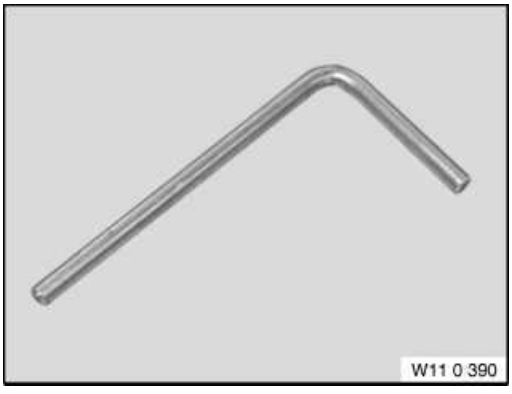
Clamp		Tightening torque	3 Nm

Intake neck to cross connection — Used in step 21

M6		Tightening torque	8 Nm

Overview of Special Tools

0 496 268 (11 0 390) Pin

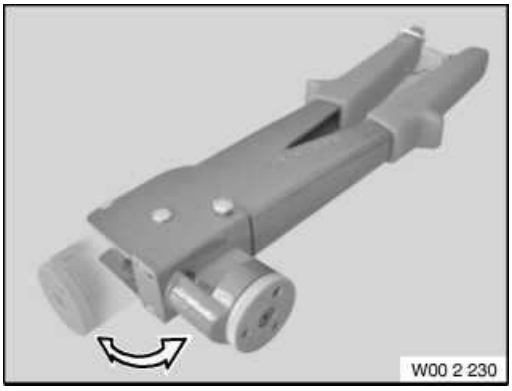


Common — Used in step 10 15

Usage	(roll pin) For securing new tensioning pulley (poly-V belt)
Included in the tool or work	
Storage location	B24
Replaced by	
In connection with	
SI-Number	01 15 07 (390)

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0 496 521 (00 2 230) Pliers



Common	Used in step 16
Usage	(Blind rivet pliers for plastic rivets) For shaft diameters of 3.5 mm, 3.9 mm and 4.5 mm
Included in the tool or work	
Storage location	C25
Replaced by	
In connection with	
SI-Number	01 17 08 (478)

2 344 011 Tool



Common	Used in step 17
Usage	Tool (wheel hub grinder) for cleaning the connection of the wheel rim (wheel contact face) to the wheel hub.
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	08 08 12 (872)

Replacement tools:

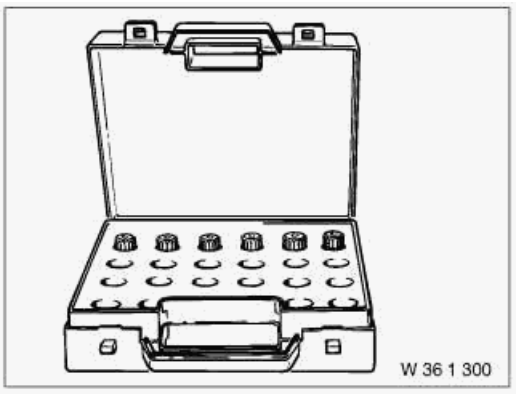
0 495 221 (36 1 323) Wheel stud



Common	Used in step 8
Usage	(Code 30) Code 39 available separately, (see EPC) under 36 13 1 181 259
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

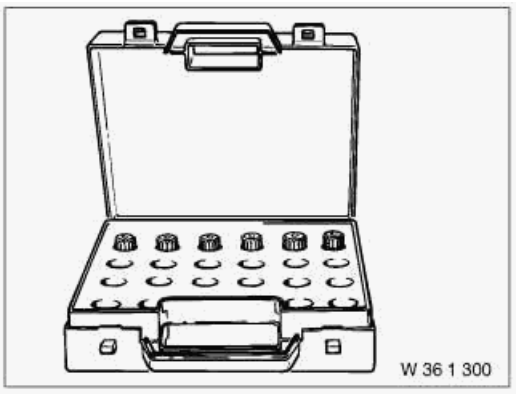
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0 495 224 (36 1 326) Wheel stud



Common	Used in step 8
Usage	(Code 33) With centring bore available separately, (see EPC) under 36 13 6 765 546
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 225 (36 1 327) Wheel stud



Common	Used in step 8
Usage	(Code 34) With centring bore available separately (see EPC) under 36 13 6 765 547
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 226 (36 1 328) Wheel stud



Common	Used in step 8
Usage	(Code 35) With centring bore available separately, (see EPC) under 36 13 6 762 340
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

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0 495 227 (36 1 329) Wheel stud



Common	Used in step 8
Usage	(Code 36) With centring bore available separately (see EPC) under 36 13 6 762 341
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 228 (36 1 331) Wheel stud



Common	Used in step 8
Usage	(Code 37) With centring bore available separately (see EPC) under 36 13 6 762 342
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 229 (36 1 332) Wheel stud



Common	Used in step 8
Usage	(Code 38) With centring bore available separately (see EPC) under 36 13 6 762 343
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 230 (36 1 333) Wheel stud



Common	Used in step 8
Usage	(Code 40) With centring bore available separately (see EPC) under 36 13 6 762 344
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

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Links

General repair instructions	Used in step
64 50 ... Note for handling R134a refrigerant	
64 52 ... Instructions for opening and part exchange in refrigerant circuit	

Repair instructions	Used in step
64 50 010 Extract, evacuate and fill air conditioning system	1 24
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 24
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 24
64 50 ... Notes on repairs to air conditioning	1 24
64 50 010 Drawing off, evacuating and filling air conditioning (R1234yf)	1 24
64 50 ... Safety information for handling refrigerant R1234yf	1 24
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	1 24
64 50 ... Safety informations for handling refrigerant oil	1 24
61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 23
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 23
61 20 900 Disconnect and connect battery earth lead (Plug-in Hybrid Electric Vehicle)	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23
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61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	
64 50 ... Safety information for handling refrigerant R1234yf	

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Operating materials	Used in step
2.0 Grease for wheel centring	17

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61 00 ... Safety information on handling hybrid cars

1. *Qualification:*
   All repair work on high-voltage components may **only be performed by specially trained personnel** (qualification: Work on high-voltage inherently save vehicles) must be performed by qualified technicians. Each hybrid car requires additional vehicle specific training with training achievement controls.
   Required training is offered by the BMW Training Academy.
2. *Identification:*
   Observe **warning notices** on high-voltage components. When replacing individual high-voltage components, check if warning stickers are present. Independently attaching warnings is only allowed on the locations provided for them. Use only approved and appropriately identified original new parts.
3. *Rules of conduct/protective measures:*
   - Note operating instructions for handling high-voltage battery units.
   - Do not under any circumstances touch open high-voltage cables and high-voltage components on damaged vehicle before shutting down the high-voltage electrical system.
   - In the event of damage (mechanical, thermal) transition metal oxides, carbon, electrolyte solvents and their products of decomposition may be released.
     Suitable acid-resistant protective clothing/equipment must therefore be used when handling the vehicle!
     - Hand protection: Gloves
     - Eye protection: Safety goggles

     Damaged high-voltage battery units must be stored in an acid-resistant pan in a location in the open that is protected against the weather (sun, rain) and secured against unauthorised access. Do not inhale escaping gasses.
   - Prevent escaping substances from entering drains, pits and the sewer system.
   - Collect any material that is discharged and have it disposed of according to the work instruction, wear acid-resistant protective clothing when doing so.
   - Notify the fire brigade if fire breaks out, clear the area immediately and make accident scene safe. Attempt to extinguish the fire without putting persons in danger (suitable extinguishant: water and water foam).
   - A cut 2nd emergency separation point must be repaired with a butt connector.
4. *Measures before starting work:*
   - Each job on the vehicle must be assigned by appropriately trained personnel. Before work is started, this electrician must place the vehicle in the operating condition required to perform the relevant activity. The qualified personnel's instructions and directions absolutely must be followed. **No work may be carried out without this qualified personnel being consulted first.**
   - It is **not** permitted to work on the high voltage system or on high voltage components while the engine is running.
   - The readiness to drive must be ended before shutting off the voltage of the high-voltage system. The readiness to drive is ended when the driver is absent only under the following conditions:
     1. seat belt buckle unlocked **and**
     2. the driver's door is open **and**
     3. no brake activated **and**
     4. the accelerator pedal is not activated **and**
     5. speed < 3 km/h (2 mph)
   - Work on live high-voltage components is expressly prohibited. Before each operation on the high-voltage system, the system must be isolated from the power supply by qualified personnel (high-voltage safety connector Off) and secured against unauthorised recommissioning (padlock).
   - After each deactivation of the high-voltage system, it is essential to observe a **waiting period** of at least **10 seconds** prior to further work.
   - Before beginning work, it is mandatory to check that the equipment is de-energised and is protected against being energised again.
     Work is only permitted to begin if:
     1. Corresponding display in the KOMBI **High-voltage system deactivated** or

     When a high-voltage warning is active (indicator light, Check Control, etc.), it is essential to determine and eliminate the cause of this warning via the diagnosis system before continuing with any other work.
     If it cannot be definitively established that the equipment is de-energised, work is not permitted to begin. **Danger to life!** Before work begins, a qualified electrician (1000 V AC) must verify that the

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system is de-energised using appropriate measuring devices and procedures.
=> In this case, Technical Support must be contacted!

- Do not perform any work on the vehicle while it is charging. Before starting work, disconnect the charging cable from the vehicle.
  Battery charging may result in heating of the high-voltage battery unit. This heating may lead to sporadic launches of the electric fan (switch-on request from the electric fan). Therefore, work in the vicinity of the electric fan during the charging procedure is prohibited. Ensure freedom of movement of the battery charge lines in the vicinity of the electric fan.

5. *Measures during/after activities:*
   - Identifiable mechanical damage to or tampering with high-voltage components must be reported immediately to the qualified personnel in charge.
   - When carrying out any work on the high-voltage system, it is prohibited to drive externally all the drivetrain components (wheels, gearbox, drive shafts, etc.).
   - *E72 only:* When the "Power Electronic Box Cover" is removed, the high-voltage system is not permitted to be activated. The high-voltage service disconnect must only be used when the "Power Electronics Box Cover" is completely installed.
   - High-voltage cables (orange coating) and their connectors and stop parts **may not** be repaired. If damaged, a cable must always be replaced completely.
   - When working in the vicinity of high-voltage components (identified accordingly with warning stickers and orange-coloured coating), protect these components against damage.
   - The specified work steps in the repair instructions must be adhered to exactly.
   - High-voltage components and their holders must be screwed/bolted to the defined tightening torque. Tightening torques and tightening specifications must be observed.
   - Connecting high-voltage components to body ground is crucial to safety for reasons of equipotential bonding. For this reason, it is prohibited to operate any high-voltage components without them being correctly connected to body ground. The measurements (insulation/potential equalisation measurement) are performed automatically by the vehicle. Manual measurement is not therefore necessary.
     For a correct earthing connection, the retaining elements of high-voltage components must not be painted. Follow further painting notes.
   - Removed high-boltage battery units must be stored in a manner that protects them from misuse and damage.
   - Damaged or warning stickers that are no longer legible on high-voltage components must always be replaced.
6. *Potential compensation:*
   Equipotential bonding lines, high-voltage cables and the battery negative lead to the EME are fitted with safety screws.
   - Clean contact faces and have then checked by a second person.
   - Tighten down screws/bolts to specified torque.
   - Have tightening torque checked by a second person.
   - Both persons must document that the work has been carried out correctly in the vehicle records.

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64 53 ... Instructions for desiccant insert replacement



Special tools required:

- 32 1 270

A desiccant insert that is in a correctly functioning, sealed heating and air conditioning system does **not** have to be changed at regular service-inspection intervals.

However, the dryer flask or desiccant insert must absolutely be replaced in the event of:

- contamination of the refrigerant with swarf (e.g. when the compressor is clamped).
- With depressurised and/or completely drained refrigerant circuit.
- With a refrigerant circuit, which was closed using special tool 32 1 270 but remains open for more than 24 hours.

The desiccant insert cannot be replaced in the following vehicles:

- *1-Series E8x, 3-Series E9x* from 12/2008
- *E84, E89*
- *1-Series F2x, 3-Series F3x*
- *BMW i 01 without heat pump*

In these vehicles, the condenser for the heating and air conditioning system must be replaced.

- *BMW i 01 with heat pump*

On this vehicle the low pressure battery must be replaced.

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64 53 ... Instructions for replacement of air conditioning capacitors and radiator/coolers

Attention!

Even when they are correctly installed or due to normal driving, radiators (oil cooler, radiator, charge air cooler) or air conditioning condensers may show slight impressions or deformations on their discs (1).

A slight sag with a large radius for the air conditioning condenser is also permissible.

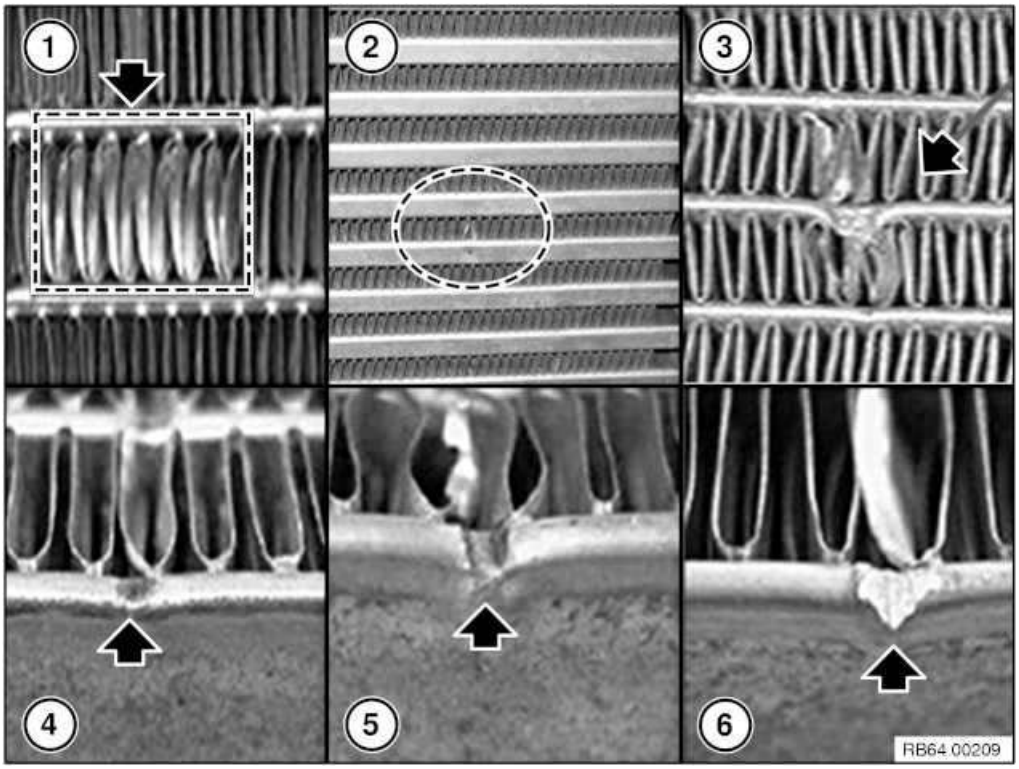
As long as tightness/function are not degraded and an adequate distance of a few mm between the radiator and air conditioning condenser remains in place, **this is not damage in either case.**

Radiators or air conditioning condensers are not to be replaced in these cases!

Note:

The deformations shown in Fig.Â (1) can be bent back with a standard fin comb..

Damage to lines carrying media or on the flat pipe require exchange of the radiator or air conditioning condenser (2-6).



Dryer flask (integrated in the air conditioning condenser):

Round dents/depressions are permitted.

The air conditioning condenser is not to be replaced in this case.

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64 53 551 Removing and installing/replacing air conditioning condenser (without drawing off, evacuating and filling)

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

PRELIMINARY WORK

1 – Drawing off the air conditioning

- See additional information.

2 – Disconnecting all battery earth leads



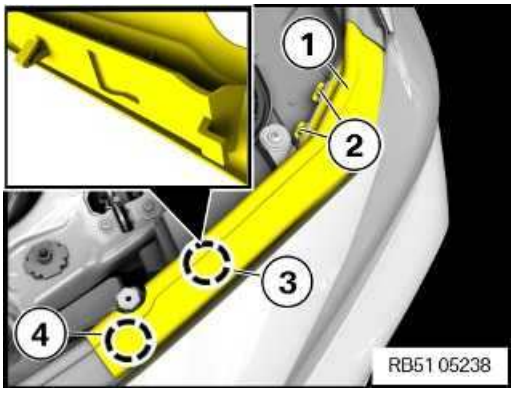
- See additional information.

3 – Remove both bonnet seals on the side

NOTICE

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

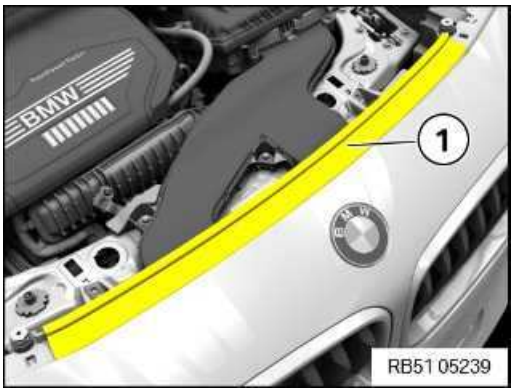
▸ **Remove the bonnet seal on the side**



- Unclip the side bonnet seal (1) from the outer latch mechanisms (2) and the inner latch mechanism (3).
- Feed out the side bonnet seal (1) from the guide (4) and remove.

4 – Removing the seal for the front centre bonnet

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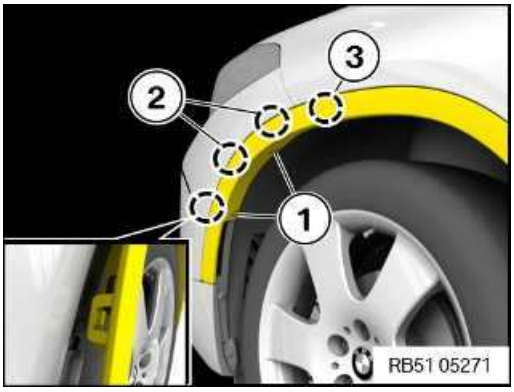
- Remove the seal for the front centre bonnet (1) towards the top.

5 – Partially remove both front wheel arch trims

NOTICE

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

▶ **Partially removing the front wheel arch trim**



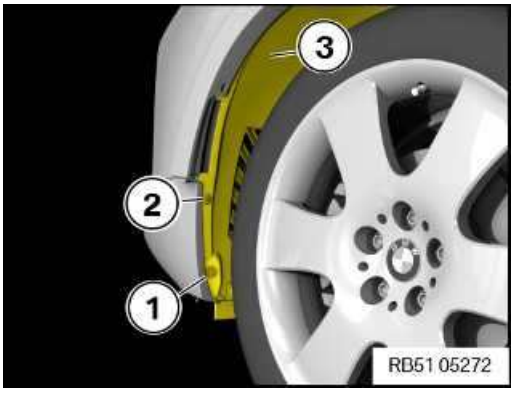
- Loosen blind rivet(1).
- Release front wheel arch trim in the area of the bumper panel from the latch mechanisms (2) and from the clip (3).

6 – Partially remove both front wheel arch covers

NOTICE

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

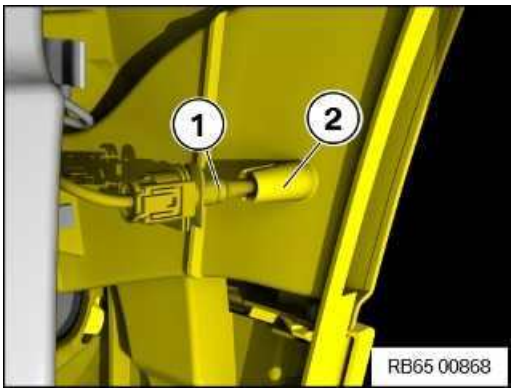
▶ **Partially remove the front wheel arch cover**



- Loosen screw (1).
- Release the blind rivet (2).
- Fold back the front wheel arch cover (3).

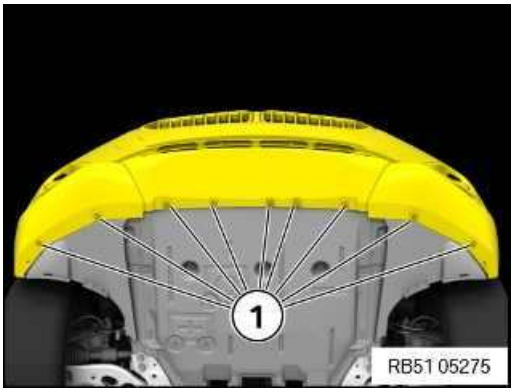
7 – Remove temperature sensor

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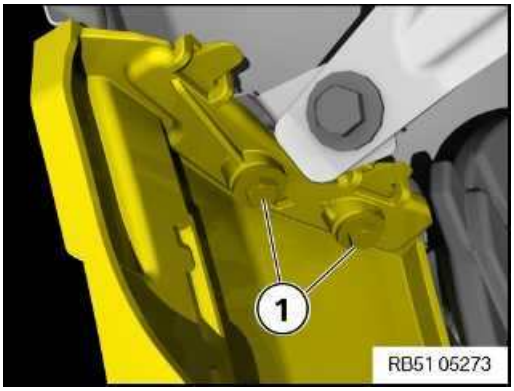


- Unclip temperature sensor (1) from front bumper panel (2).

8 – Remove front bumper panel



- Loosen screws (1).



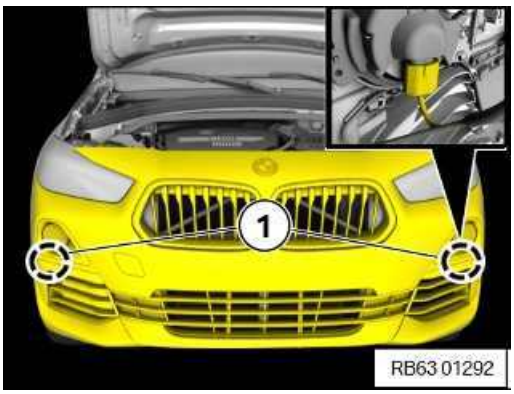
NOTICE

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

- Loosen screws (1).



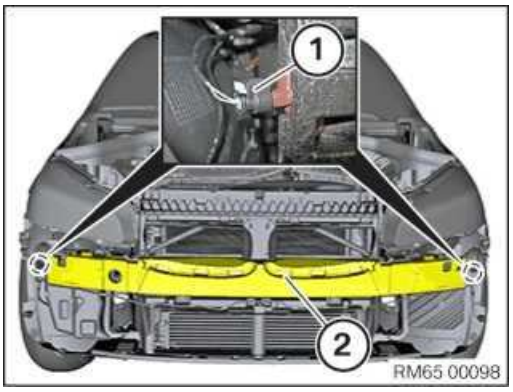
- Loosen screws (1).
- Loosen screws (2).



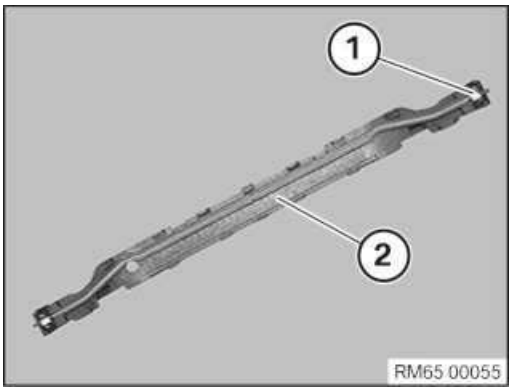
- Pull the front bumper panel slightly forward with the help of another person.
- Unlock and disconnect the plug connections (1) on the fog lights.
- Remove the front bumper panel.

9 – Remove impact absorber

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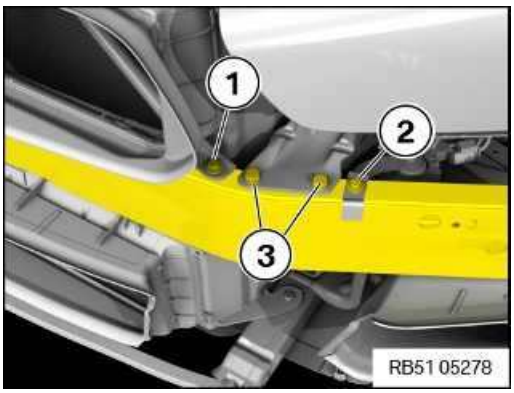


- Unlock and disconnect plug connections (1).
- Remove the impact absorber (2).

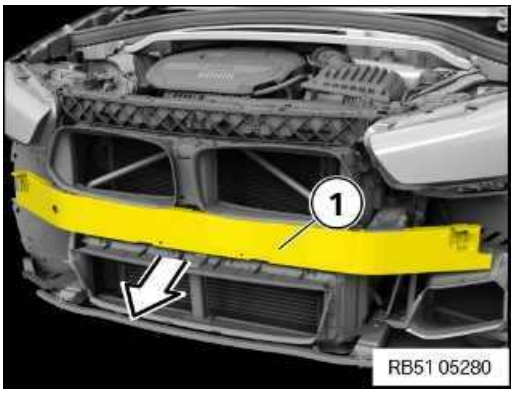


- Detach the pressure hose (1) from the impact absorber (2).

10 – Removing top front bumper support

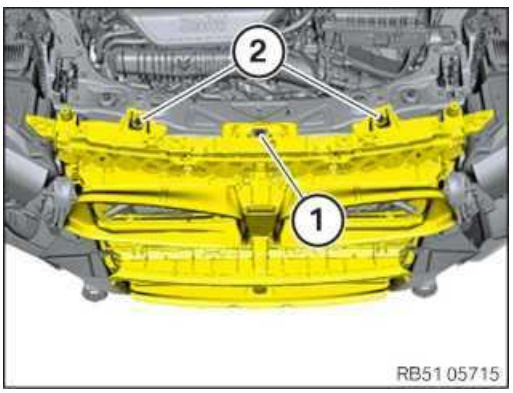


- Loosen screw (1).
- Loosen screw (2).
- Loosen screws (3).



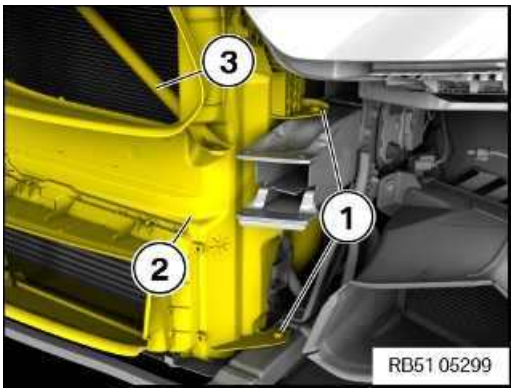
- Guide out and remove the top front bumper support (1) in direction of arrow.

11 – Remove the air duct to the radiator



- Loosen screw (1).
- Loosen screws (2).

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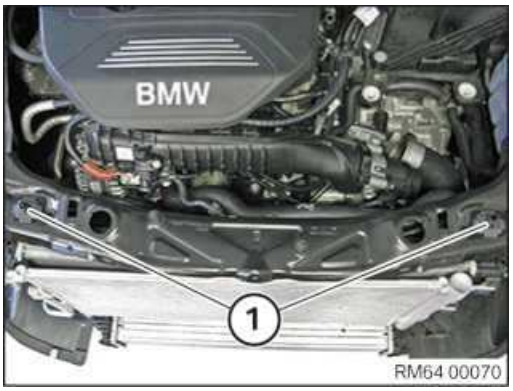
NOTICE

Perform the operations on the left and right side.

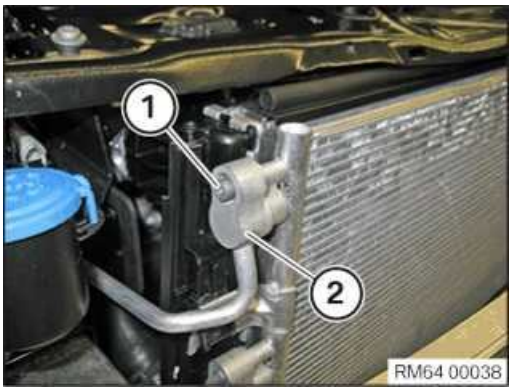
- Loosen screws (1).
- Feed out the air duct to the radiator (2) with the bracing strut (3) toward the front and remove.

MAIN WORK

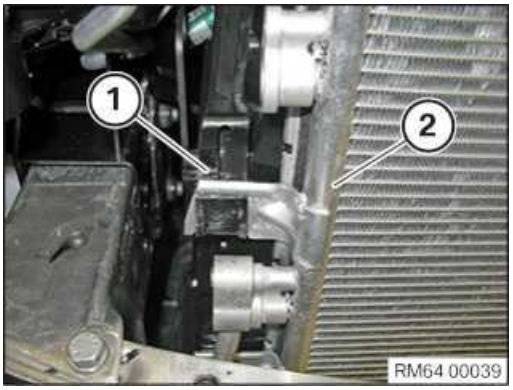
12 – Remove A/C condenser



- Loosen screws (1).

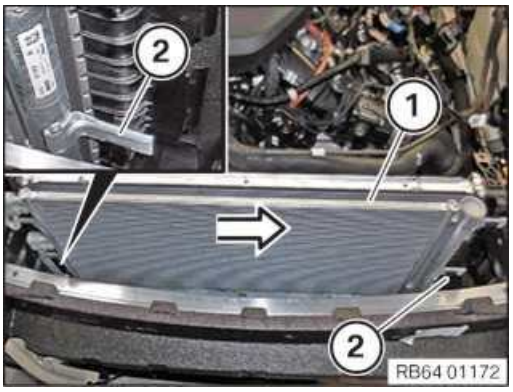


- Loosen screw (1).
- Remove the refrigerant line (2).

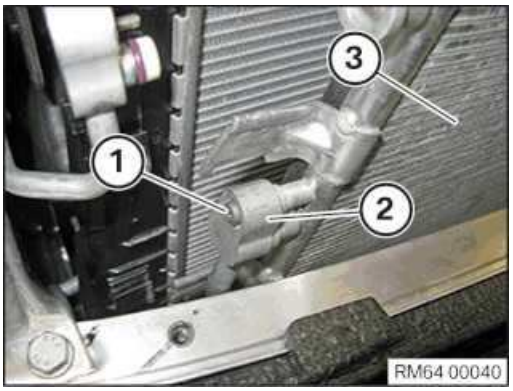


- Unlock the latch mechanism (1) on the left and right and slide the air conditioning condenser (2) slightly upward.

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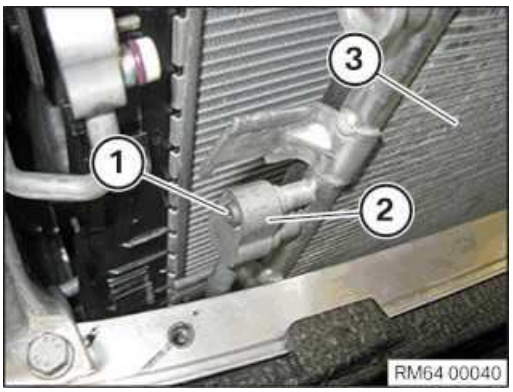


- Push condenser (1) in direction of arrow and feed out on the guides (2).



- Loosen screw (1).
- Remove the refrigerant line (2).
- Guide out the condenser (3) toward the top and remove it.

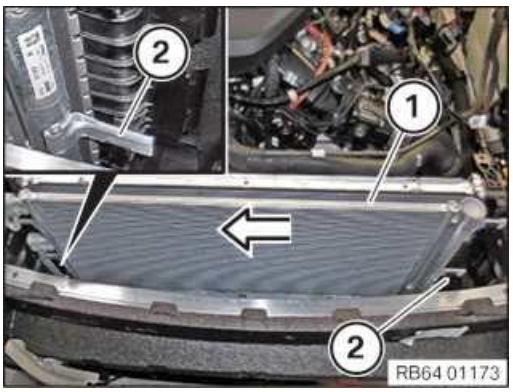
13 – Install air conditioning condenser



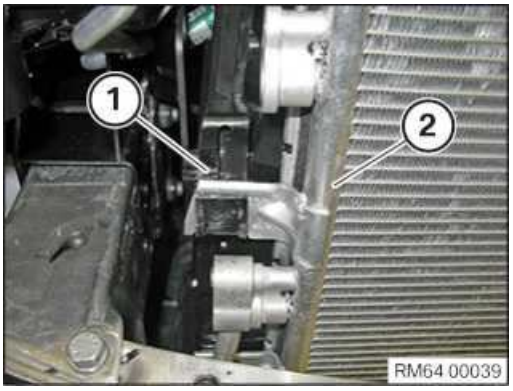
- Insert the condenser (3) from the top.
- Place refrigerant line (2) on the condenser (3).
- Tighten down screw (1).

Refrigerant line on the air conditioning condenser/bracket

M6		Tightening torque	8 Nm

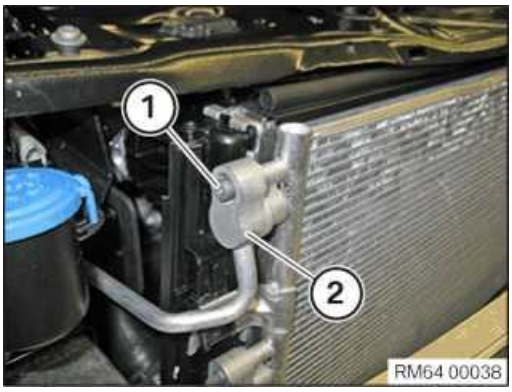


- Push the condenser (1) in direction of arrow and insert with guides (2).



- Push the condenser (2) from top to bottom and engage latch mechanisms (1) on the left and right.

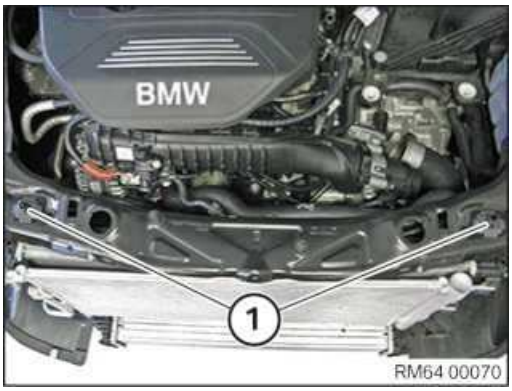
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- Position refrigerant line (2).
- Tighten down screw (1).

Refrigerant line on the air conditioning condenser/bracket

M6		Tightening torque	8 Nm



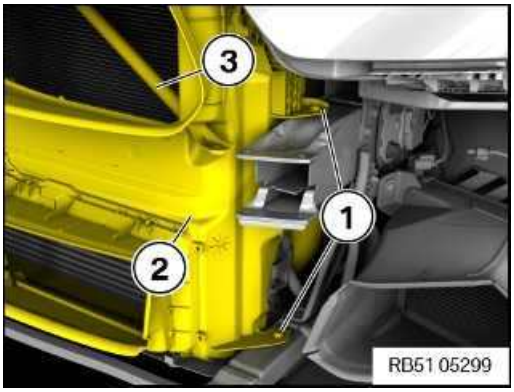
- Tighten the screws (1).

POSTPROCESSES

14 – Installing air duct to radiator

NOTICE

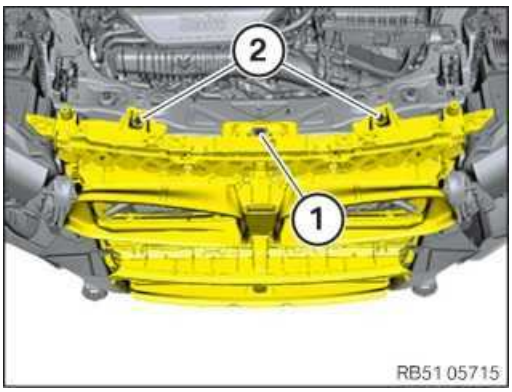
Perform the operations on the left and right side.



- Feed in air duct to radiator (2) with bracing strut (3).
- Tighten the screws (1).

Air duct to deformation element

M6x20 screw		Tightening torque	4,6 Nm



- Tighten down screw (1).

Bracing strut to top front bumper support or to top connection

M6x20 screw		Tightening torque	11,8 Nm

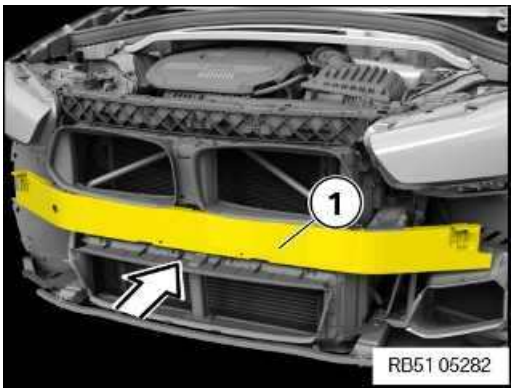
- Tighten down screws (2).

Air duct to upper connection

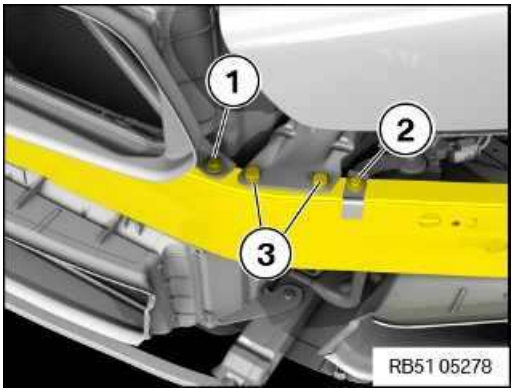
M6x20 screw		Tightening torque	11,8 Nm

15 – Installing top front bumper support

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- Position top front bumper support (1).



- Tighten down screws (3).

Front top bumper support to top deformation element

Hexagon screw M8x95		Tightening torque	28 Nm

- Tighten down screw (2).

Fanfare to front top bumper support

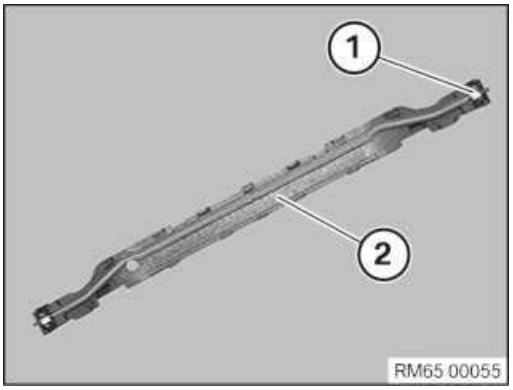
Hexagon screw		Tightening torque	11,8 Nm

- Tighten down screw (1).

Bracing strut to top front bumper support or to top connection

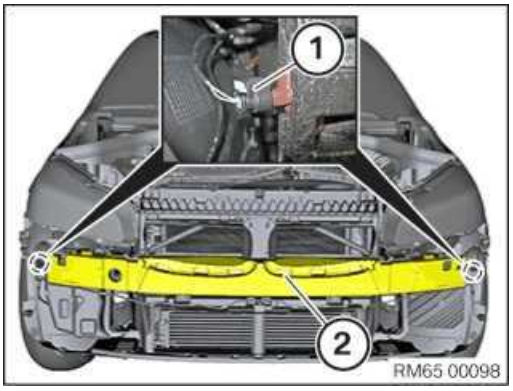
M6x20 screw		Tightening torque	11,8 Nm

16 – Installing impact absorber



- Renew the impact absorber (2).

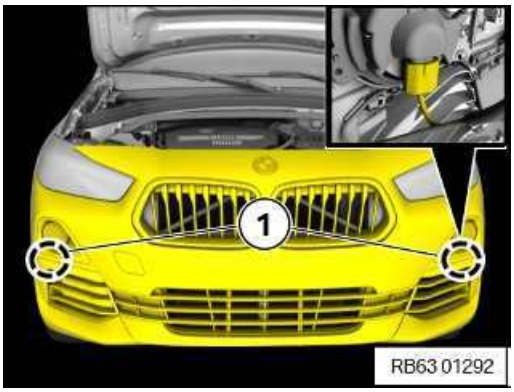
  Parts: Impact absorber
- Insert and engage pressure hose (1) in impact absorber (2).



- Attach bottom impact absorber (2) and press upwards.
- Connect connectors (1) and lock.

17 – Install bumper panel, front

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- Connect the connectors (1) on the fog lights and lock.
- Join the front bumper panel and position.



- Tighten the screws (1).

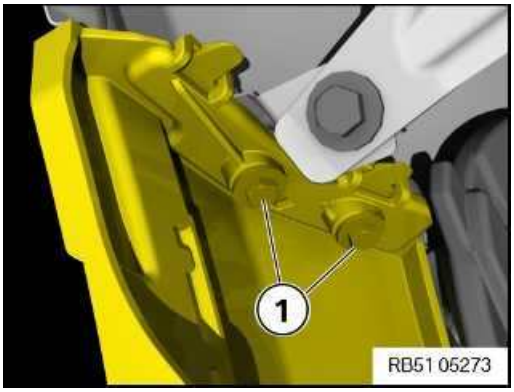
Bumper panel to headlight

Thermoplastic multi-purpose bolt		Tightening torque	2,5 Nm

- Tighten down screws (2).

Bumper panel to air duct

Screw M6		Tightening torque	4,6 Nm



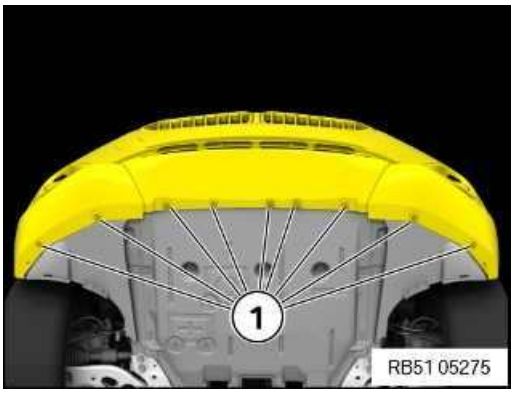
NOTICE

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

- Tighten the screws (1).

Front bumper panel to front side panel

Screw TS5X35		Tightening torque	3 Nm

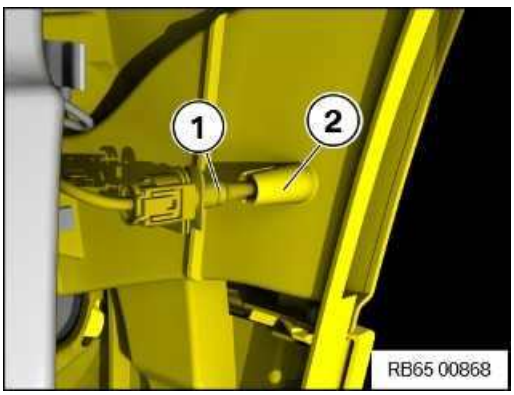


- Tighten the screws (1).

Front bumper panel to underbody panelling

Thermoplastic hexagon screw		Tightening torque	2,5 Nm

18 – Install temperature sensor



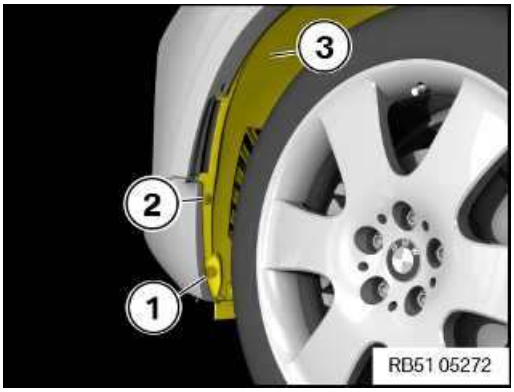
- Clip temperature sensor (1) into the front bumper panel (2).

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19 – Partially install both front wheel arch covers

NOTICE

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



▸ **Partially install the front wheel arch cover**

- Fold the front wheel arch cover (3) forward.
- Mount the blind rivet (2) with the special tool **0 496 521 (00 2 230)**.
- Tighten down screw (1).

Front wheel arch cover to front bumper panel

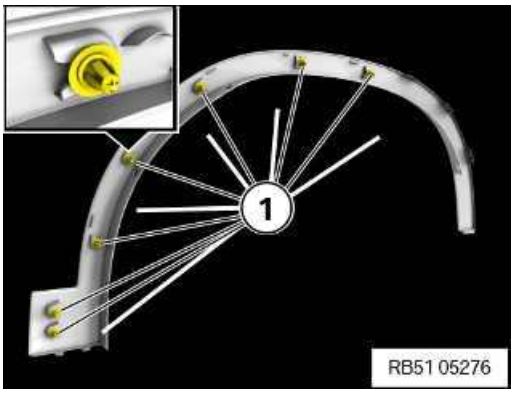
Hexagon screw for thermoplastic plastic		Tightening torque	2,6 Nm

20 – Partially install both front wheel arch trims

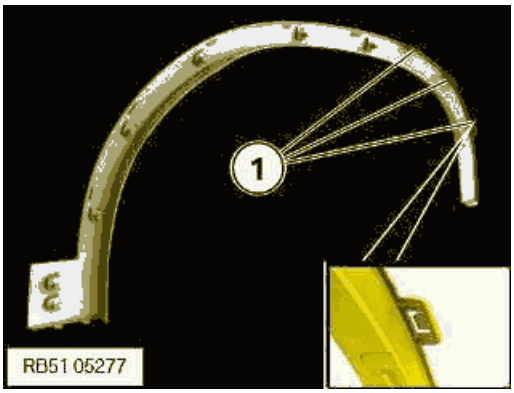
NOTICE

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

▸ **Partly install the front wheel arch trim**

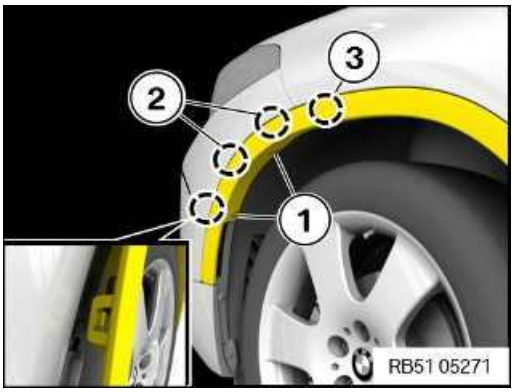


- Check clips (1) for damage, and replace if necessary.



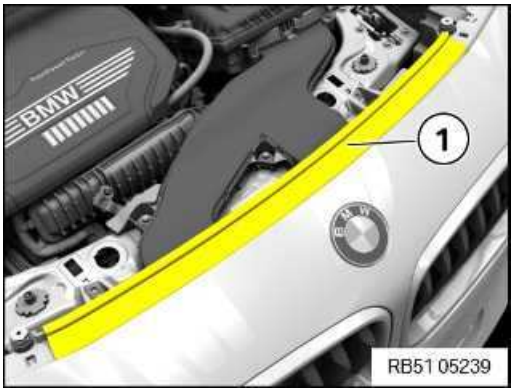
- Check the retaining lugs (1) for damage and replace the front wheel arch trim where required.

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- Clip the front wheel arch trim into the clip (3) in the area of the bumper panel and into the latch mechanisms (2).
- Mount blind rivet (1) using the special tool **0 496 521 (00 2 230)**.

21 – Install the center front bonnet seal



- Press the centre front bonnet seal (1) down into the guide.
- Make sure the centre front bonnet seal (1) is fitted correctly.

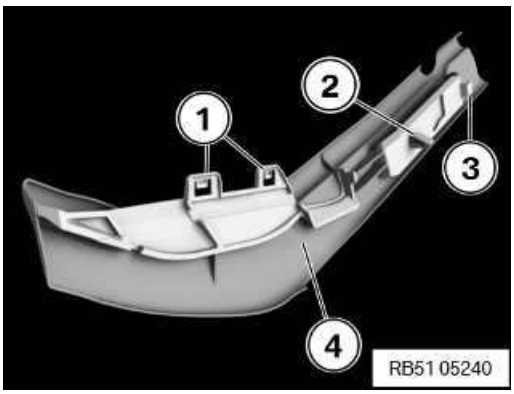
22 – Install both bonnet seals on the side

NOTICE

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

▸ **Installing seal for side bonnet**

Check



- Check latch mechanisms (1) and (2) and also the guide (3) on the bonnet seal on the side (4) for damage.

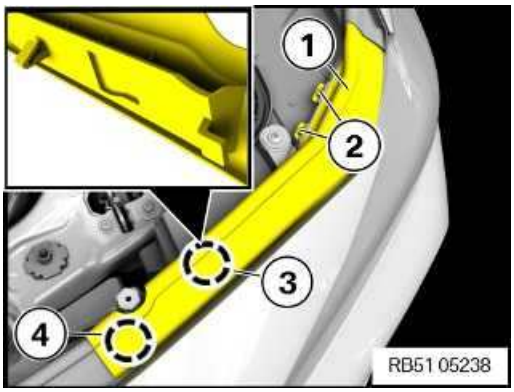
Result

» Latch mechanisms (1), (2) or the guide (3) are damaged.

Measure

- Renew the bonnet seal on the side (4).

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- Insert the bonnet seal on the side (1) in the guide (4).
- Clip in the bonnet seal on the side (1) in the inner latch mechanism (3) and the outer latch mechanisms (2).

23 – Disconnecting all battery earth leads



- See additional information.

24 – Evacuate and fill air conditioning

- See additional information.

Additional Information

Overview of Tightening Torques

Refrigerant line on the air conditioning condenser/bracket			Used in step 13
M6		Tightening torque	8 Nm

Air duct to deformation element			Used in step 14
M6x20 screw		Tightening torque	4,6 Nm

Bracing strut to top front bumper support or to top connection			Used in step 14 15
M6x20 screw		Tightening torque	11,8 Nm

Air duct to upper connection			Used in step 14
M6x20 screw		Tightening torque	11,8 Nm

Front top bumper support to top deformation element			Used in step 15
Hexagon screw M8x95		Tightening torque	28 Nm

Fanfare to front top bumper support			Used in step 15
Hexagon screw		Tightening torque	11,8 Nm

Bumper panel to headlight			Used in step 17
Thermoplastic multi-purpose bolt		Tightening torque	2,5 Nm

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Bumper panel to air duct			Used in step 17
Screw M6		Tightening torque	4,6 Nm

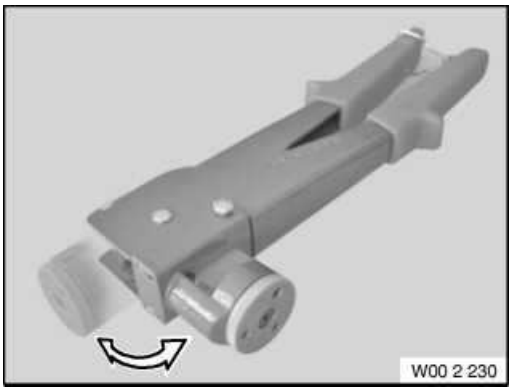
Front bumper panel to front side panel			Used in step 17
Screw TS5X35		Tightening torque	3 Nm

Front bumper panel to underbody panelling			Used in step 17
Thermoplastic hexagon screw		Tightening torque	2,5 Nm

Front wheel arch cover to front bumper panel			Used in step 19
Hexagon screw for thermoplastic plastic		Tightening torque	2,6 Nm

Overview of Special Tools

0 496 521 (00 2 230) Pliers



Common	Used in step 19 20
Usage	(Blind rivet pliers for plastic rivets) For shaft diameters of 3.5 mm, 3.9 mm and 4.5 mm
Included in the tool or work	
Storage location	C25
Replaced by	
In connection with	
SI-Number	01 17 08 (478)

Links

General repair instructions	Used in step
64 50 ... Note for handling R134a refrigerant	
64 53 ... Instructions for replacement of air conditioning capacitors and radiator/coolers	
64 52 ... Instructions for opening and part exchange in refrigerant circuit	

Repair instructions	Used in step
64 50 010 Extract, evacuate and fill air conditioning system	1 24
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 24
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 24
64 50 ... Notes on repairs to air conditioning	1 24
64 50 010 Drawing off, evacuating and filling air conditioning (R1234yf)	1 24
64 50 ... Safety information for handling refrigerant R1234yf	1 24
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	1 24
64 50 ... Safety informations for handling refrigerant oil	1 24
61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23
61 20 900 Disconnecting and connecting battery earth lead	2 23

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61 20 900 Disconnecting and connecting battery earth lead	2	23
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2	23
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2	23
61 20 900 Disconnecting and connecting battery earth lead	2	23
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2	23
61 20 900 Disconnect and connect battery earth lead (Plug-in Hybrid Electric Vehicle)	2	23
61 20 900 Disconnecting and connecting battery earth lead	2	23
61 20 900 Disconnecting and connecting battery earth lead	2	23
61 20 900 Disconnecting and connecting battery earth lead	2	23
61 20 900 Disconnecting and connecting battery earth lead	2	23
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61 20 900 Disconnecting and connecting battery earth lead	2	23
61 20 900 Disconnecting and connecting battery earth lead	2	23
61 20 900 Disconnecting and connecting battery earth lead	2	23
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2	23
61 20 900 Disconnecting and connecting battery earth lead	2	23
61 20 900 Disconnecting and connecting battery earth lead	2	23
61 20 900 Disconnecting and connecting battery earth lead	2	23
61 20 900 Disconnecting and connecting battery earth lead	2	23
61 20 900 Disconnecting and connecting battery earth lead	2	23
61 20 900 Disconnecting and connecting battery earth lead	2	23
64 50 ... Safety information for handling refrigerant R1234yf		
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a		

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64 53 520 Replace the safety pressure switch (without drawing off, evacuating and filling)

PRELIMINARY WORK

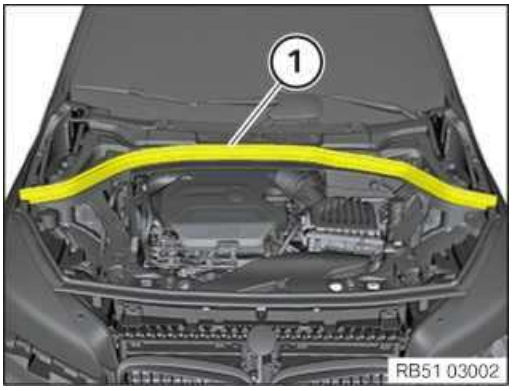
1 – Drawing off the air conditioning

- See additional information.

2 – Remove the seal for the rear bonnet

NOTICE

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



- Pull off rear bonnet seal (1) towards the top and remove.

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

NOTICE

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

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

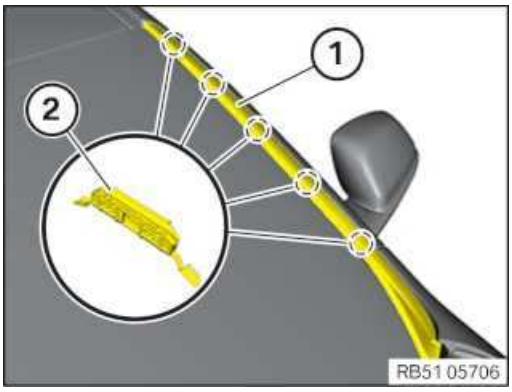
RISK OF DAMAGE

Scratches.

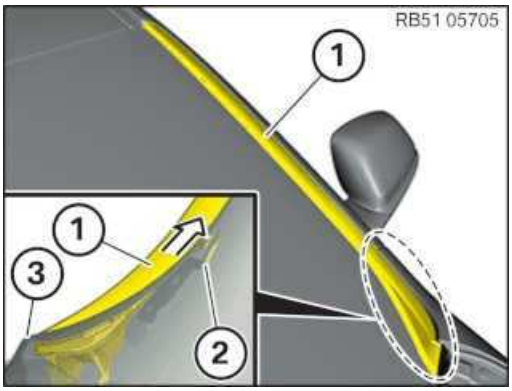
Tools and sharp-edged components can cause scratches.

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

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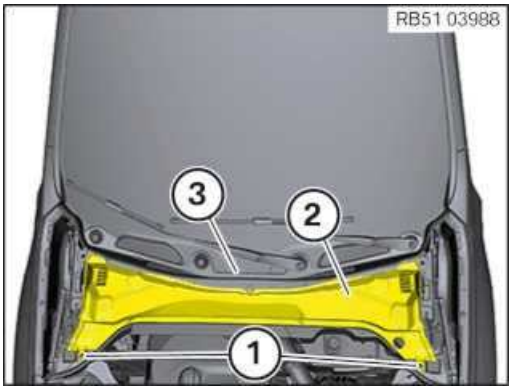


- Unclip the gutter strip (1) from the clamps (2) beginning at the roof to the top.



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

4 – Removing front cowl panel cover



- Loosen the expanding rivet (1).
- Feed out and remove front cowl panel cover (2) from the rear cowl panel cover(3).

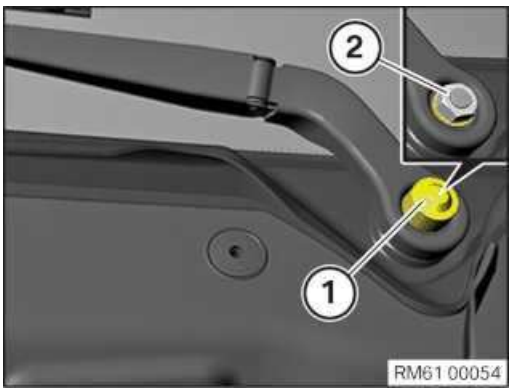
5 – Remove left and right wiper arm

RISK OF DAMAGE

Damage to wiper console

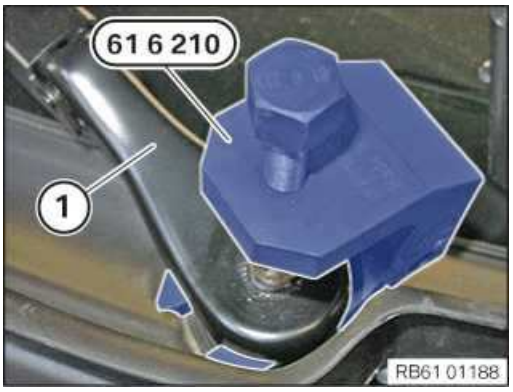
While removing the wiper arms without using special tool, the wiper console can break.

- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do not lift off wiper arm, else the wiper console may break on the predetermined breaking point for the pedestrian protection.



- Pull off the protective cap (1) and release the nut (2) below it.

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- Pull off windscreen wiper arm (1)with special tool .

6 – Remove the rear cowl panel



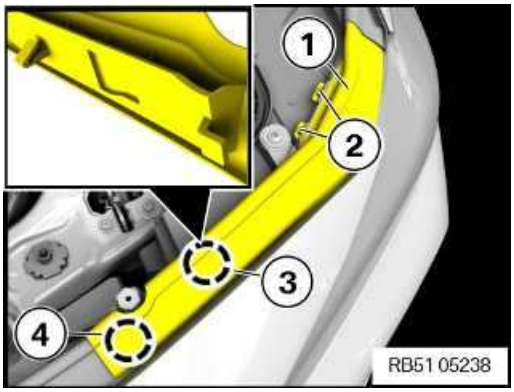
- Pull off the cowl panel cover (1) towards the top, starting from the side and feed out.

7 – Remove both bonnet seals on the side

NOTICE

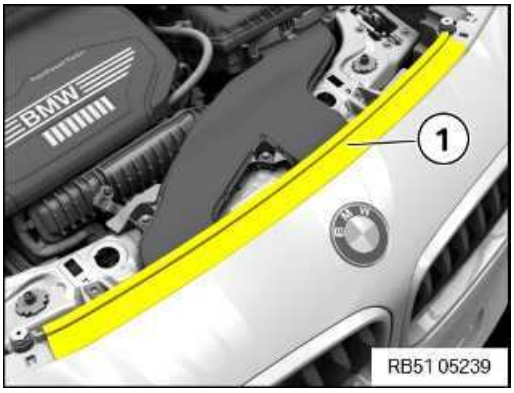
Description is for left component only. Procedure on the right side is identical.

▸ **Remove the bonnet seal on the side**



- Unclip the side bonnet seal (1) from the outer latch mechanisms (2) and the inner latch mechanism (3).
- Feed out the side bonnet seal (1) from the guide (4) and remove.

8 – Removing the seal for the front centre bonnet



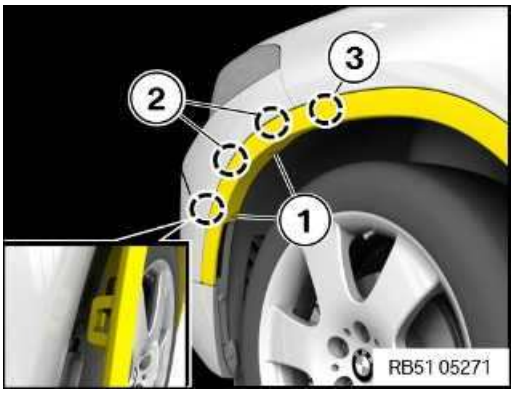
- Remove the seal for the front centre bonnet (1) towards the top.

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9 – Partially remove both front wheel arch trims

NOTICE

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



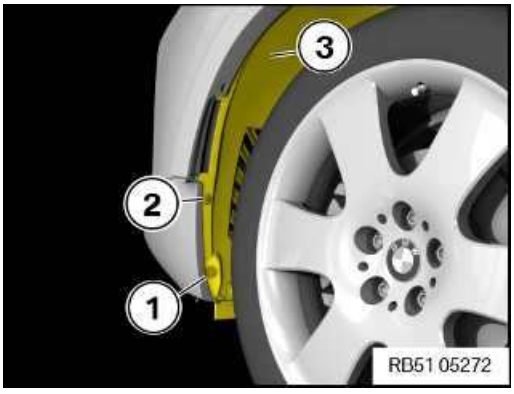
▸ **Partially removing the front wheel arch trim**

- Loosen blind rivet(1).
- Release front wheel arch trim in the area of the bumper panel from the latch mechanisms (2) and from the clip (3).

10 – Partially remove both front wheel arch covers

NOTICE

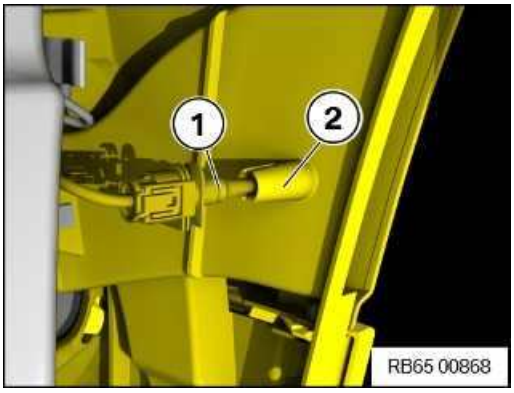
Description is for left component only. Procedure on the right side is identical.



▸ **Partially remove the front wheel arch cover**

- Loosen screw (1).
- Release the blind rivet (2).
- Fold back the front wheel arch cover (3).

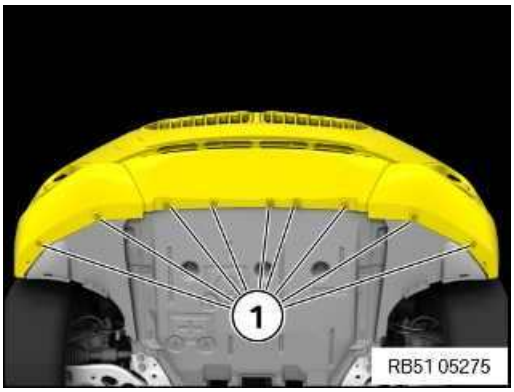
11 – Remove temperature sensor



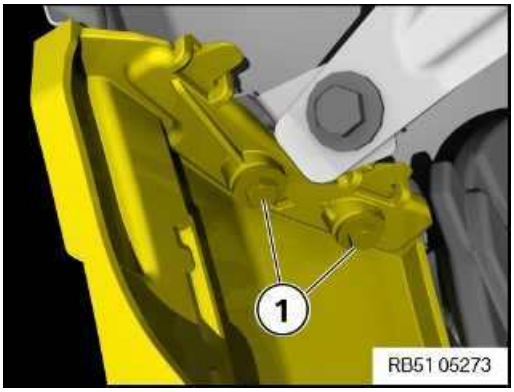
- Unclip temperature sensor (1) from front bumper panel (2).

12 – Remove front bumper panel

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- Loosen screws (1).



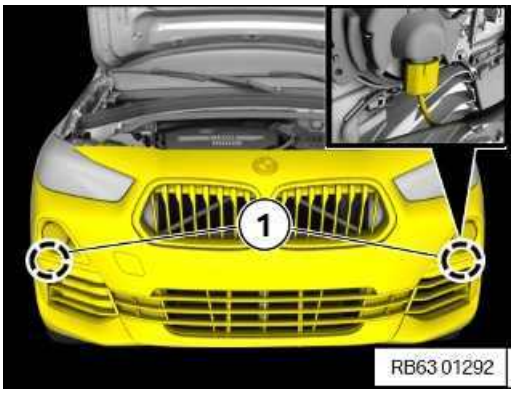
NOTICE

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

- Loosen screws (1).



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



- Pull the front bumper panel slightly forward with the help of another person.
- Unlock and disconnect the plug connections (1) on the fog lights.
- Remove the front bumper panel.

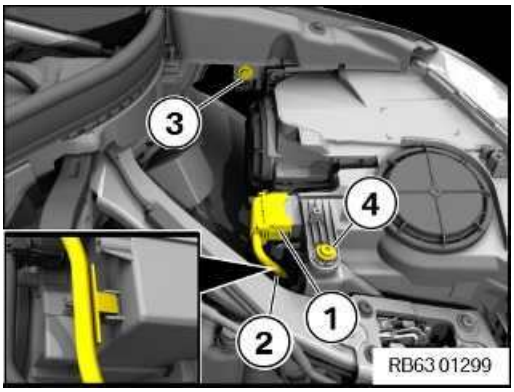
13 – Remove right headlight

NOTICE

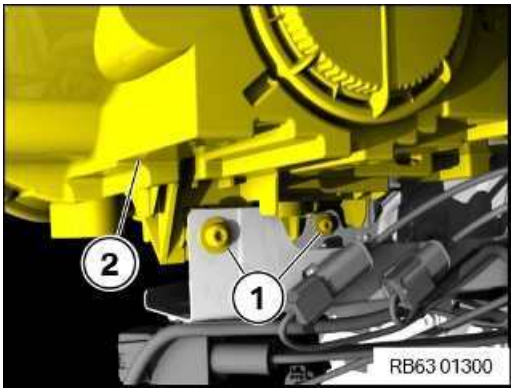
Description is for left component only. Procedure on the right side is identical.

▸ **Remove headlight**

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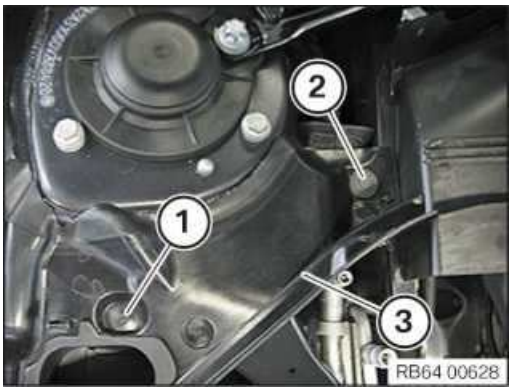
- Unlock plug connection (1) and disconnect.
- Release the cable (2) from the latch mechanism.
- Loosen screw (3).
- Loosen screw (4).



- Loosen screws (1).
- Remove the headlight (2) toward the front.

MAIN WORK

14 – Remove safety pressure switch

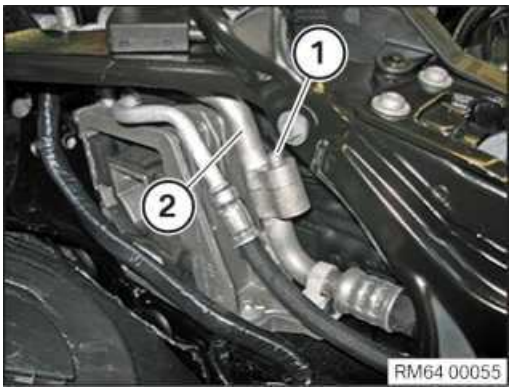


- Loosen expanding rivet (1).
- Loosen screw (2).
- Remove the cover (3).

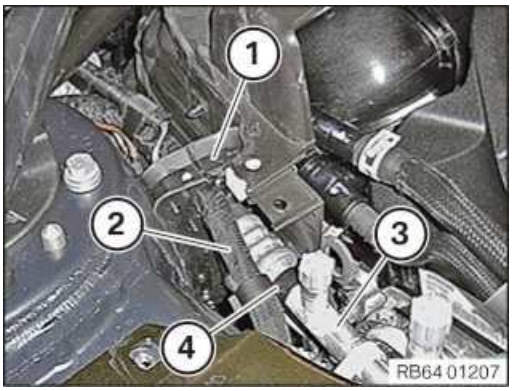


- Unlock and open the holder (1).

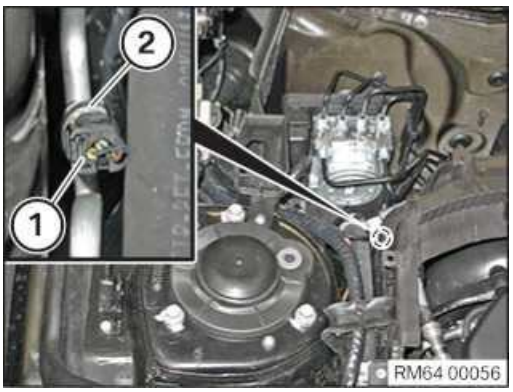
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- Loosen screw (1).
- Remove the refrigerant line (2) and set it aside.

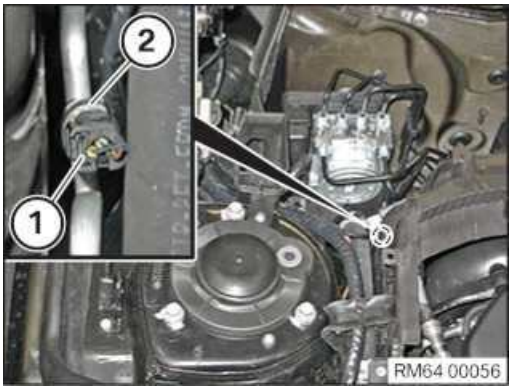


- Open the holder (1).
- Slide the cable (2) slightly to the side.
- Detach the refrigerant line (3) from the holder (4).
- Set the refrigerant line (3) aside.



- Unlock and disconnect connector (1).
- Loosen the safety pressure switch (2).

15 – Installing the safety pressure switch

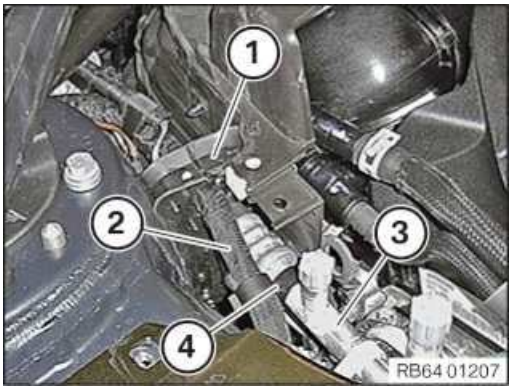


- Tighten safety pressure switch (2).

Safety pressure switch

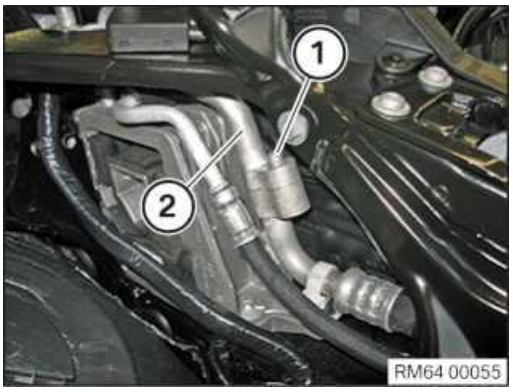
	Tightening torque	10 Nm

- Connect connectors (1) and lock.



- Correctly position the refrigerant line (3) in the holder (1).
- Correctly position the cable (2) in the holder (1).
- Attach the refrigerant line (3) to the holder (4).
- Close the holder (1).

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- Replace O-rings.

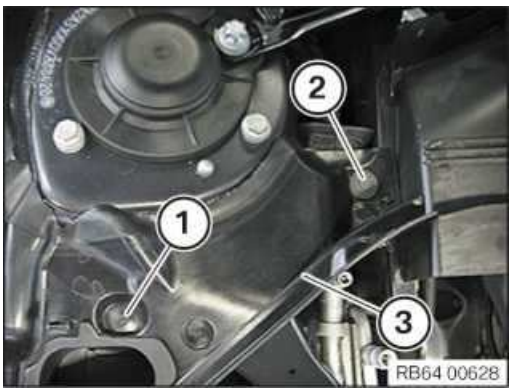
  Parts: O-rings
- Correctly position the refrigerant line (2).
- Tighten down screw (1).

Refrigerant line to connecting piece

Screw M6		Tightening torque	8 Nm



- Close and lock the holder (1).



- Position the cover (3).
- Fasten expanding rivet (1).
- Tighten down screw (2).

Cover of top bulkhead

Screw		Tightening torque	2,6 Nm

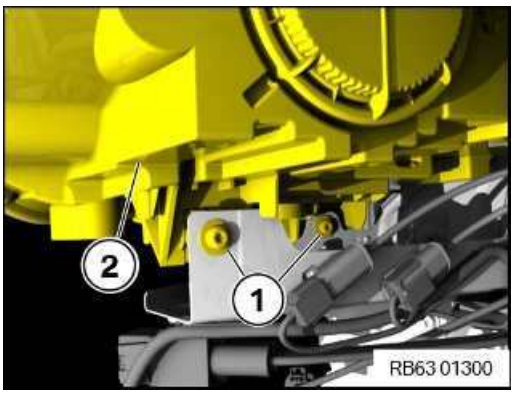
POSTPROCESSES

16 – Install right headlight

NOTICE

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

▸ **Install headlight**

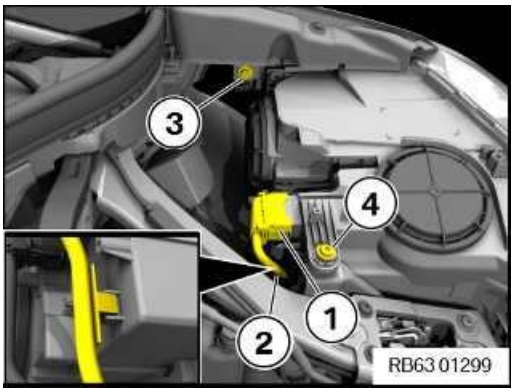


- Insert the headlights (2).
- Tighten the screws (1).

Headlight to headlight support bracket

M6x35 screw		Tightening torque	5 Nm

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- Tighten down screw (4).

Headlight to headlight support bracket

M6x35 screw		Tightening torque	5 Nm

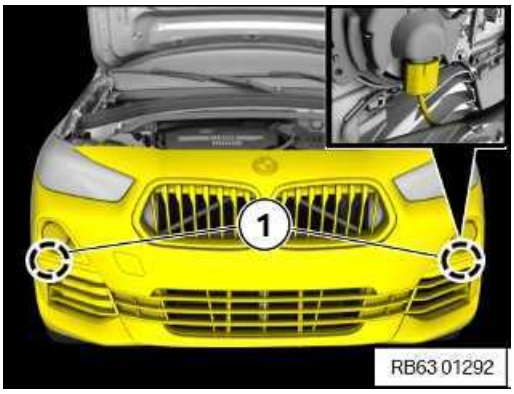
- Tighten down screw (3).

Headlight to carrier support extension

Multi-purpose hexagon screw with washer		Tightening torque	5 Nm

- Attach the cable (2) in the latch mechanism.
- Connect connectors (1) and lock.

17 – Install bumper panel, front



- Connect the connectors (1) on the fog lights and lock.
- Join the front bumper panel and position.



- Tighten the screws (1).

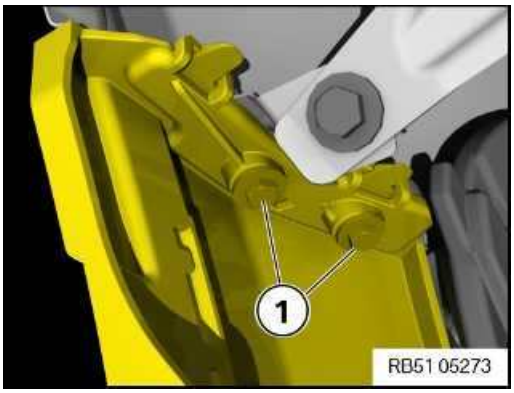
Bumper panel to headlight

Thermoplastic multi-purpose bolt		Tightening torque	2,5 Nm

- Tighten down screws (2).

Bumper panel to air duct

Screw M6		Tightening torque	4,6 Nm



NOTICE

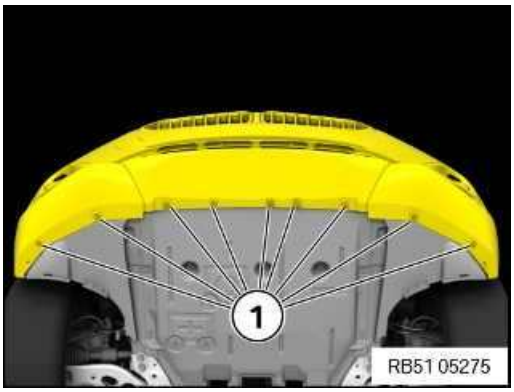
Description is for left component only. Procedure on the right side is identical.

- Tighten the screws (1).

Front bumper panel to front side panel

Screw TS5X35		Tightening torque	3 Nm

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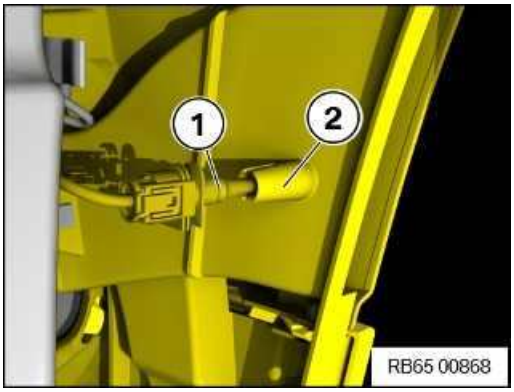


- Tighten the screws (1).

Front bumper panel to underbody panelling

Thermoplastic hexagon screw		Tightening torque	2,5 Nm

18 – Install temperature sensor



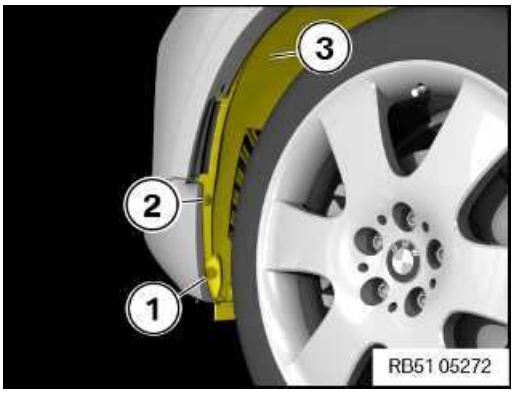
- Clip temperature sensor (1) into the front bumper panel (2).

19 – Partially install both front wheel arch covers

NOTICE

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

▸ **Partially install the front wheel arch cover**



- Fold the front wheel arch cover (3) forward.
- Mount the blind rivet (2) with the special tool **0 496 521 (00 2 230)**.
- Tighten down screw (1).

Front wheel arch cover to front bumper panel

Hexagon screw for thermoplastic plastic		Tightening torque	2,6 Nm

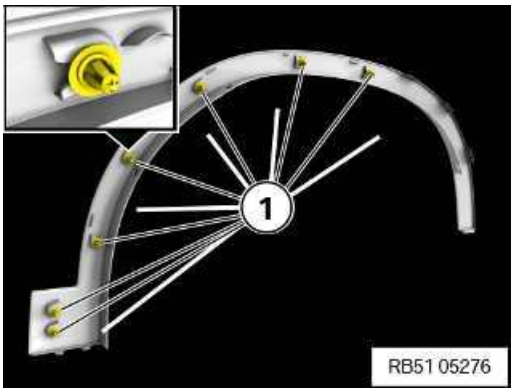
20 – Partially install both front wheel arch trims

NOTICE

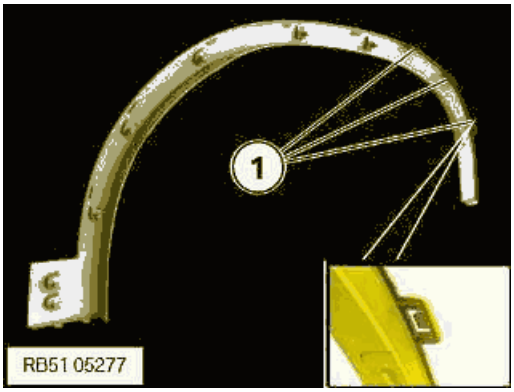
Description is for left component only. Procedure on the right side is identical.

▸ **Partly install the front wheel arch trim**

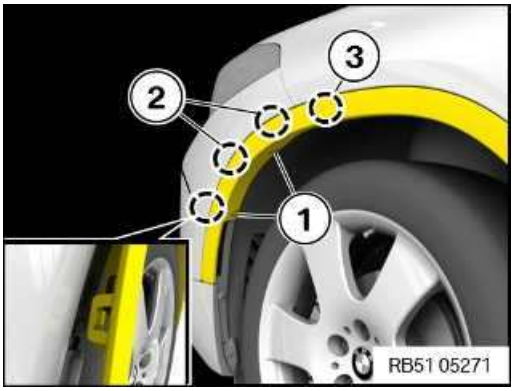
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- Check clips (1) for damage, and replace if necessary.

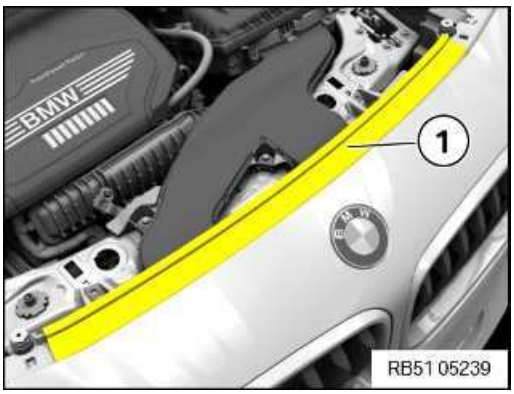


- Check the retaining lugs (1) for damage and replace the front wheel arch trim where required.



- Clip the front wheel arch trim into the clip (3) in the area of the bumper panel and into the latch mechanisms (2).
- Mount blind rivet (1) using the special tool **0 496 521 (00 2 230)**.

21 – Install the center front bonnet seal



- Press the centre front bonnet seal (1) down into the guide.
- Make sure the centre front bonnet seal (1) is fitted correctly.

22 – Install both bonnet seals on the side

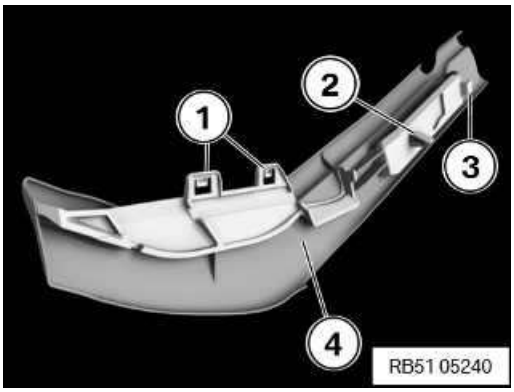
NOTICE

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

▸ **Installing seal for side bonnet**

Check

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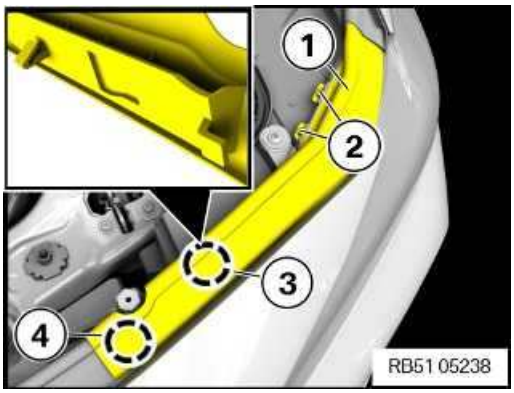
- Check latch mechanisms (1) and (2) and also the guide (3) on the bonnet seal on the side (4) for damage.

Result

» Latch mechanisms (1), (2) or the guide (3) are damaged.

Measure

- Renew the bonnet seal on the side (4).



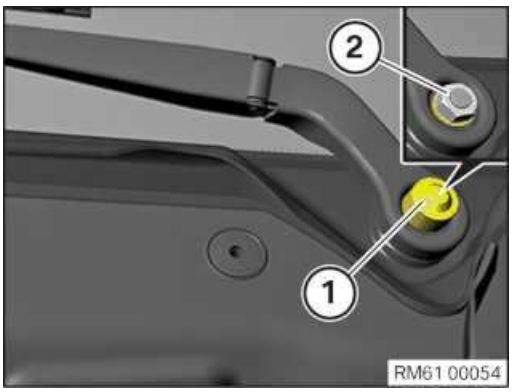
- Insert the bonnet seal on the side (1) in the guide (4).
- Clip in the bonnet seal on the side (1) in the inner latch mechanism (3) and the outer latch mechanisms (2).

23 – Install the rear cowl panel



- Insert the cowl panel cover (1) and press it into the latch mechanism on the windscreen starting at the side.

24 – Install left and right wiper arm



- Join wiper arm and tighten with nut (2).

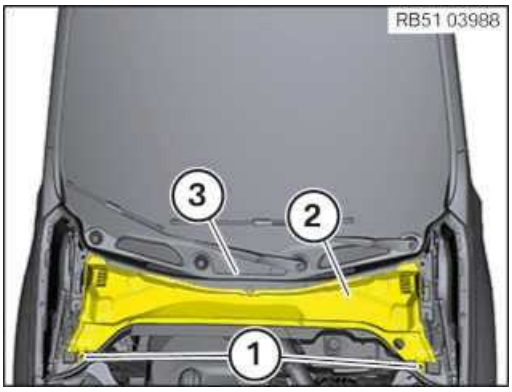
Windscreen wiper arm

Combination hexagon nut		Tightening torque	35 Nm

- Join the protective cap (1).

25 – Installing front cowl panel cover

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- Insert and install cowl panel cover at front (2) into cowl panel cover at rear (3).
- Check cowl panel cover at front is correctly seated (2).
- Secure expanding rivet (1).

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

NOTICE

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

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

RISK OF DAMAGE

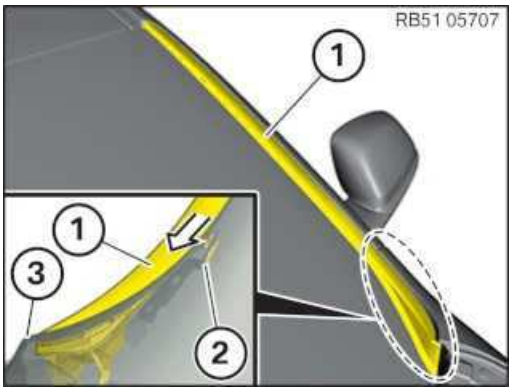
Scratches.

Tools and sharp-edged components can cause scratches.

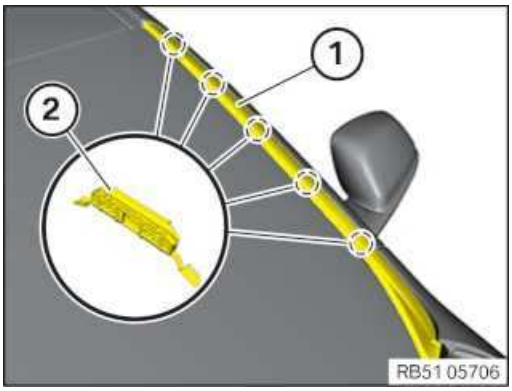
- Protect working area.
- Handle tools and components carefully.

TECHNICAL INFORMATION

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



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



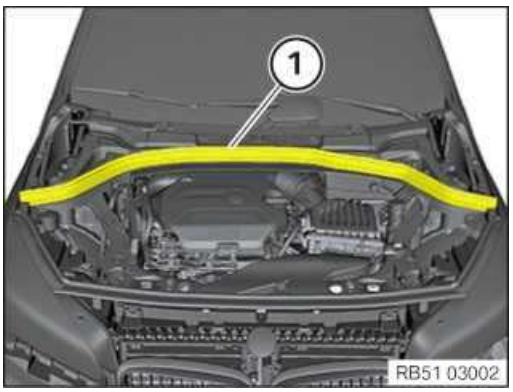
- Clip in the gutter strip (1) at the bottom starting at the clamps (2).

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27 – Install the seal for the bonnet

NOTICE

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



- Install bonnet seal at rear (1).
- Ensure that the rear bonnet seal (1) is fitted correctly.

28 – Evacuate and fill air conditioning

- See additional information.

29 – Adjusting headlights

TECHNICAL INFORMATION

Notes on headlight adjustment are a fundamental requirement for these repair instructions and must be complied with at all times.

For additional information see: 6310 ... Test prerequisite for adjusting headlights



- Perform the headlight adjustment with the adjusting screws (1) and (2).

  A definite allocation of adjusting screws is not possible.

  Adjusting screw (1) is primarily used for the height adjustment.

  Adjusting screw (2) is primarily used for the lateral adjustment.
- Adjust the height at the adjusting screw (1).
- **US version:** Set the lateral adjustment only if the plug on the adjusting screw for lateral adjustment is missing or damaged.

  If required, remove damaged plug (see additional information).
- Make the lateral adjustment at the adjusting screw (2).
- Perform reference run. Switch the headlights off and on again.
- Check the headlight and adjust if necessary.
- **US version:** If the lateral adjustment has been checked or corrected: Renew the plug and press it into the adjusting screw **without damage** for lateral adjustment.

Additional Information

Overview of Tightening Torques

Safety pressure switch Used in step 15

	Tightening torque	10 Nm

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Refrigerant line to connecting piece — Used in step 15

Screw M6		Tightening torque	8 Nm

Cover of top bulkhead — Used in step 15

Screw		Tightening torque	2,6 Nm

Headlight to headlight support bracket — Used in step 16

M6x35 screw		Tightening torque	5 Nm

Headlight to carrier support extension — Used in step 16

Multi-purpose hexagon screw with washer		Tightening torque	5 Nm

Bumper panel to headlight — Used in step 17

Thermoplastic multi-purpose bolt		Tightening torque	2,5 Nm

Bumper panel to air duct — Used in step 17

Screw M6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 17

Screw TS5X35		Tightening torque	3 Nm

Front bumper panel to underbody panelling — Used in step 17

Thermoplastic hexagon screw		Tightening torque	2,5 Nm

Front wheel arch cover to front bumper panel — Used in step 19

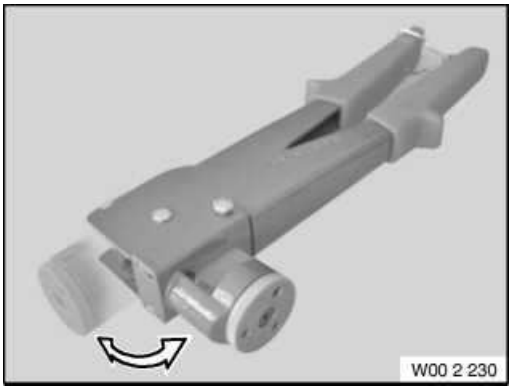
Hexagon screw for thermoplastic plastic		Tightening torque	2,6 Nm

Windscreen wiper arm — Used in step 24

Combination hexagon nut		Tightening torque	35 Nm

Overview of Special Tools

0 496 521 (00 2 230) Pliers



Common — Used in step 19 20

Usage	(Blind rivet pliers for plastic rivets) For shaft diameters of 3.5 mm, 3.9 mm and 4.5 mm
Included in the tool or work	
Storage location	C25
Replaced by	
In connection with	
SI-Number	01 17 08 (478)

Links

General repair instructions	Used in step

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63 12 ... US version: Check/set the horizon lock for headlight replacement.	16
63 12 ... US version: Setting the horizontal blocking when headlamp is set	29
63 12 ... US version: Remove the horizontal blocking before adjusting the headlamp	29
64 52 ... Instructions for opening and part exchange in refrigerant circuit	
64 50 ... Note for handling R134a refrigerant	

Repair instructions	Used in step
64 50 010 Extract, evacuate and fill air conditioning system	1 28
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 28
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 28
64 50 ... Notes on repairs to air conditioning	1 28
64 50 010 Drawing off, evacuating and filling air conditioning (R1234yf)	1 28
64 50 ... Safety information for handling refrigerant R1234yf	1 28
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	1 28
64 50 ... Safety informations for handling refrigerant oil	1 28
63 10 ... Test requirements for headlights vertical aim adjustment	29
64 50 ... Safety information for handling refrigerant R1234yf	
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	

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64 53 650 Replacing line from air conditioning compressor to evaporator (from compressor to the separation point) (without drawing off, evacuating and filling)

NOTICE

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

PRELIMINARY WORK

1 – Drawing off the air conditioning

- See additional information.

2 – Removing the wheel



- If several wheels are removed simultaneously: Use a piece of chalk to mark on each tyre the axle and side on which the corresponding wheel is fitted.
- Unscrew the wheel bolts (arrows) and remove the wheel.

  Use the matching adapter from tool set (wheel bolt adapter set) to loosen and tighten down the wheel bolt with security code.

3 – Removing the front right wheel arch cover

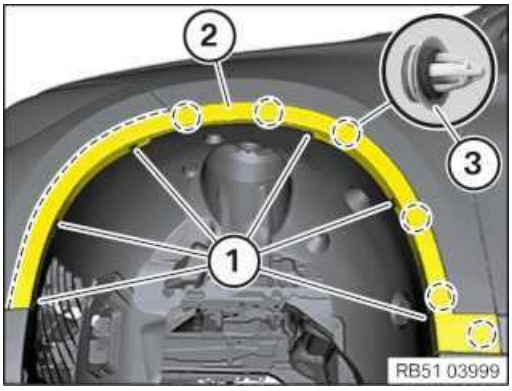
▸ **Remove the front wheel arch trim**

NOTICE

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

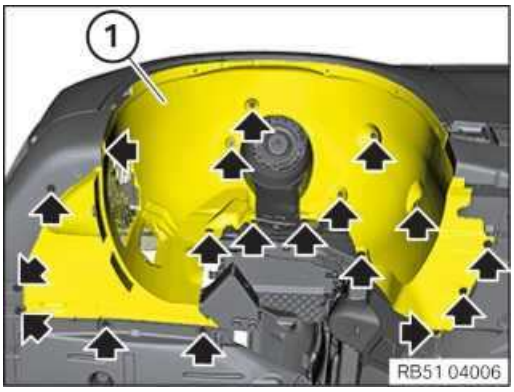
NOTICE

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



- Remove the blind rivets (1).
- Release the wheel arch trim (2) in the area of the side panel from the clips (3).
- Release the wheel arch trim (2) from the latch mechanisms on the bumper and remove.

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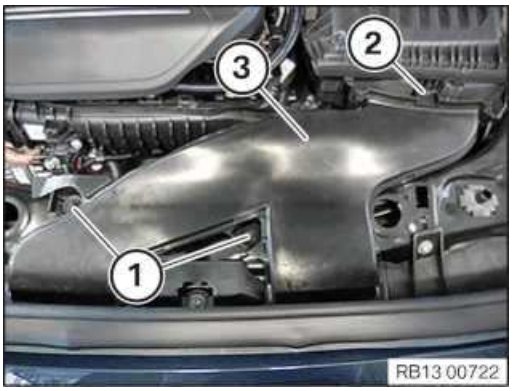


NOTICE

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

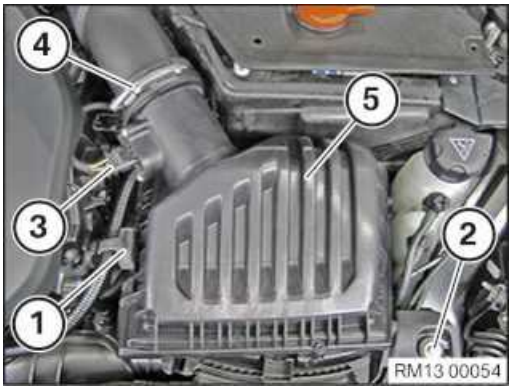
- Unscrew all bolts and nuts (arrows).
- Guide the wheel arch cover (1) out.

4 – Remove the intake neck for intake silencer housing



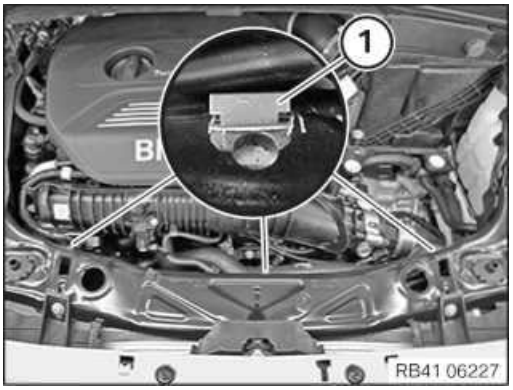
- Loosen nuts (1).
- Loosen the lock (2).
- Guide the intake neck (3) out and remove it.

5 – Removing intake silencer housing



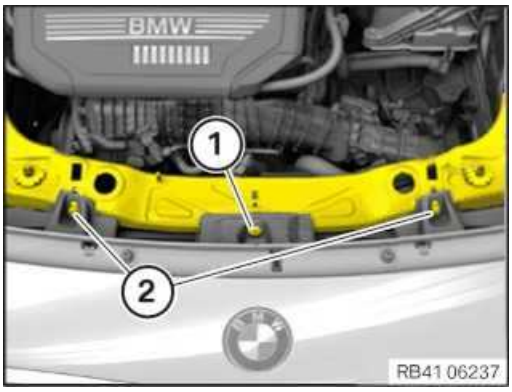
- Loosen the holder (1).
- Loosen screw (2).
- Unlock and loosen connector (3).
- Unfasten clamp (4).
- Pull out and remove the intake silencer housing (5) from the rubber mounts towards the top.

6 – Remove front cross connection

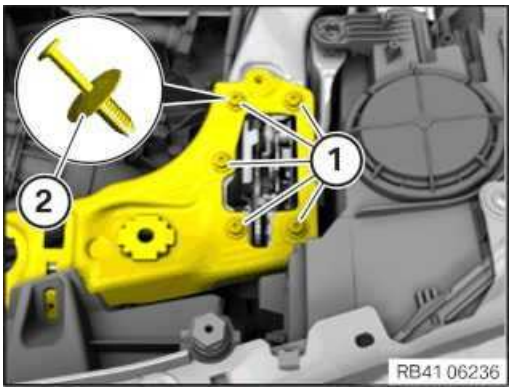


- Detach the clamps (1) for the Bowden cable of the bonnet locks from the cross connection.

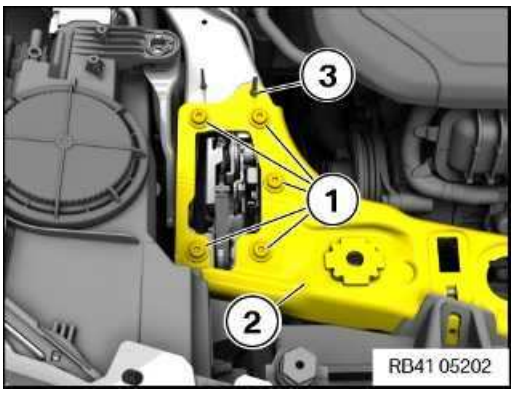
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- Loosen screw (1).
- Loosen screws (2).



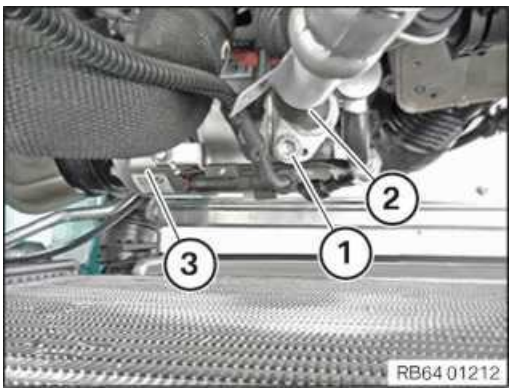
- Loosen screws (1).
- Lever out expanding rivet (2).



- Loosen screws (1).
- Unclip the front cross connection (2) from the rubber retainer (3) and remove it upward.

MAIN WORK

7 – Removing refrigerant line from the air conditioning compressor to the separation point

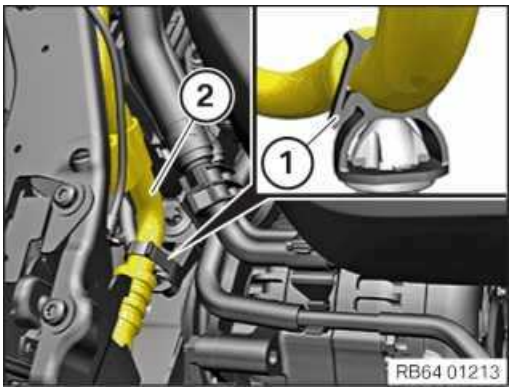


- Loosen screw (1).
- Remove the refrigerant line (2) from the air conditioning compressor (3) and set it aside.

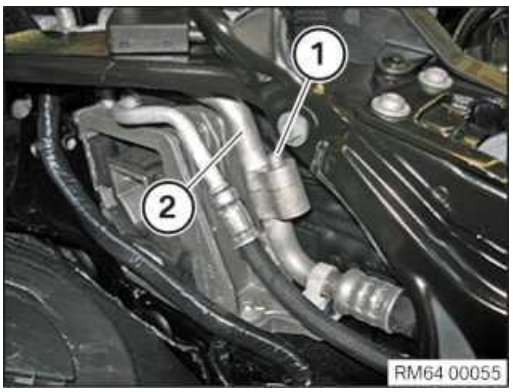
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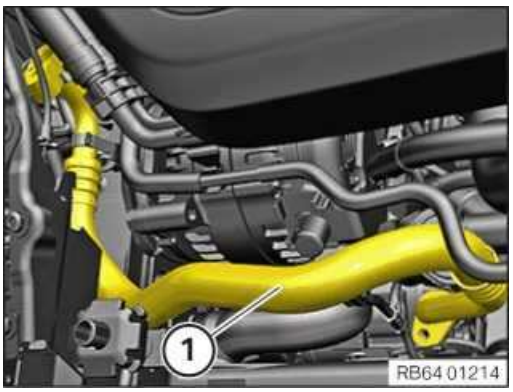
- Open the holder (1).



- Open holder (1) for the refrigerant line (2).

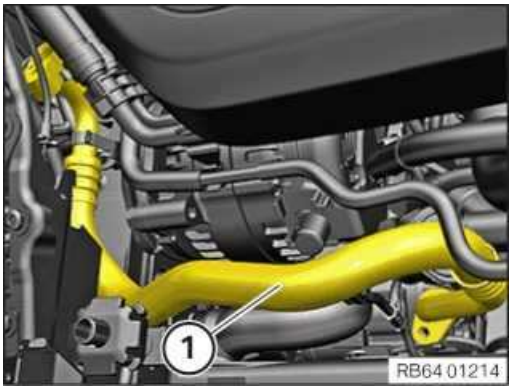


- Slide the refrigerant line (2) slightly to the side.
- Loosen screw (1).
- Remove the refrigerant line (2).



- Feed out refrigerant line (1) and remove.

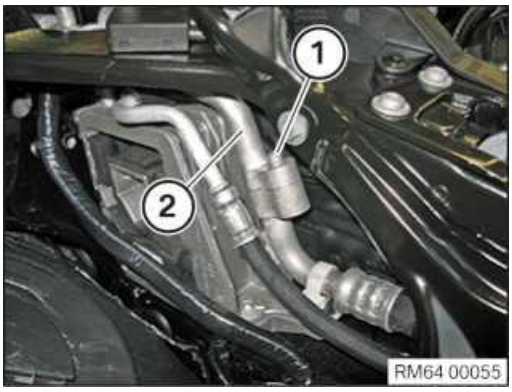
8 – Installing refrigerant line from the air conditioning compressor to the separation point



- Replace O-rings.

  Parts: O-rings
- Feed in the refrigerant line (1) and position it correctly.

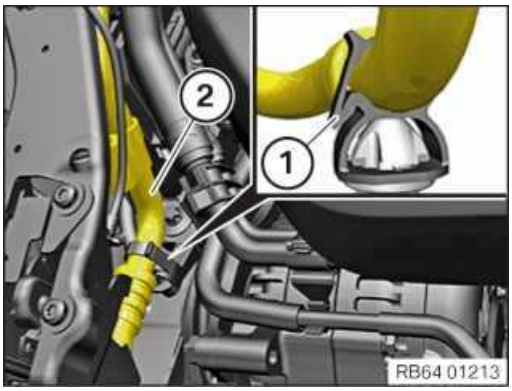
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- Fix the refrigerant line (2) and position it correctly.
- Tighten down screw (1).

Refrigerant line to connecting piece

Screw M6		Tightening torque	8 Nm

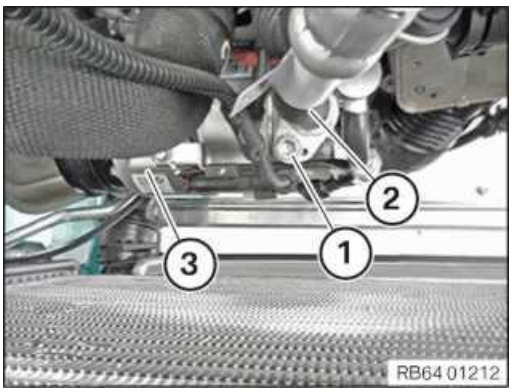


- Insert the refrigerant line (2) into the holder (1).
- Close the holder (1).



- Insert the refrigerant line into the holder (1).

  Close the holder (1).



- Place the refrigerant line (2) on the air conditioning compressor (3) and position it correctly.
- Tighten down screw (1).

Refrigerant line on air conditioning compressor

M8		Tightening torque	19 Nm

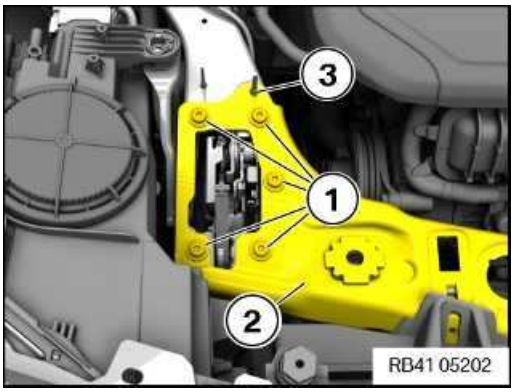
POSTPROCESSES

9 – Install front cross connection

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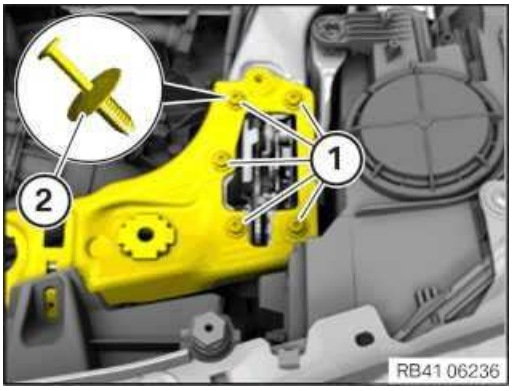
- Right side of vehicle only: Secure spray guard (1) on the cross connection (2) as pictured.



- Position front cross connection (2) and clip front cross connection (2) into the rubber retainer (3) at the same time.
- Tighten the screws (1).

Cross connection to carrier support

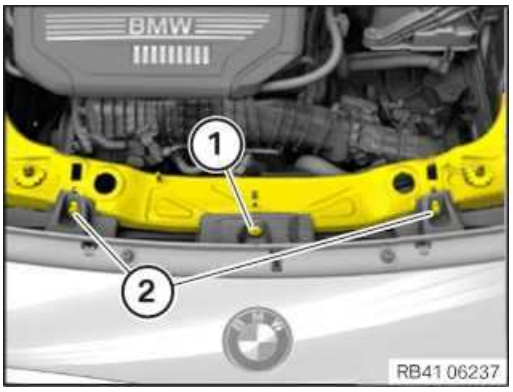
Screws M6x20		Tightening torque	11,8 Nm



- Tighten the screws (1).

Cross connection to carrier support

Screws M6x20		Tightening torque	11,8 Nm



- Position screws (3) on the rubber mounts for the radiator and tighten.

Screw connection for rubber mount of coolant radiator to coolant radiator

Bolt to rubber mount		Tightening torque	8 Nm

- Tighten down screws (2).

Air duct to upper connection

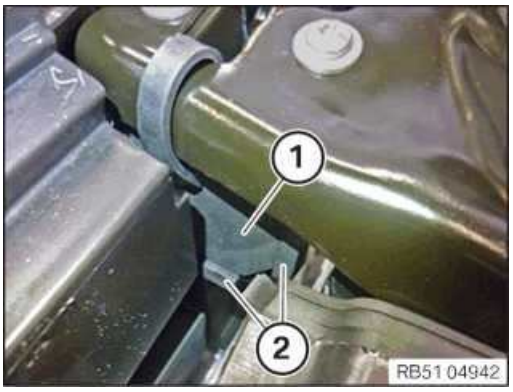
M6x20 screw		Tightening torque	11,8 Nm

- Tighten down screw (1).

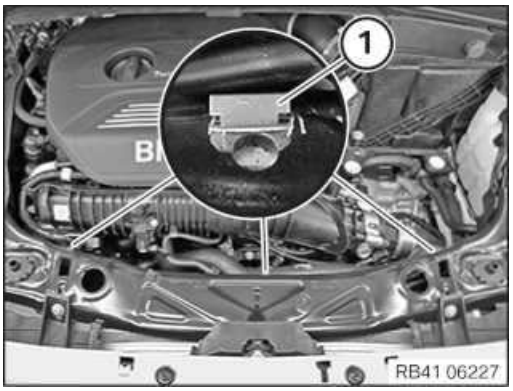
Bracing strut to upper connection

M8x20 screw		Tightening torque	28 Nm

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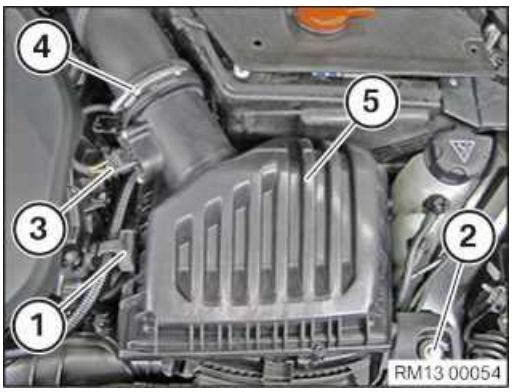


- Right side of vehicle only: Properly mount spray guard (1) to prevent corrosion.
- Secure spray guard (1) to the bridge with retaining tabs (2).



- Fasten the clamps (1) from the Bowden cable of the bonnet lock on the cross connection.

10 – Installing intake silencer housing



- Insert the intake silencer housing (5) into the rubber mounts and install it.

  Intake filter housing (5) must engage audibly.
- Tighten down screw (2).

Intake silencer housing to lock bridge

M6X30		Tightening torque	8 Nm

- Tighten clamp (4).

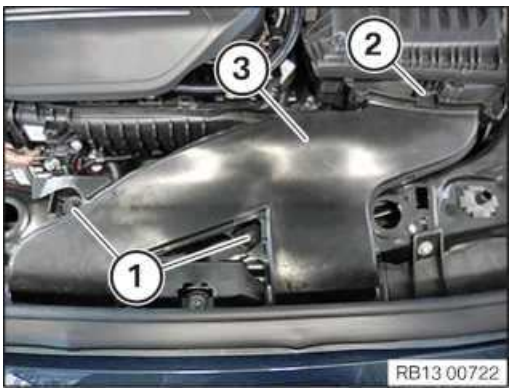
Clean air pipe to intake silencer housing

Clamp		Tightening torque	3 Nm

- Connect and lock the connector (3).

  The connector (3) must engage audibly.
- Insert and install the holder (1).

11 – Install the intake neck for the intake filter housing



- Insert and install the intake neck (3).

  The lock (2) must audibly engage.
- Tighten nuts (1).

Intake neck to cross connection

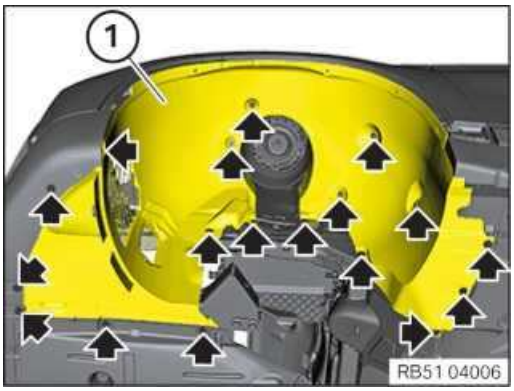
M6		Tightening torque	8 Nm

12 – Installing the front right wheel arch cover

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NOTICE

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



▸ **Installing the front wheel arch cover**

- Guide the wheel arch cover (1) in.
- Tighten all bolts and nuts (arrows).

Wheel arch cover to body

Plastic nut		Tightening torque	2,6 Nm
Screw		Tightening torque	2,6 Nm

Wheel arch cover to body

Screw		Tightening torque	2,5 Nm

Wheel arch cover to body

Plastic nut		Tightening torque	3 Nm

13 – Mounting the wheel

▸ **Clean the contact surfaces between the brake disc and the wheel rim**



TECHNICAL INFORMATION

The contact surface between the brake disc and the wheel rim must be clean and free from oil and grease. There is otherwise a risk of the wheel becoming loose at a later time.

- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool **2 344 011**.

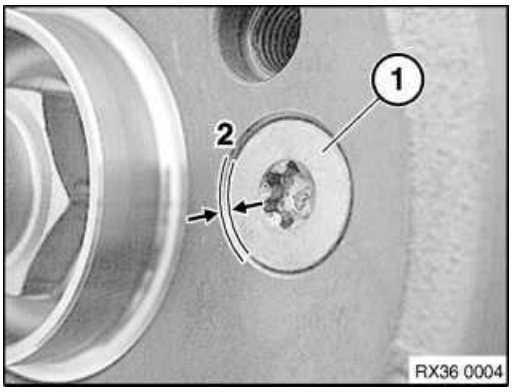
  Do not operate special tool **2 344 011** with an impact screwdriver.
- Degrease the contact surfaces with the universal cleaner (see BMW Group Parts).
- In the event of grease residue in the area of the wheel bolt holes, remove and clean the brake disc.



- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool **2 344 011**.

  Do not operate special tool **2 344 011** with an impact screwdriver.
- Degrease the contact surfaces with the universal cleaner (see BMW Group Parts).

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- Renew mounting bolt (1).

  Parts: Mounting bolt

- Check that the mounting bolt (1) for the brake disc is securely seated.

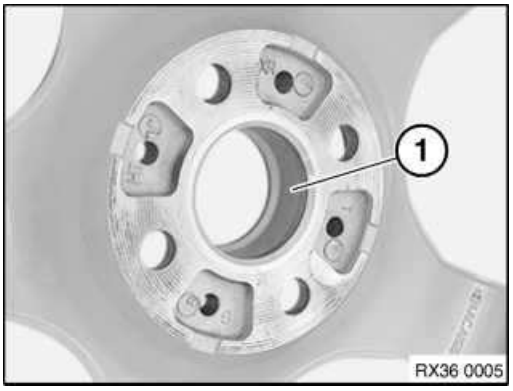
  The mounting bolt (1) for the brake disc may not protrude under any circumstances on the contact surface (2) between the brake disc and the wheel rim.

Brake disc to rear wheel hub

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm



- Lightly grease the wheel centring (1) in the wheel rim; refer to additional information for grease for the wheel centring (1).

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TECHNICAL INFORMATION

Never use impact screwdrivers or electric screwdrivers to screw in and tighten the wheel bolts.

The wheel rim must rest uniformly against the brake disc.

In the case of non-original BMW wheel bolts/wheel rims, it may be necessary to retighten the wheel bolts on account of setting properties (refer to the documentation from the manufacturer).

Do not apply oil to new wheel bolts.

- Renew corroded wheel bolts.

  Parts: Wheel bolts
- Clean the wheel bolts.
- Check the wheel bolts and threads for damage, renew the wheel bolts if necessary.
- Join and tighten the wheel bolts (arrows).

Wheel bolts

M 14/AF 17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim. Tighten wheel bolts to the prescribed tightening torque with a calibrated torque wrench in a crosswise sequence. Check all the wheel bolts in the same order or retighten to the prescribed tightening torque again.	Tightening torque Check	140 Nm 140 Nm

14 – Evacuate and fill air conditioning

- See additional information.

Additional Information

Overview of Tightening Torques

Refrigerant line to connecting piece — Used in step 8

Screw M6		Tightening torque	8 Nm

Refrigerant line on air conditioning compressor — Used in step 8

M8		Tightening torque	19 Nm

Cross connection to carrier support — Used in step 9

Screws M6x20		Tightening torque	11,8 Nm

Screw connection for rubber mount of coolant radiator to coolant radiator — Used in step 9

Bolt to rubber mount		Tightening torque	8 Nm

Air duct to upper connection — Used in step 9

M6x20 screw		Tightening torque	11,8 Nm

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Bracing strut to upper connection — Used in step 9

M8x20 screw		Tightening torque	28 Nm

Intake silencer housing to lock bridge — Used in step 10

M6X30		Tightening torque	8 Nm

Clean air pipe to intake silencer housing — Used in step 10

Clamp		Tightening torque	3 Nm

Intake neck to cross connection — Used in step 11

M6		Tightening torque	8 Nm

Wheel arch cover to body — Used in step 12

Plastic nut		Tightening torque	2,6 Nm
Screw		Tightening torque	2,6 Nm

Wheel arch cover to body — Used in step 12

Screw		Tightening torque	2,5 Nm

Wheel arch cover to body — Used in step 12

Plastic nut		Tightening torque	3 Nm

Brake disc to rear wheel hub — Used in step 13

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to front wheel hub — Used in step 13

M8	Renew screw.	Tightening torque	16 Nm

Wheel bolts — Used in step 13

M 14/AF 17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim. Tighten wheel bolts to the prescribed tightening torque with a calibrated torque wrench in a crosswise sequence. Check all the wheel bolts in the same order or retighten to the prescribed tightening torque again.	Tightening torque Check	140 Nm 140 Nm

Overview of Special Tools

2 344 011 Tool



Common — Used in step 13

Usage	Tool (wheel hub grinder) for cleaning the connection of the wheel rim (wheel contact face) to the wheel hub.
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	08 08 12 (872)

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Replacement tools:

0 495 221 (36 1 323) Wheel stud



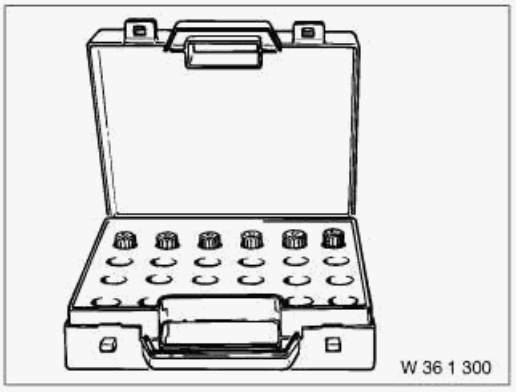
Common	Used in step 2
Usage	(Code 30) Code 39 available separately, (see EPC) under 36 13 1 181 259
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 224 (36 1 326) Wheel stud



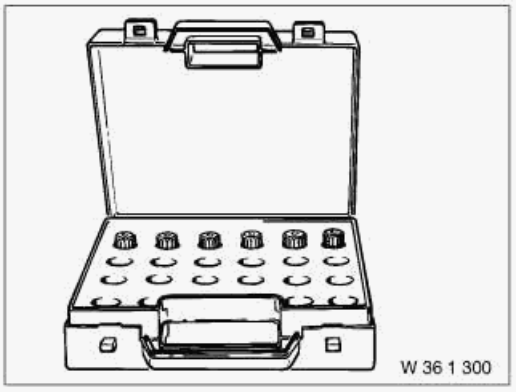
Common	Used in step 2
Usage	(Code 33) With centring bore available separately, (see EPC) under 36 13 6 765 546
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 225 (36 1 327) Wheel stud



Common	Used in step 2
Usage	(Code 34) With centring bore available separately (see EPC) under 36 13 6 765 547
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

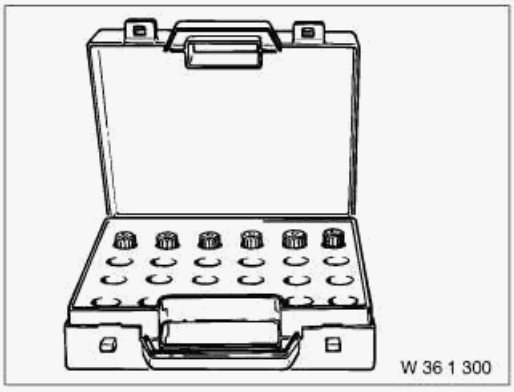
0 495 226 (36 1 328) Wheel stud



Common	Used in step 2
Usage	(Code 35) With centring bore available separately, (see EPC) under 36 13 6 762 340
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

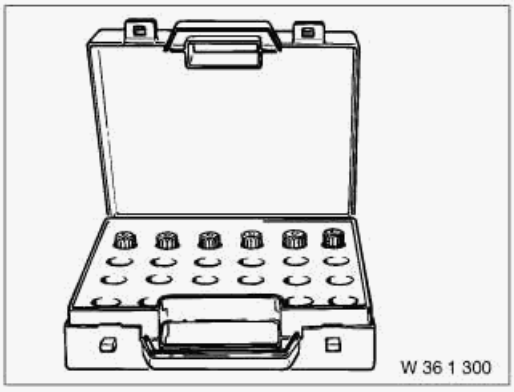
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0 495 227 (36 1 329) Wheel stud



Common	Used in step 2
Usage	(Code 36) With centring bore available separately (see EPC) under 36 13 6 762 341
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 228 (36 1 331) Wheel stud



Common	Used in step 2
Usage	(Code 37) With centring bore available separately (see EPC) under 36 13 6 762 342
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 229 (36 1 332) Wheel stud



Common	Used in step 2
Usage	(Code 38) With centring bore available separately (see EPC) under 36 13 6 762 343
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 230 (36 1 333) Wheel stud



Common	Used in step 2
Usage	(Code 40) With centring bore available separately (see EPC) under 36 13 6 762 344
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

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Links

General repair instructions	Used in step
64 52 ... Instructions for opening and part exchange in refrigerant circuit	
64 50 ... Note for handling R134a refrigerant	

Repair instructions	Used in step
64 50 010 Extract, evacuate and fill air conditioning system	1 14
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 14
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 14
64 50 ... Notes on repairs to air conditioning	1 14
64 50 010 Drawing off, evacuating and filling air conditioning (R1234yf)	1 14
64 50 ... Safety information for handling refrigerant R1234yf	1 14
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	1 14
64 50 ... Safety informations for handling refrigerant oil	1 14
64 50 ... Safety information for handling refrigerant R1234yf	
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	

Operating materials	Used in step
2.0 Grease for wheel centring	13

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64 53 690 Replacing line from evaporator to air conditioning condenser (without drawing off, evacuating and filling)

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.
- For additional batteries: Detach all battery earth leads from additional batteries.

PRELIMINARY WORK

1 – Drawing off the air conditioning

- See additional information.

2 – Disconnecting all battery earth leads

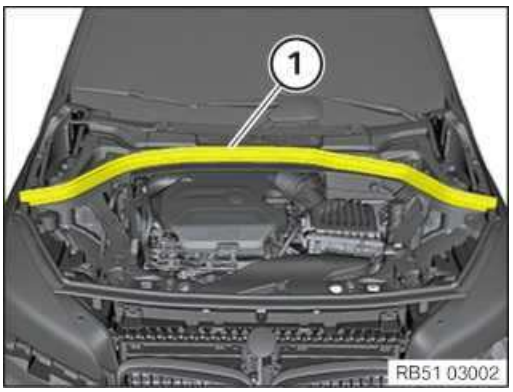


- See additional information.

3 – Remove the seal for the rear bonnet

NOTICE

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



- Pull off rear bonnet seal (1) towards the top and remove.

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

NOTICE

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

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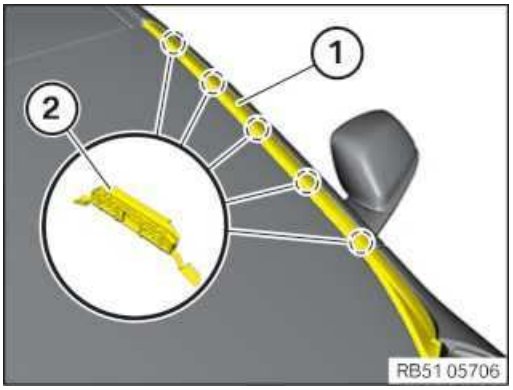
▸ **Remove the gutter strip on the windscreen**

RISK OF DAMAGE

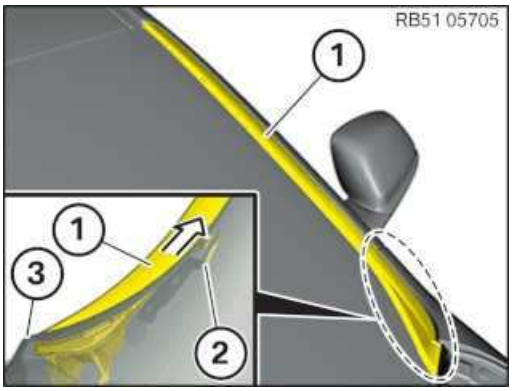
Scratches.

Tools and sharp-edged components can cause scratches.

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

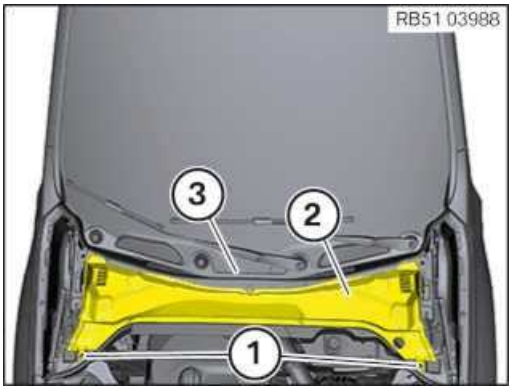


- Unclip the gutter strip (1) from the clamps (2) beginning at the roof to the top.



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

5 – Removing front cowl panel cover



- Loosen the expanding rivet (1).
- Feed out and remove front cowl panel cover (2) from the rear cowl panel cover(3).

6 – Remove left and right wiper arm

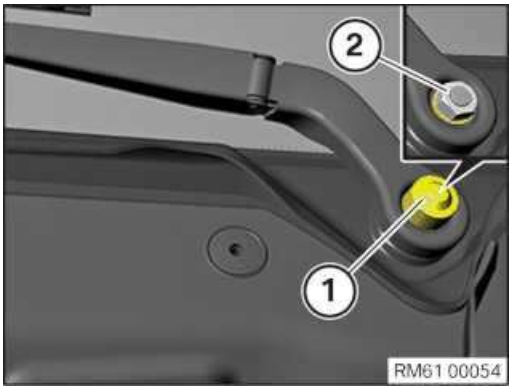
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RISK OF DAMAGE

Damage to wiper console

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

- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do not lift off wiper arm, else the wiper console may break on the predetermined breaking point for the pedestrian protection.



- Pull off the protective cap (1) and release the nut (2) below it.



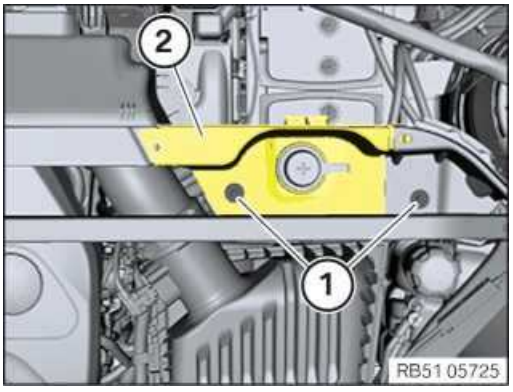
- Pull off windscreen wiper arm (1)with special tool .

7 – Remove the rear cowl panel



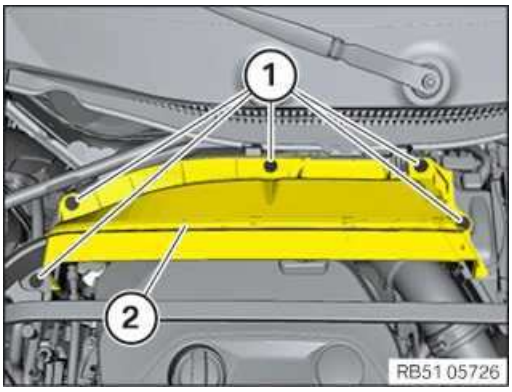
- Pull off the cowl panel cover (1) towards the top, starting from the side and feed out.

8 – Removing the upper bulkhead cover



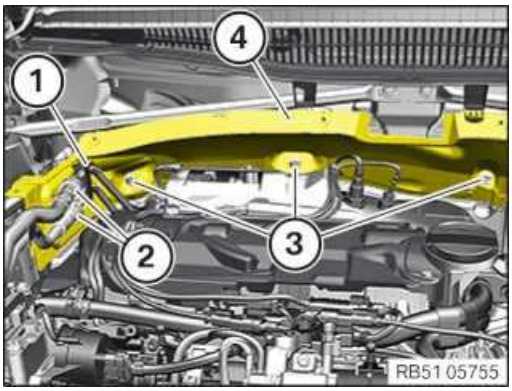
- Loosen screws (1).
- Guide out and remove the cover (2).

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- Loosen screws (1).
- Feed out and remove the upper bulkhead cover (2).

9 – Remove the rear bulkhead upper part

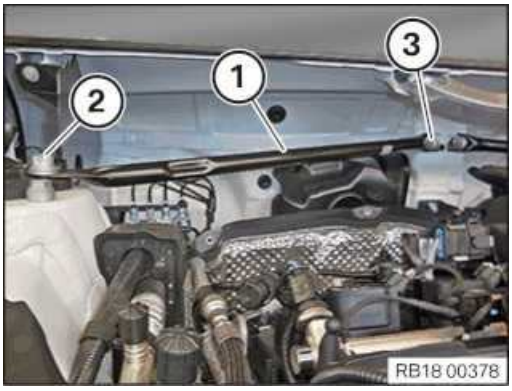


- Unlock the holder (1) and disconnect.
- Guide out and remove the fuel lines (2).
- Loosen screws (3).
- Guide out the rear bulkhead upper part (4) and remove.

10 – Remove right rear suspension cross-brace

TECHNICAL INFORMATION

Driving without the strut brace/front end or tension strut is not permitted.



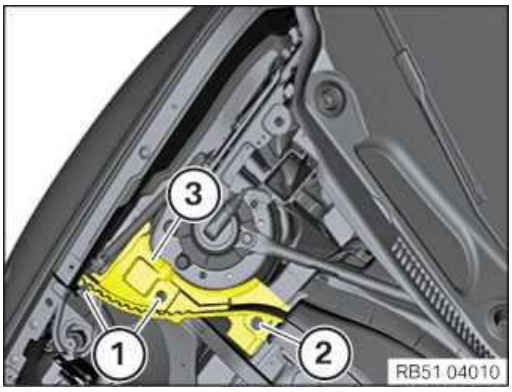
- Loosen nut (3).
- Loosen screw (2).
- Guide out the rear right strut brace (1) and remove.

11 – Remove suspension cross-brace

TECHNICAL INFORMATION

Driving without the strut brace/front end or tension strut is not permitted.

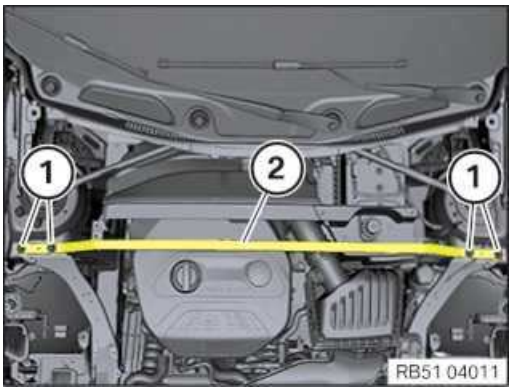
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NOTICE

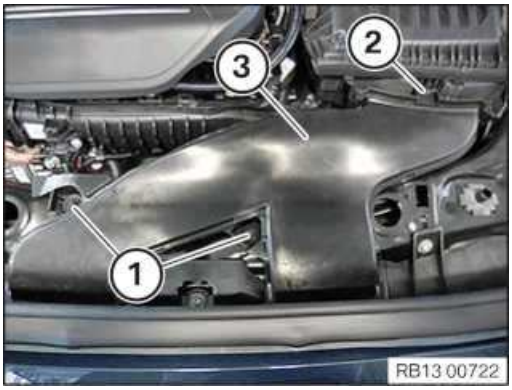
Description is for right component only. The procedure on the left side is identical.

- Loosen expanding rivet (1).
- Loosen screw (2).
- Remove the cover (3).



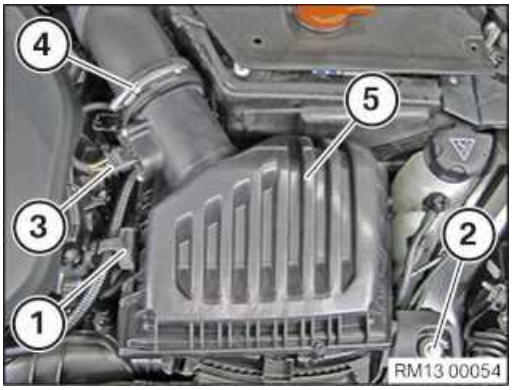
- Loosen screws (1).
- Remove strut brace (2).

12 – Remove the intake neck for intake silencer housing



- Loosen nuts (1).
- Loosen the lock (2).
- Guide the intake neck (3) out and remove it.

13 – Removing intake silencer housing



- Loosen the holder (1).
- Loosen screw (2).
- Unlock and loosen connector (3).
- Unfasten clamp (4).
- Pull out and remove the intake silencer housing (5) from the rubber mounts towards the top.

14 – Remove electronics box

Prerequisite

Battery earth lead is disconnected.

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RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

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

RISK OF DAMAGE

Damage to wires when disconnecting connectors and plug connections.

Sheared wires can cause a short circuit.

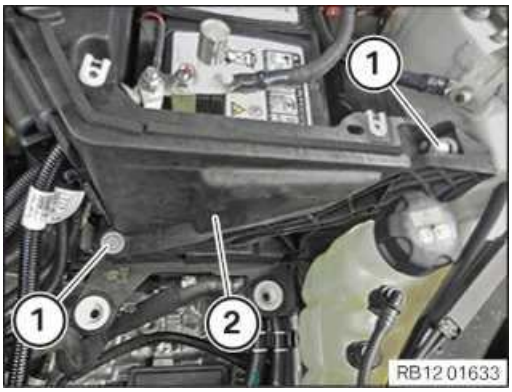
- Do not pull on the wires when disconnecting connectors and plug connections.

TECHNICAL INFORMATION

Follow instructions for removing and installing control units.
For additional information see: 12 00 ... Notes on removal and installation of control units

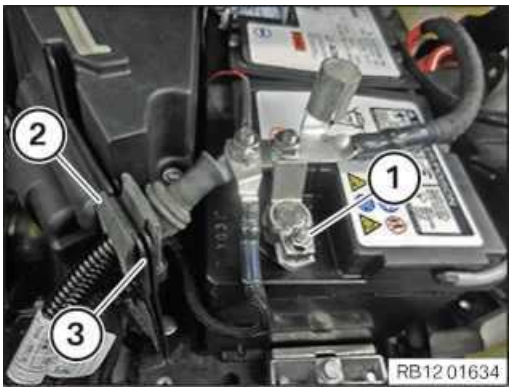
TECHNICAL INFORMATION

Disconnecting control units may cause fault code entries and functional limitations. Fault code entries must be read out and deleted if necessary.

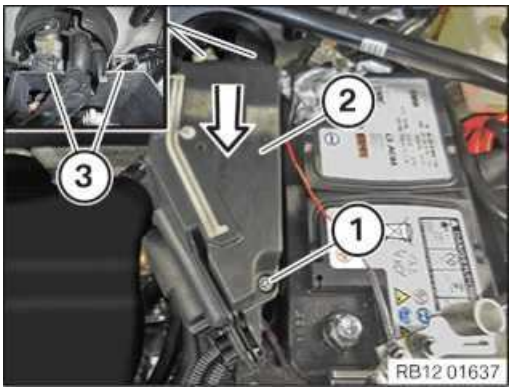


- Loosen screws (1).
- Guide out the tension strut (2) toward the top and remove it.

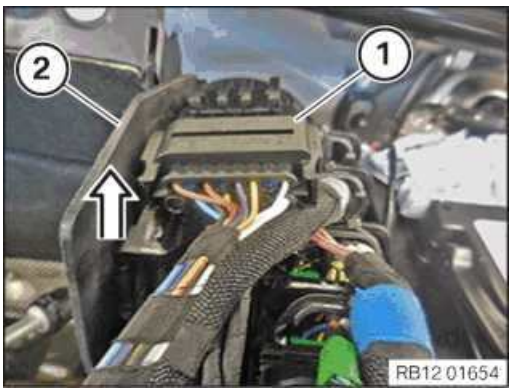
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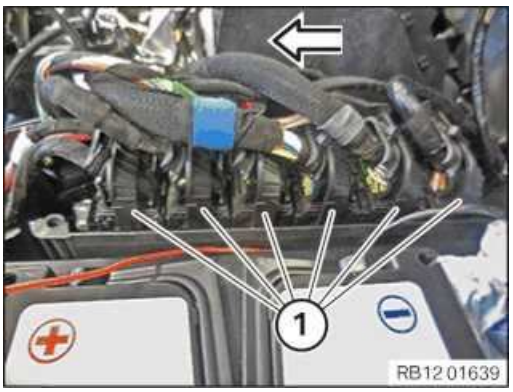
- Undo positive battery terminal (1).
- Feed out positive battery terminal (1) and set aside.
- Guide the positive battery cable (2) out of the holder (3) and lay to one side.



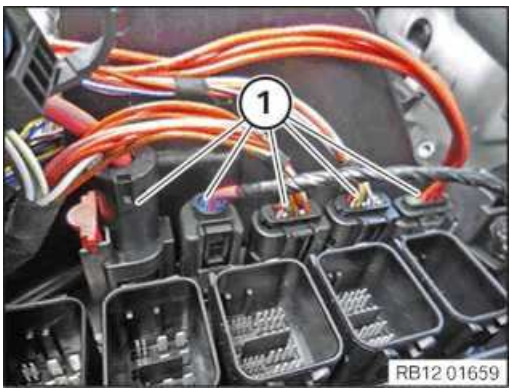
- Loosen screw (1).
- Unlock cover (2) and feed out and remove from the guides (3) in the direction of arrow.



- Feed out connector (1) from the electronics box (2) and remove in the direction of arrow.
- Unlock and loosen connector (1).

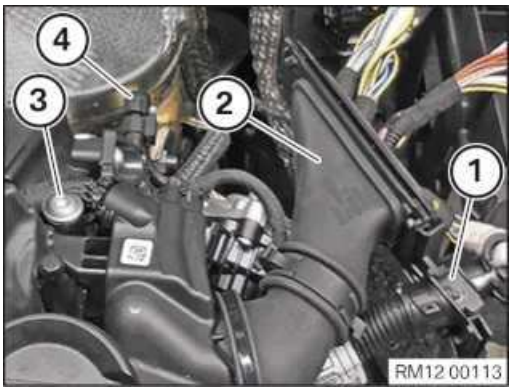


- Unlock and remove the connector (1) in the direction of the arrow.
- Feed out connector (1) and place to one side.

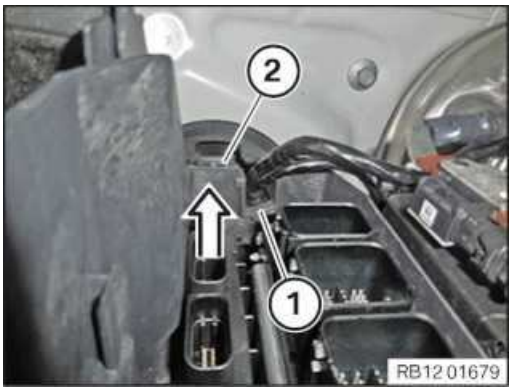


- Unlock and loosen connector (1).

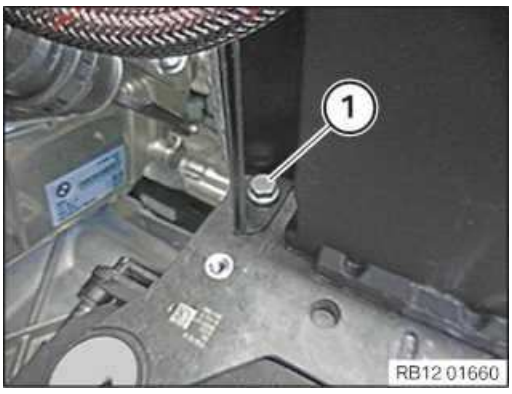
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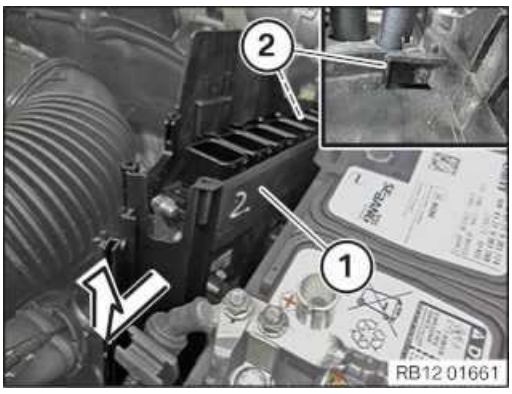
- Detach the wiring harness (1) from the electronics box.
- Detach the wiring harnesses (2) from electronics box.
- Loosen screw (3).
- Set wiring harnesses (1) and (2) aside.
- Unlock the connector (4) and disconnect it from the differential pressure sensor.



- Unlock and loosen holder (1).
- Guide the holder (1) out of the electronics box (2) in direction of arrow and set it aside.

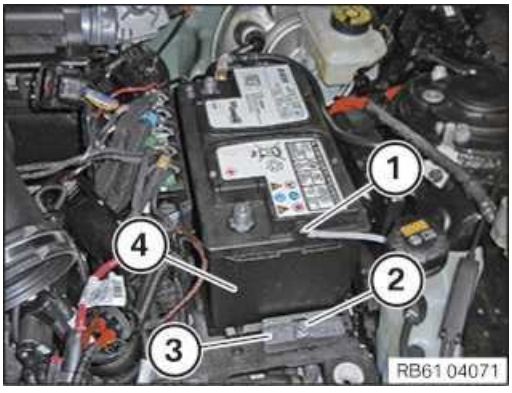


- Loosen screw (1).



- Guide the electronics box (1) out of the guide (2) in direction of arrow and remove.

15 – Partially remove vehicle battery



- Pull off the vent hose (1).
- Unscrew the screw (2) and remove the holder (3).
- Remove vehicle battery (4).

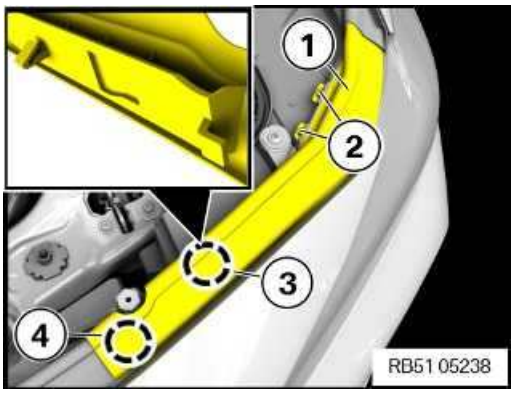
16 – Remove both bonnet seals on the side

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NOTICE

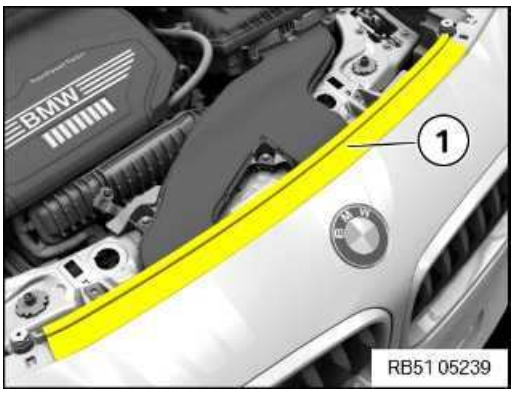
Description is for left component only. Procedure on the right side is identical.

▶ **Remove the bonnet seal on the side**



- Unclip the side bonnet seal (1) from the outer latch mechanisms (2) and the inner latch mechanism (3).
- Feed out the side bonnet seal (1) from the guide (4) and remove.

17 – Removing the seal for the front centre bonnet



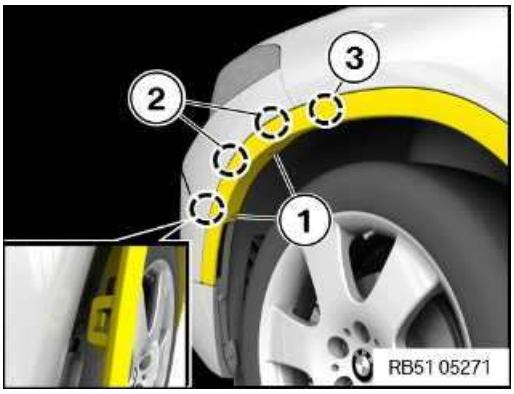
- Remove the seal for the front centre bonnet (1) towards the top.

18 – Partially remove both front wheel arch trims

NOTICE

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

▶ **Partially removing the front wheel arch trim**



- Loosen blind rivet(1).
- Release front wheel arch trim in the area of the bumper panel from the latch mechanisms (2) and from the clip (3).

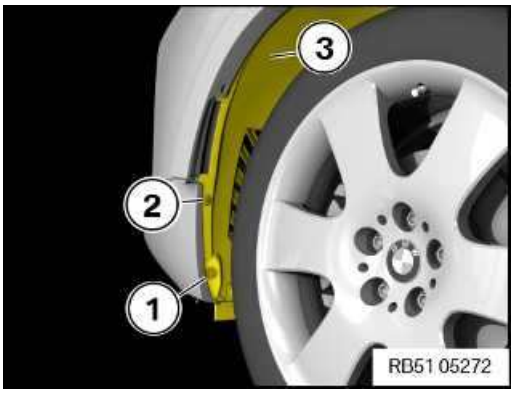
19 – Partially remove both front wheel arch covers

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NOTICE

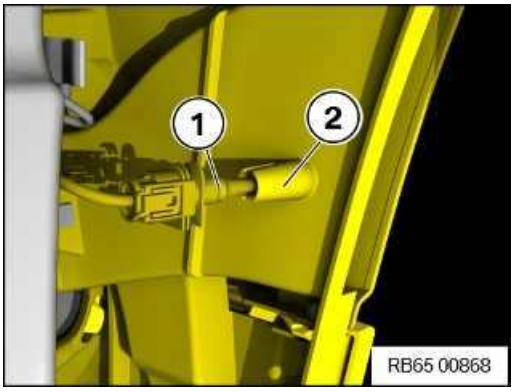
Description is for left component only. Procedure on the right side is identical.

▶ **Partially remove the front wheel arch cover**



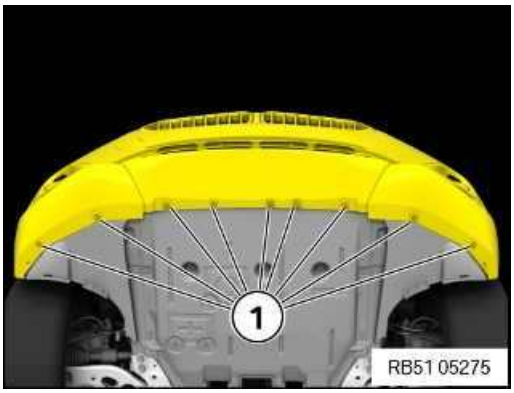
- Loosen screw (1).
- Release the blind rivet (2).
- Fold back the front wheel arch cover (3).

20 – Remove temperature sensor

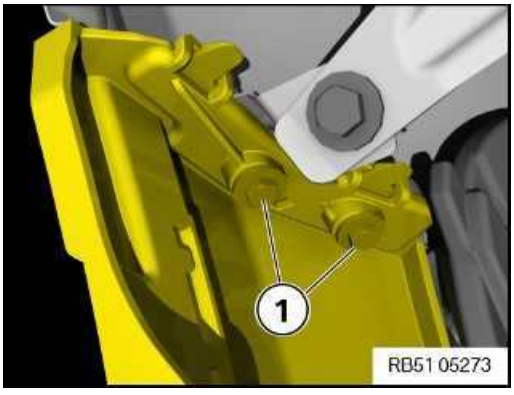


- Unclip temperature sensor (1) from front bumper panel (2).

21 – Remove front bumper panel



- Loosen screws (1).



NOTICE

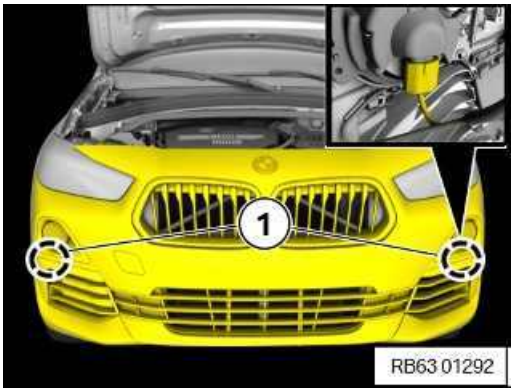
Description is for left component only. Procedure on the right side is identical.

- Loosen screws (1).

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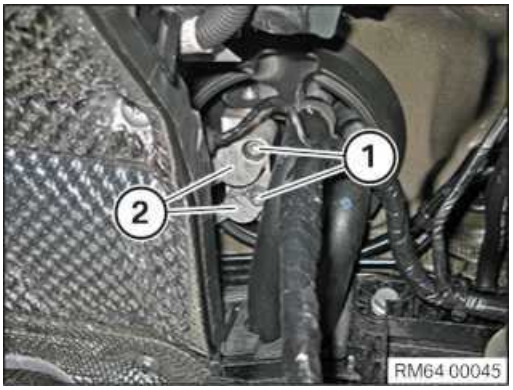


- Loosen screws (1).
- Loosen screws (2).



- Pull the front bumper panel slightly forward with the help of another person.
- Unlock and disconnect the plug connections (1) on the fog lights.
- Remove the front bumper panel.

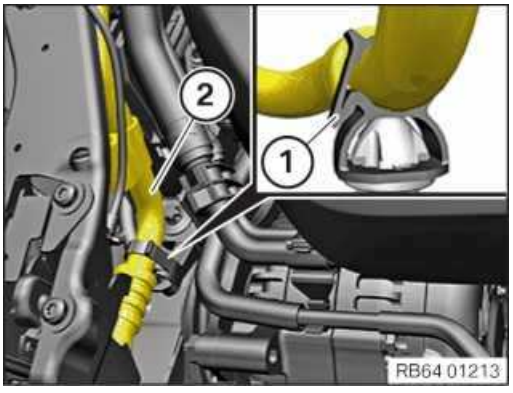
22 – Removing the refrigerant line from the evaporator to the separation point



- Loosen screws (1).
- Take off refrigerant line (2).

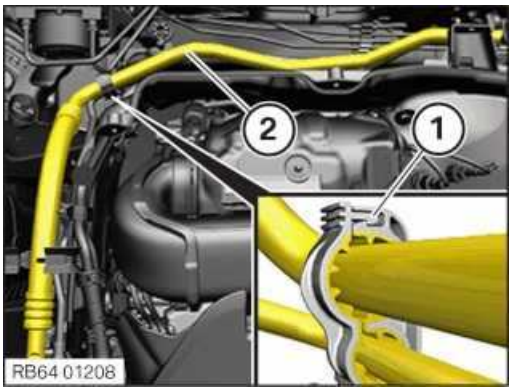


- Open the holder (1).

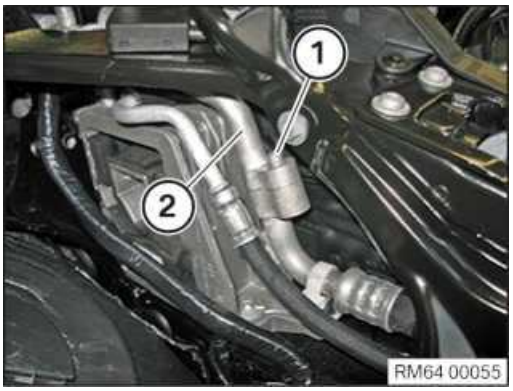


- Open holder (1) for the refrigerant line (2).

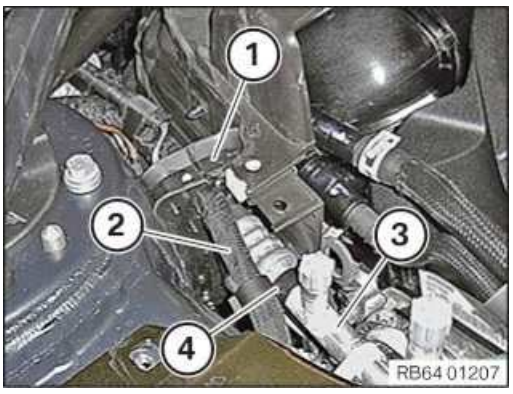
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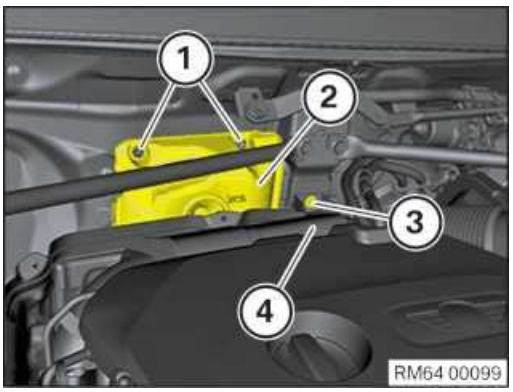
- Open holder (1) for the refrigerant line (2).



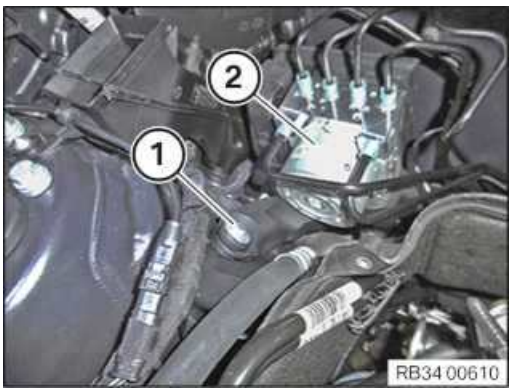
- Slide the refrigerant line (2) slightly to the side.
- Loosen screw (1).
- Remove the refrigerant line (2) and set it aside.



- Open the holder (1).
- Slide the cable (2) slightly to the side.
- Detach the refrigerant line (3) from the holder (4).
- Detach the refrigerant line (3) from the holder (1).

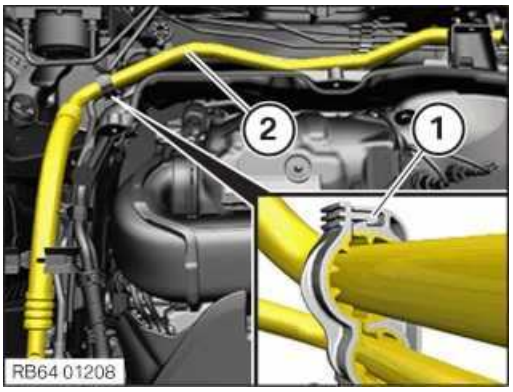


- Release the nuts (1) and remove the cover (2).
- Release nut (3) and pull the cover (4) slightly to the front.



- Release bolt (1) and slide hydraulic unit (2) aside slightly.

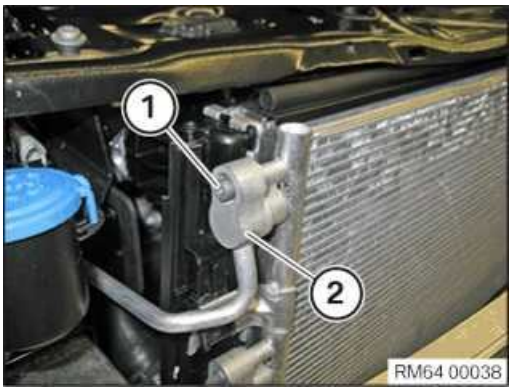
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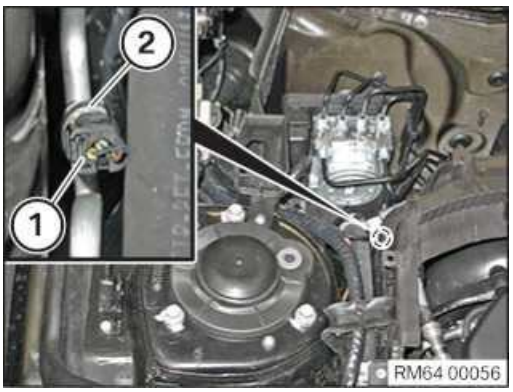
- Detach the refrigerant line (2) from the holder (1).
- Feed out refrigerant line (2) and remove.

MAIN WORK

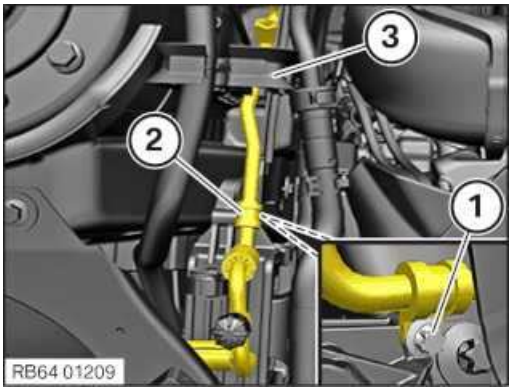
23 – Removing the refrigerant line from the evaporator to the air conditioning condenser



- Loosen screw (1).
- Remove the refrigerant line (2).

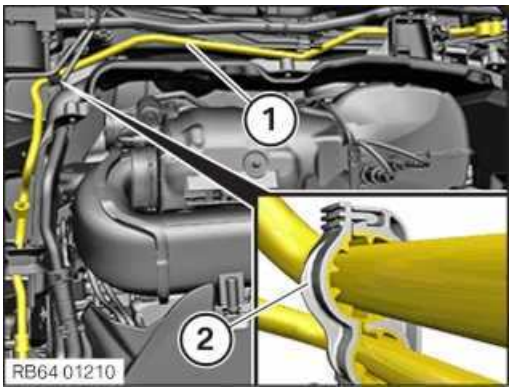


- Unlock and disconnect connector (1).
- Loosen the safety pressure switch (2).



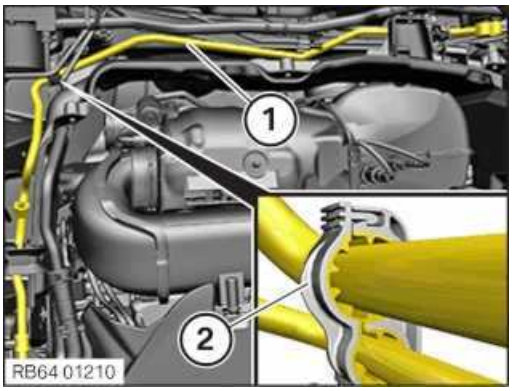
- Loosen the screw (1) on the refrigerant line (2).
- Slide the holder (3) slightly to the side.
- Lift the refrigerant line (2) slightly.

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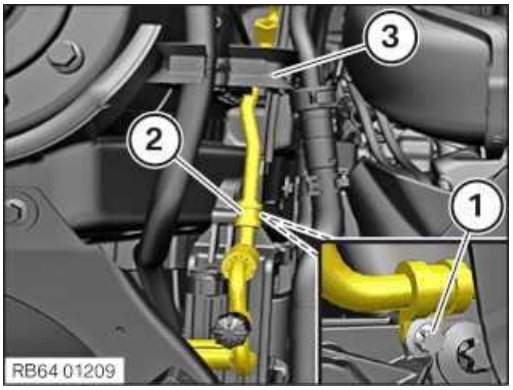
- Remove the refrigerant line (1) from the holder (2).
- Feed out and remove the refrigerant line (1) completely.

24 – Installing the refrigerant line from evaporator to the air conditioning condenser



- Replace O-rings.

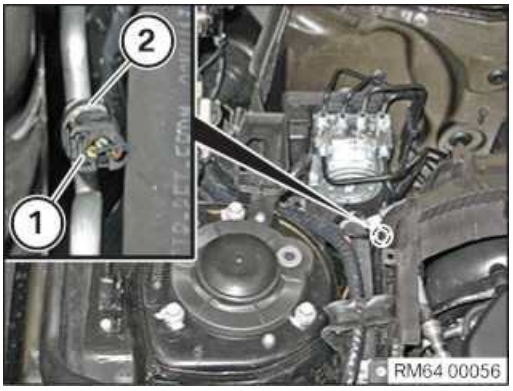
  Parts: O-rings
- Completely feed in and install the refrigerant line (1).
- Correctly insert the refrigerant line (1) into the holder (2).



- Correctly insert the refrigerant line (2) into the holder (3).
- Tighten the screw (1) at the refrigerant line (2).

Refrigerant line on the air conditioning condenser/bracket

M6		Tightening torque	8 Nm

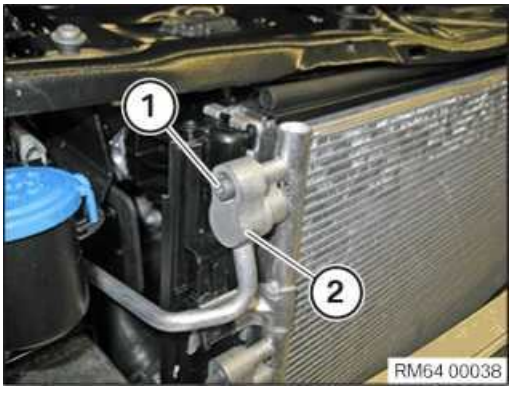


- Tighten safety pressure switch (2).

Safety pressure switch

		Tightening torque	10 Nm

- Connect connectors (1) and lock.



- Position refrigerant line (2).
- Tighten down screw (1).

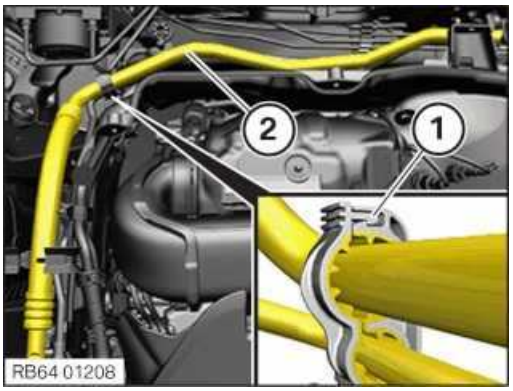
Refrigerant line on the air conditioning condenser/bracket

M6		Tightening torque	8 Nm

POSTPROCESSES

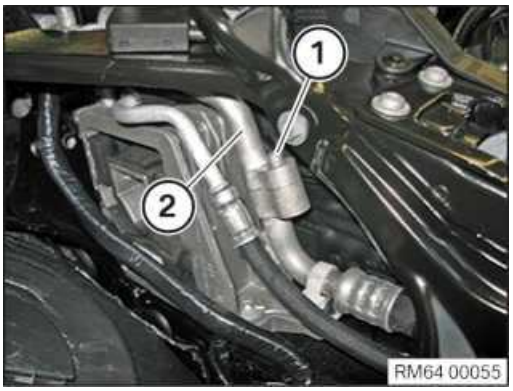
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25 – Installing the refrigerant line from the evaporator to the separation point



- Replace O-rings.

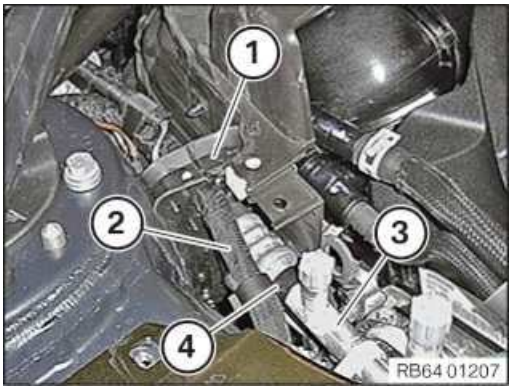
  Parts: O-rings
- Feed in the refrigerant line (2) and attach to the holder (1).



- Correctly position the refrigerant line (2).
- Tighten down screw (1).

Refrigerant line to connecting piece

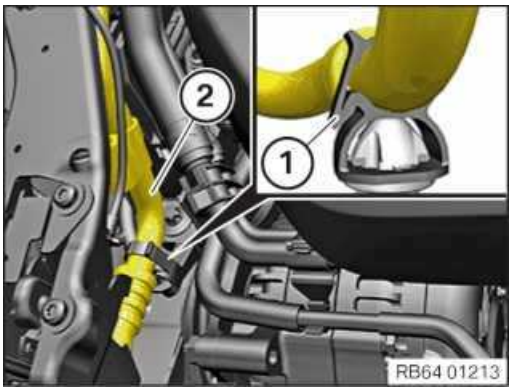
Screw M6		Tightening torque	8 Nm



- Correctly position the refrigerant line (3) in the holder (1).
- Correctly position the cable (2) in the holder (1).
- Attach cable (2) and refrigerant line (3) correctly in holder (4).
- Close the holder (1).

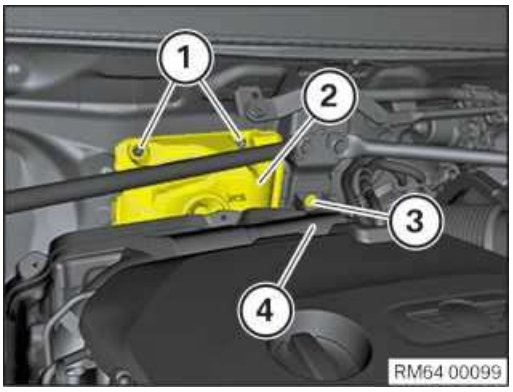


- Close the holder (1).



- Shut holder (1) for the refrigerant line (2).

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- Install cover (2) and position correctly.
- Renew nuts (1).

  Parts: Nuts
- Tighten nuts (1).

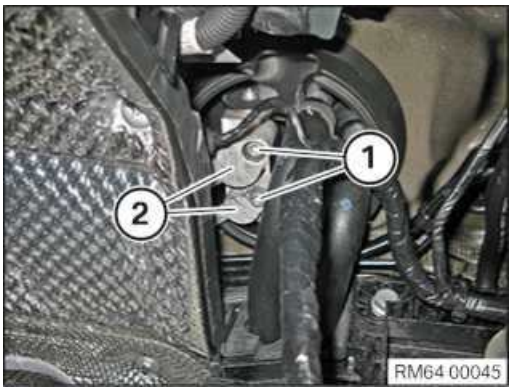
Cover to bulkhead

Nut		Tightening torque	2 Nm

- Correctly position the cover (4).
- Tighten nut (3).

Bulkhead lower part to body

Nut		Tightening torque	2,6 Nm

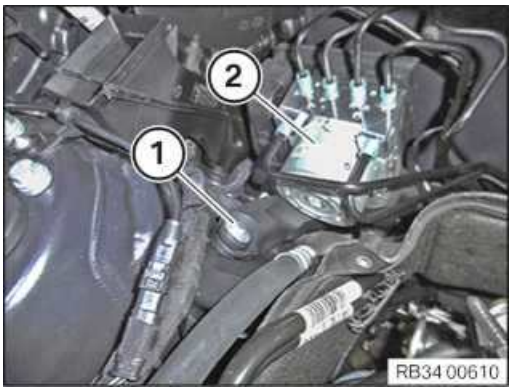


- Replace O-rings.

  Parts: O-rings
- Position refrigerant line (2) correctly.
- Tighten the screws (1).

Refrigerant lines to expansion valve

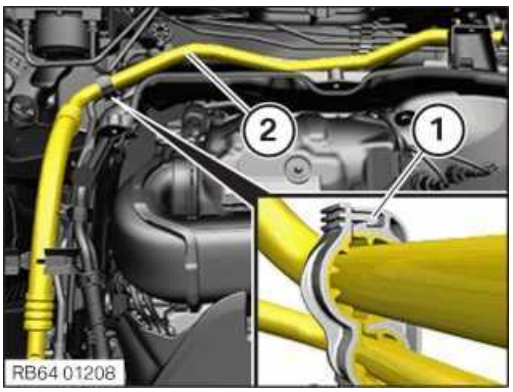
M6		Tightening torque	8 Nm



- Position hydraulic unit (2) correctly.
- Tighten down screw 1.

Holder, hydraulic control unit, to body

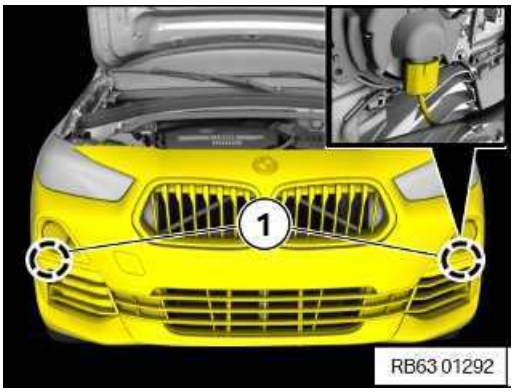
Screw		Tightening torque	8 Nm



- Shut holder (1) for the refrigerant line (2).

26 – Install bumper panel, front

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- Connect the connectors (1) on the fog lights and lock.
- Join the front bumper panel and position.



- Tighten the screws (1).

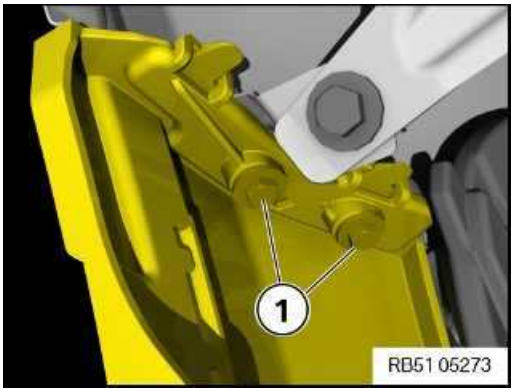
Bumper panel to headlight

Thermoplastic multi-purpose bolt		Tightening torque	2,5 Nm

- Tighten down screws (2).

Bumper panel to air duct

Screw M6		Tightening torque	4,6 Nm



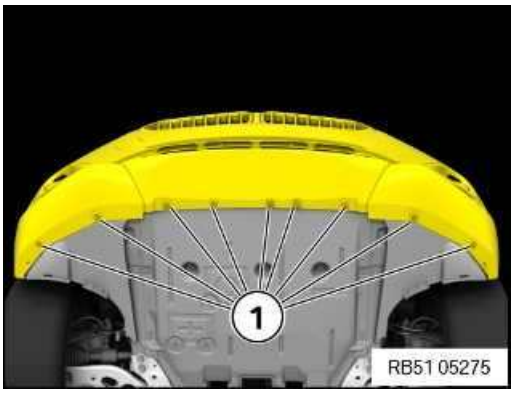
NOTICE

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

- Tighten the screws (1).

Front bumper panel to front side panel

Screw TS5X35		Tightening torque	3 Nm

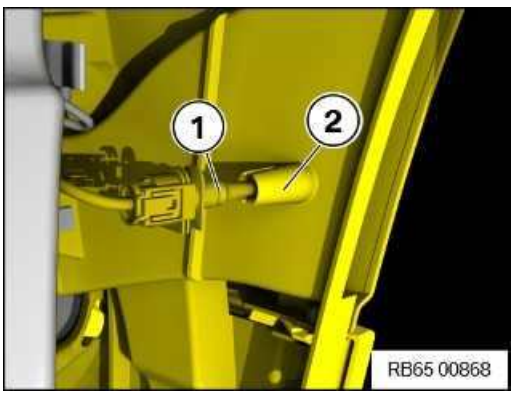


- Tighten the screws (1).

Front bumper panel to underbody panelling

Thermoplastic hexagon screw		Tightening torque	2,5 Nm

27 – Install temperature sensor



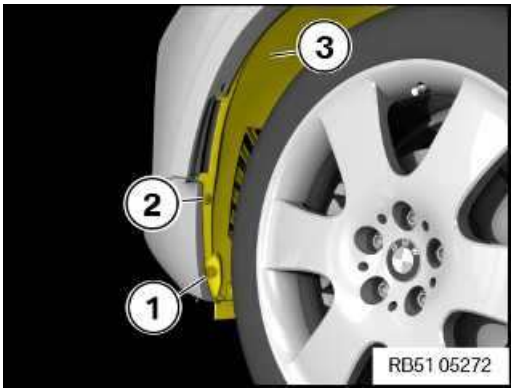
- Clip temperature sensor (1) into the front bumper panel (2).

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28 – Partially install both front wheel arch covers

NOTICE

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



▸ **Partially install the front wheel arch cover**

- Fold the front wheel arch cover (3) forward.
- Mount the blind rivet (2) with the special tool **0 496 521 (00 2 230)**.
- Tighten down screw (1).

Front wheel arch cover to front bumper panel

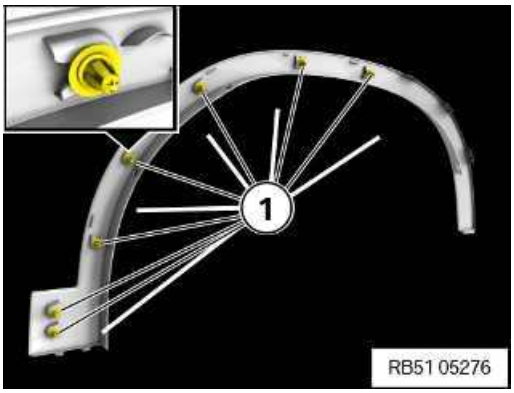
Hexagon screw for thermoplastic plastic		Tightening torque	2,6 Nm

29 – Partially install both front wheel arch trims

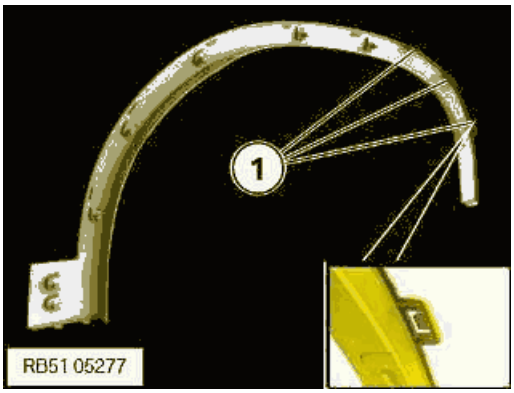
NOTICE

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

▸ **Partly install the front wheel arch trim**

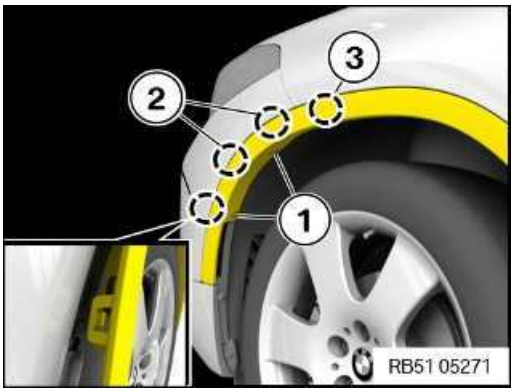


- Check clips (1) for damage, and replace if necessary.



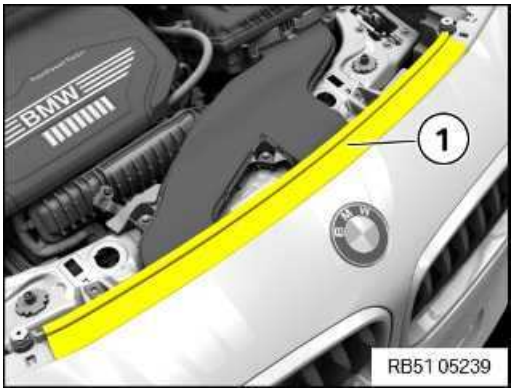
- Check the retaining lugs (1) for damage and replace the front wheel arch trim where required.

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- Clip the front wheel arch trim into the clip (3) in the area of the bumper panel and into the latch mechanisms (2).
- Mount blind rivet (1) using the special tool **0 496 521 (00 2 230)**.

30 – Install the center front bonnet seal



- Press the centre front bonnet seal (1) down into the guide.
- Make sure the centre front bonnet seal (1) is fitted correctly.

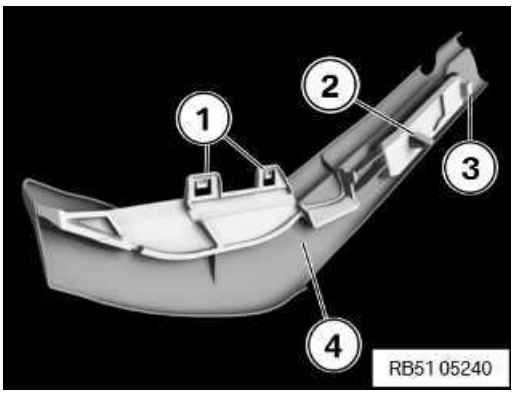
31 – Install both bonnet seals on the side

NOTICE

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

▸ **Installing seal for side bonnet**

Check



- Check latch mechanisms (1) and (2) and also the guide (3) on the bonnet seal on the side (4) for damage.

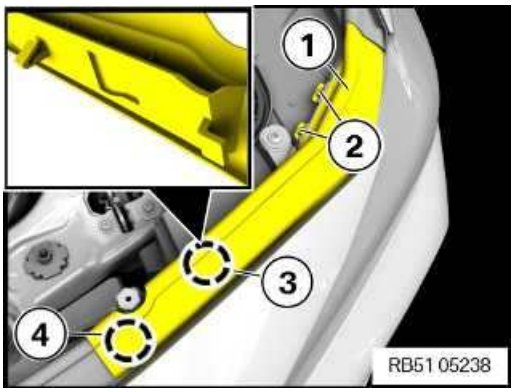
Result

» Latch mechanisms (1), (2) or the guide (3) are damaged.

Measure

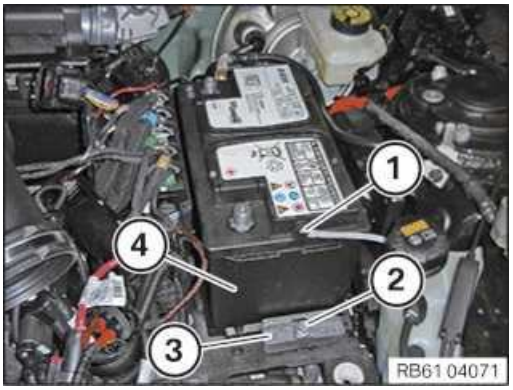
- Renew the bonnet seal on the side (4).

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- Insert the bonnet seal on the side (1) in the guide (4).
- Clip in the bonnet seal on the side (1) in the inner latch mechanism (3) and the outer latch mechanisms (2).

32 – Partially install vehicle battery



- Install vehicle battery (4).
- Correctly position the holder (3).
- Tighten down screw (2).

Battery terminal rail to battery tray

M8		19 Nm

- Fit and clip the vent hose (1) in.

▸ **Check the vent holes of the battery**

WARNING

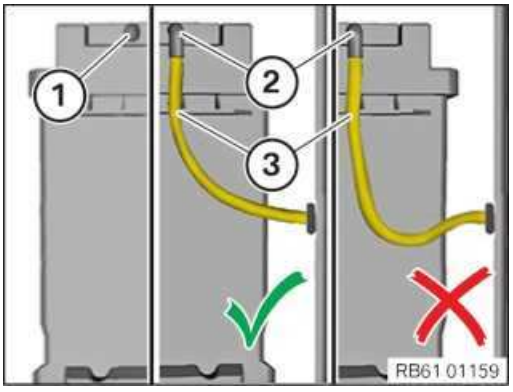
Gas emission.

Danger of injury! Danger of explosion!

- Assign the vent holes correctly.
- Route the vent hose correctly.

TECHNICAL INFORMATION

The battery has two vent holes, opposite:
One vent hole (1) must be closed correctly with a dummy plug.
The vent hose (3) must be correctly connected and routed at the other vent hole (2).



Check

- Check if the vent hole (1) is correctly closed with a dummy plug.

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Result

» No dummy plug.

Measure

- Close the vent hole (1) correctly with a dummy plug.

Check

- Check if the vent hole (2) has a correctly connected vent hose (3).

Result

» The vent hose (3) is not correctly connected.

Measure

- At the vent hole (2), connect the vent hose (3) correctly.

Check

- Check if the vent hose (3) is routed to the outside with a downhill gradient (**no siphon formation!**).

Result

» The vent hose (3) is not correctly routed as shown in the image on the right.

Measure

- Route the vent hose (3) correctly as shown in the centre image.

33 – Install electronics box

Prerequisite

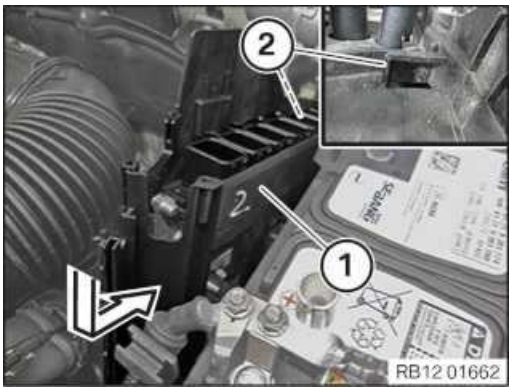
Battery earth lead is disconnected.

RISK OF DAMAGE

Improper routing of cables and wiring harnesses.

Trapped, crushed or damaged cables may cause short circuits and malfunctions.

- Route all cables without abrasions, do not trap and crush.

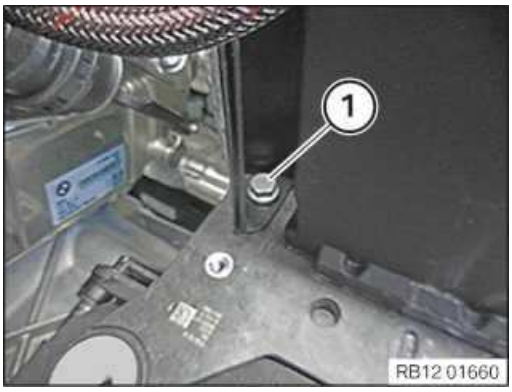


- Guide in and install the electronics box (1) into the guide (2) in direction of arrow.



- Make sure that the electronics box (1) is positioned correctly on the bulkhead (2).

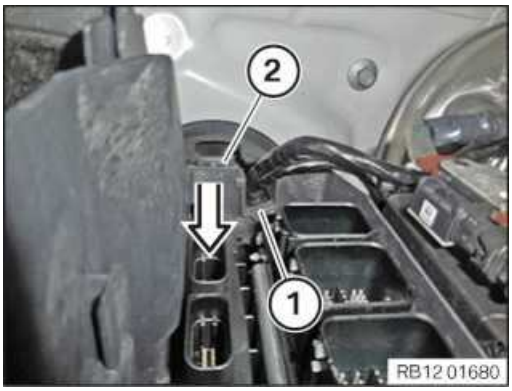
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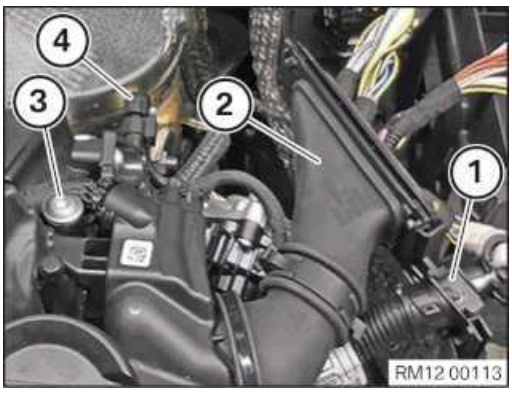
- Tighten down screw (1).

Electronics box to battery tray

M8X16		Tightening torque	15 Nm



- Guide in and install the holder (1) in the electronics box (2) in direction of arrow.
- Make sure the bracket (1) engages audibly.

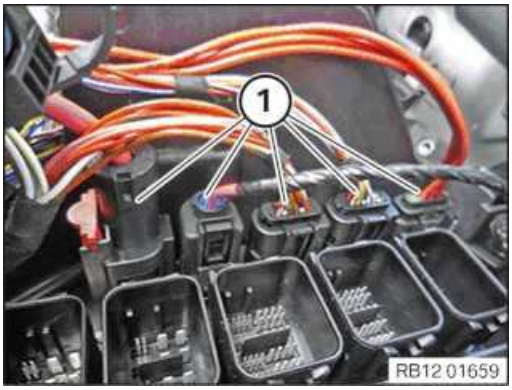


- Lay vehicle wiring harnesses (1) and (2) and mount on electronics box.
- Tighten down screw (3).

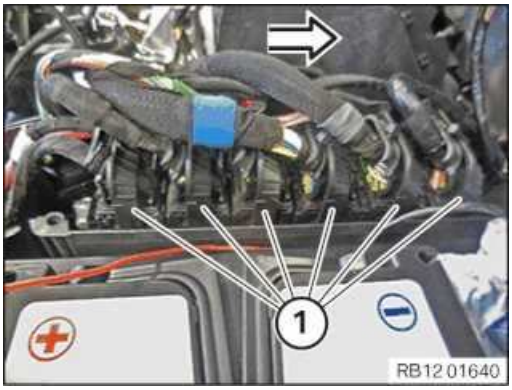
Wiring harness to cylinder head cover

TS5x20		Tightening torque	3,5 Nm

- Attach connector (4) to the differential pressure sensor and lock it audibly.

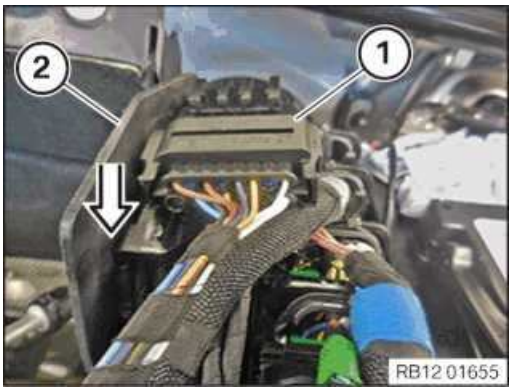


- Connect and lock the connector (1).
- Make sure the connectors (1) engage audibly.

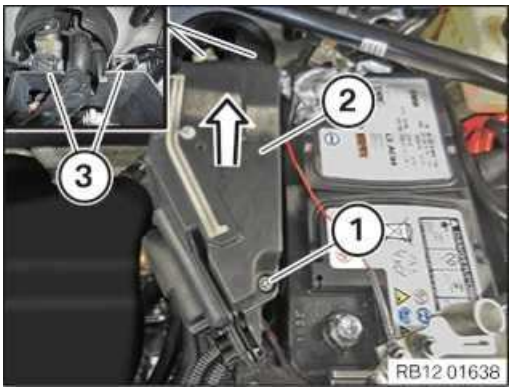


- Connect connector (1) in direction of arrow and lock.
- Make sure the connectors (1) engage audibly.

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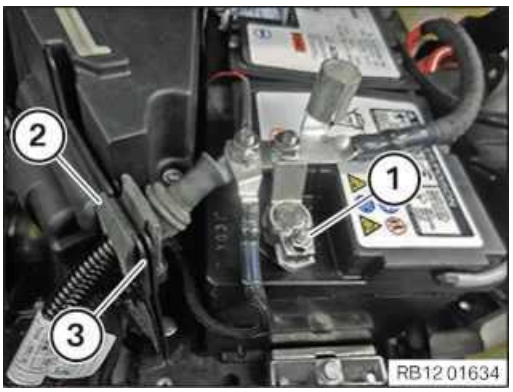
- Connect and lock the connector (1).
- Make sure the connector (1) engages audibly.
- Insert the connector (1) in the direction of arrow at the electronics box (2) and install.



- Insert the cover (2) into the guides (3) in the direction of arrow and install.
- Make sure the cover audibly engages (2) in the guides (3).
- Tighten down screw (1).

Cover to electronics box

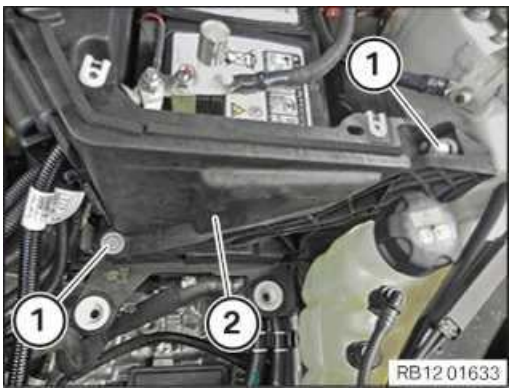
RF5x26.5		Tightening torque	2,5 Nm



- Thread in positive battery cable (2) on holder (3) and install.
- Feed in and install positive battery terminal (1).
- Tighten positive battery terminal (1).

Positive battery terminal to battery

NutM6		Tightening torque	5 Nm



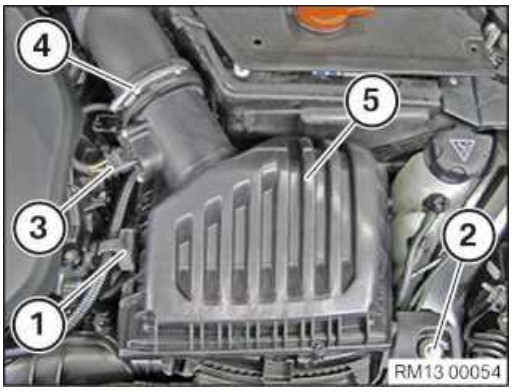
- Feed in and install tension strut (2).
- Tighten the screws (1).

Tension strut to spring strut dome/battery tray

M8		Tightening torque	19 Nm

34 – Installing intake silencer housing

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- Insert the intake silencer housing (5) into the rubber mounts and install it.

  Intake filter housing (5) must engage audibly.
- Tighten down screw (2).

Intake silencer housing to lock bridge

M6X30		Tightening torque	8 Nm

- Tighten clamp (4).

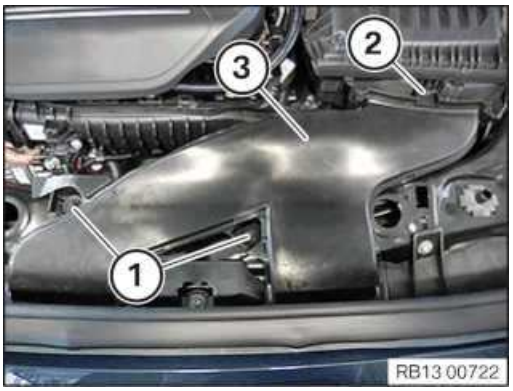
Clean air pipe to intake silencer housing

Clamp		Tightening torque	3 Nm

- Connect and lock the connector (3).

  The connector (3) must engage audibly.
- Insert and install the holder (1).

35 – Install the intake neck for the intake filter housing



- Insert and install the intake neck (3).

  The lock (2) must audibly engage.
- Tighten nuts (1).

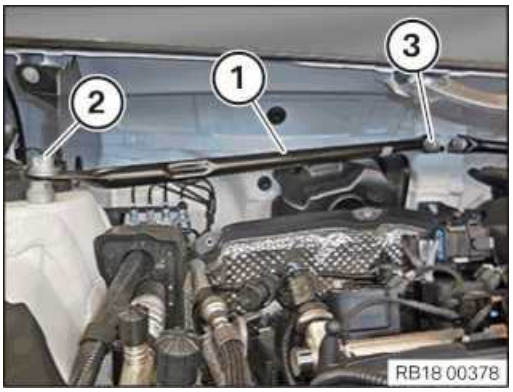
Intake neck to cross connection

M6		Tightening torque	8 Nm

36 – Installing the rear right strut brace

TECHNICAL INFORMATION

Driving without the strut brace/front end or tension strut is not permitted.



- Thread in the rear right strut brace (1) and install.
- Renew nut (3).

  Parts: Nut
- Tighten nut (3).

Cross-brace to bulkhead

M10	Renew nut.	Tightening torque Angle of rotation	56 Nm 45 °

- Renew the screw (2).

  Parts: Screw
- Tighten down screw (2).

Strut brace to support bearing

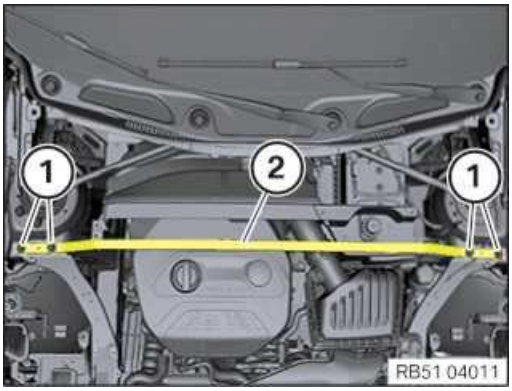
M10	Renew screw.	Tightening torque Angle of rotation	56 Nm 90 °

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37 – Install strut brace

TECHNICAL INFORMATION

Driving without the strut brace/front end or tension strut is not permitted.

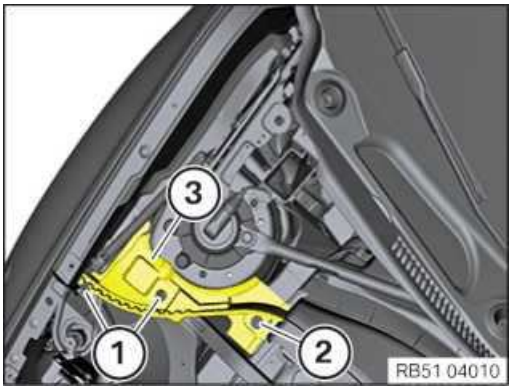


- Install the strut brace (2).
- Renew screws (1).

  Parts: Bolts
- Tighten the screws (1).

Cross-brace to spring strut dome

	Renew screw.	Jointing torque	28 Nm
		Angle of rotation	180 °



NOTICE

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

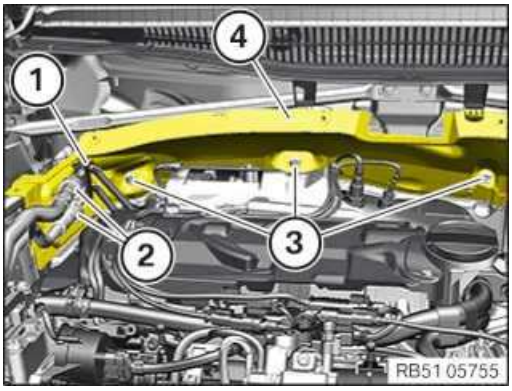
- Install the cover (3).
- Tighten down screw (2).

Cover on body

Hexagon screw		Tightening torque	3 Nm

- Install the expanding rivet (1).

38 – Installing rear bulkhead upper part



- Feed in and install the rear bulkhead upper part (4).
- Tighten down screws (3).

Rear bulkhead upper part to lower section of bulkhead

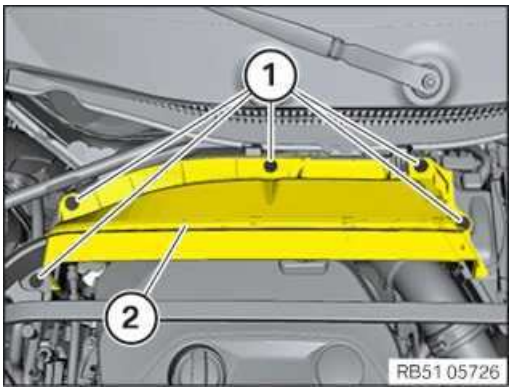
Oval-head screw		Tightening torque	5 Nm

- Feed the fuel line (2) into the holder (1) and install.
- Connect and lock the holder (1).

  The holder (1) must engage audibly.

39 – Installing the upper bulkhead cover

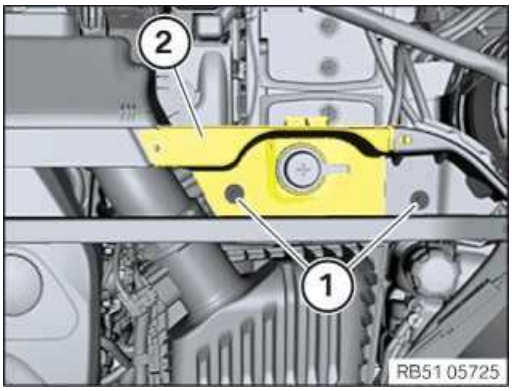
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- Feed in and install cover (2) of the bulkhead at the top.
- Tighten the screws (1).

Cover of top bulkhead

Screw		Tightening torque	2,6 Nm



- Guide in and install cover (2).
- Tighten down screw (1).

Cover of remote positive terminal

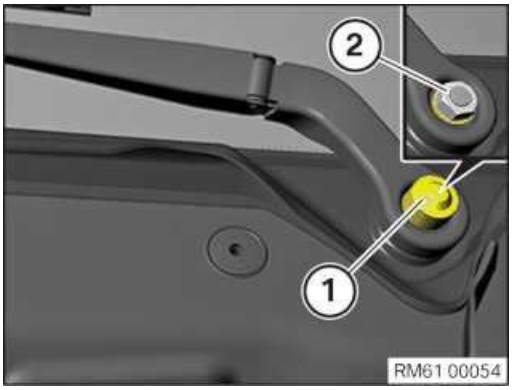
Screw		Tightening torque	2,6 Nm

40 – Install the rear cowl panel



- Insert the cowl panel cover (1) and press it into the latch mechanism on the windscreen starting at the side.

41 – Install left and right wiper arm



- Join wiper arm and tighten with nut (2).

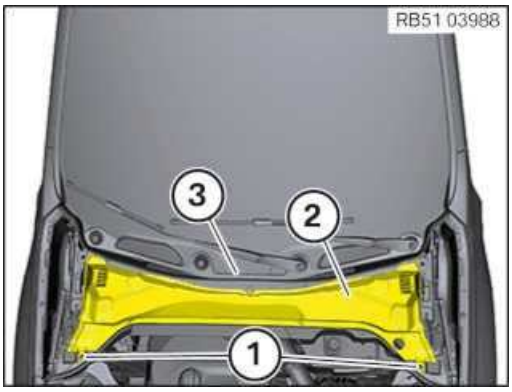
Windscreen wiper arm

Combination hexagon nut		Tightening torque	35 Nm

- Join the protective cap (1).

42 – Installing front cowl panel cover

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- Insert and install cowl panel cover at front (2) into cowl panel cover at rear (3).
- Check cowl panel cover at front is correctly seated (2).
- Secure expanding rivet (1).

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

NOTICE

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

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

RISK OF DAMAGE

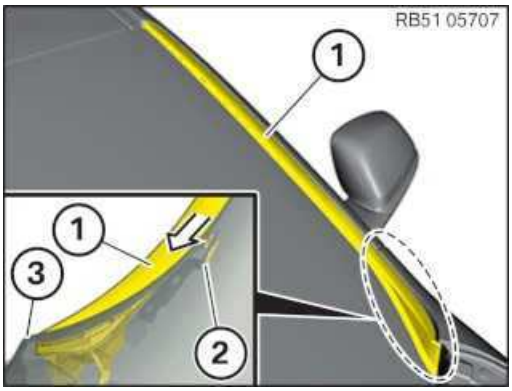
Scratches.

Tools and sharp-edged components can cause scratches.

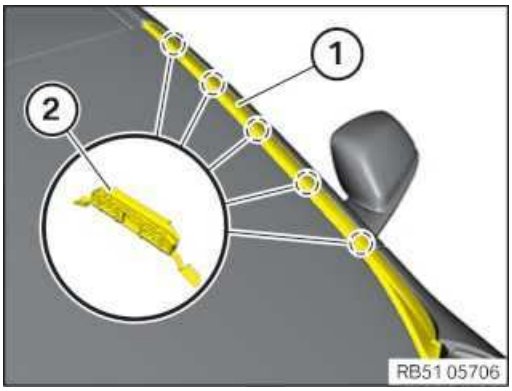
- Protect working area.
- Handle tools and components carefully.

TECHNICAL INFORMATION

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



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



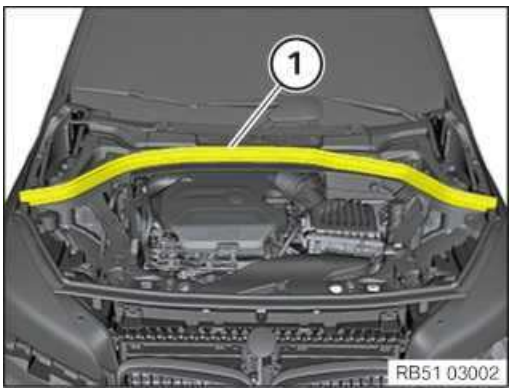
- Clip in the gutter strip (1) at the bottom starting at the clamps (2).

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44 – Install the seal for the bonnet

NOTICE

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



- Install bonnet seal at rear (1).
- Ensure that the rear bonnet seal (1) is fitted correctly.

45 – Disconnecting all battery earth leads



- See additional information.

46 – Evacuate and fill air conditioning

- See additional information.

Additional Information

Overview of Tightening Torques

Refrigerant line on the air conditioning condenser/bracket — Used in step 24

M6		Tightening torque	8 Nm

Safety pressure switch — Used in step 24

		Tightening torque	10 Nm

Refrigerant line to connecting piece — Used in step 25

Screw M6		Tightening torque	8 Nm

Cover to bulkhead — Used in step 25

Nut		Tightening torque	2 Nm

Bulkhead lower part to body — Used in step 25

Nut		Tightening torque	2,6 Nm

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Refrigerant lines to expansion valve

Used in step 25

M6		Tightening torque	8 Nm

Holder, hydraulic control unit, to body

Used in step 25

Screw		Tightening torque	8 Nm

Bumper panel to headlight

Used in step 26

Thermoplastic multi-purpose bolt		Tightening torque	2,5 Nm

Bumper panel to air duct

Used in step 26

Screw M6		Tightening torque	4,6 Nm

Front bumper panel to front side panel

Used in step 26

Screw TS5X35		Tightening torque	3 Nm

Front bumper panel to underbody panelling

Used in step 26

Thermoplastic hexagon screw		Tightening torque	2,5 Nm

Front wheel arch cover to front bumper panel

Used in step 28

Hexagon screw for thermoplastic plastic		Tightening torque	2,6 Nm

Battery terminal rail to battery tray

Used in step 32

M8			19 Nm

Electronics box to battery tray

Used in step 33

M8X16		Tightening torque	15 Nm

Wiring harness to cylinder head cover

Used in step 33

TS5x20		Tightening torque	3,5 Nm

Cover to electronics box

Used in step 33

RF5x26.5		Tightening torque	2,5 Nm

Positive battery terminal to battery

Used in step 33

NutM6		Tightening torque	5 Nm

Tension strut to spring strut dome/battery tray

Used in step 33

M8		Tightening torque	19 Nm

Intake silencer housing to lock bridge

Used in step 34

M6X30		Tightening torque	8 Nm

Clean air pipe to intake silencer housing

Used in step 34

Clamp		Tightening torque	3 Nm

Intake neck to cross connection

Used in step 35

M6		Tightening torque	8 Nm

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Cross-brace to bulkhead — Used in step 36

M10	Renew nut.	Tightening torque	56 Nm
		Angle of rotation	45 °

Strut brace to support bearing — Used in step 36

M10	Renew screw.	Tightening torque	56 Nm
		Angle of rotation	90 °

Cross-brace to spring strut dome — Used in step 37

	Renew screw.	Jointing torque	28 Nm
		Angle of rotation	180 °

Cover on body — Used in step 37

Hexagon screw		Tightening torque	3 Nm

Rear bulkhead upper part to lower section of bulkhead — Used in step 38

Oval-head screw		Tightening torque	5 Nm

Cover of top bulkhead — Used in step 39

Screw		Tightening torque	2,6 Nm

Cover of remote positive terminal — Used in step 39

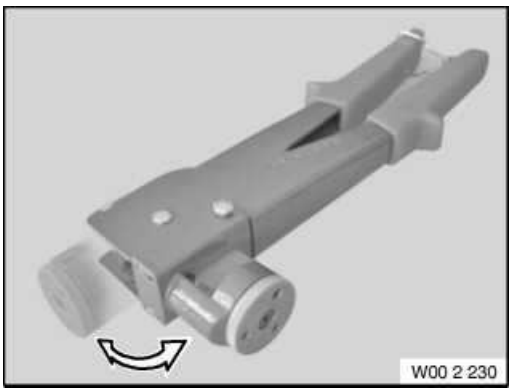
Screw		Tightening torque	2,6 Nm

Windscreen wiper arm — Used in step 41

Combination hexagon nut		Tightening torque	35 Nm

Overview of Special Tools

0 496 521 (00 2 230) Pliers



Common — Used in step 28 29

Usage	(Blind rivet pliers for plastic rivets) For shaft diameters of 3.5 mm, 3.9 mm and 4.5 mm
Included in the tool or work	
Storage location	C25
Replaced by	
In connection with	
SI-Number	01 17 08 (478)

Links

General repair instructions	Used in step
64 52 ... Instructions for opening and part exchange in refrigerant circuit	
64 50 ... Note for handling R134a refrigerant	

Repair instructions	Used in step
64 50 010 Extract, evacuate and fill air conditioning system	1 46
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 46

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64 50 010 Drawing off, evacuating and filling air conditioning (R134a) 1 46
64 50 ... Notes on repairs to air conditioning 1 46
64 50 010 Drawing off, evacuating and filling air conditioning (R1234yf) 1 46
64 50 ... Safety information for handling refrigerant R1234yf 1 46
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a 1 46
64 50 ... Safety informations for handling refrigerant oil 1 46
61 20 900 Disconnecting and connecting battery earth lead 2 45
61 20 900 Disconnecting and connecting battery earth lead 2 45
61 20 900 Disconnecting and connecting battery earth lead 2 45
61 20 900 Disconnecting and connecting battery earth lead 2 45
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 2 45
61 20 900 Disconnect and connect battery earth lead (Plug-in Hybrid Electric Vehicle) 2 45
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61 20 900 Disconnecting and connecting battery earth lead 2 45
61 20 900 Disconnecting and connecting battery earth lead 2 45
61 20 900 Disconnecting and connecting battery earth lead 2 45
61 35 ... Notes on ESD protection (Electro Static Discharge) 14
64 50 ... Safety information for handling refrigerant R1234yf
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a

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64 53 641 Replacing line from the air conditioning compressor to the air conditioning condenser (without drawing off, evacuating and filling)

TECHNICAL INFORMATION

- When the engine is stopped after the end of the journey, it may be necessary to run the electric fan. In rare cases, operation of the electric fan can last up to 11 min. This protects the components. In this case, replacing the electric fan will not remedy the problem!

PRELIMINARY WORK

1 – Drawing off the air conditioning

- See additional information.

2 – Disconnecting all battery earth leads



- See additional information.

3 – Removing the acoustic cover

WARNING

Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

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RISK OF DAMAGE

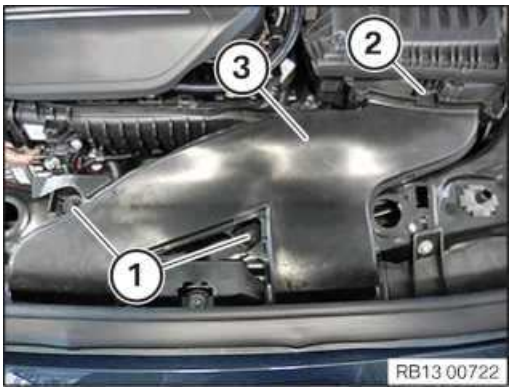
Damage to the acoustic cover.

Jerky movements during disassembly and excessive application of force during installation may result in breakage of the acoustic cover.

- Disassemble or mount the acoustic cover carefully.
- Disassemble or mount snap-lock couplings of the ball pivots one after the other.
- Disassemble or mount acoustic cover only at temperatures >20 °C.
- Use only distilled water as an auxiliary material during installation, no lubricants.

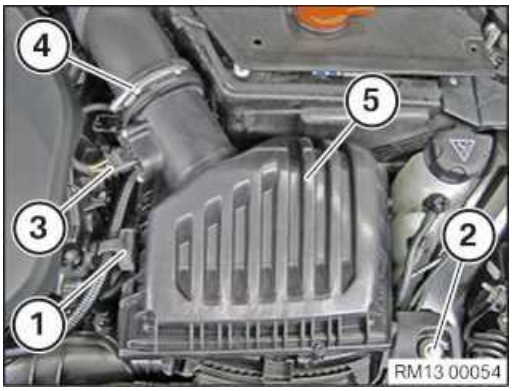
- Unclip the acoustic cover from the marked areas towards the top.

4 – Remove the intake neck for intake silencer housing



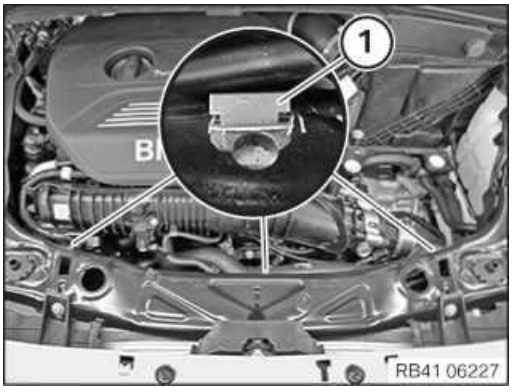
- Loosen nuts (1).
- Loosen the lock (2).
- Guide the intake neck (3) out and remove it.

5 – Removing intake silencer housing



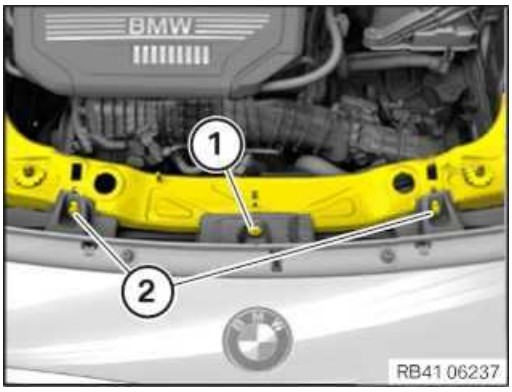
- Loosen the holder (1).
- Loosen screw (2).
- Unlock and loosen connector (3).
- Unfasten clamp (4).
- Pull out and remove the intake silencer housing (5) from the rubber mounts towards the top.

6 – Remove front cross connection

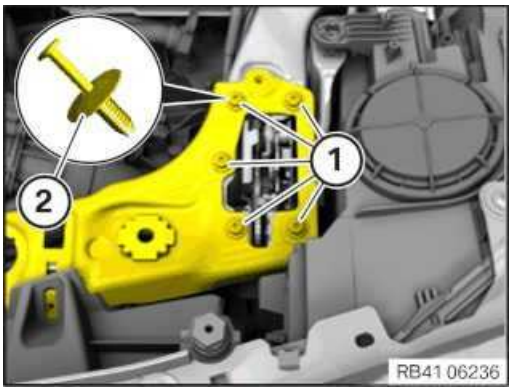


- Detach the clamps (1) for the Bowden cable of the bonnet locks from the cross connection.

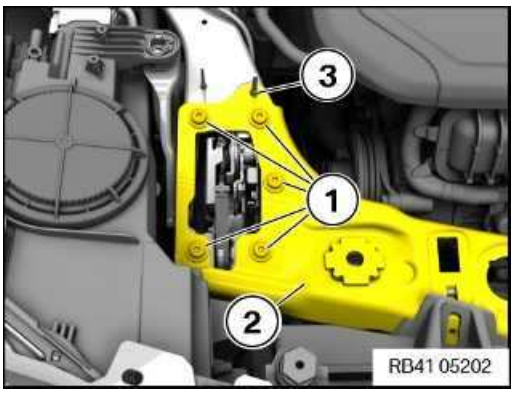
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- Loosen screw (1).
- Loosen screws (2).



- Loosen screws (1).
- Lever out expanding rivet (2).



- Loosen screws (1).
- Unclip the front cross connection (2) from the rubber retainer (3) and remove it upward.

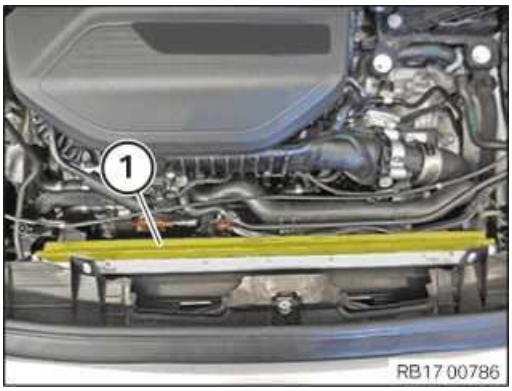
7 – Removing the fan cowl with electric fan

WARNING

Hot surfaces.

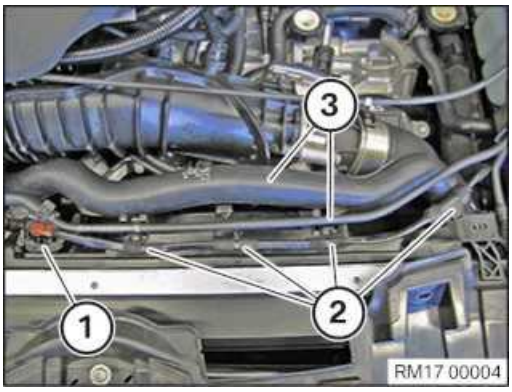
Risk of burning!

- Perform all work only on components that have cooled down.

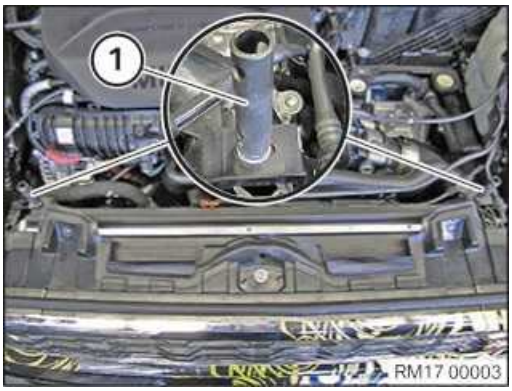


- Feed out and remove the sealing (1) from the radiator.

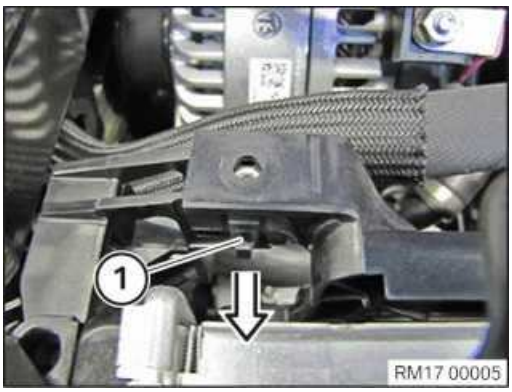
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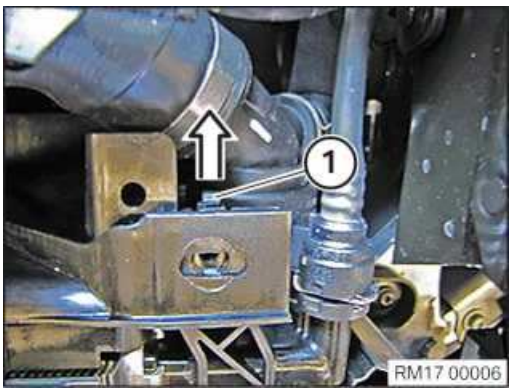
- Unlock plug connection (1) and disconnect.
- Unlock and loosen the clamps (2).
- Feed out connector (1) and place to one side.
- Thread off coolant line (3) and place to the side.



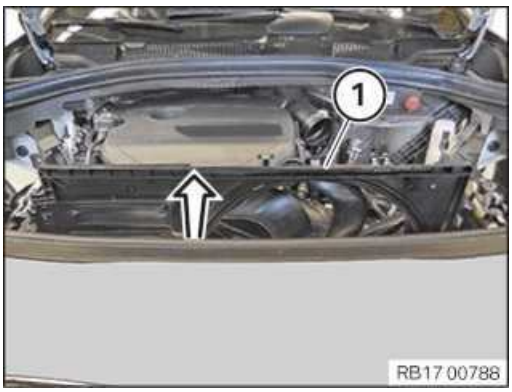
- Loosen screws (1).



- Unlock the right lock (1) on the fan cowl in the direction of the arrow.



- Unlock the left lock (1) on the fan cowl in the direction of the arrow.



- Guide out fan cowl (1) in direction of arrow and remove.

8 – Remove front right wheel

▸ **Removing the wheel**

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- If several wheels are removed simultaneously: Use a piece of chalk to mark on each tyre the axle and side on which the corresponding wheel is fitted.
- Unscrew the wheel bolts (arrows) and remove the wheel.

  Use the matching adapter from tool set (wheel bolt adapter set) to loosen and tighten down the wheel bolt with security code.

9 – Removing the front right wheel arch cover

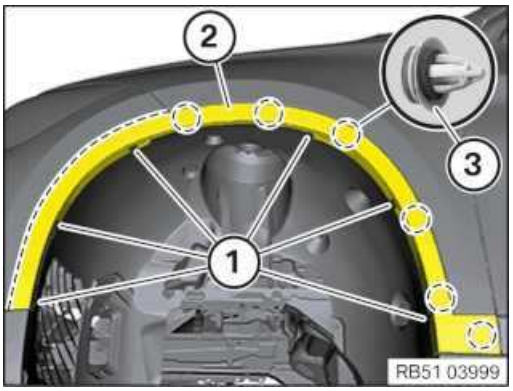
▸ **Remove the front wheel arch trim**

NOTICE

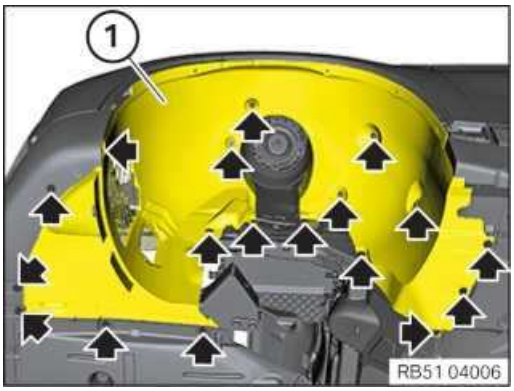
To provide a better overview: Schematic diagram with partially hidden components.

NOTICE

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



- Remove the blind rivets (1).
- Release the wheel arch trim (2) in the area of the side panel from the clips (3).
- Release the wheel arch trim (2) from the latch mechanisms on the bumper and remove.



NOTICE

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

- Unscrew all bolts and nuts (arrows).
- Guide the wheel arch cover (1) out.

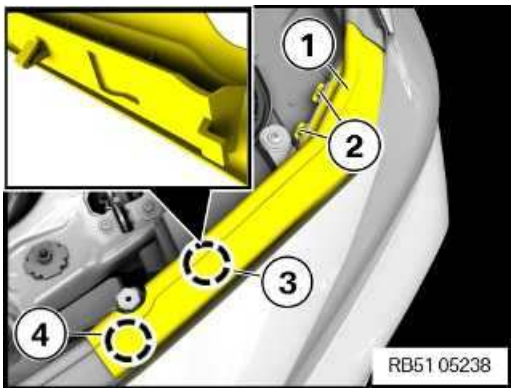
10 – Remove both bonnet seals on the side

NOTICE

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

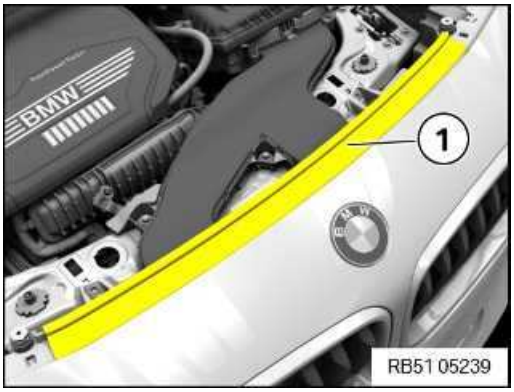
▸ **Remove the bonnet seal on the side**

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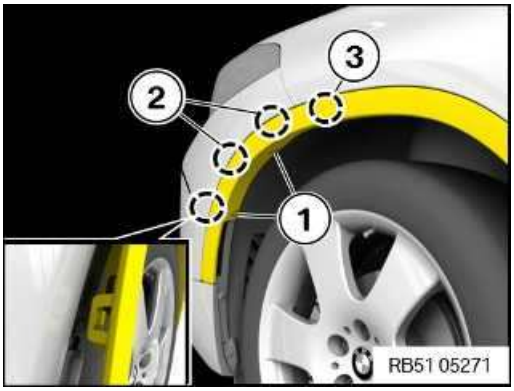
- Unclip the side bonnet seal (1) from the outer latch mechanisms (2) and the inner latch mechanism (3).
- Feed out the side bonnet seal (1) from the guide (4) and remove.

11 – Removing the seal for the front centre bonnet



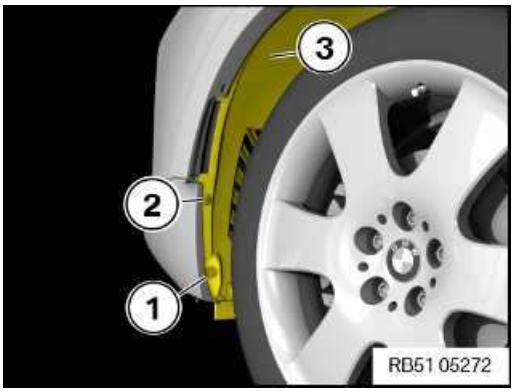
- Remove the seal for the front centre bonnet (1) towards the top.

12 – Partially removing the front wheel arch trim



- Loosen blind rivet(1).
- Release front wheel arch trim in the area of the bumper panel from the latch mechanisms (2) and from the clip (3).

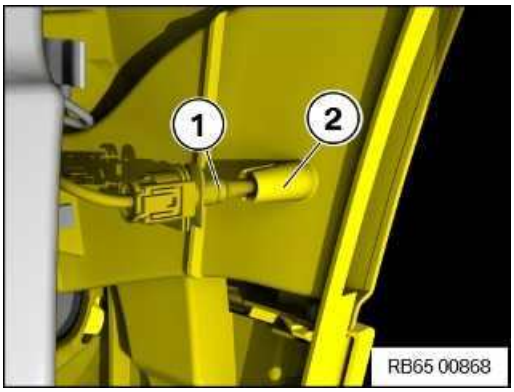
13 – Partially remove the front wheel arch cover



- Loosen screw (1).
- Release the blind rivet (2).
- Fold back the front wheel arch cover (3).

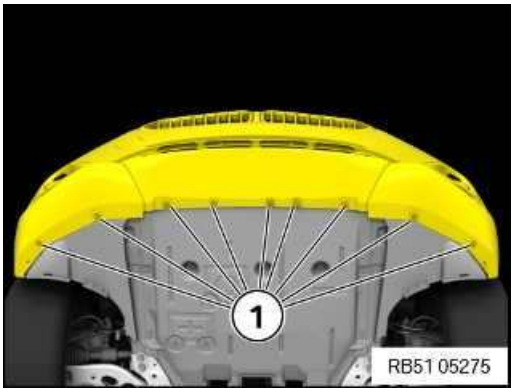
14 – Remove temperature sensor

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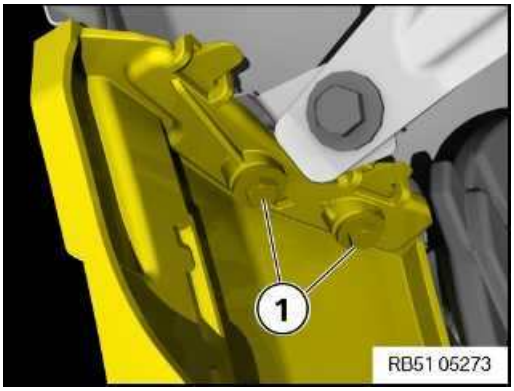


- Unclip temperature sensor (1) from front bumper panel (2).

15 – Remove front bumper panel



- Loosen screws (1).



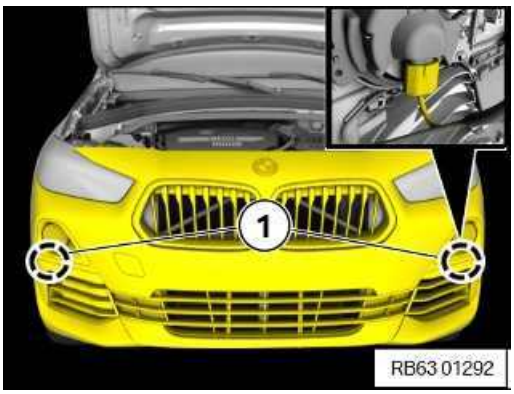
NOTICE

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

- Loosen screws (1).



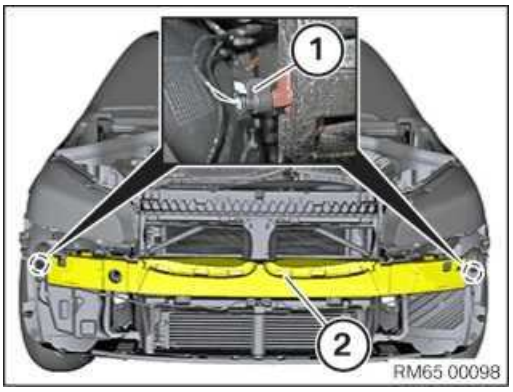
- Loosen screws (1).
- Loosen screws (2).



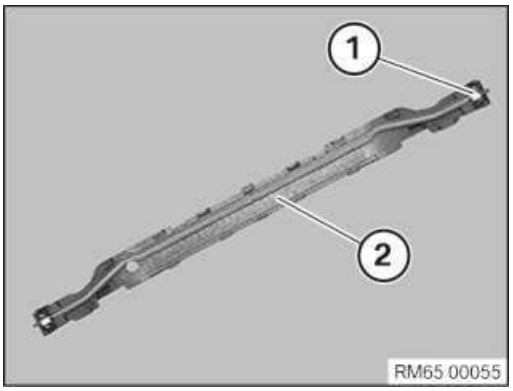
- Pull the front bumper panel slightly forward with the help of another person.
- Unlock and disconnect the plug connections (1) on the fog lights.
- Remove the front bumper panel.

16 – Remove impact absorber

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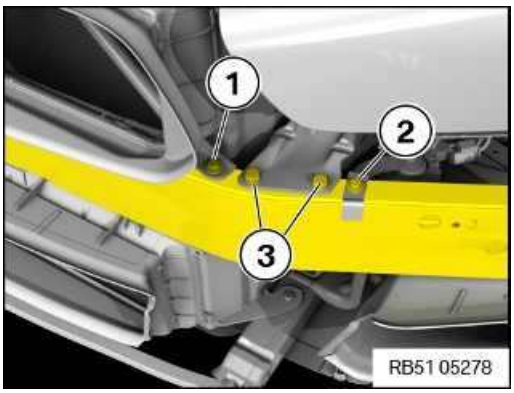


- Unlock and disconnect plug connections (1).
- Remove the impact absorber (2).

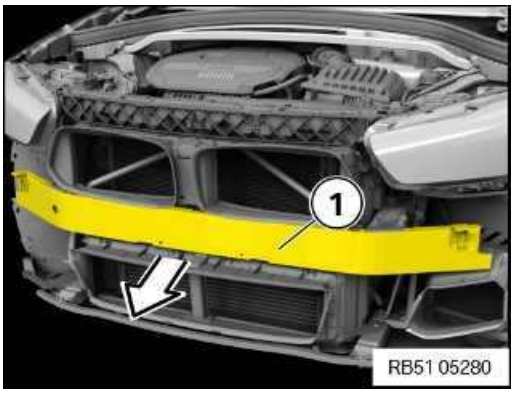


- Detach the pressure hose (1) from the impact absorber (2).

17 – Removing top front bumper support

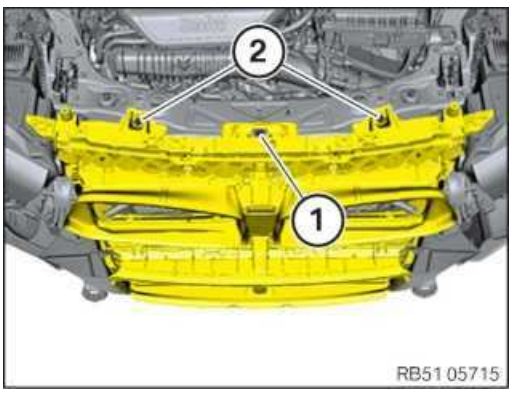


- Loosen screw (1).
- Loosen screw (2).
- Loosen screws (3).



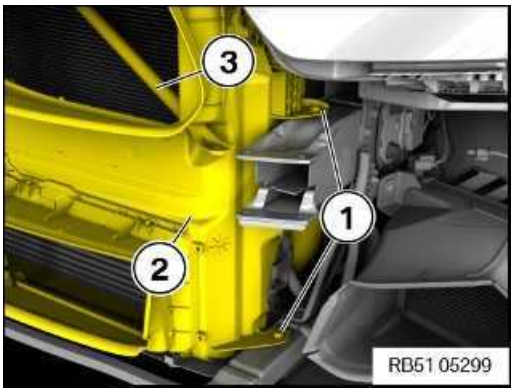
- Guide out and remove the top front bumper support (1) in direction of arrow.

18 – Remove the air duct to the radiator



- Loosen screw (1).
- Loosen screws (2).

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NOTICE

Perform the operations on the left and right side.

- Loosen screws (1).
- Feed out the air duct to the radiator (2) with the bracing strut (3) toward the front and remove.

19 – Removing the drive belt for alternator

CAUTION

Spring preload.

Danger of injury!

- The use of the specified special tool (tool) is mandatory.
- The described operation must be carried out properly.

CAUTION

Component with preload.

Danger of injury!

- Reduce preload as far as possible before disassembly. Relieve component.

TECHNICAL INFORMATION

If the drive belt is reused: Mark direction of travel and reinstall drive belt in same direction of travel.

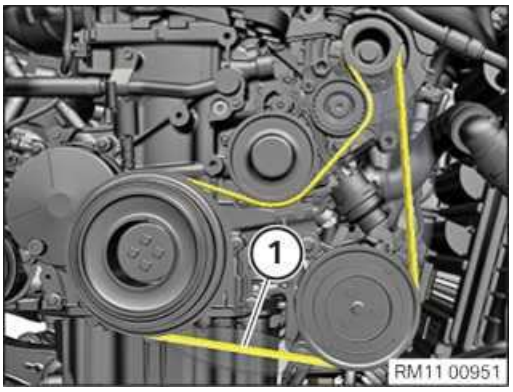
TECHNICAL INFORMATION

The drive belt must be replaced if contaminated with coolant- and oil residues.



- Increase the preload on the belt tensioner in the direction of arrow.
- Secure the belt tensioner with the special tool **0 496 268 (11 0 390)**.

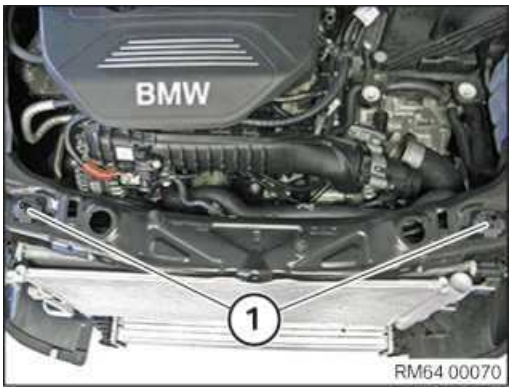
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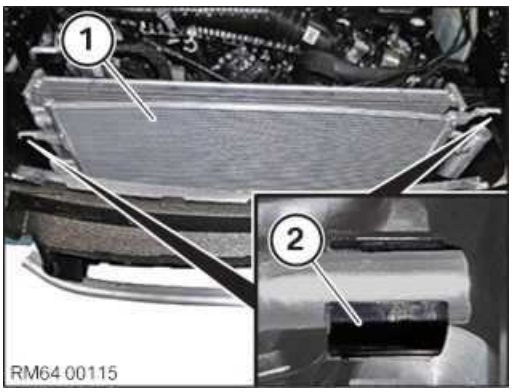
- Guide out the drive belt for the alternator (1) and remove it.

MAIN WORK

20 – Removing refrigerant line between the air conditioning compressor and the air conditioning condenser

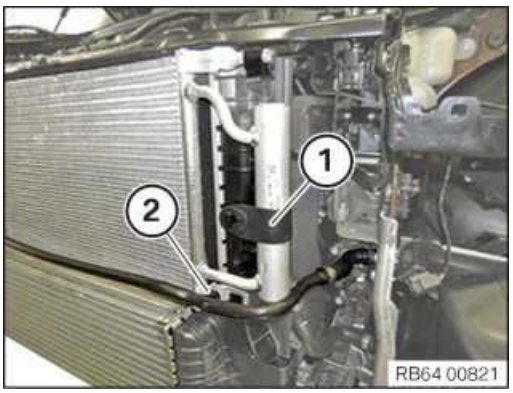


- Loosen screws (1).



- **In Version A:**

  Release the latch mechanisms (2) on the air conditioning condenser (1).

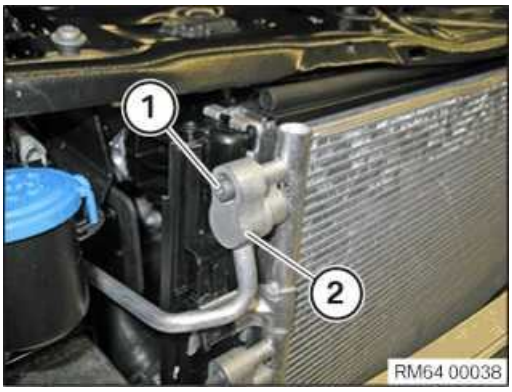


- **In Version A:**

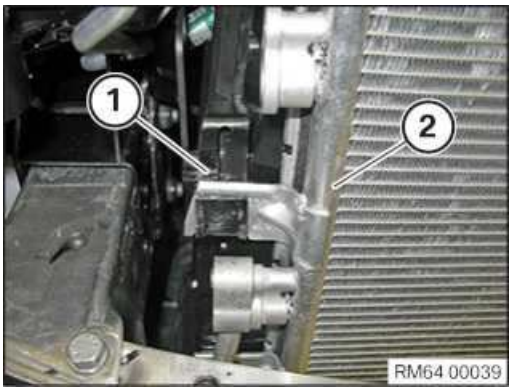
  Detach the retaining strap (1).

  Loosen the hose support (2).

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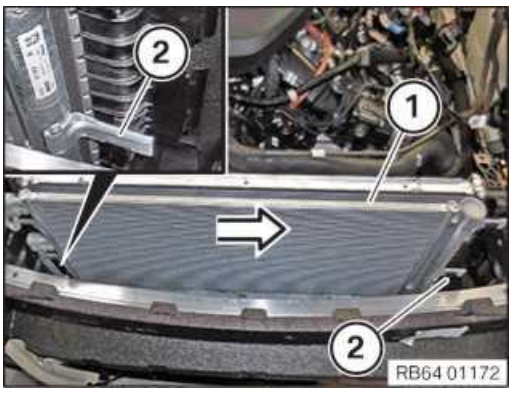
- Loosen screw (1).
- Remove the refrigerant line (2).



- **In Version B:**

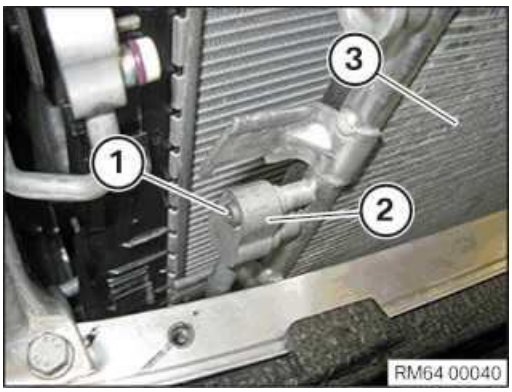
  Unlock the latch mechanisms (1) on the left and right.

  Push the air conditioning condenser (2) slightly upwards.

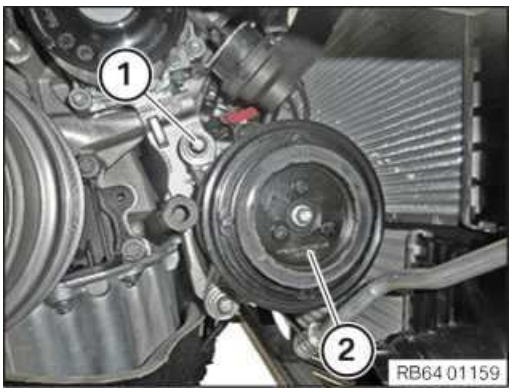


- **In Version B:**

  Push condenser (1) in direction of arrow and feed out on the guide pin(2).



- Loosen screw (1).
- Remove refrigerant line (2) from the air conditioning condenser (3).

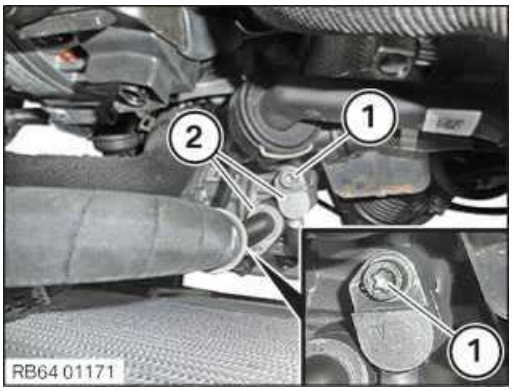


- Release screw (1) on air conditioning compressor (2).

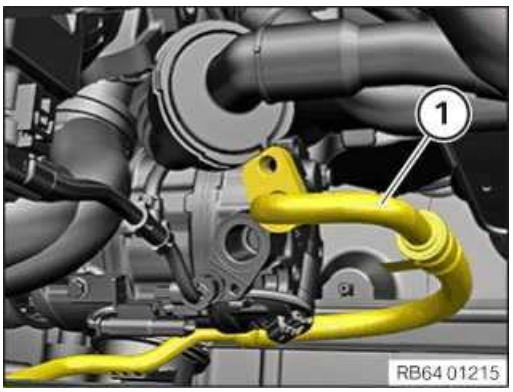
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- Slacken screw (1) and push air conditioning compressor (2) slightly forwards.

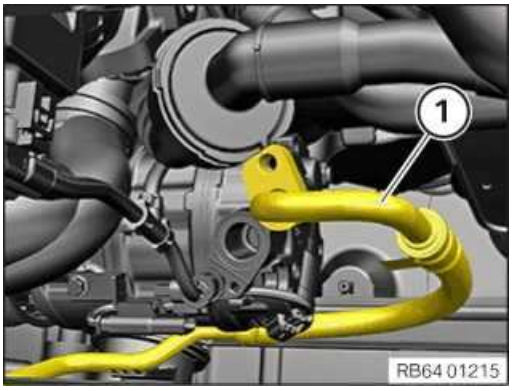


- Release screws (1) and remove refrigerant line (2).



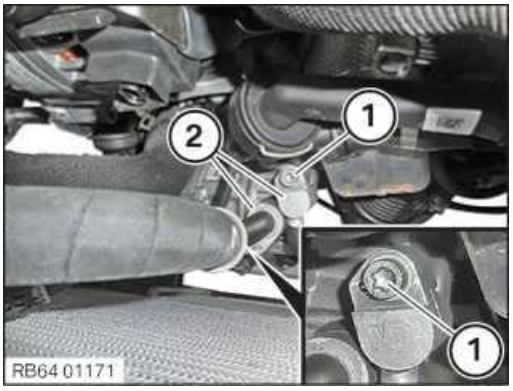
- Feed out and remove the refrigerant line (1) completely.

21 – Installing the refrigerant line between the air conditioning compressor and condenser



- Replace O-rings.

  Parts: O-rings
- Completely thread in refrigerant line (1) and position correctly.



- Position refrigerant lines (2) at the top on the air conditioning compressor.
- Tighten the screws (1).

Refrigerant line on air conditioning compressor

M8		Tightening torque	19 Nm

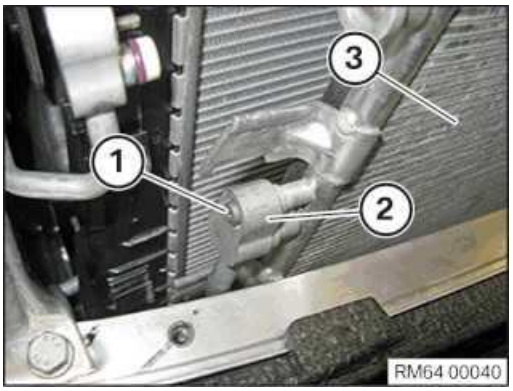
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- Correctly position the air conditioning compressor (2).
- Tighten the screws (1).

Air conditioning compressor in component carrier

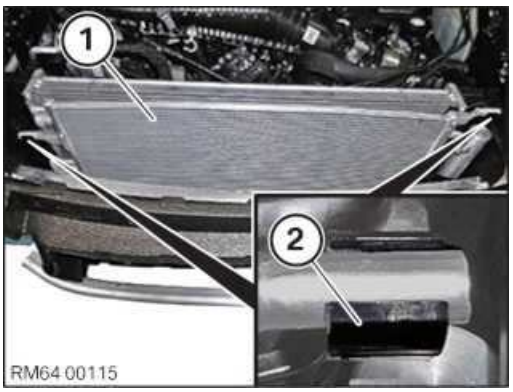
M10		Tightening torque	38 Nm



- Place refrigerant line (2) on the condenser (3).
- Tighten down screw (1).

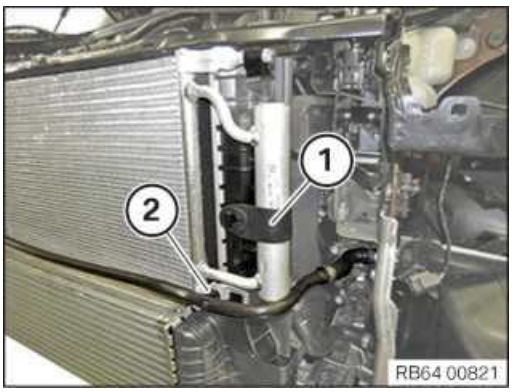
Refrigerant line on the air conditioning condenser/bracket

M6		Tightening torque	8 Nm



- **In Version A:**

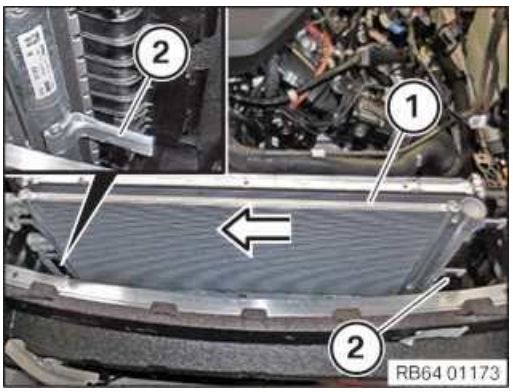
  Push the air conditioning condenser (1) downwards and engage the latch mechanisms (2).



- **In Version A:**

  Attach the retaining strap (1).

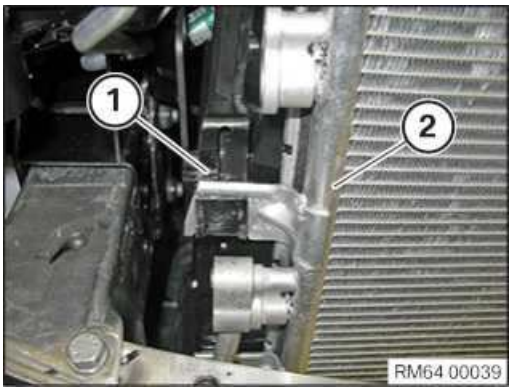
  Engage the hose support (2).



- **In Version B:**

  Push the condenser (1) in direction of arrow and insert with guides (2).

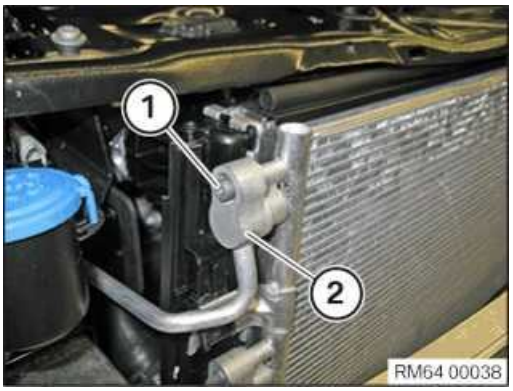
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- **In Version B:**

  Slide in the condenser (2) from top downwards.

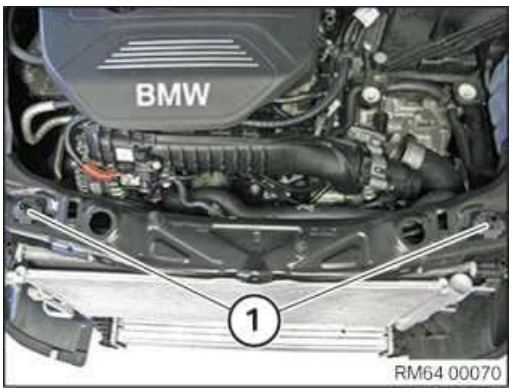
  Engage latch mechanisms (1) on left and right.



- Position refrigerant line (2).
- Tighten down screw (1).

Refrigerant line on the air conditioning condenser/bracket

M6		Tightening torque	8 Nm



- Tighten the screws (1).

POSTPROCESSES

22 – Installing the drive belt for alternator

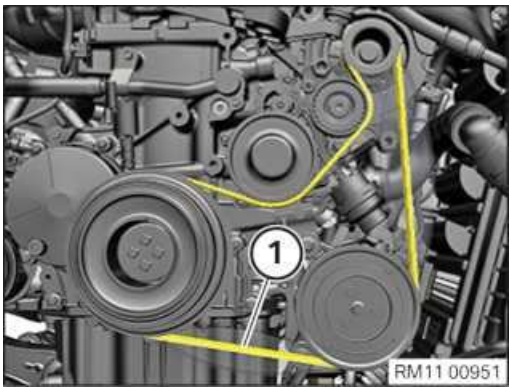
TECHNICAL INFORMATION

If the drive belt is reused: Mark direction of travel and reinstall drive belt in same direction of travel.

TECHNICAL INFORMATION

The drive belt must be replaced if contaminated with coolant- and oil residues.

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- Feed in the drive belt for the alternator (1) and install it.

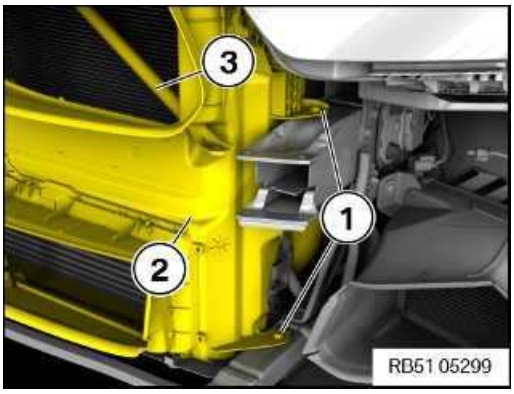


- Increase the preload on the belt tensioner in the direction of arrow.
- Feed the special tool **0 496 268 (11 0 390)** out of the belt tensioner and remove it.

23 – Installing air duct to radiator

NOTICE

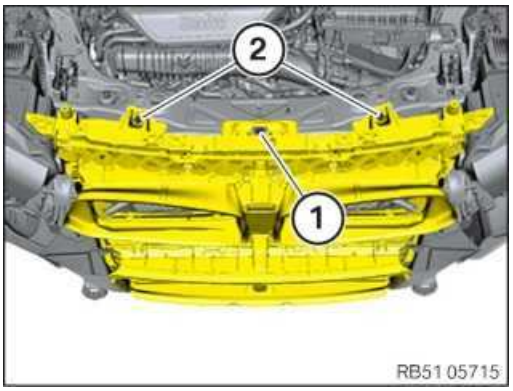
Perform the operations on the left and right side.



- Feed in air duct to radiator (2) with bracing strut (3).
- Tighten the screws (1).

Air duct to deformation element

M6x20 screw		Tightening torque	4,6 Nm



- Tighten down screw (1).

Bracing strut to top front bumper support or to top connection

M6x20 screw		Tightening torque	11,8 Nm

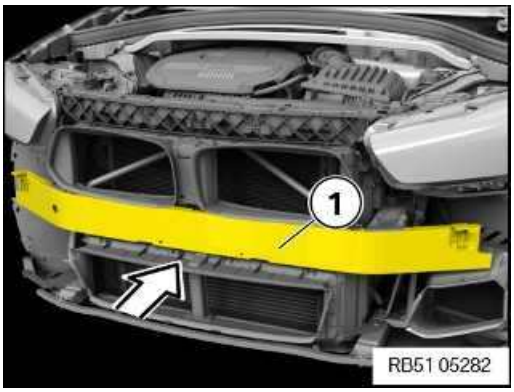
- Tighten down screws (2).

Air duct to upper connection

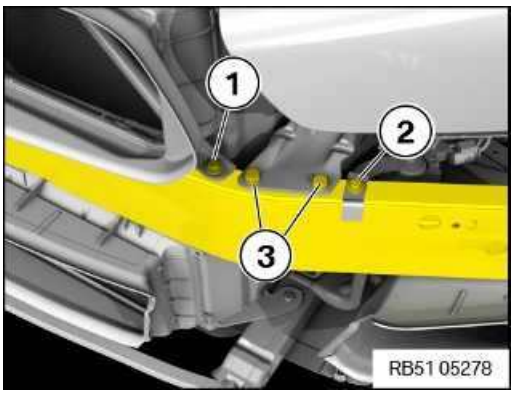
M6x20 screw		Tightening torque	11,8 Nm

24 – Installing top front bumper support

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- Position top front bumper support (1).



- Tighten down screws (3).

Front top bumper support to top deformation element

Hexagon screw M8x95		Tightening torque	28 Nm

- Tighten down screw (2).

Fanfare to front top bumper support

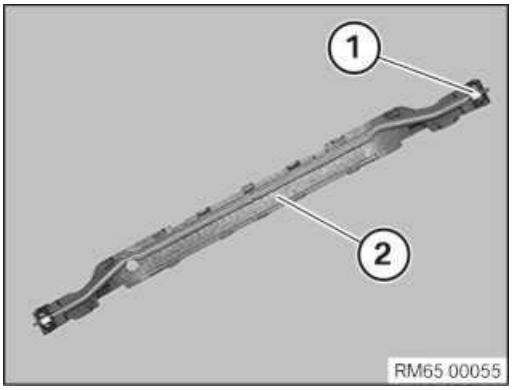
Hexagon screw		Tightening torque	11,8 Nm

- Tighten down screw (1).

Bracing strut to top front bumper support or to top connection

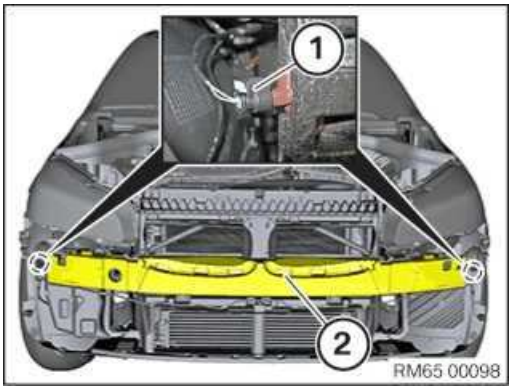
M6x20 screw		Tightening torque	11,8 Nm

25 – Installing impact absorber



- Renew the impact absorber (2).

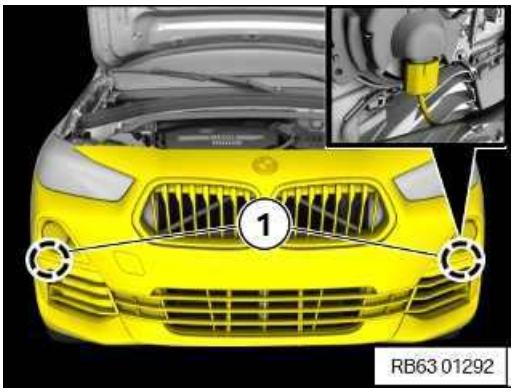
  Parts: Impact absorber
- Insert and engage pressure hose (1) in impact absorber (2).



- Attach bottom impact absorber (2) and press upwards.
- Connect connectors (1) and lock.

26 – Install bumper panel, front

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- Connect the connectors (1) on the fog lights and lock.
- Join the front bumper panel and position.



- Tighten the screws (1).

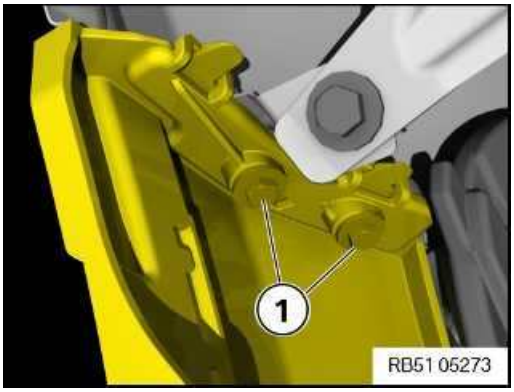
Bumper panel to headlight

Thermoplastic multi-purpose bolt		Tightening torque	2,5 Nm

- Tighten down screws (2).

Bumper panel to air duct

Screw M6		Tightening torque	4,6 Nm



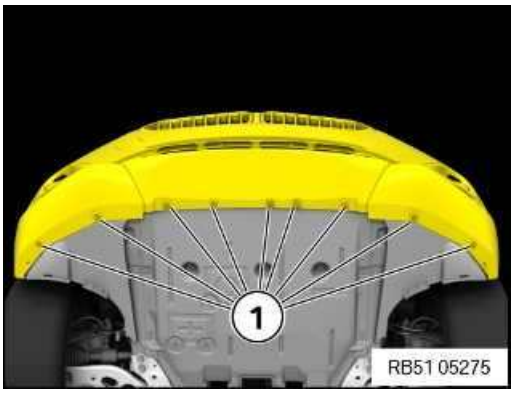
NOTICE

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

- Tighten the screws (1).

Front bumper panel to front side panel

Screw TS5X35		Tightening torque	3 Nm

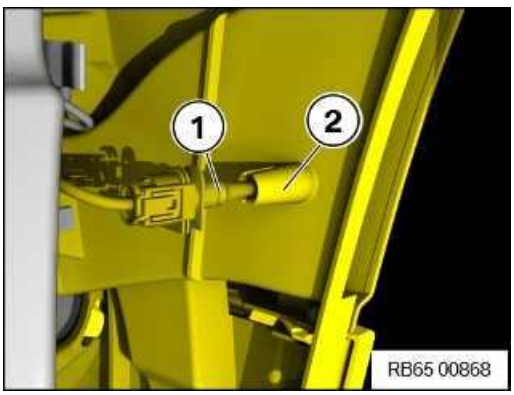


- Tighten the screws (1).

Front bumper panel to underbody panelling

Thermoplastic hexagon screw		Tightening torque	2,5 Nm

27 – Install temperature sensor



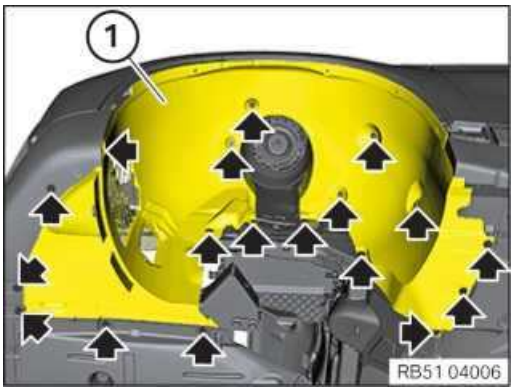
- Clip temperature sensor (1) into the front bumper panel (2).

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28 – Installing the front right wheel arch cover

NOTICE

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



- Guide the wheel arch cover (1) in.
- Tighten all bolts and nuts (arrows).

Wheel arch cover to body

Screw		Tightening torque	2,5 Nm

Wheel arch cover to body

Plastic nut		Tightening torque	3 Nm

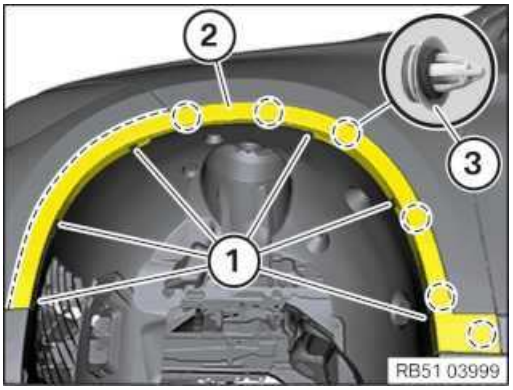
▸ **Installing front wheel arch trim**

NOTICE

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

NOTICE

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



- Check the clips (3) for damage and renew where required.
  The clips (3) must not be damaged or missing.
- Feed in wheel arch trim (2) and engage on the clips (3).
- Engage wheel arch trim (2) into the latch mechanisms on the bumper panel.
- Mount blind rivet (1) using the special tool **0 496 521 (00 2 230)**.

29 – Installing the front right wheel

▸ **Mounting the wheel**

▹ **Clean the contact surfaces between the brake disc and the wheel rim**

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TECHNICAL INFORMATION

The contact surface between the brake disc and the wheel rim must be clean and free from oil and grease. There is otherwise a risk of the wheel becoming loose at a later time.

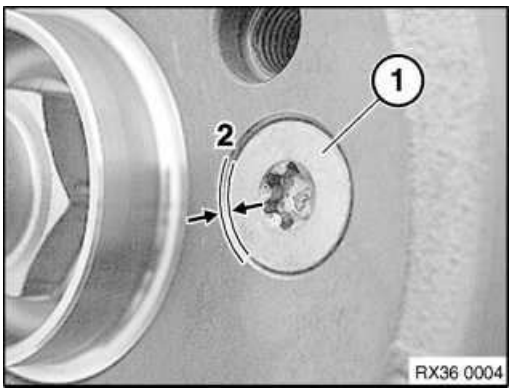
- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool **2 344 011**.

  Do not operate special tool **2 344 011** with an impact screwdriver.
- Degrease the contact surfaces with the universal cleaner (see BMW Group Parts).
- In the event of grease residue in the area of the wheel bolt holes, remove and clean the brake disc.



- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool **2 344 011**.

  Do not operate special tool **2 344 011** with an impact screwdriver.
- Degrease the contact surfaces with the universal cleaner (see BMW Group Parts).



- Renew mounting bolt (1).

  Parts: Mounting bolt
- Check that the mounting bolt (1) for the brake disc is securely seated.

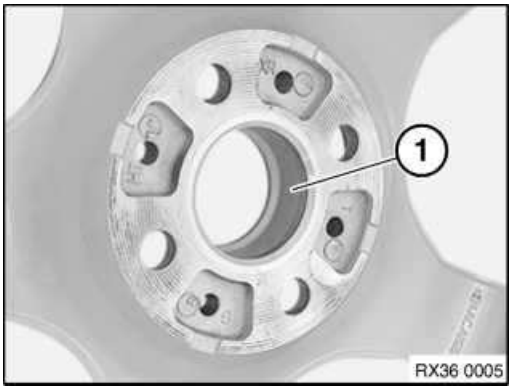
  The mounting bolt (1) for the brake disc may not protrude under any circumstances on the contact surface (2) between the brake disc and the wheel rim.

Brake disc to rear wheel hub

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm



- Lightly grease the wheel centring (1) in the wheel rim; refer to additional information for grease for the wheel centring (1).

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TECHNICAL INFORMATION

Never use impact screwdrivers or electric screwdrivers to screw in and tighten the wheel bolts.

The wheel rim must rest uniformly against the brake disc.

In the case of non-original BMW wheel bolts/wheel rims, it may be necessary to retighten the wheel bolts on account of setting properties (refer to the documentation from the manufacturer).

Do not apply oil to new wheel bolts.

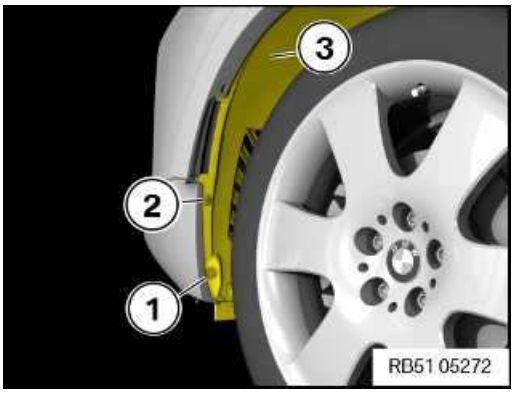
- Renew corroded wheel bolts.

  Parts: Wheel bolts
- Clean the wheel bolts.
- Check the wheel bolts and threads for damage, renew the wheel bolts if necessary.
- Join and tighten the wheel bolts (arrows).

Wheel bolts

M 14/AF 17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim. Tighten wheel bolts to the prescribed tightening torque with a calibrated torque wrench in a crosswise sequence. Check all the wheel bolts in the same order or retighten to the prescribed tightening torque again.	Tightening torque Check	140 Nm 140 Nm

30 – Partially install the front wheel arch cover



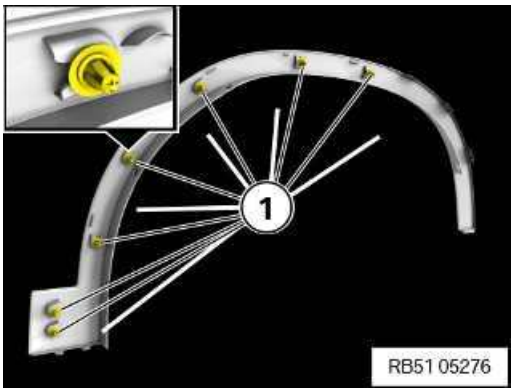
- Fold the front wheel arch cover (3) forward.
- Mount the blind rivet (2) with the special tool **0 496 521 (00 2 230)**.
- Tighten down screw (1).

Front wheel arch cover to front bumper panel

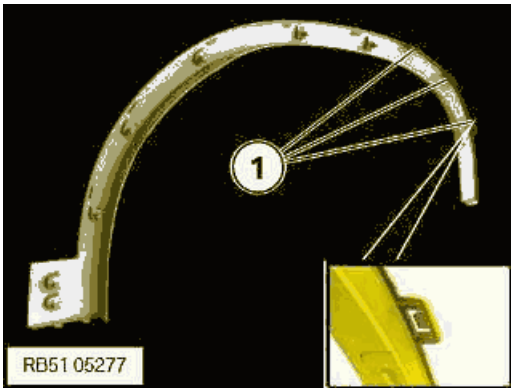
Hexagon screw for thermoplastic plastic		Tightening torque	2,6 Nm

31 – Partly install the front wheel arch trim

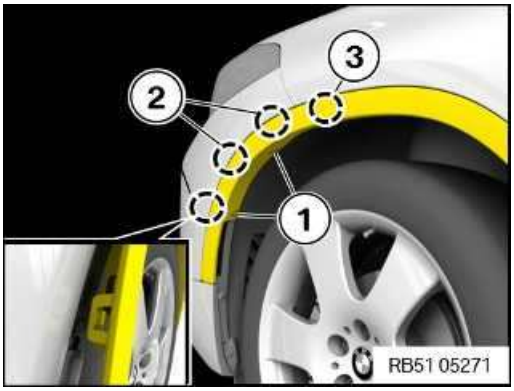
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- Check clips (1) for damage, and replace if necessary.

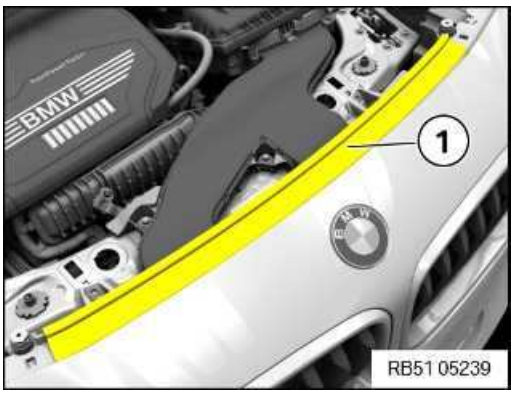


- Check the retaining lugs (1) for damage and replace the front wheel arch trim where required.



- Clip the front wheel arch trim into the clip (3) in the area of the bumper panel and into the latch mechanisms (2).
- Mount blind rivet (1) using the special tool **0 496 521 (00 2 230)**.

32 – Install the center front bonnet seal



- Press the centre front bonnet seal (1) down into the guide.
- Make sure the centre front bonnet seal (1) is fitted correctly.

33 – Install both bonnet seals on the side

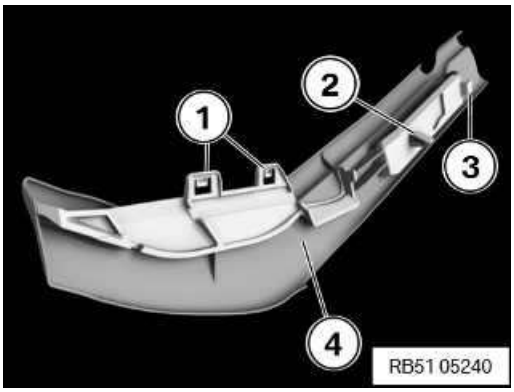
NOTICE

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

▸ **Installing seal for side bonnet**

Check

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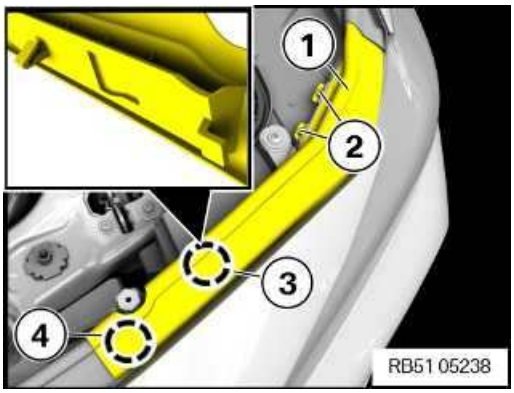
- Check latch mechanisms (1) and (2) and also the guide (3) on the bonnet seal on the side (4) for damage.

Result

» Latch mechanisms (1), (2) or the guide (3) are damaged.

Measure

- Renew the bonnet seal on the side (4).

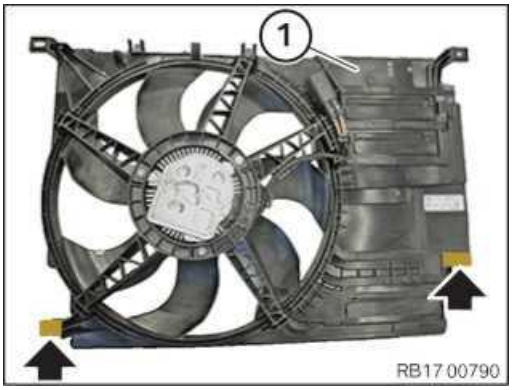


- Insert the bonnet seal on the side (1) in the guide (4).
- Clip in the bonnet seal on the side (1) in the inner latch mechanism (3) and the outer latch mechanisms (2).

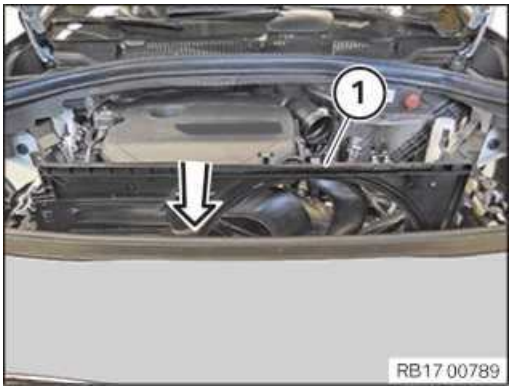
34 – Installing fan cowl with electric fan

TECHNICAL INFORMATION

Make sure that the connections are locked correctly. The locks must engage audibly.



- Feed the guides (arrows) of the fan cowl (1) into the charge air cooler.

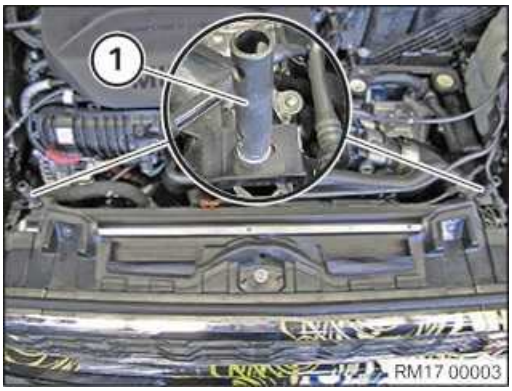


- Feed in and install the fan cowl (1) in the direction of the arrow.

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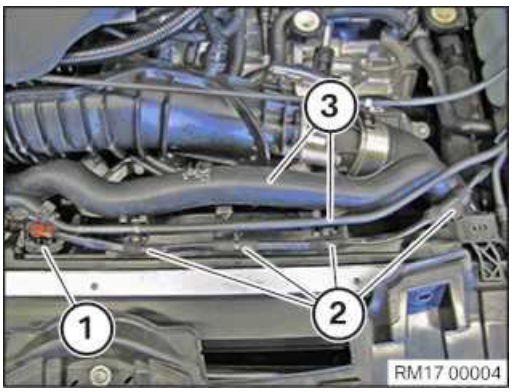
- Lock the left and right locks (arrows).



- Tighten the screws (1).

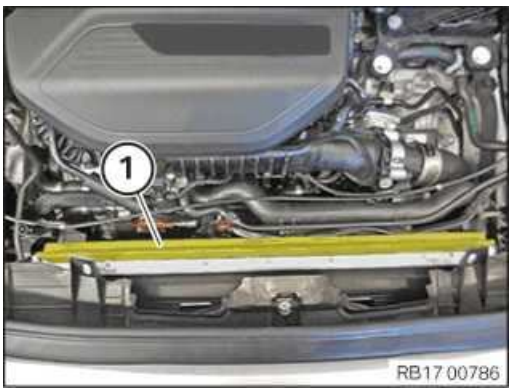
Fan cowl on radiator

M6X12		Tightening torque	6 Nm



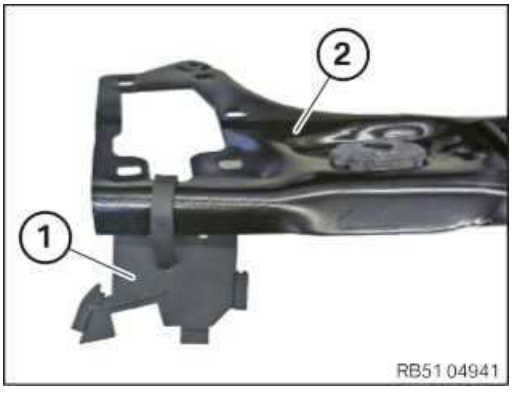
- Connect connectors (1) and lock.

  The connector (1) must engage audibly.
- Secure clamps (2).
- Thread in and install coolant line (3).



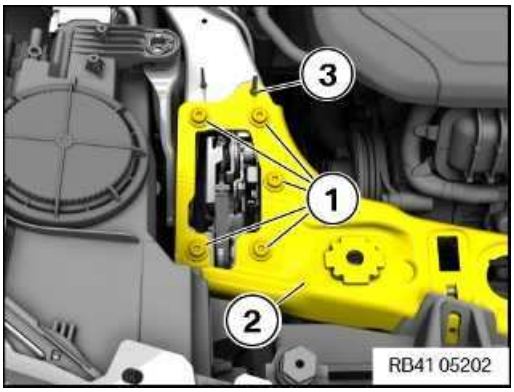
- Guide the sealing (1) on the radiator in and install it.

35 – Install front cross connection



- Right side of vehicle only: Secure spray guard (1) on the cross connection (2) as pictured.

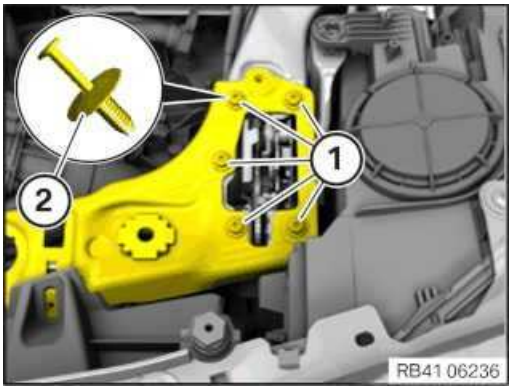
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- Position front cross connection (2) and clip front cross connection (2) into the rubber retainer (3) at the same time.
- Tighten the screws (1).

Cross connection to carrier support

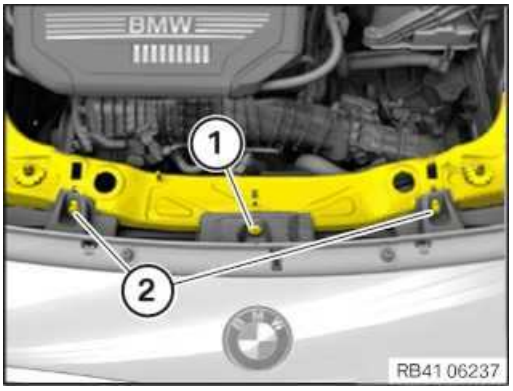
Screws M6x20		Tightening torque	11,8 Nm



- Tighten the screws (1).

Cross connection to carrier support

Screws M6x20		Tightening torque	11,8 Nm



- Position screws (3) on the rubber mounts for the radiator and tighten.

Screw connection for rubber mount of coolant radiator to coolant radiator

Bolt to rubber mount		Tightening torque	8 Nm

- Tighten down screws (2).

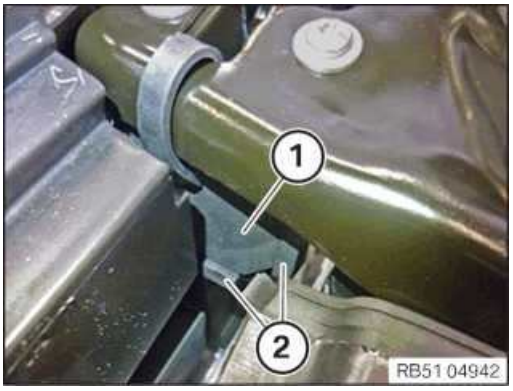
Air duct to upper connection

M6x20 screw		Tightening torque	11,8 Nm

- Tighten down screw (1).

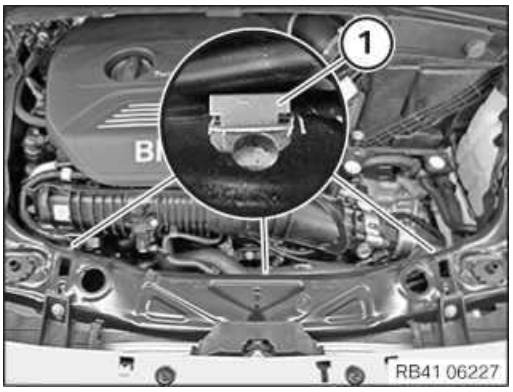
Bracing strut to upper connection

M8x20 screw		Tightening torque	28 Nm



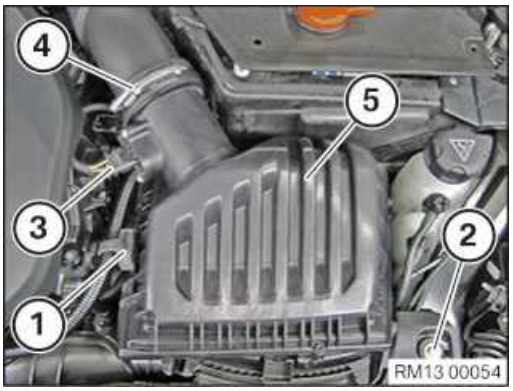
- Right side of vehicle only: Properly mount spray guard (1) to prevent corrosion.
- Secure spray guard (1) to the bridge with retaining tabs (2).

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- Fasten the clamps (1) from the Bowden cable of the bonnet lock on the cross connection.

36 – Installing intake silencer housing



- Insert the intake silencer housing (5) into the rubber mounts and install it.

  Intake filter housing (5) must engage audibly.
- Tighten down screw (2).

Intake silencer housing to lock bridge

M6X30		Tightening torque	8 Nm

- Tighten clamp (4).

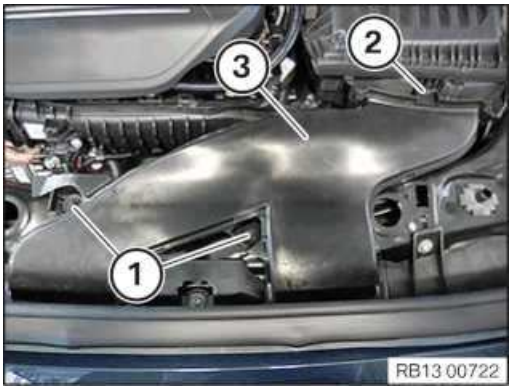
Clean air pipe to intake silencer housing

Clamp		Tightening torque	3 Nm

- Connect and lock the connector (3).

  The connector (3) must engage audibly.
- Insert and install the holder (1).

37 – Install the intake neck for the intake filter housing



- Insert and install the intake neck (3).

  The lock (2) must audibly engage.
- Tighten nuts (1).

Intake neck to cross connection

M6		Tightening torque	8 Nm

38 – Install acoustic cover

RISK OF DAMAGE

Damage to the acoustic cover.

Jerky movements during disassembly and excessive application of force during installation may result in breakage of the acoustic cover.

- Disassemble or mount the acoustic cover carefully.
- Disassemble or mount snap-lock couplings of the ball pivots one after the other.
- Disassemble or mount acoustic cover only at temperatures >20 °C.
- Use only distilled water as an auxiliary material during installation, no lubricants.

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- Check for correct installation of all rubber mounts in the acoustic cover (1).



- Clip in the acoustic cover into the holders in the indicated areas.
- Make sure that the acoustic cover engages audibly.

39 – Disconnecting all battery earth leads



- See additional information.

40 – Evacuate and fill air conditioning

- See additional information.

Additional Information

Overview of Tightening Torques

Refrigerant line on air conditioning compressor — Used in step 21

M8		Tightening torque	19 Nm

Air conditioning compressor in component carrier — Used in step 21

M10		Tightening torque	38 Nm

Refrigerant line on the air conditioning condenser/bracket — Used in step 21

M6		Tightening torque	8 Nm

Air duct to deformation element — Used in step 23

M6x20 screw		Tightening torque	4,6 Nm

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Bracing strut to top front bumper support or to top connection

Used in step 23 24

M6x20 screw		Tightening torque	11,8 Nm

Air duct to upper connection

Used in step 23 35

M6x20 screw		Tightening torque	11,8 Nm

Front top bumper support to top deformation element

Used in step 24

Hexagon screw M8x95		Tightening torque	28 Nm

Fanfare to front top bumper support

Used in step 24

Hexagon screw		Tightening torque	11,8 Nm

Bumper panel to headlight

Used in step 26

Thermoplastic multi-purpose bolt		Tightening torque	2,5 Nm

Bumper panel to air duct

Used in step 26

Screw M6		Tightening torque	4,6 Nm

Front bumper panel to front side panel

Used in step 26

Screw TS5X35		Tightening torque	3 Nm

Front bumper panel to underbody panelling

Used in step 26

Thermoplastic hexagon screw		Tightening torque	2,5 Nm

Wheel arch cover to body

Used in step 28

Screw		Tightening torque	2,5 Nm

Wheel arch cover to body

Used in step 28

Plastic nut		Tightening torque	3 Nm

Brake disc to rear wheel hub

Used in step 29

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to front wheel hub

Used in step 29

M8	Renew screw.	Tightening torque	16 Nm

Wheel bolts

Used in step 29

M 14/AF 17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim. Tighten wheel bolts to the prescribed tightening torque with a calibrated torque wrench in a crosswise sequence. Check all the wheel bolts in the same order or retighten to the prescribed tightening torque again.	Tightening torque Check	140 Nm 140 Nm

Front wheel arch cover to front bumper panel

Used in step 30

Hexagon screw for thermoplastic plastic		Tightening torque	2,6 Nm

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Fan cowl on radiator — Used in step 34

M6X12		Tightening torque	6 Nm

Cross connection to carrier support — Used in step 35

Screws M6x20		Tightening torque	11,8 Nm

Screw connection for rubber mount of coolant radiator to coolant radiator — Used in step 35

Bolt to rubber mount		Tightening torque	8 Nm

Bracing strut to upper connection — Used in step 35

M8x20 screw		Tightening torque	28 Nm

Intake silencer housing to lock bridge — Used in step 36

M6X30		Tightening torque	8 Nm

Clean air pipe to intake silencer housing — Used in step 36

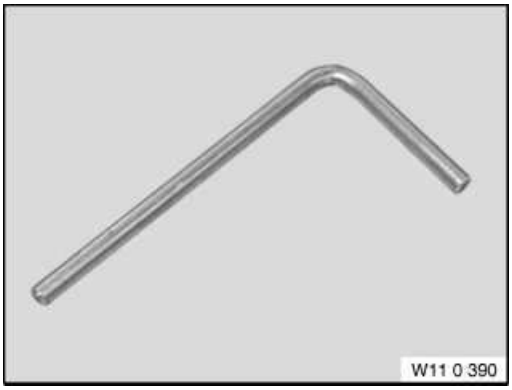
Clamp		Tightening torque	3 Nm

Intake neck to cross connection — Used in step 37

M6		Tightening torque	8 Nm

Overview of Special Tools

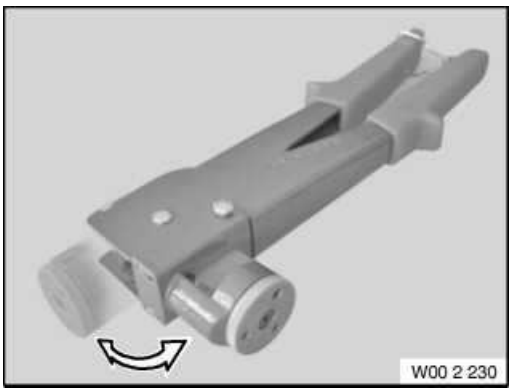
0 496 268 (11 0 390) Pin



Common — Used in step 19 22

Usage	(roll pin) For securing new tensioning pulley (poly-V belt)
Included in the tool or work	
Storage location	B24
Replaced by	
In connection with	
SI-Number	01 15 07 (390)

0 496 521 (00 2 230) Pliers



Common — Used in step 28 30 31

Usage	(Blind rivet pliers for plastic rivets) For shaft diameters of 3.5 mm, 3.9 mm and 4.5 mm
Included in the tool or work	
Storage location	C25
Replaced by	
In connection with	
SI-Number	01 17 08 (478)

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2 344 011 Tool



Common	Used in step 29
Usage	Tool (wheel hub grinder) for cleaning the connection of the wheel rim (wheel contact face) to the wheel hub.
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	08 08 12 (872)

Replacement tools:

0 495 221 (36 1 323) Wheel stud



Common	Used in step 8
Usage	(Code 30) Code 39 available separately, (see EPC) under 36 13 1 181 259
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

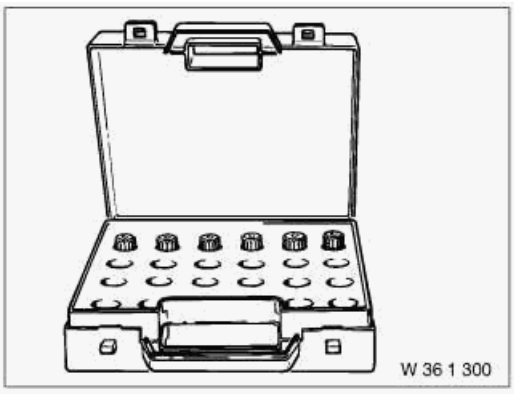
0 495 224 (36 1 326) Wheel stud



Common	Used in step 8
Usage	(Code 33) With centring bore available separately, (see EPC) under 36 13 6 765 546
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

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0 495 225 (36 1 327) Wheel stud



Common	Used in step 8
Usage	(Code 34) With centring bore available separately (see EPC) under 36 13 6 765 547
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 226 (36 1 328) Wheel stud



Common	Used in step 8
Usage	(Code 35) With centring bore available separately, (see EPC) under 36 13 6 762 340
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

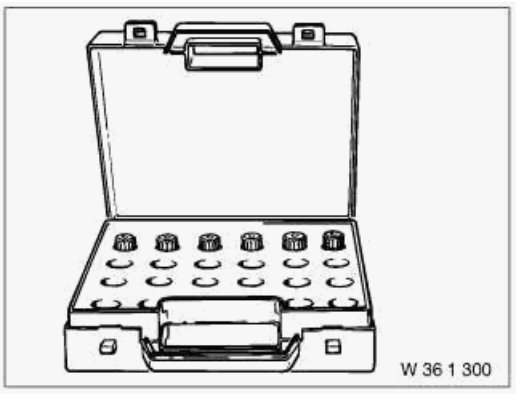
0 495 227 (36 1 329) Wheel stud



Common	Used in step 8
Usage	(Code 36) With centring bore available separately (see EPC) under 36 13 6 762 341
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

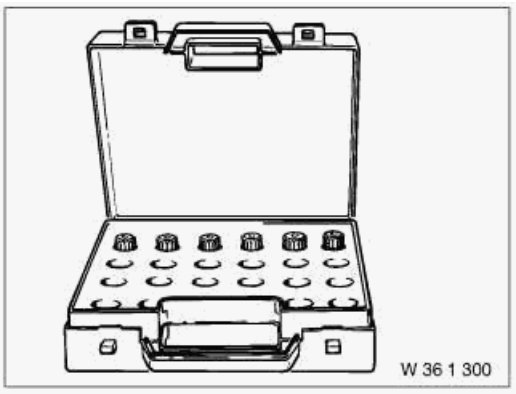
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0 495 228 (36 1 331) Wheel stud



Common	Used in step 8
Usage	(Code 37) With centring bore available separately (see EPC) under 36 13 6 762 342
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 229 (36 1 332) Wheel stud



Common	Used in step 8
Usage	(Code 38) With centring bore available separately (see EPC) under 36 13 6 762 343
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 230 (36 1 333) Wheel stud



Common	Used in step 8
Usage	(Code 40) With centring bore available separately (see EPC) under 36 13 6 762 344
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

Links

General repair instructions	Used in step

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64 50 ... Note for handling R134a refrigerant

64 52 ... Instructions for opening and part exchange in refrigerant circuit

Repair instructions	Used in step
64 50 010 Extract, evacuate and fill air conditioning system	1 40
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 40
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 40
64 50 ... Notes on repairs to air conditioning	1 40
64 50 010 Drawing off, evacuating and filling air conditioning (R1234yf)	1 40
64 50 ... Safety information for handling refrigerant R1234yf	1 40
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	1 40
64 50 ... Safety informations for handling refrigerant oil	1 40
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 39
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 39
61 20 900 Disconnect and connect battery earth lead (Plug-in Hybrid Electric Vehicle)	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
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61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
61 20 900 Disconnecting and connecting battery earth lead	2 39
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a	
64 50 ... Safety information for handling refrigerant R1234yf	

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Operating materials	Used in step
2.0 Grease for wheel centring	29

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64 53 651 Replacing line from the air conditioning compressor to the evaporator (from separation point to the evaporator) (without drawing off, evacuating and filling)

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.
- For additional batteries: Detach all battery earth leads from additional batteries.

PRELIMINARY WORK

1 – Drawing off the air conditioning

- See additional information.

2 – Disconnecting all battery earth leads

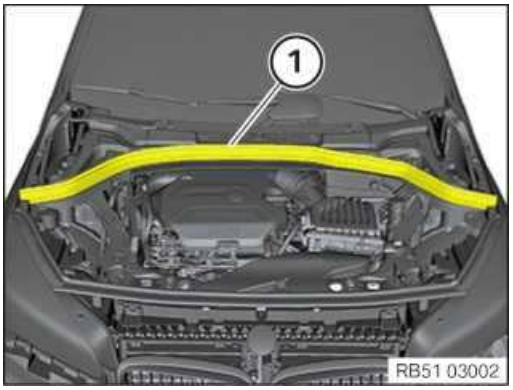


- See additional information.

3 – Remove the seal for the rear bonnet

NOTICE

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



- Pull off rear bonnet seal (1) towards the top and remove.

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

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NOTICE

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

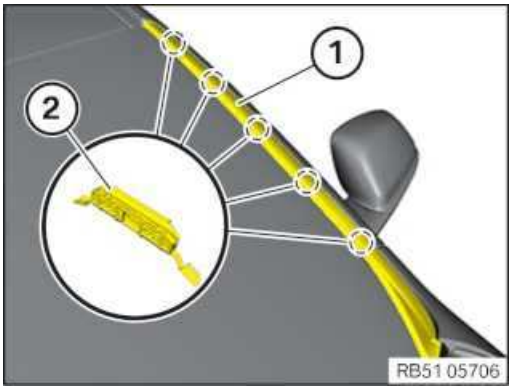
▸ **Remove the gutter strip on the windscreen**

RISK OF DAMAGE

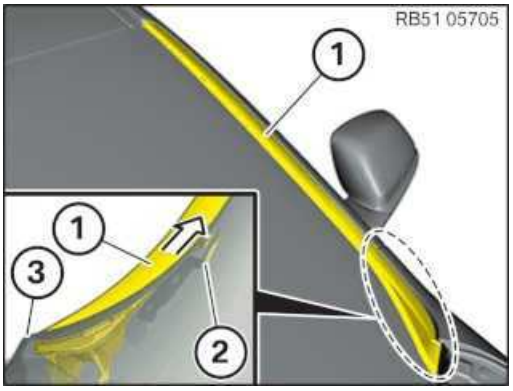
Scratches.

Tools and sharp-edged components can cause scratches.

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

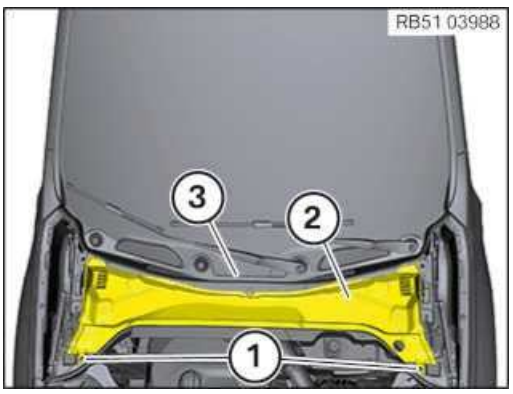


- Unclip the gutter strip (1) from the clamps (2) beginning at the roof to the top.



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

5 – Removing front cowl panel cover



- Loosen the expanding rivet (1).
- Feed out and remove front cowl panel cover (2) from the rear cowl panel cover(3).

6 – Remove left and right wiper arm

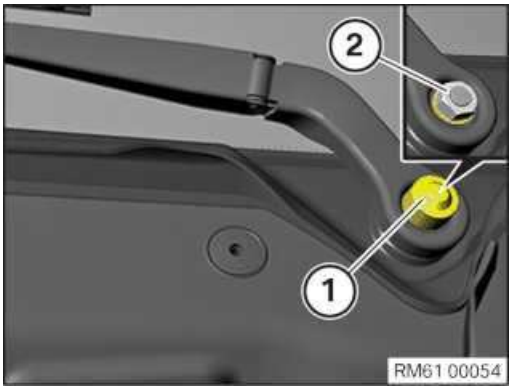
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RISK OF DAMAGE

Damage to wiper console

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

- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do not lift off wiper arm, else the wiper console may break on the predetermined breaking point for the pedestrian protection.



- Pull off the protective cap (1) and release the nut (2) below it.



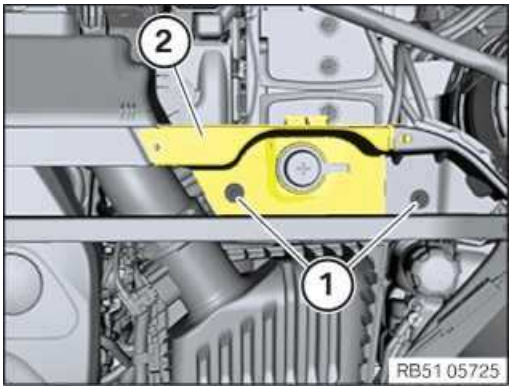
- Pull off windscreen wiper arm (1)with special tool .

7 – Remove the rear cowl panel



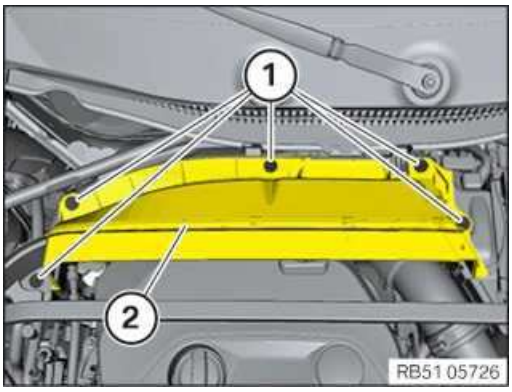
- Pull off the cowl panel cover (1) towards the top, starting from the side and feed out.

8 – Removing the upper bulkhead cover



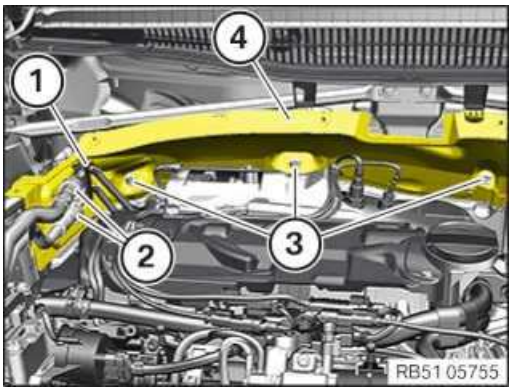
- Loosen screws (1).
- Guide out and remove the cover (2).

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- Loosen screws (1).
- Feed out and remove the upper bulkhead cover (2).

9 – Remove the rear bulkhead upper part

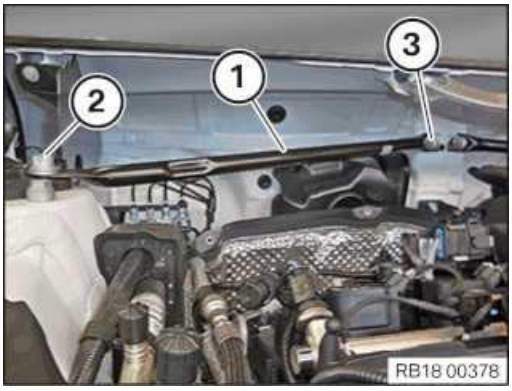


- Unlock the holder (1) and disconnect.
- Guide out and remove the fuel lines (2).
- Loosen screws (3).
- Guide out the rear bulkhead upper part (4) and remove.

10 – Remove right rear suspension cross-brace

TECHNICAL INFORMATION

Driving without the strut brace/front end or tension strut is not permitted.



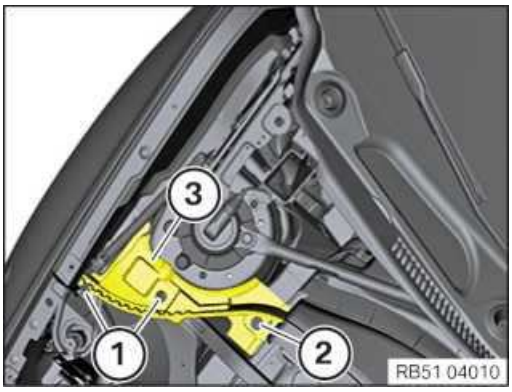
- Loosen nut (3).
- Loosen screw (2).
- Guide out the rear right strut brace (1) and remove.

11 – Remove suspension cross-brace

TECHNICAL INFORMATION

Driving without the strut brace/front end or tension strut is not permitted.

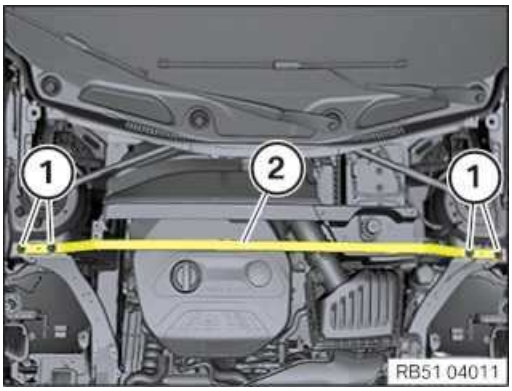
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NOTICE

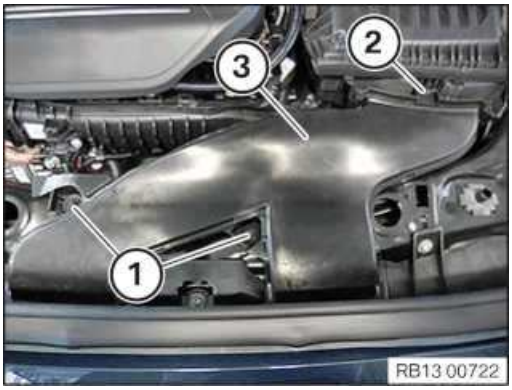
Description is for right component only. The procedure on the left side is identical.

- Loosen expanding rivet (1).
- Loosen screw (2).
- Remove the cover (3).



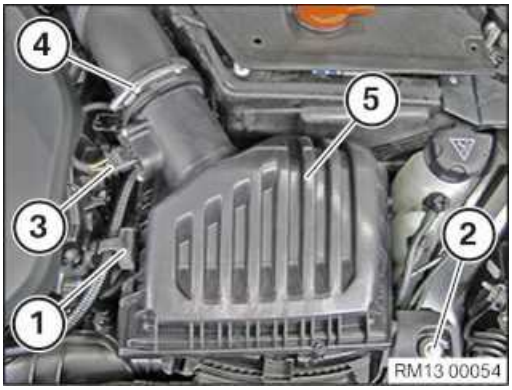
- Loosen screws (1).
- Remove strut brace (2).

12 – Remove the intake neck for intake silencer housing



- Loosen nuts (1).
- Loosen the lock (2).
- Guide the intake neck (3) out and remove it.

13 – Removing intake silencer housing



- Loosen the holder (1).
- Loosen screw (2).
- Unlock and loosen connector (3).
- Unfasten clamp (4).
- Pull out and remove the intake silencer housing (5) from the rubber mounts towards the top.

14 – Remove electronics box

Prerequisite

Battery earth lead is disconnected.

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RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

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

RISK OF DAMAGE

Damage to wires when disconnecting connectors and plug connections.

Sheared wires can cause a short circuit.

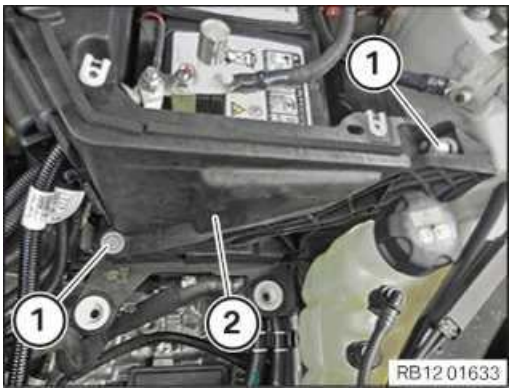
- Do not pull on the wires when disconnecting connectors and plug connections.

TECHNICAL INFORMATION

Follow instructions for removing and installing control units.
For additional information see: 12 00 ... Notes on removal and installation of control units

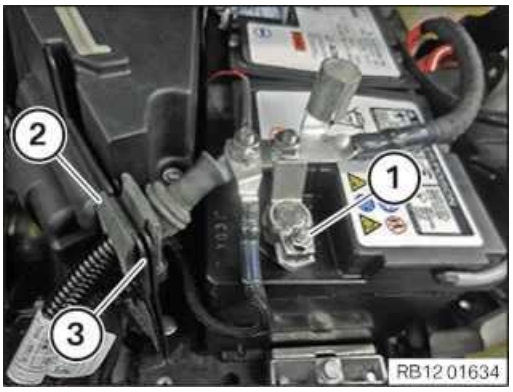
TECHNICAL INFORMATION

Disconnecting control units may cause fault code entries and functional limitations. Fault code entries must be read out and deleted if necessary.

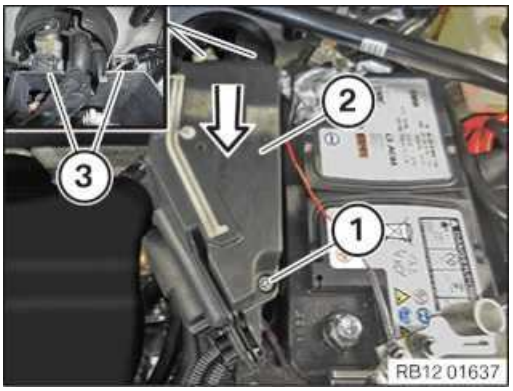


- Loosen screws (1).
- Guide out the tension strut (2) toward the top and remove it.

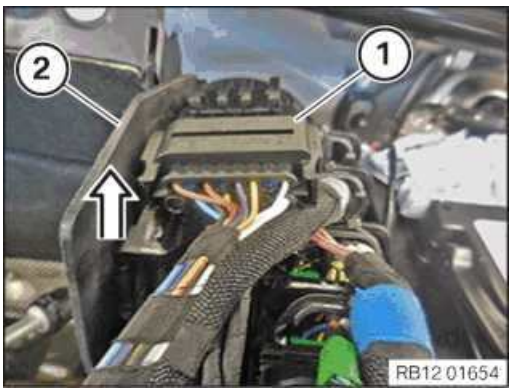
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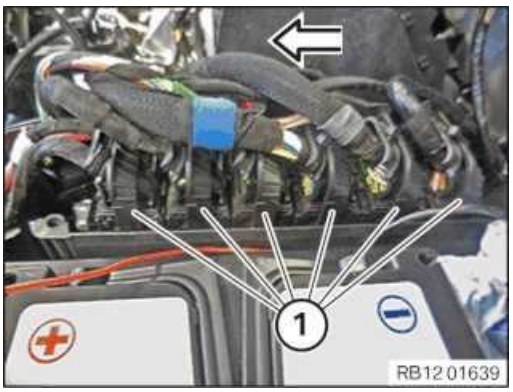
- Undo positive battery terminal (1).
- Feed out positive battery terminal (1) and set aside.
- Guide the positive battery cable (2) out of the holder (3) and lay to one side.



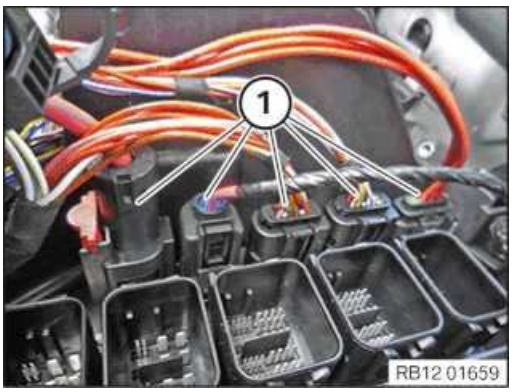
- Loosen screw (1).
- Unlock cover (2) and feed out and remove from the guides (3) in the direction of arrow.



- Feed out connector (1) from the electronics box (2) and remove in the direction of arrow.
- Unlock and loosen connector (1).

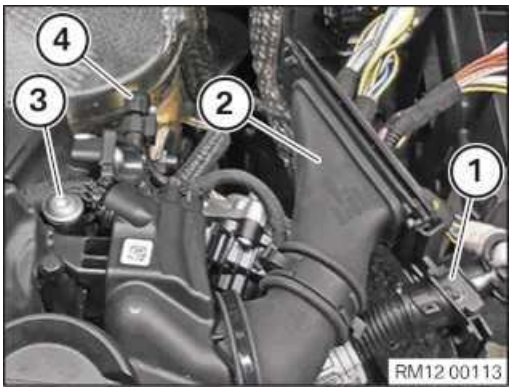


- Unlock and remove the connector (1) in the direction of the arrow.
- Feed out connector (1) and place to one side.

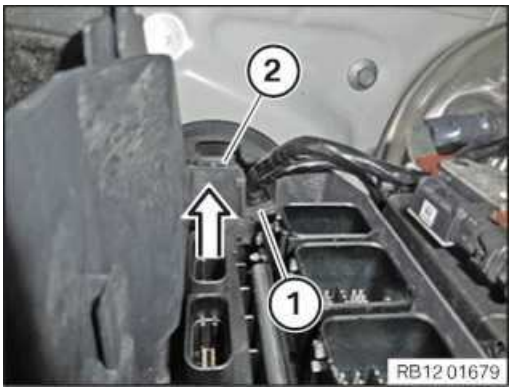


- Unlock and loosen connector (1).

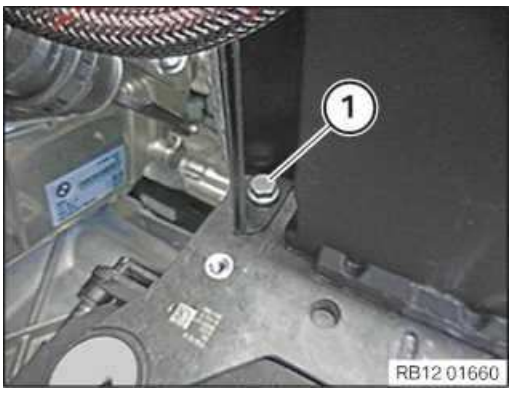
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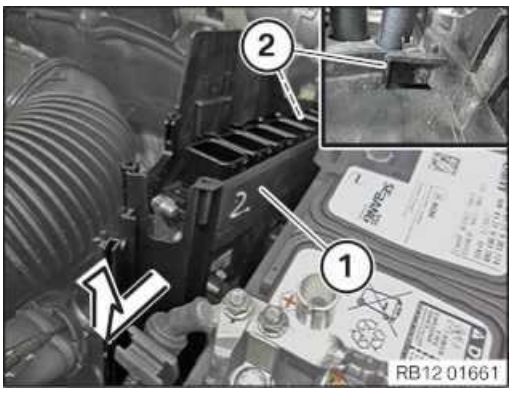
- Detach the wiring harness (1) from the electronics box.
- Detach the wiring harnesses (2) from electronics box.
- Loosen screw (3).
- Set wiring harnesses (1) and (2) aside.
- Unlock the connector (4) and disconnect it from the differential pressure sensor.



- Unlock and loosen holder (1).
- Guide the holder (1) out of the electronics box (2) in direction of arrow and set it aside.

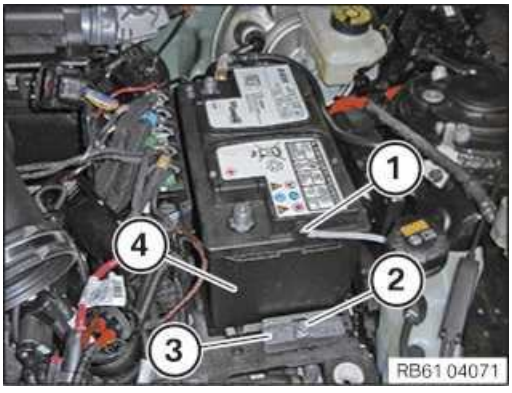


- Loosen screw (1).



- Guide the electronics box (1) out of the guide (2) in direction of arrow and remove.

15 – Partially remove vehicle battery

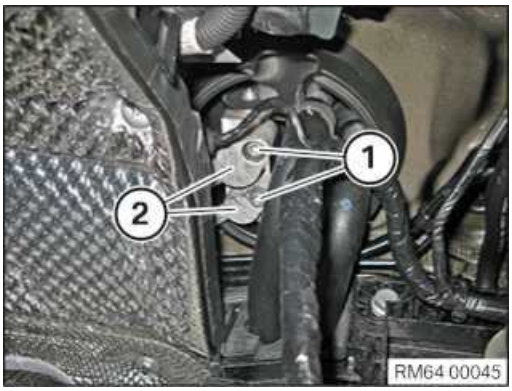


- Pull off the vent hose (1).
- Unscrew the screw (2) and remove the holder (3).
- Remove vehicle battery (4).

MAIN WORK

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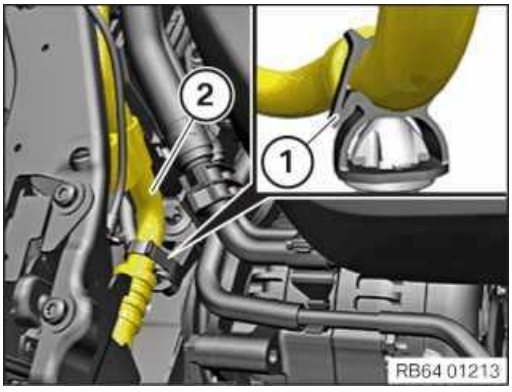
16 – Removing the refrigerant line from the evaporator to the separation point



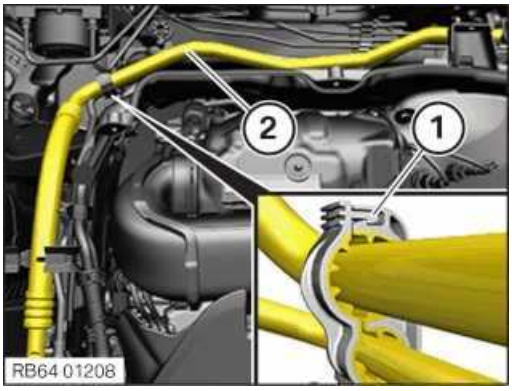
- Loosen screws (1).
- Take off refrigerant line (2).



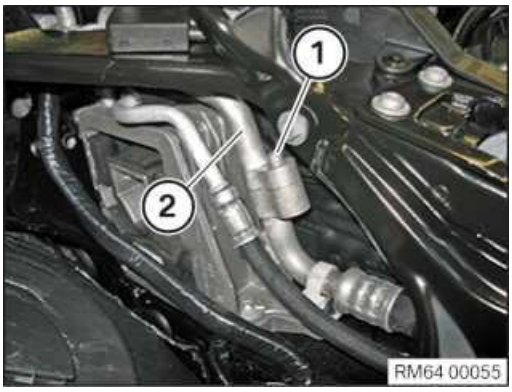
- Open the holder (1).



- Open holder (1) for the refrigerant line (2).

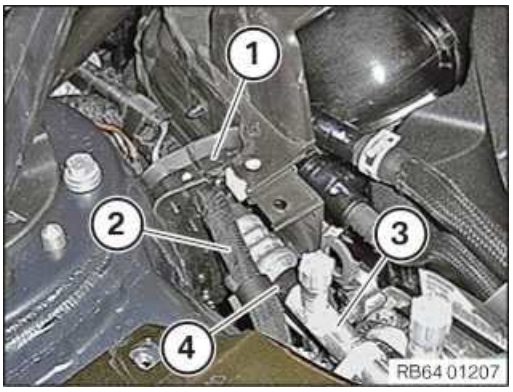


- Open holder (1) for the refrigerant line (2).

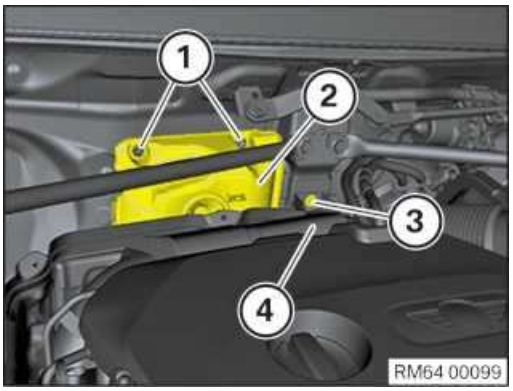


- Slide the refrigerant line (2) slightly to the side.
- Loosen screw (1).
- Remove the refrigerant line (2) and set it aside.

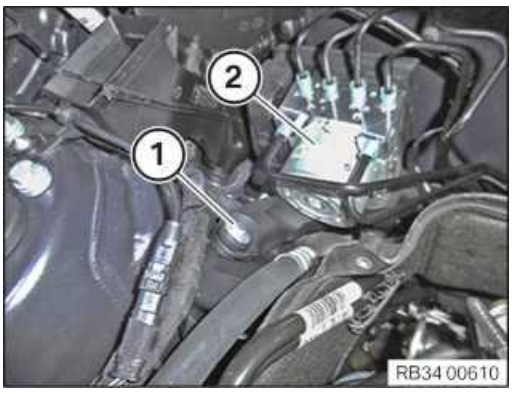
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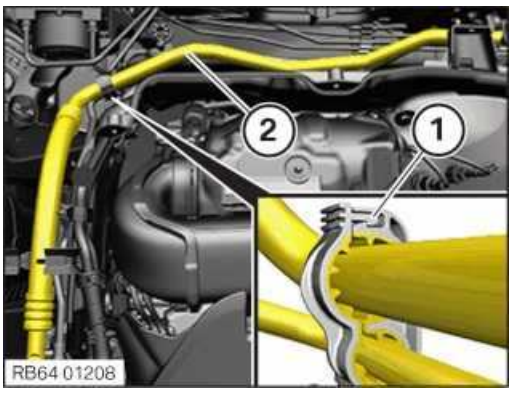
- Open the holder (1).
- Slide the cable (2) slightly to the side.
- Detach the refrigerant line (3) from the holder (4).
- Detach the refrigerant line (3) from the holder (1).



- Release the nuts (1) and remove the cover (2).
- Release nut (3) and pull the cover (4) slightly to the front.

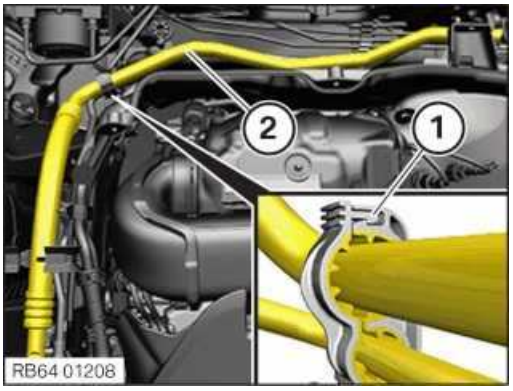


- Release bolt (1) and slide hydraulic unit (2) aside slightly.



- Detach the refrigerant line (2) from the holder (1).
- Feed out refrigerant line (2) and remove.

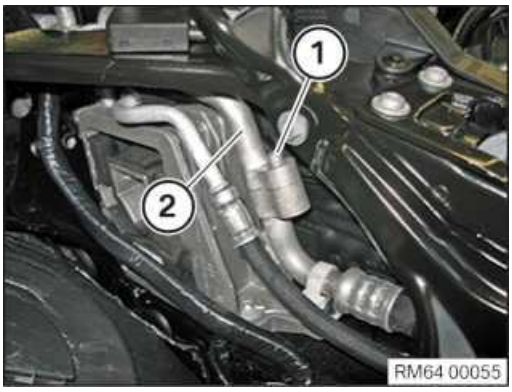
17 – Installing the refrigerant line from the evaporator to the separation point



- Replace O-rings.

  Parts: O-rings
- Feed in the refrigerant line (2) and attach to the holder (1).

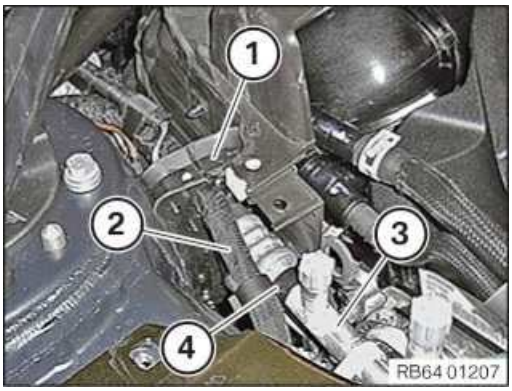
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- Correctly position the refrigerant line (2).
- Tighten down screw (1).

Refrigerant line to connecting piece

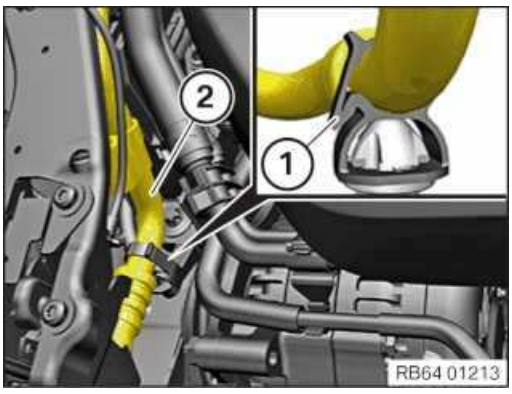
Screw M6		Tightening torque	8 Nm



- Correctly position the refrigerant line (3) in the holder (1).
- Correctly position the cable (2) in the holder (1).
- Attach cable (2) and refrigerant line (3) correctly in holder (4).
- Close the holder (1).

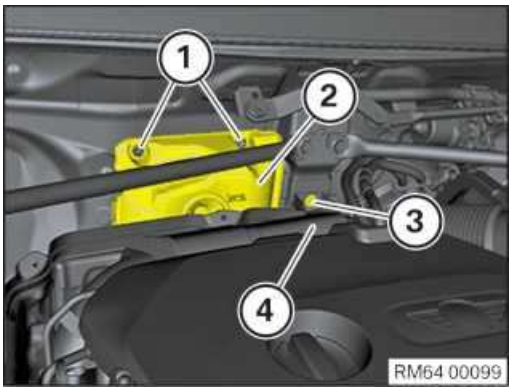


- Close the holder (1).



- Shut holder (1) for the refrigerant line (2).

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- Install cover (2) and position correctly.
- Renew nuts (1).

  Parts: Nuts
- Tighten nuts (1).

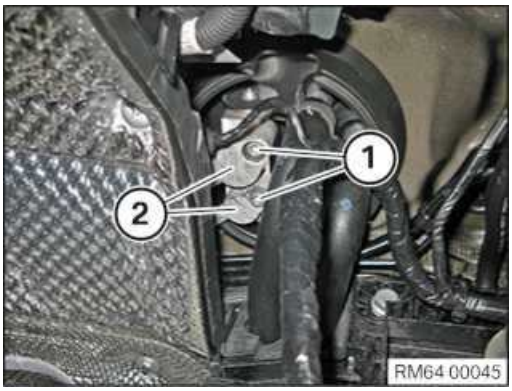
Cover to bulkhead

Nut		Tightening torque	2 Nm

- Correctly position the cover (4).
- Tighten nut (3).

Bulkhead lower part to body

Nut		Tightening torque	2,6 Nm

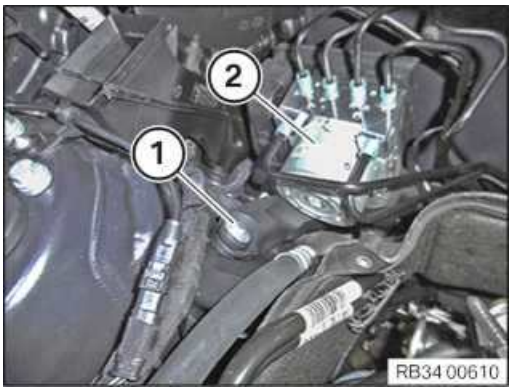


- Replace O-rings.

  Parts: O-rings
- Position refrigerant line (2) correctly.
- Tighten the screws (1).

Refrigerant lines to expansion valve

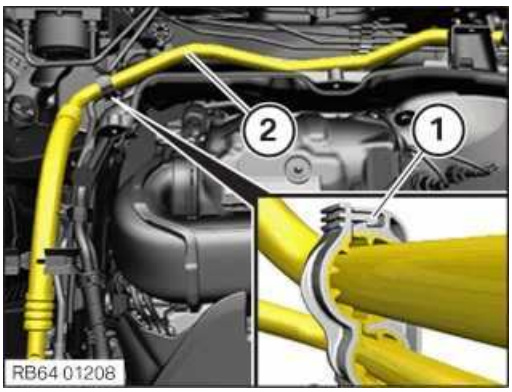
M6		Tightening torque	8 Nm



- Position hydraulic unit (2) correctly.
- Tighten down screw 1.

Holder, hydraulic control unit, to body

Screw		Tightening torque	8 Nm

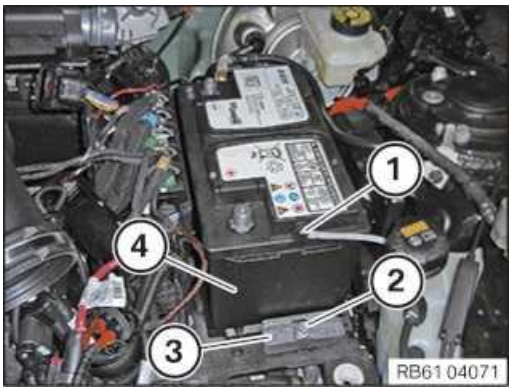


- Shut holder (1) for the refrigerant line (2).

POSTPROCESSES

18 – Partially install vehicle battery

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- Install vehicle battery (4).
- Correctly position the holder (3).
- Tighten down screw (2).

Battery terminal rail to battery tray

M8		19 Nm

- Fit and clip the vent hose (1) in.

▸ **Check the vent holes of the battery**

WARNING

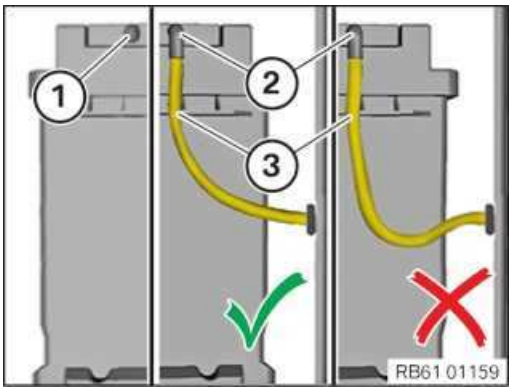
Gas emission.

Danger of injury! Danger of explosion!

- Assign the vent holes correctly.
- Route the vent hose correctly.

TECHNICAL INFORMATION

The battery has two vent holes, opposite:
One vent hole (1) must be closed correctly with a dummy plug.
The vent hose (3) must be correctly connected and routed at the other vent hole (2).



Check

- Check if the vent hole (1) is correctly closed with a dummy plug.

Result

» No dummy plug.

Measure

- Close the vent hole (1) correctly with a dummy plug.

Check

- Check if the vent hole (2) has a correctly connected vent hose (3).

Result

» The vent hose (3) is not correctly connected.

Measure

- At the vent hole (2), connect the vent hose (3) correctly.

Check

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- Check if the vent hose (3) is routed to the outside with a downhill gradient (**no siphon formation!**).

Result

» The vent hose (3) is not correctly routed as shown in the image on the right.

Measure

- Route the vent hose (3) correctly as shown in the centre image.

19 – Install electronics box

Prerequisite

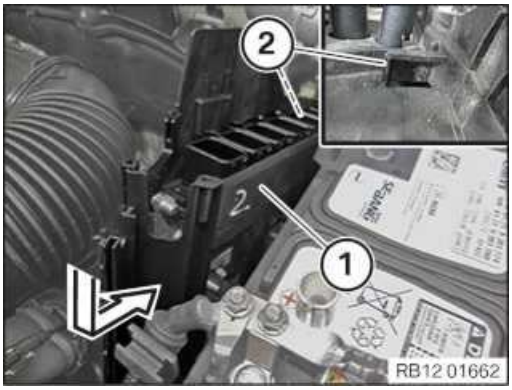
Battery earth lead is disconnected.

RISK OF DAMAGE

Improper routing of cables and wiring harnesses.

Trapped, crushed or damaged cables may cause short circuits and malfunctions.

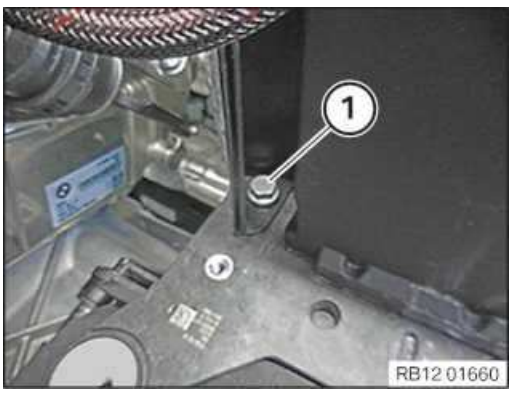
- Route all cables without abrasions, do not trap and crush.



- Guide in and install the electronics box (1) into the guide (2) in direction of arrow.



- Make sure that the electronics box (1) is positioned correctly on the bulkhead (2).

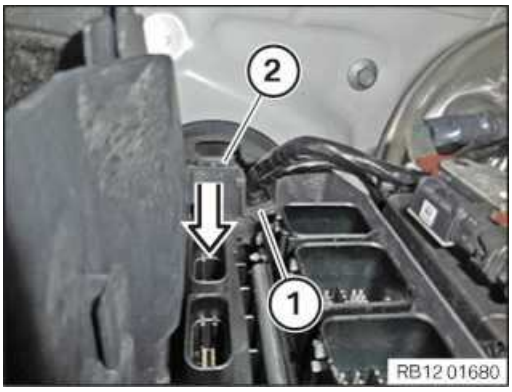


- Tighten down screw (1).

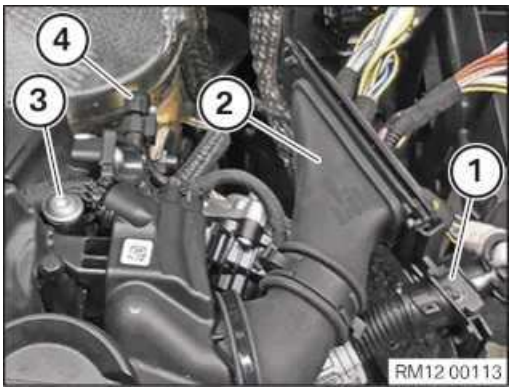
Electronics box to battery tray

M8X16		Tightening torque	15 Nm

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- Guide in and install the holder (1) in the electronics box (2) in direction of arrow.
- Make sure the bracket (1) engages audibly.

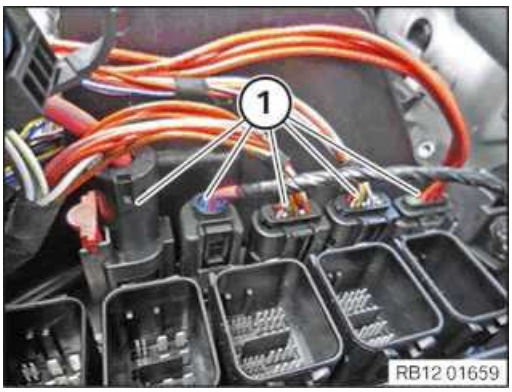


- Lay vehicle wiring harnesses (1) and (2) and mount on electronics box.
- Tighten down screw (3).

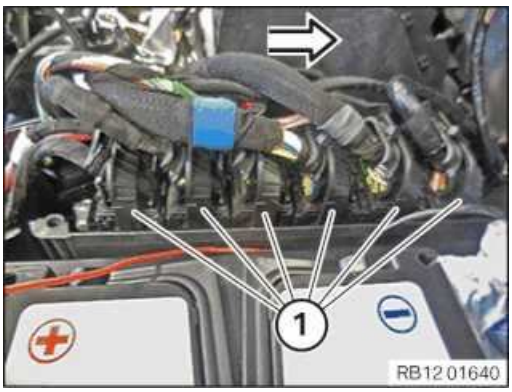
Wiring harness to cylinder head cover

TS5x20		Tightening torque	3,5 Nm

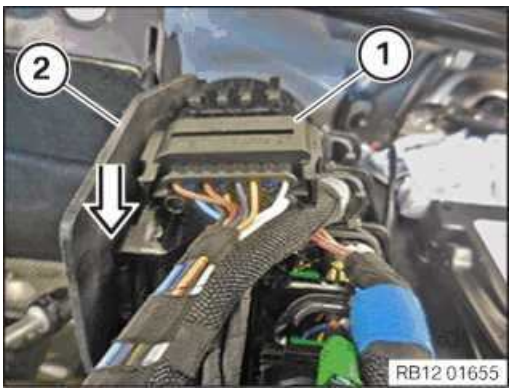
- Attach connector (4) to the differential pressure sensor and lock it audibly.



- Connect and lock the connector (1).
- Make sure the connectors (1) engage audibly.

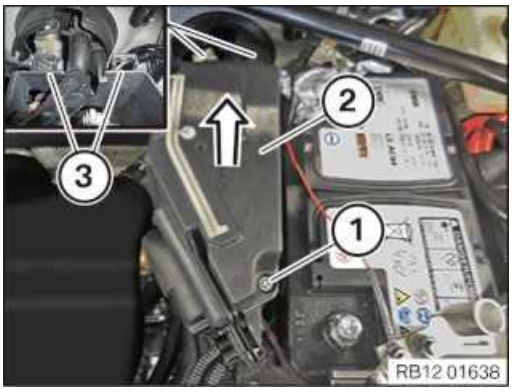


- Connect connector (1) in direction of arrow and lock.
- Make sure the connectors (1) engage audibly.



- Connect and lock the connector (1).
- Make sure the connector (1) engages audibly.
- Insert the connector (1) in the direction of arrow at the electronics box (2) and install.

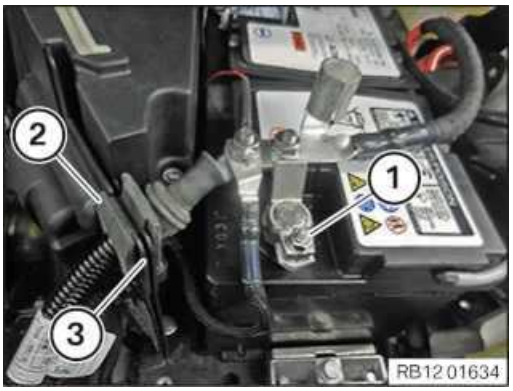
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- Insert the cover (2) into the guides (3) in the direction of arrow and install.
- Make sure the cover audibly engages (2) in the guides (3).
- Tighten down screw (1).

Cover to electronics box

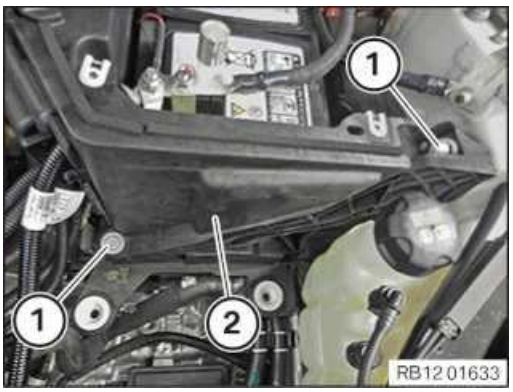
RF5x26.5		Tightening torque	2,5 Nm



- Thread in positive battery cable (2) on holder (3) and install.
- Feed in and install positive battery terminal (1).
- Tighten positive battery terminal (1).

Positive battery terminal to battery

NutM6		Tightening torque	5 Nm

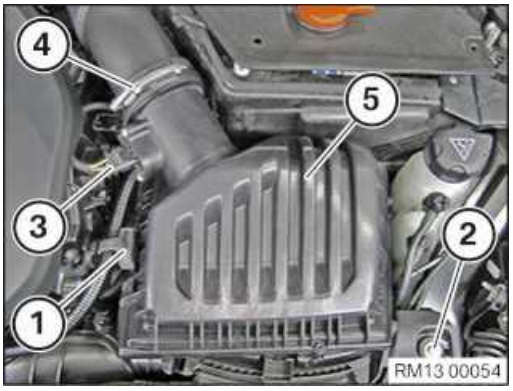


- Feed in and install tension strut (2).
- Tighten the screws (1).

Tension strut to spring strut dome/battery tray

M8		Tightening torque	19 Nm

20 – Installing intake silencer housing



- Insert the intake silencer housing (5) into the rubber mounts and install it.

  Intake filter housing (5) must engage audibly.
- Tighten down screw (2).

Intake silencer housing to lock bridge

M6X30		Tightening torque	8 Nm

- Tighten clamp (4).

Clean air pipe to intake silencer housing

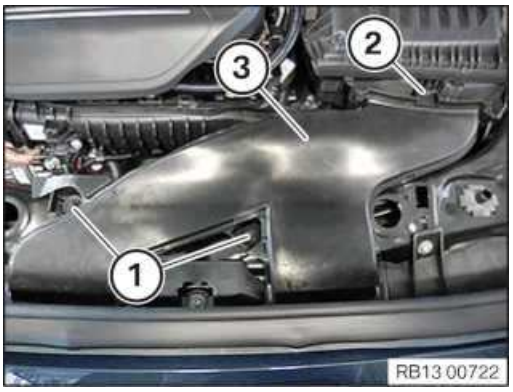
Clamp		Tightening torque	3 Nm

- Connect and lock the connector (3).

  The connector (3) must engage audibly.
- Insert and install the holder (1).

21 – Install the intake neck for the intake filter housing

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- Insert and install the intake neck (3).

  The lock (2) must audibly engage.
- Tighten nuts (1).

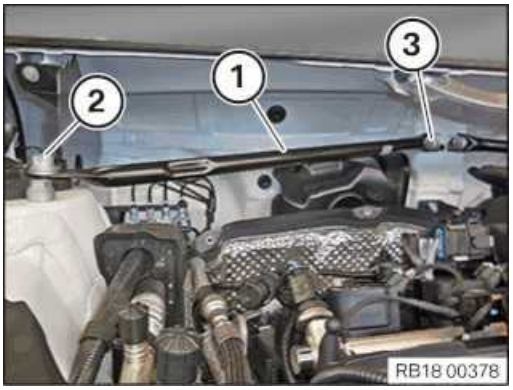
Intake neck to cross connection

M6		Tightening torque	8 Nm

22 – Installing the rear right strut brace

TECHNICAL INFORMATION

Driving without the strut brace/front end or tension strut is not permitted.



- Thread in the rear right strut brace (1) and install.
- Renew nut (3).

  Parts: Nut
- Tighten nut (3).

Cross-brace to bulkhead

M10	Renew nut.	Tightening torque	56 Nm
		Angle of rotation	45 °

- Renew the screw (2).

  Parts: Screw
- Tighten down screw (2).

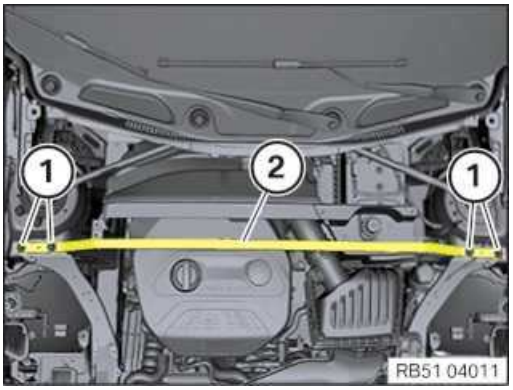
Strut brace to support bearing

M10	Renew screw.	Tightening torque	56 Nm
		Angle of rotation	90 °

23 – Install strut brace

TECHNICAL INFORMATION

Driving without the strut brace/front end or tension strut is not permitted.



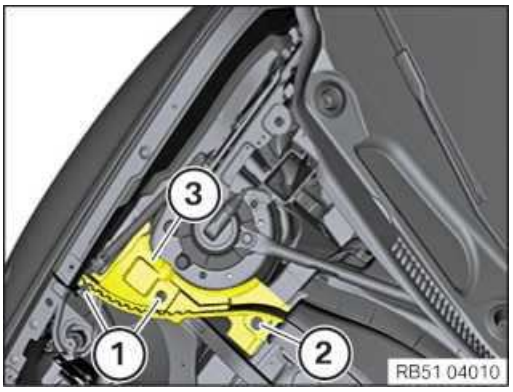
- Install the strut brace (2).
- Renew screws (1).

  Parts: Bolts
- Tighten the screws (1).

Cross-brace to spring strut dome

	Renew screw.	Jointing torque	28 Nm
		Angle of rotation	180 °

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NOTICE

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

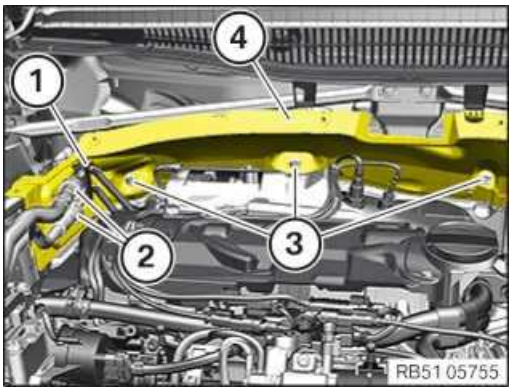
- Install the cover (3).
- Tighten down screw (2).

Cover on body

Hexagon screw		Tightening torque	3 Nm

- Install the expanding rivet (1).

24 – Installing rear bulkhead upper part



- Feed in and install the rear bulkhead upper part (4).
- Tighten down screws (3).

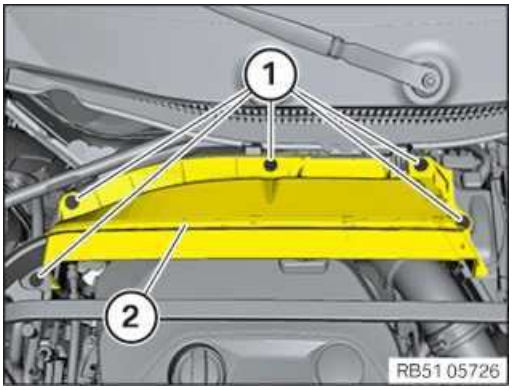
Rear bulkhead upper part to lower section of bulkhead

Oval-head screw		Tightening torque	5 Nm

- Feed the fuel line (2) into the holder (1) and install.
- Connect and lock the holder (1).

  The holder (1) must engage audibly.

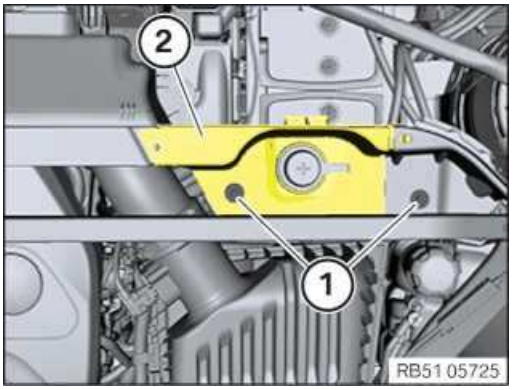
25 – Installing the upper bulkhead cover



- Feed in and install cover (2) of the bulkhead at the top.
- Tighten the screws (1).

Cover of top bulkhead

Screw		Tightening torque	2,6 Nm



- Guide in and install cover (2).
- Tighten down screw (1).

Cover of remote positive terminal

Screw		Tightening torque	2,6 Nm

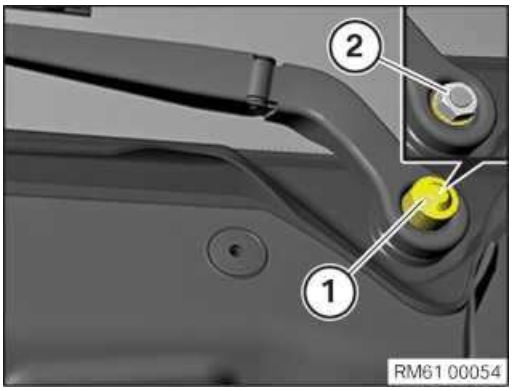
26 – Install the rear cowl panel

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- Insert the cowl panel cover (1) and press it into the latch mechanism on the windscreen starting at the side.

27 – Install left and right wiper arm



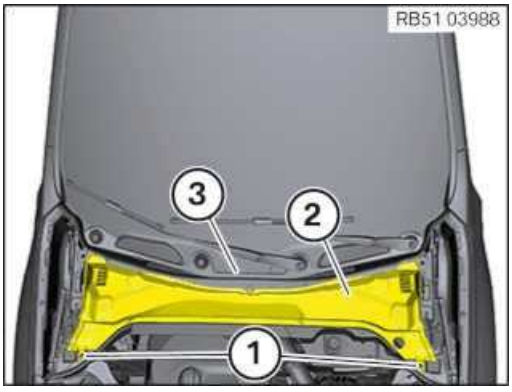
- Join wiper arm and tighten with nut (2).

Windscreen wiper arm

Combination hexagon nut		Tightening torque	35 Nm

- Join the protective cap (1).

28 – Installing front cowl panel cover



- Insert and install cowl panel cover at front (2) into cowl panel cover at rear (3).
- Check cowl panel cover at front is correctly seated (2).
- Secure expanding rivet (1).

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

NOTICE

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

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

RISK OF DAMAGE

Scratches.

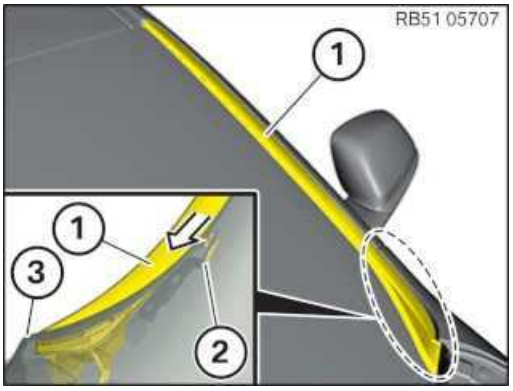
Tools and sharp-edged components can cause scratches.

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

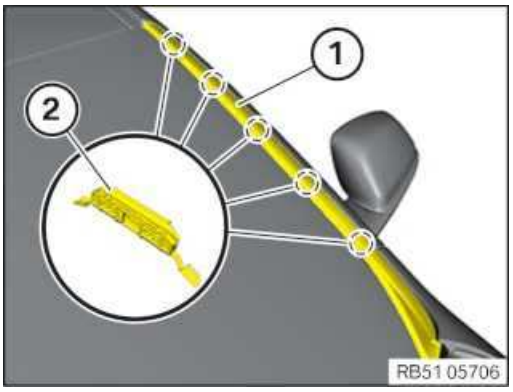
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TECHNICAL INFORMATION

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



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

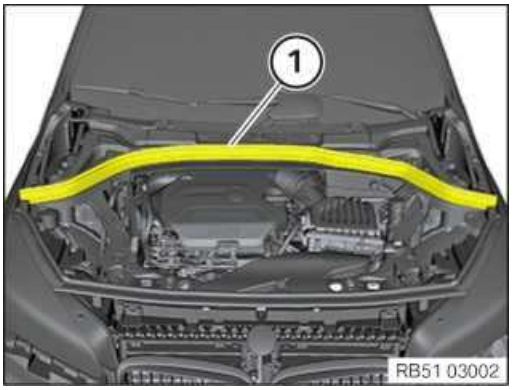


- Clip in the gutter strip (1) at the bottom starting at the clamps (2).

30 – Install the seal for the bonnet

NOTICE

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



- Install bonnet seal at rear (1).
- Ensure that the rear bonnet seal (1) is fitted correctly.

31 – Disconnecting all battery earth leads

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- See additional information.

32 – Evacuate and fill air conditioning

- See additional information.

Additional Information

Overview of Tightening Torques

Refrigerant line to connecting piece			Used in step 17
Screw M6		Tightening torque	8 Nm

Cover to bulkhead			Used in step 17
Nut		Tightening torque	2 Nm

Bulkhead lower part to body			Used in step 17
Nut		Tightening torque	2,6 Nm

Refrigerant lines to expansion valve			Used in step 17
M6		Tightening torque	8 Nm

Holder, hydraulic control unit, to body			Used in step 17
Screw		Tightening torque	8 Nm

Battery terminal rail to battery tray			Used in step 18
M8			19 Nm

Electronics box to battery tray			Used in step 19
M8X16		Tightening torque	15 Nm

Wiring harness to cylinder head cover			Used in step 19
TS5x20		Tightening torque	3,5 Nm

Cover to electronics box			Used in step 19
RF5x26.5		Tightening torque	2,5 Nm

Positive battery terminal to battery			Used in step 19
NutM6		Tightening torque	5 Nm

Tension strut to spring strut dome/battery tray			Used in step 19
M8		Tightening torque	19 Nm

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Intake silencer housing to lock bridge — Used in step 20

M6X30		Tightening torque	8 Nm

Clean air pipe to intake silencer housing — Used in step 20

Clamp		Tightening torque	3 Nm

Intake neck to cross connection — Used in step 21

M6		Tightening torque	8 Nm

Cross-brace to bulkhead — Used in step 22

M10	Renew nut.	Tightening torque	56 Nm
		Angle of rotation	45 °

Strut brace to support bearing — Used in step 22

M10	Renew screw.	Tightening torque	56 Nm
		Angle of rotation	90 °

Cross-brace to spring strut dome — Used in step 23

	Renew screw.	Jointing torque	28 Nm
		Angle of rotation	180 °

Cover on body — Used in step 23

Hexagon screw		Tightening torque	3 Nm

Rear bulkhead upper part to lower section of bulkhead — Used in step 24

Oval-head screw		Tightening torque	5 Nm

Cover of top bulkhead — Used in step 25

Screw		Tightening torque	2,6 Nm

Cover of remote positive terminal — Used in step 25

Screw		Tightening torque	2,6 Nm

Windscreen wiper arm — Used in step 27

Combination hexagon nut		Tightening torque	35 Nm

Overview of Special Tools

Links

General repair instructions	Used in step
64 52 ... Instructions for opening and part exchange in refrigerant circuit	
64 50 ... Note for handling R134a refrigerant	

Repair instructions	Used in step
64 50 010 Extract, evacuate and fill air conditioning system	1 32
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 32
64 50 010 Drawing off, evacuating and filling air conditioning (R134a)	1 32
64 50 ... Notes on repairs to air conditioning	1 32

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64 50 010 Drawing off, evacuating and filling air conditioning (R1234yf) 1 32
64 50 ... Safety information for handling refrigerant R1234yf 1 32
64 50 ... Safety information for handling tetrafluorethane refrigerant R134a 1 32
64 50 ... Safety informations for handling refrigerant oil 1 32
61 20 900 Disconnecting and connecting battery earth lead 2 31
61 20 900 Disconnecting and connecting battery earth lead 2 31
61 20 900 Disconnecting and connecting battery earth lead 2 31
61 20 900 Disconnecting and connecting battery earth lead 2 31
61 20 900 Disconnecting and connecting battery earth lead 2 31
61 20 900 Disconnecting and connecting battery earth lead 2 31
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 2 31
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 2 31
61 20 900 Disconnecting and connecting battery earth lead 2 31
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64 00 ... Information on using cleaning agent/paints (personal protection equipment)



Warning!

Use of cleaning agents/paints not compliant with instructions can cause serious injuries or burns!

Handling cleaning agents/paints can trigger allergic skin and respiratory reactions!



Important!

Observe following instructions:

- Store cleaning agents/paints only in a secure cabinet.
- Keep cleaning agents/paints away from naked flames and other sources of ignition.
- Protect cleaning agents/paints from high temperatures and direct sunlight.
- Always keep an eye douche on hand, change the water regularly (once a month).



Important!

Observe following instructions before use:

- Manufacturer's instructions (on container/packaging)
- Hazard warnings (on container/packaging)
- Manufacturer's instructions on package insert
- Material safety data sheet of manufacturer
- Product information in EPC
- National market regulations



Important!

Observe following instructions during use:

- Do not eat, drink or smoke while working with these products.
- Avoid direct contact with skin and eyes.
- Wear personal protective clothing/equipment.
- Ensure that all enclosed areas are well ventilated or extract fumes directly.
- Immediately change working clothes soiled with cleaning agent/paint.
- After finishing work, wash your hands and apply protective skin cream.



Important!

Follow hazard warnings and wear personal protection equipment!

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First Aid:

- If product comes in contact with eyes, immediately flush with running water for about 10 - 15 minutes. Seek the advice of eye specialist.
- In the event of skin contact and where applicable an allergic skin reaction, clean the affected areas immediately with soap and water and then apply silicone-free skin cream. Seek advice of physician.
- If an adhesive product is swallowed, rinse mouth/parts of mouth thoroughly with running water. Drink 1-2 glasses of water. Do not induce vomiting. Consult a doctor.
- After inhaling vapours ensure ample supply of fresh air. Keep calm, keep respiratory tracks clear and call doctor.



Recycling:

Dispose of cleaning agents/paints in a professional manner!

Observe national/country-specific disposal regulations.

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