41 ... 0 Notes on the repair technique used in the main group 41

Two different repair techniques are used in body repair.

These are welding and bonding/riveting.

If the repair instructions do not specify a repair technique, then welding must **always** be used.

The bonding/riveting repair technique is **always** described in detail in the repair instructions.

Quality standards must be met.

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41 00 ... Blind rivet

1.0 Recommended tools and equipment

- Blind riveting tongs
- Rivet head extension

Sourcing reference BMW Workshop equipment catalogue

Setting blind rivets:

- Refer to repair instructions for rivet size.
- Position bore holes for blind rivets in accordance with specification in repair instructions. If necessary, carry over the positions of the blind rivets to the new part.
- Drill holes that exceed the outer diameter of the blind rivet (example ⌀ 4.2 mm with 4 mm blind rivet and ⌀ 6.8 mm with 6.5 mm blind rivet).
- The edge of the hole must even on both sides.If necessary, sand down and even out surfaces (e.g. edges of punch rivet connections).Deburr bore holes.
- Apply adhesive.
- Insert blind rivet. If necessary, remove adhesive that has emerged.
  Position blind rivet tool vertically. Use rivet head extension if accessibility is poor.
- Rivet blind rivet with blind rivet tool. In the meantime clean rivet head if dirty with adhesive. Risk of damage to rivet head by penetrating adhesive.
- Seal blind rivet with sealantD1 (risk of corrosion).
- Seal cavities after work on vehicle paintwork on with cavity preservation (risk of corrosion).

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41 00 ... BMW/MINI bonding instructions



Special tools required:

- 2 357 309

Caution!

Conform with safety regulations!

1. Brief overview of surface preparation

1.1 Structure

Material (surface condition) Type of repair	Preparation
Aluminium (used part) Repairs on front end/rear end Example: Replacement of engine support or front wheel arch	• Remove coarse dirt from the bonding surfaces using solvent cleaner R2 • Clean with cleaning agent R1 • Grind bonding surfaces to a metallic bright-finish • Clean with cleaning agent R1 • Flame-coating • Bond with adhesive K1
Aluminium (new part) Repairs on front end/rear end Example: Replacement of engine support or front wheel arch	• Do **not** sand bonding surface • Remove coarse dirt from the bonding surfaces using solvent cleaner R2 • Clean with cleaning agent R1 • Bond with adhesive K1
Carbon (new part) Bond new parts into the body with adhesive K1 in conjunction with blind rivets Example: Replacement of rear wheel arch	• Remove coarse dirt from the bonding surfaces using solvent cleaner R2 • Clean with cleaning agent R1 • Sand with non-woven abrasive S1 • Clean with cleaning agent R1 • Activate with Betawipe 4800 • Bond with adhesive K1
Carbon (used part) Bonding new parts to the body with adhesiveK1 Example: Replacement of B-pillar	• Remove coarse dirt from the bonding surfaces using solvent cleaner R2 • Clean with cleaning agent R1 • Sand adhesive residue • Clean with cleaning agent R1 • Bond with adhesive K1

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Sheet steel (used part and new part) Partial replacement of components Example: Replacement of B-pillar or rear wheel arch	• Remove coarse dirt from the bonding surfaces using solvent cleaner R2 • Clean with cleaning agent R1 • Grind bonding surfaces to a metallic bright-finish • Clean with cleaning agent R1 • Bond with adhesive K1

1.2 Outer skin (without roof outer skin made of aluminium / carbon)

Material (surface condition) Type of repair	Preparation
Sheet steel (used part) Adhesive strip for outer skin component Example: Replacement of rear side panel or tail panel	• Remove coarse dirt from the bonding surfaces using solvent cleaner R2 • Clean with cleaning agent R1 • Grind bonding surfaces to a metallic bright-finish • Clean with cleaning agent R1 • Bond with adhesive K5
Sheet steel (new part) Adhesive strip for outer skin component Example: Replacement of rear side panel or tail panel	• Do **not** sand bonding surface • Remove coarse dirt from the bonding surfaces using solvent cleaner R2 • Clean with cleaning agent R1 • Bond with adhesive K5

1.3 Roof outer skin made of aluminium / carbon

Material (surface condition) Type of repair	Preparation
Aluminium (new part) Bonding aluminium roof outer skin	• Do **not** sand bonding surface • Remove coarse dirt from the bonding surfaces using solvent cleaner R2 • Clean with cleaning agent R1 • Bond with adhesive K2
Sheet steel (primer undamaged) Bonding aluminium roof outer skin	• Remove coarse dirt from the bonding surfaces using solvent cleaner R2 • Clean with cleaning agent R1 • Cut back adhesive bead • Clean with cleaning agent R1 • Bond with adhesive K2
Sheet steel (primer damaged) Adhesive strip for roof outer skin	• Remove coarse dirt from the bonding surfaces using solvent cleaner R2 • Clean with cleaning agent R1 • thin coat with adhesive K1 • Bond with adhesive K2

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Carbon (used part) Adhesive strip for roof outer skin	• Remove coarse dirt from the bonding surfaces using solvent cleaner R2 • Clean with cleaning agent R1 • Cut back adhesive bead • Clean with cleaning agent R1 • Bonding with adhesive K2/K3
Carbon (new part) Adhesive strip for roof outer skin	• Remove coarse dirt from the bonding surfaces using solvent cleaner R2 • Clean with cleaning agent R1 • Sand with non-woven abrasive S1 • Clean with cleaning agent R1 • Activate with Betawipe 4800 • Bonding with adhesive K2/K3

2.1 The following general conditions are applicable to all bondings:

- The working temperature of glue cartridge must be more than 18°C.
- Object temperature, vehicle and new parts, at least 15°C.
- Read the vehicle-specific repair instructions to determine the thickness and positioning of the adhesive bead.
- After applying the adhesive, check whether an adhesive component has emerged at the back of the glue cartridge. If yes, break off the bonding procedure. Clean new part. Use new glue cartridge.
- Join components and secure in position.
- Remove excess adhesive. Do not use solvent cleaning agents.

2.2 Surface preparation (structural):

2.2.1 Flame-coating (aluminium):

- Clean bonding surfaces with cleaning agent R1.
- Remove oxide layers or paint from bonding surfaces using a stainless steel wire brush or sandpaper with 120 graining.
- Clean bonding surfaces with cleaning agent R1.
  Allow cleaned surfaces to dry for approx. 5 min.
  Adhesive areas must be completely dry.
- Flame spray the surface:
  Go over the bonding surfaces slowly with the flame.
  Avoid flaming with the blue part of the flame.
  Condensation water appears on the area that is still uncoated. The condensation water in the line of the flame must evaporate completely.
  Directly after flaming, coat the still hot bonding surfaces (approx. 50 °C) with primer.P1
  Apply primer with a brush, cotton or similar item.
  Allow the coated surfaces to dry for approx. 5 minutes.

2.2.2 Surface preparation (carbon new part):

This surface preparation is applicable to new carbon parts.

Remove coarse dirt from the bonding surfaces using solvent cleaner R2.

Clean bonding surfaces with cleaning agent R1.

Sand bonding surfaces with non-woven abrasive S1.

Clean bonding surfaces with cleaning agent R1.

Let cleaned bonding surfaces dry for at least 2 min.

Adhesive areas must be completely dry.

Activate bonding surfaces with Betawipe 4800.

Let activated bonding surfaces dry for at least 2 min.

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Adhesive areas must be completely dry.

2.2.3 Surface preparation (carbon used part):

This surface preparation applies to the B-pillar area at the top.

Caution!

Carbon component not damaged!

Components must be replaced if showing signs of damage.

Remove coarse dirt from the bonding surfaces using solvent cleaner R2.

Clean bonding surfaces with cleaning agent R1.

Grind off adhesive residue to a thickness of approx. 0.5 mm.

Clean bonding surfaces with cleaning agent R1.

Let cleaned bonding surfaces dry for at least 2 min.

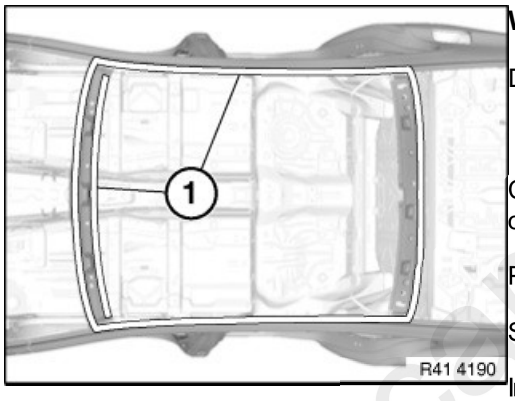
Adhesive areas must be completely dry.

2.3 Surface preparation (outer skin (without roof outer skin)):

The procedure is described here.

2.4 Surface preparation (roof outer skin):

2.4.1 Surface preparation of roof frame and convertible top bow from sheet steel:



Warning!

Danger of injury by the sharp edge of the scraper!

Cut back adhesive remnants (1) with scraper 2 357 309 to a minimum of 0.5 mm.

Primed surface must not be damaged!

Smaller damage to 5 mm or scratches can be ignored.

In the event of larger damage to primer (greater than 5 mm), proceed as follows:

Clean damaged area with cleaning agent R1.

Apply adhesive K5 to the bare areas with a spatula or a brush. Apply a uniformly thin layer (max. 0.5 mm). The roof outer skin can be bonded after a curing period of 24 hours.

The adhesive flange area must not be painted over when the roof frame is being repaired or replaced.

2.4.2 Surface preparation of carbon (used part):

Warning!

Danger of injury by the sharp edge of the scraper!

Remove coarse dirt from the bonding surfaces using solvent cleaner R2.

Clean bonding surfaces with cleaning agent R1.

Cut back adhesive bead with scraper 2 357 309 to a minimum of 0.5 mm.

Clean bonding surfaces with cleaning agent R1.

Let cleaned bonding surfaces dry for at least 2 min.

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Adhesive areas must be completely dry.

2.4.3 Surface preparation of carbon (new part):

Prepare the surface as described under point 2.2.2.

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72 11 ... Checklist for front seat

Event		Check	Action
Has at least one belt tensioner and/or one side airbag been activated?	**Yes**	**Check 1 (when installed):** Check all seat adjustment options of both front seats. There must be no stiff movement, sticking or other functional problems or noises across the entire adjustment range of all the seat adjustment options. Check head restraints for damage. Check crash-active headrest for activation. **Only 2-door model:** Check backrest lock. Backrest must unlock and lock easily without any great physical effort.	If components are OK with regard to checks 1 and 2, only replace activated belt tensioner or side airbag. Otherwise, replace faulty parts on the seat/body. Replace belt tensioner, seat belt and, if necessary, side airbag.
		Check 2 (when dismounted): Check for deformation/damage on the following components: 1. All seat cross members on the body 2. Threaded support sleeves in the seat cross members 3. End fittings on the seat mechanism. Check for visible damage or deformation.	
	No	Check all adjustment options of the head restraints. Check crash-active headrest for activation.	Replace faulty parts.
Only seat with integrated seat belt:			
Does the backrest indicator light turn on when the backrest is locked and also when the backrest is shaken?	**Yes**	Check microswitch of backrest lock and renew if necessary. Check electrical lines and repair if necessary.	If there is still a fault, replace the entire seat
	No	No further action necessary.	

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41 00 ... Corrosion protection

Note:

Following repairs, the corrosion protection work already begins with the correct removal of the underbody protection, anti-drumming layer and seam sealing in the repair area.

The products recommended by BMW are optimized with regard to corrosion protection.

1.0 Removing and applying sealant:

1.1 Removing sealant:

Important!

- Do not burn off PVC material (sealant) with an autogenous torch or similar or heat to temperatures above 180 °C. This would generate highly corrosive hydrochloric acid and release harmful vapour.
- The new sealant does not adhere appropriately to burnt polyvinyl chloride material and hence subsequent rust creep is possible.

Remove PVC material with a rotating steel brush, or heat PVC to maximum 180 °C with a hot air blower and scrape off with a spatula.

1.2 Applying sealant:

Prime and seal all weld seams that are sealed with sealant in original condition immediately after repair work. Replace damaged or removed anti-drumming layers.

Note:

Required spray gun for sealant (order number 81 49 0 300 887).

Seal blind rivet with sealant (risk of corrosion).

Seal affected cavities with cavity preservation (risk of corrosion).

2.0 Basics of cavity preservation:

Apply cavity preservation after all body repairs.

Concluding cavity preservation is the most important part of all corrosion protection measures.

Use the cavity protection spray only for smaller-scale straightening work where the parts in question are easily accessible. Use the pressure cup gun for all other repairs. Cavity protection agent is available in different container sizes.

Use the relevant sensors with tubes for the different cavity areas.

Required tools can be found in the Aftersales Assistance Portal (ASAP) - Service/Technology - Workshop Equipment (Start BMW) - Shop Workshop Equipment or at www.bmwgroup-wep.com.

Important!

Incorrectly performed cavity protection can, especially in the case of steel/aluminium joints, give rise to a non-calculable product liability and safety risk.

The best repair is worth nothing if the subsequent cavity protection measures are not conscientiously carried out.

2.1 Cavity preservation of steel parts:

New doors and lids must be sealed with cavity protection agent after being painted.

New sheet-metal parts or cavities, weld seams and folds formed by new sheet-metal parts must be sealed with cavity protection agent after being painted.

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The cavities affected must be sealed with cavity protection agent after all straightening work.

2.2 Cavity preservation of aluminium parts:

New doors, lids and side panels made of aluminium are not sealed with cavity protection agent.

After all straightening work on aluminium components, the cavities affected must be sealed with cavity protection agent after being painted.

After all welding work (E52 only) on aluminium components, the cavities affected must be sealed with cavity protection agent after being painted.

Cavities, seams and folds formed from new sheet metal parts or extruded profile must be sealed with cavity protection agent after being painted.

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41 00 ... EMC screws

(EMC = electromagnetic compatibility)

1. Purpose:

- EMC screws are used in the bonding/riveting repair method to re-establish bonding transition.
- They adopt the task of welded connections or self-tapping screws, which handle bonding transition between the individual components in series production.
- The punch or blind rivets used in the repair do not guarantee permanent bonding transition between the individual components!
- The EMC screws ensure the operational reliability and safety of the electrical/electronic components following repairs!

2. **Procedure**:

- Install the number of EMC screws described in the repair instructions.
- Drill holes to a diameter of 4.2 mm and insert screws.
- Seal EMC screws with PU sealing material (risk of corrosion).

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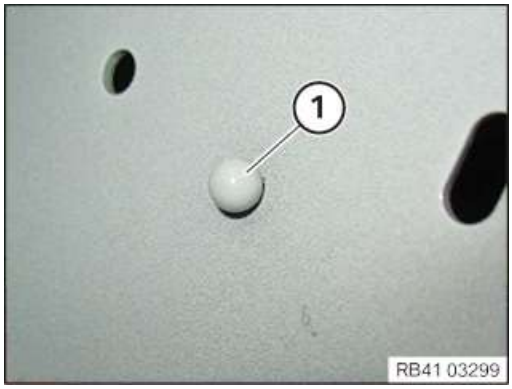
41 00 ... Filler S1

Universally applicable filler compound for body and wheel rim repairs.

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41 00 513 Fix bolts on the new part

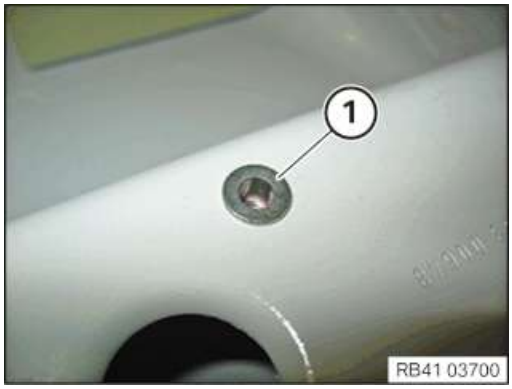
Note: On BMW and MINI bodies, various welded and pushed in bolts are being used.



Single ball/double ball (version 1):

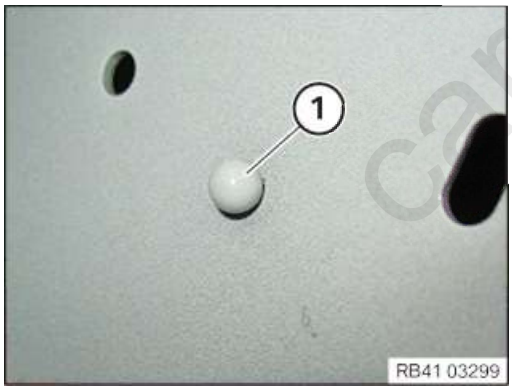
Grind off any residues of the single ball (1), if applicable.

Drill hole with diameter 7 mm.



Set blind rivet nut (1).

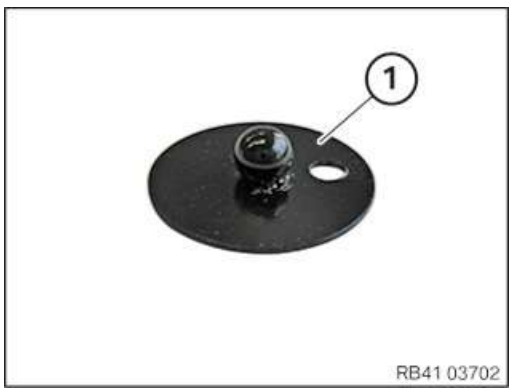
Screw in single ball with thread until a height of 5 mm (double ball 10 mm) is reached.



Single ball/double ball (version 2):

Grind off any residues of the single ball (1), if applicable.

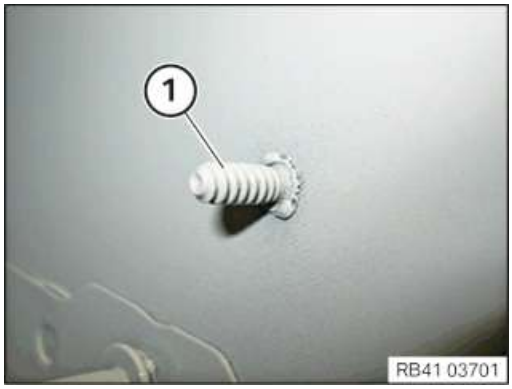
Clean area with solvent cleaner R1.



Clean bonding surface of repair element single ball (1) with solvent cleaner R1.

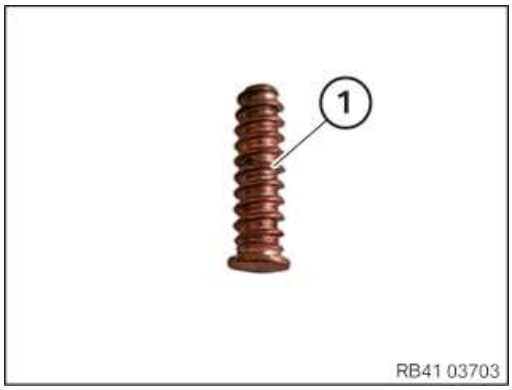
Bond repair element optionally with adhesive K1, K5 or window pane adhesive at the same position.

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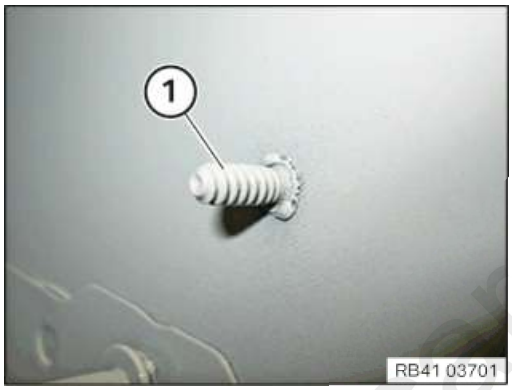


Coarse threaded bolt (version 1):

Grind off any residues of the coarse threaded bolt (1), if applicable.



Spot weld coarse threaded bolt to same position.



Coarse threaded bolt (version 2):

Grind off any residues of the coarse threaded bolt (1), if applicable.

Drill hole with diameter 7 mm.

Set blind rivet coarse threaded bolt using riveting pliers.

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99 00 ... General instructions on paintwork

General instructions and classification of paint stages are described on the KSD CD (under Notes, General information on flat rate unit data, Passenger car explanation for FRU specifications for paintwork).

The marked area shows the basis of area calculation for creating the flat rate unit. The marked area does not show the area actually to be painted. If touching up is required, the painter defines the precise position as he sees fit.

Special procedure for matte paintwork:

Matte paintwork cannot be touched up since the painted surface cannot be polished.

For further information, see also the BMW painting handbook in the S-Gate dealer portal.

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51 14 ... General notes for labelling with adhesive films

In the event of a repair the adhesive films must be partially or completely replaced. The basic procedure for all areas of the vehicle is described below.

In addition, vehicle-specific repair instructions are available.

1. Preparation:

Wash and dry vehicle. Rework with compressed air as required in area of joints.

Clean complete component surface with glass cleaner (BMW part number 83 12 0 396 775). Also clean the inside of the component in areas, in which adhesive films are applied.

Only carry out repair work with clean hands!

Important!

Labels can only be applied to recently painted components after a waiting period of **2 weeks**. The paint hardening is only fully completed after this time.

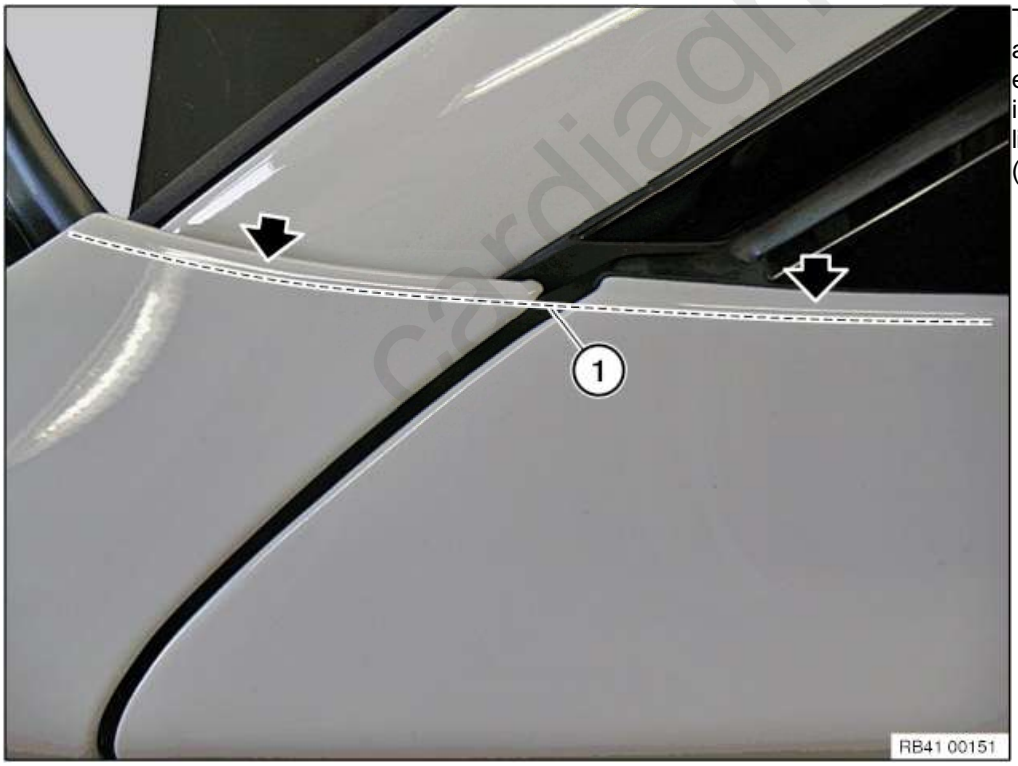
2. Procedure for applying labels:

All adhesive films in the repair kit are marked with numbers. Prepare the required plastic films prior to start of repairs.

The templates included in the repair kit assist orientation. A straight line running over the different components is the top priority.

Pull off the templates positioning of the adhesive films.

Only throw away templates after completion of all repair work, as some templates are used several times.



Templates are always applied along the light edge (1). The light edge is the reflection of the light source in radius (see arrow).

Roughly align the adhesive film using a template.

For large adhesive films, pull off the first 20 cm of protective film and fold back the edge.

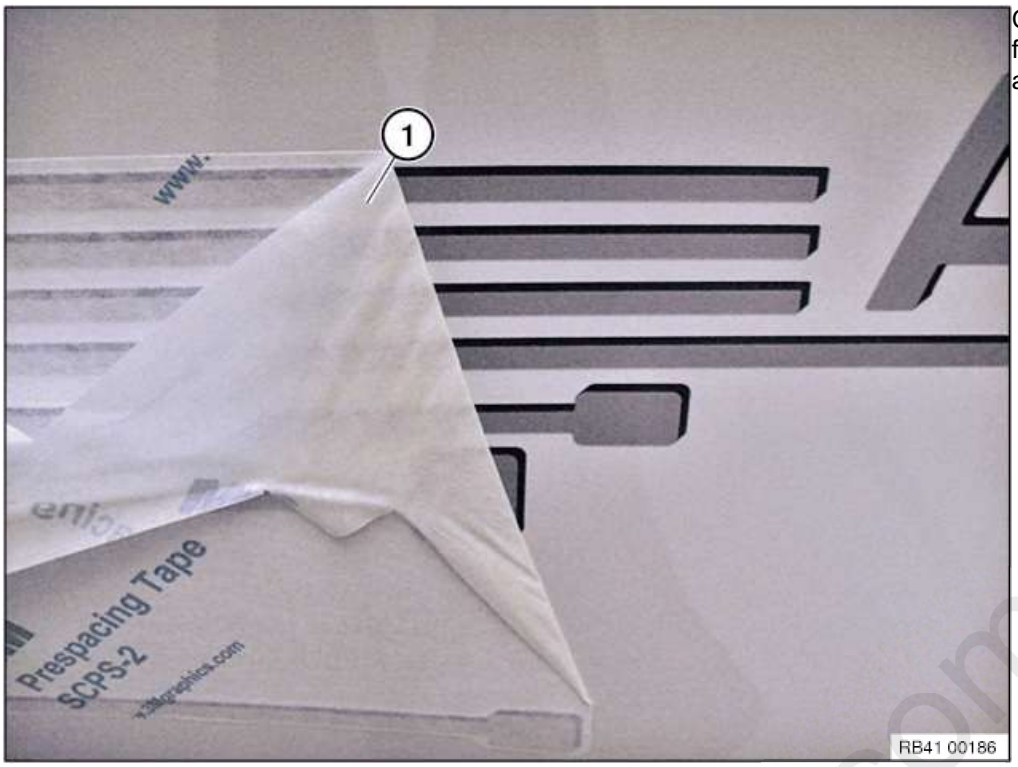
Align and lightly press down the adhesive film. Use only one finger for this and not the entire hand so that air pockets are unable to form under the adhesive film.

Pull off the remaining protective film and press down the adhesive film from front to rear and from inside to outside.

If faults are made in applying the adhesive film, it can be pulled off and repositioned several times. When no further

corrections have to be made, use a squeegee to press down the adhesive film firmly from inside to outside.

Lay protruding ends of the adhesive film around the component edge and press down firmly.



Carefully pull off backing film (1) at an acute angle.

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41 00 ... Grinding aluminium components

1.0 Recommended tools and equipment

Grinding work on the outer skin:

- To carry out grinding work by hand or machine, you must use the recommended tools and equipment (refer to Service Information 5 03 03 975).
  The workbay can be cleaned with conventional extractor systems (low dust concentration).

Grinding work on the structure (except Z8):

- To carry out grinding work by hand or machine, you must use the recommended tools and equipment (refer to Service Information 5 03 03 975).
  The workbay can be cleaned with conventional extractor systems (low dust concentration).

Z 8 Spaceframe structure:

- To carry out machine grinding on the structure, you must use the recommended device with grinding dust extractor facility (refer to Service Information 5 01 00 532).
  The workbay must be cleaned with the recommended explosion-proof extractor system (refer to Service Information 5 01 00 532).
  High dust concentration, **explosion hazard!**

2.0 Grinding outer skin and structure

Do not use any abrasives (grinding wheels, paper, etc.) which contain iron (risk of corrosion).

Always replace abrasives which have already been used to treat steel (risk of corrosion).

Use stainless steel wire brushes only (risk of corrosion).

Reduce speed of grinding machines. Excessive speeds cause a smearing effect.

Do not use coarse abrasive grains (only ≥ 80).

Do not grind notches into the material (risk of cracking).

Do not grind the material thin.

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41 00 ... Grinding steel parts

1.0 Recommended tools and equipment

- Tools are recommended for manual grinding work.
- Machines/equipment are recommended for machine grinding work.

See also Aftersales Assistance Portal (ASAP) - Service/Technology - Workshop Equipment (Start BMW) - Shop Workshop Equipment

2.0 Grinding outer shell and structure

Always replace abrasives which have already been used to treat aluminum (risk of corrosion).

Do not grind the material thin.

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41 00 ... Handling airbags and restraint systems

1.0 Airbags and restraint systems

- In the case of vehicles with airbags and restraint systems observe the relevant safety instructions.
- When straightening work is carried out on the body there is a risk of airbags being accidentally activated when the battery is connected.
  Because of this risk the battery ground cable must be disconnected prior to all repair work on the body.

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11 00 ... Handling components after flood damage

Flood damage can occur if the permissible fording depth of a vehicle is exceeded. Ingress of water can cause damage to the engine (water shock) or components.

Because dirt particles generally enter into the component with the water (e.g. starter motor, wiring harness), the components need to be thoroughly inspected.

Residual moisture in the components leads to corrosion (increased contact resistance in the component), which can lead to a component failure at a later time.

If water ingress into the electrical components cannot be ruled out, it is recommended to replace the component to ensure correct functioning through the vehicle lifetime.

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41 00 ... Handling electrical system and electronics

1.0 Battery

- Explosion hazard in the vicinity of the battery during welding and grinding work. The battery must be removed.

2.0 Control units

- Control units with visible mechanical damages and/or electrical damages caused by accidents must be replaced.
- The following risks exist when the battery is connected:
  - Damage to control units resulting from welding work on the body or a line short circuit.
  - Accidental activation of airbags during straightening work on the body.

Because of these risks the ground cable must be disconnected prior to all repair work.

- Control units are designed for a temperature of 65 °C. The temperatures in a spray booth do not pose any problems. If a vehicle is in the spray booth at a displayed temperature of 80°C, the actual temperature of the vehicle is ≤ 60 °C (object temperature).
- Protect control units against the influence of heat >65 °C (e.g. during welding and drying work with infrared beams or hot air blowers).

3.0 Electrical wires and wiring harnesses

- Protect electrical wires and wiring harnesses against damage (e.g. during straightening and grinding work).
- Protect electrical wiring and wiring harnesses against the influence of heat >65 °C (e.g. during welding and drying work with infrared beams or hot air blowers).
- Do not kink electrical wiring.

4.0 Optical fibres

- Follow instructions for handling optical fibres.

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41 00 ... Information on hazards

1. Aluminium

Hazards/effects	Measures / regulations
Repair stage 1 and 2: No hazards/effects	 none
Repair stage 3: (Welding - only E52) • Explosion hazard due to high concentration of fine aluminium dust. Arising e.g. during straight-through grinding of coated components in the base material and large-surface grinding of bright-finish components. • Explosion hazard due to swirling up of fine aluminium dust in cavities. Created by the necessary, thorough cleaning of machining surfaces and tools before and after machining aluminium.	 • Avoid high concentration of fine aluminium dust by means of continuous extraction. • Use explosion-proof exhaust extraction unit • Do not use compressed air when cleaning the workbay. • Avoid swirling up dust when cleaning the workbay.
• Spontaneous combustion of fine aluminium dust when ignition and fire sources are drawn in. E.g.: hot swarf, grinding sparks, cigarettes, etc.	• Do not operate ignition and fire sources in the intake area of exhaust extraction unit.

2. Carbon

Hazards / effects	Measures / regulations
Repair stage 1: No hazards/effects	 none
Repair stage 2 and 3: • Explosion hazard due to high concentration of carbon dust. Produced when grinding carbon. • Explosion hazard due to swirling up of carbon dust in cavities. Created by the necessary, thorough cleaning of machining surfaces and tools before and after machining carbon.	 • Avoid high concentration of carbon dust by drawing it off continuously. • Use explosion-proof exhaust extraction unit • Do not use compressed air when cleaning the workbay. • Avoid swirling up dust when cleaning the workbay.
• Spontaneous combustion of carbon dust when ignition and fire sources are drawn in. E.g.: hot swarf, grinding sparks, cigarettes, etc.	• Do not operate ignition and fire sources in the intake area of exhaust extraction unit.

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41 00 ... Information on metal filler

Note:

The metal spatula is omitted.

Changes to the procedure are described here.

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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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41 00 ... Information on vehicle protection

- Vehicle parts located in the repair zone or threatened by heat, sparks or dust, must be removed or covered. For suitable covering material , see Service Information.

Important!

Do not use flammable or dirty material for covering.

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41 00 ... Information/warning labels

Missing or damaged labels (e. g. tyre pressure) must be replaced.

--> overview via the installation location

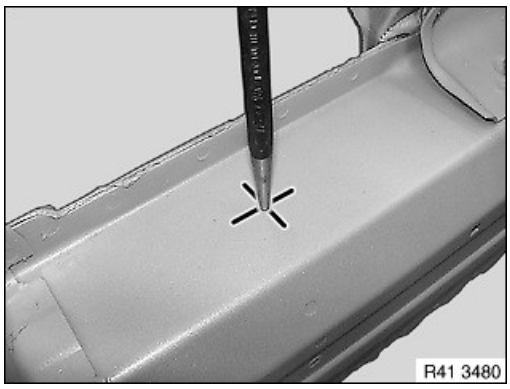
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41 00 ... Installation solution for straight shank/hexagon rivet nut



Protective measures!

- Wear safety goggles
- Wear protective gloves



Hexagon head/straight shank rivet nut (up to thread 8) with hand rivet gun ZS308 Caution!

Risk of damage!

Failure to comply with these instructions may result in the drill bit slipping and causing significant paint damage.

1. Mark position of bore hole and then punch-mark component



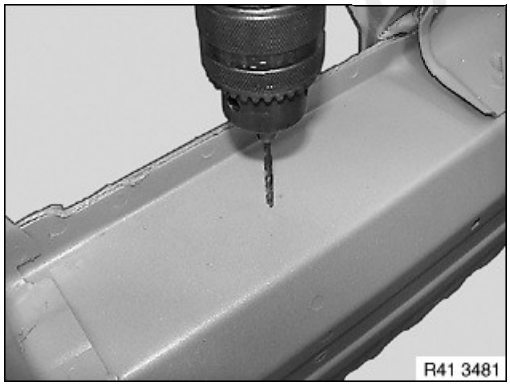
Caution!

If the determined drill bit diameter is not observed:

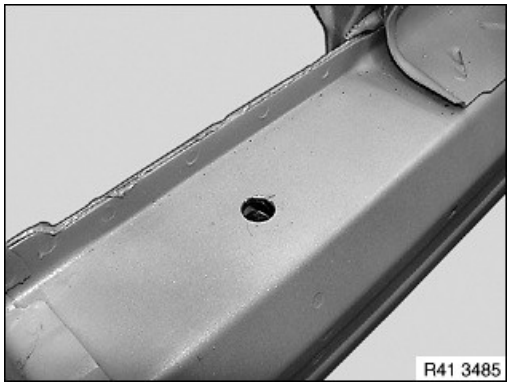
- the knurling on the straight shank rivet nut is rendered useless
- the component will be damaged when the straight shank rivet nut is inserted

Determining suitable drill bit:
Depending on the rivet nut shaft diameter, the next drill bit diameter higher (5/10 step) can be used.

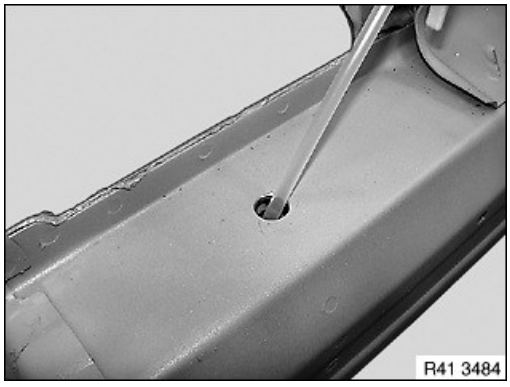
E.g. with a shaft diameter of 10.1 mm, the 10.5 mm drill bit can be used. The 11.0 mm drill bit must not be used.



2. Drill bore hole with determined drill bit and deburr, pilot-drill with a smaller drill bit if necessary



3. Clean component, eliminate paint damage if necessary

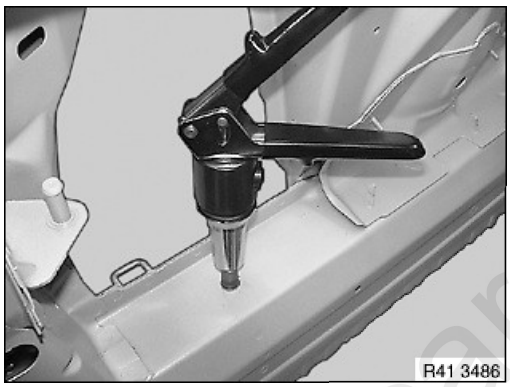


Caution!

To avoid corrosion, stop chips/swarfs by means of cavity preservation.

Follow notes on corrosion protection.

4. Preserving cavity

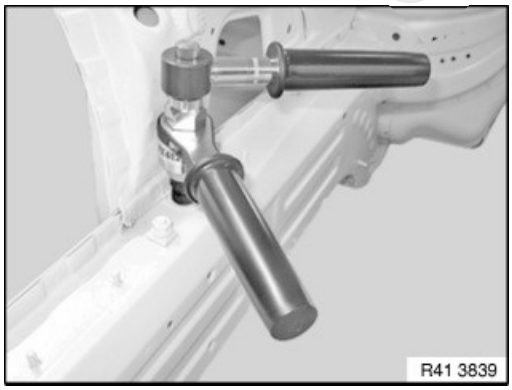


Caution!

Follow manufacturer's operating instructions.

Make sure straight shank rivet nut correctly contacts component.

5. Set rivet nut with hand rivet gun.*Note:*
Shown tool is suitable up to thread M8.



Hexagon head/ straight shank rivet nut (up to thread M12) with hand rivet gun MB512

Caution!

Follow manufacturer's operating instructions.

Make sure hexagon rivet nut correctly contacts component.

Set rivet nut with hand rivet gun.

Note:
Shown tool is suitable up to thread M12. (Sourcing reference for BMW S-Gate dealer portal - Aftersales - Dealer's equipment catalogue).

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41 00 ... Installing a cavity sealing with 2-component PU cavity foam

Sourcing reference for cavity foam HS1 (refer to BMW Parts Department).

Important!

The cavity foam may only be use for cavity sealing at the points at which cavity sealing is present as standard!

The following repair represents the replacement of a shaped part for the cavity sealing by the use of cavity foam.

This type of cavity sealing is used at points at which shaped parts cannot be used for repairs.

This is the case when large amounts of heat occur (e.g. due to welding, soldering or tin-plating) in the direct vicinity or at the point of the standard cavity sealing.

It is not possible here to install shaped parts for the cavity sealing because of the fire risk!

To replace shaped parts with cavity foam at further locations, adopt the procedure shown here and adapt it to the relevant ratios.

It must be ensured that the cavity sealing is fully completed.

Note:

Check the accessibility for the spraying pipe of the cavity foam to the affected cavity after removing the defective parts.

Properties of cavity foam HS1:

- 2-component PU foam, solvent-free.
- Excellent flow capacity, enabling complete sealing of cavities.
- Good strength, preventing slipping in cavities.
- Low water absorption, preventing corrosion.
- Ideal for use as insulating and sealing compound.

Information on dangers/hazards:

- Avoid eye and skin contact.
  Wear eye protection, solvent-resistant protective gloves and protective clothing.
- Do not inhale.
  Apply in well ventilated rooms only.
- **Warning!**
  Application time after mixing process: within **8 minutes!**
  Completely empty open can after use.
- Residual amounts which are not used can cause the can to explode on account of a chemical reaction (buildup of heat)!
  Alternatively, cool the can containing the non-removed residual amount for several hours in cold water.
- Do not eat, drink or smoke while working with these products.
- Keep heat and ignition sources far away.
- Read the manufacturer's information on hazards/dangers (printed on the can) prior to application.

Processing instructions:

- Observe the expiry date on the cartridge.
  Do not use spray can after the expiry date has passed. After the Use by date the properties of the cavity foam will no longer meet the requirements of the BMW Group.
- Cavity preservation of the repair area possible after an air drying time of 1 hour.
- Surface must be **clean, free of dust, grease, oil and separating agents**.
- Application temperature at least 15 °C. Optimally 20 °C.
- Important!
  Foam expands many times over as it sets (change in volume).

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- Before applying to the vehicle, fill a clearly visible cavity of corresponding size with foam on a used part.
  This enables an optimal dosage (i.e. spraying time) to be specified for filling the cavity on the vehicle with foam.
- Tape off open passages to visible areas with adhesive tape to prevent foam from escaping.
- The setting takes approx. 30 minutes. Mechanical processing (e.g. drilling, cutting, etc.) is then possible
- Cavity preservation of the repair area possible after an air drying time of 1 hour.
- Remove fresh, non-hardened polyurethane foam with adhesive remover 208.
  Sourcing reference: BMW Parts Department.
  Hardened polyurethane foam can only be removed mechanically.
- Excess hardened polyurethane foam can be disposed of as residual waste.
  Cans that are not entirely empty or are unused and have an expired expiry date are classed as hazardous waste.
  Observe country-specific waste disposal regulations.
- Observe the manufacturer's processing instructions (printed on the can).

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41 00 ... Installing a cavity sealing with 2-component PU cavity foam

Sourcing reference for cavity foam HS3 (refer to BMW Group Parts).

Attention!

The cavity foam may only be use for cavity sealing at the points at which cavity sealing is present as standard!

The following repair represents the replacement of a shaped part for the cavity sealing by the use of cavity foam.

This type of cavity sealing is used at points at which shaped parts cannot be used for repairs.

This is the case when large amounts of heat occur (e.g. due to welding, soldering or tin-plating) in the direct vicinity or at the point of the standard cavity sealing.

It is not possible here to install shaped parts for the cavity sealing because of the fire risk!

To replace shaped parts with cavity foam at further locations, adopt the procedure shown here and adapt it to the relevant ratios.

It must be ensured that the cavity sealing is fully completed.

Note:

Check the accessibility for the spraying pipe of the cavity foam to the affected cavity after removing the defective parts.

Properties of cavity foam HS3:

- 2-component PU foam, solvent-free.
- Excellent flow capacity, enabling complete sealing of cavities.
- Low water absorption, preventing corrosion.
- Ideal for use as insulating and sealing compound.

Information on dangers/hazards:

- Avoid eye and skin contact.
  Wear eye protection, solvent-resistant protective gloves and protective clothing.
- Do not inhale.
  Apply in well ventilated rooms only.
- **Warning!**
  Processing after the mixing process within a few seconds!
- Do not eat, drink or smoke while working with these products.
- Keep heat and ignition sources far away.
- Observe the manufacturer's information on dangers / hazards prior to application (imprint on double cartridge).

Processing instructions:

- Observe the expiry date on the cartridge.
  Do not use cavity foam after the expiry date has passed. After the Use by date the properties of the cavity foam will no longer meet the requirements of the BMW Group.
- Cavity preservation of the repair area possible after an air drying time of 1 hour.
- Surface must be **clean, free of dust, grease, oil and separating agents**.
- Application temperature at least 15 °C. Optimally 20 °C.
- Attention!
  Foam expands during hardening (volume change).
- Tape off open passages to visible areas with adhesive tape to prevent foam from escaping.
- The setting takes approx. 30 minutes. Mechanical processing (e.g. drilling, cutting, etc.) is then possible
- Cavity preservation of the repair area possible after an air drying time of 1 hour.
- Remove fresh, non-hardened polyurethane foam with adhesive remover 208.

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Sourcing reference, see BMW Group Parts.
Hardened polyurethane foam can only be removed mechanically.

- Excess hardened polyurethane foam can be disposed of as residual waste.
  Double cartridges that are not entirely empty or are unused and have an expired expiry date are classified as hazardous waste.
  Observe country-specific waste disposal regulations.
- Observe the manufacturer's processing instructions (imprinted on double cartridge).

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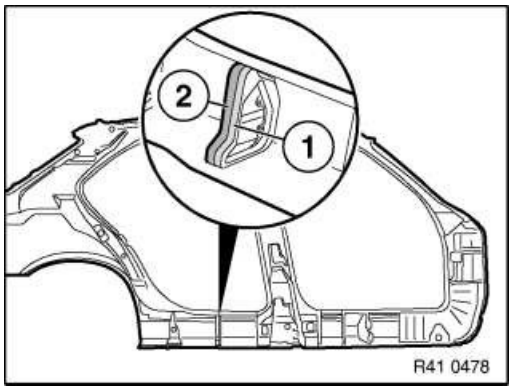
41 00 ... Installing cavity sealing (expanded)

Note:
Carry over schematic diagram to the relevant vehicle type.

The following repair represents the procedure for an already expanded cavity acoustic baffle.

The cavity acoustic baffle remains on the body in this instance.

Before these work steps, prepare the new part so that it is ready to install (adapting, cutting to size, applying welding primer etc.).



Clean contact surface (1) with cleaning agent R2.

Apply a bead (2) approx. 15 mm high of sealant D2 to contact surface (1).

If necessary apply sealant D2 somewhat thinner on each side, to prevent the sealant from running.

Fit, secure and weld up new part.

Warning:
Ensure adequate ventilation over entire processing period.

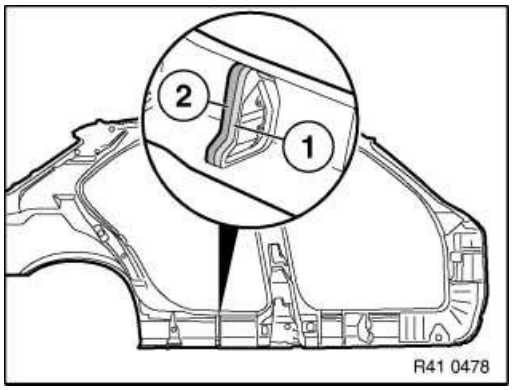
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41 00 ... Installing cavity sealing (not expanded)

Note:
Carry over schematic diagram to the relevant vehicle type.

The following repair represents replacement of a cavity acoustic baffle.

Before these work steps, prepare the new part so that it is ready to install (adapting, cutting to size, applying welding primer etc.).



Sand contact surface of cavity acoustic baffle (1) with coarse-grained sandpaper (grain 50-100).

Clean contact surface (1) with cleaning agent R2.

Apply a bead approx. 15 mm high of sealant D2 to contact surface (1).

If necessary apply sealant D2 somewhat thinner on each side, to prevent the sealant from running.

Attach cavity acoustic baffle in specified position (see old part).

Fit, secure and weld up new part.

Warning:

Ensure adequate ventilation over entire processing period.

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41 00 ... Materials science

1. Aluminium

1.1 Chassis/suspension components

Read and observe the Notes on chassis/suspension components before handling aluminium.

1.2 Material influences

Causes	Effects / remedies
A galvanic element is created under the effects of moisture by contact with materials such as copper, tin, nickel, iron and zinc.	This plating process causes aluminium to be removed from the connection point. This results in surface corrosion or pitting. New parts and accessory parts which have been approved by the BMW Group for aluminium (screws, washers, nuts etc.) have undergone special surface treatment. Such parts must not be replaced by conventional parts. *Note:* Damaged parts lose this protection and must be specially coated or replaced. Damage caused by contact corrosion is excluded from the warranty.
Tools also used for work on steel components can implant steel particles in the softer surface of an aluminium component.	Surface corrosion or pitting occurs. A separate tool set is available for processing/machining aluminium.
Surfaces are attacked when fluxing agents are used.	Soldering is not permitted for joining aluminium components. Risk of corrosion from chemical factors.
Aluminium/steel grinding dust from adjoining working areas.	This results in surface corrosion. Erection of protective barriers.

1.3 Machining properties

Properties of aluminium compared with steel	Effects
Aluminium parts are magnetically neutral.	Attachment with magnetic tools/working aids is not possible.
Elasticity is only 1/3 as high. Elongation failure is approx. 50 % slighter.	Convertibility is limited in comparison with steel. Overstretching the material results in strain-hardening and an increased tendency of cracking.

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Electrical conductivity is almost 4 times higher.	Electric welding methods require different equipment (MIG welding).
Material expansion during heating is twice as high.	The material expands more markedly. Shorter heat treatment is necessary for removing dents.
Thermal conductivity is 3 times higher.	Heat is drained more quickly. Adjoining working areas are affected more heavily e.g. during welding.
Structural transformation between 200 °C and 250 °C	Elongation characteristics and thus plasticity are improved. Strength is reduced. ***Important!*** No heat treatment during repair work on the vehicle structure! Workshop operation doesn't make it possible to control the temperature to sufficiently exact levels.
Aluminium shows no annealing colours.	The melting point is 650 °C. Once the melting temperature has been reached, the material begins to flow without any further indications. The temperature can only be estimated by means of the paint colouring and the surface warpage. ***Important!*** Do not use thermo crayons. Not suitable for workshop operation because the paint runs too quickly.

1.4 Storage

Characteristic features of aluminium	Special measures
Corrosion (ageing) in damp environments.	Store aluminium components in a dry place.
Contact corrosion in event of contact e.g. with steel components.	Always store aluminium components separately or in isolation from steel components.
Susceptibility to paint infiltration.	Do not damage factory protective layer of the surface since this would cause oxidation. Failure to comply with this requirement would result in more painting work.

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41 00 ... Notes on adhesive K1

Caution!

Note the following information before starting to apply adhesive!

- Country-specific safety and industrial safety regulations
- Material safety data sheet of manufacturer
- Processing instructions on glue cartridge

Storage:

Dry at 15°- 25 °C.

Shelf life:

The glue cartridge is marked with a date.

Do not use the adhesive after this date.

Surface pre-treatment:

The pre-treatment depends on the material to be bonded and its coating.

Required cartridge gun:

Overview of glue cartridge guns

Do not use compressed-air-operated cartridge guns!

Check cartridge gun:

The piston crown of the cartridge gun must have an even contact surface. No parts are permitted to protrude from the contact surface because this may result in damage to the base of the glue cartridge.

Start with the slowest feed speed when using a new cartridge gun for the first time.

The increase the feed speed only to such an extent that the glue cartridge is not damaged.

Preparing the glue cartridge:

Opened glue cartridges may be used again before the expiry date as long as a new mixing tube is used.

The working temperature of glue cartridge must be at least 20 °C.

Insert glue cartridge into cartridge gun.

Manually press the piston rod against the bottom of the glue cartridge.

Remove the cap and allow both adhesive components to emerge. Strip adhesive components uniformly and attach mixing tube. Only use mixing tubes supplied with glue cartridge. Allow approx. 10 cm of mixed adhesive to emerge.

Only after this apply the mixed adhesive to one side of the bonding surface.

Application time of mixed adhesive approx. 2 hours. A change of mixer is only necessary if over a period of 1 hour no material has flowed through the mixer.

Adhesive application:

Read the vehicle-specific repair instructions to determine the thickness and positioning of the adhesive bead.

After applying the adhesive, check whether an adhesive component has emerged at the back of the glue cartridge. If yes, break off the bonding procedure. Clean new part. Use new glue cartridge. Contact national hotline.

Remove contamination caused by adhesive residue immediately.

Hardened adhesive can only be removed mechanically.

Hardening time:

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Do not move the vehicle before the adhesive has hardened.

Check the degree of hardness of the adhesive with a fingernail.

If the adhesive cannot be pressed in any further with a fingernail, the vehicle may be moved (without engine force) for further processing applications (e.g. paintwork).

Vehicle **strength for driving applications** is achieved after:

48 hours at an object temperature of 15°C.

10 hours at an object temperature of 23°C.

1 hour at an object temperature of 60°C.

0.5 hours at an object temperature of 85°C.

Caution!

> When using radiant heaters, make sure that the object temperature does not exceed 85 °C. Excessively high temperatures will destroy the adhesive.

Disposal of adhesive:

Hardened adhesive is disposed of as normal waste.

Empty glue cartridges are disposed of as normal waste.

Non-hardened adhesives and a mixture of adhesive and solvent and the like must be disposed of as hazardous waste.

These regulations apply to the Federal Republic of Germany.

For other countries, comply with the (possibly differing) nationally applicable regulations.

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41 00 ... Notes on adhesive K2

Important!

Note the following information before starting to apply adhesive!

- Country-specific safety and industrial safety regulations
- Material safety data sheet of manufacturer
- Processing instructions on glue cartridge

Storage:

Dry, at 15 °C - 25 °C.

Shelf life:

The glue cartridge is marked with a date.

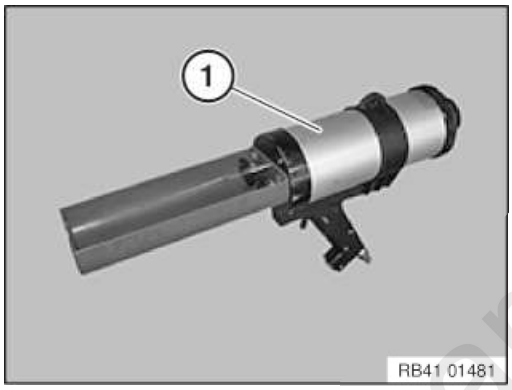
Do not use the adhesive after this date.

Surface pre-treatment:

Refer to vehicle-specific repair instructions or Notes.

Required cartridge gun:

Cartridge gun 81 49 2 355 475 for 2x290 ml container



Preparation of the glue cartridge (2x290 ml):

Opened glue cartridges may be used again before the expiry date as long as a new mixing tube is used.

The working temperature of glue cartridge must be at least 20°C.

Application time of adhesive at 28 °C 35 min and at 18 °C 50 min

Remove the sealing cap on the back of the glue cartridge. Remove the safety and connecting pipe. Puncture the glue cartridges open. Attach the connecting pipe and insert the glue cartridge in the cartridge gun. Allow both adhesive components to emerge. Strip adhesive components uniformly and attach mixing tube. Only use mixing tubes supplied with glue cartridge. Allow approx. 10 cm of mixed adhesive to emerge.

Only after this apply the mixed adhesive to one side of the bonding surface.

2-component adhesive application:

Read the vehicle-specific repair instructions to determine the thickness and positioning of the adhesive bead.

After applying the adhesive, check whether an adhesive component has emerged at the back of the glue cartridge. If yes, break off the bonding procedure. Clean new part. Use new glue cartridge. Contact national hotline.

Remove contamination caused by adhesive residue immediately.

Hardened adhesive can only be removed mechanically.

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Hardening time:

Do not move the vehicle before the adhesive has hardened.

The following hardening times apply unless the specifications in the vehicle-specific repair instructions indicate otherwise:

Adhesive K2 (2x290 ml):

Important!

> During the initial 12 hours, no accelerated hardening with a heat gun or heat chamber is permitted!

The **solidity for installation work** on the vehicle is reached after:

12 hours at an object temperature of 18°C.

Vehicle **strength for driving applications** is achieved after:

48 hours at an object temperature of 18°C.

Important!

> When a complete side frame is replaced (without partial replacement), the hardening period will increase to 24 hours until the beginning of installation work.

Disposal of adhesive:

Hardened adhesive is disposed of as normal waste.

Empty glue cartridges are disposed of as normal waste.

Non-hardened adhesives and mixtures of adhesive and solvent and the like must be disposed of as hazardous waste.

These regulations apply to the Federal Republic of Germany.

For other countries, comply with the (possibly differing) nationally applicable regulations.

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41 00 ... Notes on adhesive K3

Important!

Note the following information before starting to apply adhesive!

- Country-specific safety and industrial safety regulations
- Material safety data sheet of manufacturer
- Processing instructions on glue cartridge

Storage:

Dry at 15°- 25 °C.

Shelf life:

The glue cartridge is marked with a date.

Do not use the adhesive after this date.

Surface pre-treatment:

See vehicle-specific repair instructions

Required cartridge gun:

Overview of glue cartridge guns

Preparing the glue cartridge:

Do not prepare the glue cartridge until just before applying the adhesive.

The working temperature of glue cartridge must be at least 18°C.

Pot life of adhesive is approx. 10 minutes at 25 °C.

Insert glue cartridge into cartridge gun, remove cap and allow both adhesive components to emerge. Strip adhesive components uniformly and attach mixing tube. Only use mixing tubes supplied with glue cartridge.

Before starting to apply adhesive, allow approx. 1 mixing tube length of mixed adhesive to emerge. Only then apply the mixed adhesive to one side of the bonding surface.

Opened cartridges may be used again before the expiry date as long as a new mixing tube is used.

2-component adhesive application:

Read the vehicle-specific repair instructions to determine the thickness and positioning of the adhesive bead.

Hardening time:

See vehicle-specific repair instructions

Adhesive disposal:

Hardened adhesive is disposed of as normal waste.

Empty glue cartridges are disposed of as normal waste.

Non-hardened adhesives and mixtures of adhesive and solvent and the like must be disposed of as hazardous waste.

These regulations apply to the Federal Republic of Germany.

For other countries, comply with the (possibly differing) nationally applicable regulations.

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41 00 ... Notes on adhesive K4

Important!

Note the following information before starting to apply adhesive!

- Country-specific safety and industrial safety regulations
- Material safety data sheet of manufacturer
- Processing instructions on glue cartridge

Storage:

Dry at 15°- 25 °C.

Shelf life:

The glue cartridge is marked with a date.

Do not use the adhesive after this date.

Surface pre-treatment:

See vehicle-specific repair instructions

Required cartridge gun:

Overview of glue cartridge guns

Preparing the glue cartridge:

Do not prepare the glue cartridge until just before applying the adhesive.

Opened glue cartridges may be used again before the expiry date as long as a new mixing tube is used.

The working temperature of glue cartridge must be at least 18°C.

Working life of adhesive is approx. 10 minutes.

Insert glue cartridge into cartridge gun, remove cap and allow both adhesive components to emerge. Strip adhesive components uniformly and attach mixing tube. Only use mixing tubes supplied with glue cartridge.

Before starting to apply adhesive, allow approx. one half mixing tube length of mixed adhesive to emerge. Only then apply the mixed adhesive to one side of the bonding surface.

2-component adhesive application:

Read the vehicle-specific repair instructions to determine the thickness and positioning of the adhesive bead.

Hardening time:

The bonded connection will be resistant after 30 minutes.

Disposal of adhesive:

Hardened adhesive is disposed of as normal waste.

Empty glue cartridges are disposed of as normal waste.

Non-hardened adhesives and mixtures of adhesive and solvent and the like must be disposed of as hazardous waste.

These regulations apply to the Federal Republic of Germany.

For other countries, comply with the (possibly differing) nationally applicable regulations.

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41 00 ... Notes on adhesive K5

Caution!

Note the following information before starting to apply adhesive!

- Country-specific safety and industrial safety regulations
- Material safety data sheet of manufacturer
- Processing instructions on glue cartridge

Storage:

Dry at 15°- 32 °C.

Shelf life:

The glue cartridge is marked with a date.

Do not use the adhesive after this date.

Surface pre-treatment:

See vehicle-specific repair instructions.

Required cartridge gun:

Overview of glue cartridge guns

Check cartridge gun:

The piston crown of the cartridge gun must have an even contact surface. No parts are permitted to protrude from the contact surface because this may result in damage to the base of the glue cartridge.

Start with the slowest feed speed when using a new cartridge gun for the first time.

The increase the feed speed only to such an extent that the glue cartridge is not damaged.

Preparing the glue cartridge:

The working temperature of glue cartridge must be at least 20 °C.

Opened glue cartridges may be used again before the expiry date as long as a new mixing tube is used.

Insert the glue cartridge into the cartridge gun.

Manually press the piston rod against the bottom of the glue cartridge.

Remove the cap and allow both adhesive components to emerge. Strip adhesive components uniformly and attach mixing tube. Only use mixing tubes supplied with glue cartridge.

Before starting to apply adhesive, allow approx. 1 mixing tube length of mixed adhesive to emerge. Only then apply the mixed adhesive to one side of the bonding surface.

Pot life of adhesive is approx. 60 minutes at 23 °C.

Adhesive application:

Read the vehicle-specific repair instructions to determine the thickness and positioning of the adhesive bead.

After applying the adhesive, check whether an adhesive component has emerged at the back of the glue cartridge. If yes, break off the bonding procedure. Clean new part. Use new glue cartridge. Contact national hotline.

Remove contamination caused by adhesive residue immediately.

Hardened adhesive can only be removed mechanically.

Hardening time:

Do not move the vehicle before the adhesive has hardened.

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Check the degree of hardness of the adhesive with a fingernail.

If the adhesive cannot be pressed in any further with a fingernail, the vehicle may be moved (without engine force) for further processing applications (e.g. paintwork).

Vehicle **strength for driving applications** is achieved after:

48 hours at an object temperature of 15°C.

10 hours at an object temperature of 23°C.

1 hour at an object temperature of 60°C.

0.5 hours at an object temperature of 85°C.

Caution!

> When using radiant heaters, make sure that the object temperature does not exceed 85 °C. Excessively high temperatures will destroy the adhesive.

Disposal of adhesive:

Hardened adhesive is disposed of as normal waste.

Empty glue cartridges are disposed of as normal waste.

Non-hardened adhesives and mixtures of adhesive and solvent and the like must be disposed of as hazardous waste.

These regulations apply to the Federal Republic of Germany.

For other countries, comply with the (possibly differing) nationally applicable regulations.

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41 00 ... Notes on adhesive K6

Important!

Note the following information before starting to apply adhesive!

- Country-specific safety and industrial safety regulations
- Material safety data sheet of manufacturer
- Processing instructions on glue cartridge

Storage:

Dry at 15°-25 °C.

Shelf life:

The glue cartridge is marked with a date.

Do not use the adhesive after this date.

Surface pre-treatment:

See vehicle-specific repair instructions

Required cartridge gun:

Overview of glue cartridge guns

Preparing the glue cartridge:

Do not prepare the glue cartridge until just before applying the adhesive.

The working temperature of glue cartridge must be at least 18°C.

Pot life of adhesive is approx. 10 minutes at 25 °C.

Insert glue cartridge into cartridge gun, remove cap and allow both adhesive components to emerge. Strip adhesive components uniformly and attach mixing tube. Only use mixing tubes supplied with glue cartridge.

Before starting to apply adhesive, allow approx. 1 mixing tube length of mixed adhesive to emerge. Only then apply the mixed adhesive to one side of the bonding surface.

Opened cartridges may be used again before the expiry date as long as a new mixing tube is used.

2-component adhesive application:

Read the vehicle-specific repair instructions to determine the thickness and positioning of the adhesive bead.

Hardening time:

See vehicle-specific repair instructions

Disposal of adhesive:

Hardened adhesive is disposed of as normal waste.

Empty glue cartridges are disposed of as normal waste.

Non-hardened adhesives and mixtures of adhesive and solvent and the like must be disposed of as hazardous waste.

These regulations apply to the Federal Republic of Germany.

For other countries, comply with the (possibly differing) nationally applicable regulations.

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41 00 ... Notes on cleaning agent R1

Use only cleaning agent R1, as other cleaning agents cab be emollient/moistening or may start to dissolve the cathodic dip paint primer.

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61 00 ... Notes on handling the high pressure cleaner



Warning!

Only used a high pressure cleaner approved by BMW!

Only specially trained persons of 16 years of age or older may work with the high pressure cleaner.

Check the high pressure cleaner and electrical wiring for visible damage.

Only use at a suitable location.



Attention!

Pay attention to following hazard warnings:

- Danger of injury due to water jet
- Contact with hazardous substances in spray
- Risk of skidding on wet floor
- Risk of stumbling due to hoses and cables
- Comply with notes and instructions on handling cleaning agents !
- Risk of scalding when cleaning with hot water.
- On electric or hybrid cars, the safety instructions for handling with hybrid cars are to be complied with.



Warning!

The following personal protective equipment is to be used:

- Safety goggles/face guard
- Suitable gloves
- Apron
- Rubber boots
- Ear protectors
- Safety shoes



Attention!

Notes on washing a vehicle with a high pressure cleaner:

- Do not wash directly on gaskets and control units during engine washes.
- A minimum distance of 30 cm must be adhered to for tyres and tyre valves.
- A minimum distance of 30 cm must be adhered to for the soft top and painted parts.
- Do not use if engine is still hot.
- Do not exceed maximum water temperature of 60 degrees.
- Do not spray directly onto cameras/sensors.

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Attention!

- For your own safety, we recommend that you do not wash on the high-voltage components in electric or hybrid vehicles.

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41 00 ... Notes on the water drain hose of the slide/tilt sunroof

The water drain hoses for the slide/tilt sunroof are partially permanently integrated in the body and cannot be replaced individually.

These water drain hoses can only be completely replaced with extensive body repair work (e. g. after an accident).

Component	Vehicle	Individually replaceable
Water drain hose, front	All BMW All MINI	No
Rear water drain hose	E60, F34	No
	All other BMWs	Yes
	All MINI	Yes

An individual solution is required for damage that was not caused by an accident.

Contact national hotline.

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99 Notes on using temperature-controlled infra-red radiators

When using temperature-controlled infrared radiators, damage to adhesive bonds, paint and vehicle components can occur when drying spatula and filler.

The temperature sensors in the infrared radiator only operate reliably on large, even surfaces.

On small surfaces such as C-pillars or sills, often only a colder, adjacent area is measured.

This leads to actual surface temperatures of up to 130°C, even if only 70°C is set on the infrared radiator.

When the rear side walls are partially replaced by bonding and riveting, these high temperatures can lead to a visible pattern in the area of the joint.

Remedy:

Check the surface temperatures on small component surfaces during the drying process with an external temperature sensor.

The general rule is: The surface temperatures must not exceed 85°C.

Important!

Do not use infrared radiators on carbon parts!

Risk of component destruction.

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41 00 ... Opening bonded connections

1. Opening spot-welded adhesive joint

Open welding spots.

Warning!

Draw off vapour and gases!

Use personal protective clothing/equipment.

Heat connecting flange with a hot air blower. Heat components to max. 250 °C object temperature.

Release connecting flange with chisel.

Remove adhesive residue from connecting flange.

2. Opening bonded connections

Release any punch rivet or blind rivet.

Roughly cut out damaged component.

Warning!

Draw off vapour and gases!

Use personal protective clothing/equipment.

Heat adhesive flange with a hot air blower. Heat components to max. 250 °C object temperature.

The component can be peeled with the aid of pliers. Do not damage adjacent components.

Remove adhesive residue from connecting flange.

3. Opening bonded connections on aluminium roofs

Procedure is described in detailed in the relevant repair instructions.

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41 00 ... Opening brazed connections

The ”Bonding and Riveting” repair method involves replacing the watertight brazed connection with adhesive.

This gives rise to a new procedure for opening brazed connections.

Grind brazed seam with a belt grinder. This keeps the influence of heat in the area around the brazed seam as small as possible.

Important!

Never use a gas flame.

All traces of brazing solder do not have to be removed.

Do not grind body panels thin.

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41 00 ... Opening rivet connections

Different rivet types are used on BMW vehicles.

1. Opening blind rivets:

1.1 Loosening blind rivets (N1, N2, N7, N8, N9 and N10):

Grind off blind rivet head with a belt or angle grinder. Do not grind off base material. Remove rivet remnants with a drift punch.

1.2 Opening blind rivets (N3 and N6):

Drill out blind rivet head with a 5 mm dia. drill bit. Do not damage base material. Remove rivet remnants with a drift punch.

2. Opening punch rivets:

2.1 Opening punch rivets by extraction:

This procedure is used on the reduced-weight aluminium front end.

Recommended tools and equipment:

- Stud welding apparatus (refer to Service Information 5 03 03 975) with gas bottle containing inert gas (82 % argon, 18 % CO_2).
- Stainless steel stud (sourcing reference via BMW Parts Department image board Aluminium and steel/bonding and welding)
- Universal riveting tool (refer to Service Information 5 03 03 975)

Grind off paint and dark grey coating of punch rivets.

Position bolt centrally on the rivet and weld on vertically. The area in which the bolts are welded on should be between the two grounding terminals. Position both terminals, if possible, on the top side of the panel on which the rivet is located.

Extract bolt with welded-on rivet using universal riveting tool. Use a large plastic nose piece if not otherwise specified in the repair instructions. Check plastic nose piece prior to use for wear.

Plastic nose piece must rest on sheet metal all round; if necessary, grind off plastic noise piece in collision area.

Do not push riveting tool forcefully onto special-steel bolts.

Do not use riveting tool to bend special-steel bolts.

Pay particular attention to central positioning of the bolt when using the small plastic mouthpiece.

Follow the equipment manufacturer's instructions for use.

2.2 Opening punch rivets by drilling out:

Drill out rivets with a 6 mm dia. carbide drill bit.

Punch rivets can be drilled out on both sides. When drilling from the protruding rear side, spot-drill the rivet shank only and remove the rest with a rivet punch.

Note:

Sand down and even out remaining burr on the rear side.Deburr bore holes.

Use a drift punch to remove punch rivet remnants in the aluminium (risk of corrosion).

Clean vehicle to remove swarfs (risk of corrosion).

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41 00 ... Opening welded connections

1. Components made of steel:

1.1 Opening welding spots (resistance pressure spot welding):

Sheet steel panels made from high- and super-high-strength materials make great demands on the tools used.

Only with special carbide milling cutters can welding spots be drilled out on these sheet panels.

Use BTR/BOR milling cutters only in conjunction with Vario Drill spot-weld remover. Sourcing reference for spot-weld remover and BTR/BOR milling cutters, see Aftersales Assistance Portal (ASAP) - Service/Technology - Workshop Equipment (Start BMW) - Shop Workshop Equipment or at www.bmwgroup-wep.com.

- **Procedure:**
  If necessary, surface-grind existing unevenness with a belt or angle grinder in the area around the welding spot.
  Set punch mark in centre of welding spot. Set 8 mm dia. welding spot drill bit on punch mark and drill through top metal sheet.
  Note: Because the welding spots may have surface-hardened, grind them if necessary with an angle grinder and paper grinding disc.
  Use a chisel to separate the sheet metal flange and remove the component.
  Follow the special procedure for spot welds .

1.2 Opening MAG weld seams and MIG brazing seams:

- **Procedure:**
  Grind off weld seams with a belt or angle grinder. Do not grind the base material thin.
  Use a chisel to separate the sheet metal flange and remove the component.

1.3 Opening laser weld seams:

Laser weld seams are used in the roof outer skin area.

- **Procedure:**
  Roughly cut roof outer skin in the roof channel to improve accessibility.
  Place angle grinder with grinding disc on laser weld seam and grind through top metal sheet. Be careful not to cut through and damage sheet metal underneath.
  Remove sheet metal flange.

2. Components made of aluminium:

2.1 Opening MiG weld seams:

- **Procedure:**
  Grind off weld seams with a belt or angle grinder. Do not grind the base material thin.
  Do not use a chisel.
  Remove component.

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61 35 ... Overview of additional work for the removal and installation or replacement of electronic components in the body area/windscreen

Component	**Removal and installation** Calibration/Initialisation required **(diagnosis system must be connected)**	**Removal and installation** Use of the Special tool necessary	**Replacement** Programming/encoding Calibration/Initialisation required **(diagnosis system must be connected)**	**Replacement** Use of the Special tool necessary	Remarks
Front section: (including bumper panel)					
ACC sensor	Yes	Yes	Yes	Yes	
Night vision camera	No	No	Yes	Yes*	*conventional workshop headlight adjusting device
PDC ultrasonic sensor	No	No	No	No	
PMA ultrasonic sensor	No	No	No	No	
Sensor, lane change warning	no*	No	Yes	No	*Required after a body repair in the surrounding area of the sensor. **Comply with the regulations for repainting!**
Sensor for active pedestrian protection	No	No	No	No	Must be replaced after the active pedestrian protection has been activated! **Impact absorber** must also be replaced!
Actuator for active pedestrian protection	No	No	No	No	Must be replaced after the active pedestrian protection has been activated!
Front camera	No	No	Yes	No	

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Side section:					
Top view camera (in the exterior mirror)	No	No	Yes	No	
Rear area: (including bumper panel):					
reversing camera (with Surround View)	No	No	Yes	No	
reversing camera (without Surround View)	No	No	Yes	No	
PDC ultrasonic sensor	No	No	No	No	
PMA ultrasonic sensor	No	No	No	No	
Sensor, lane change warning	no*	No	Yes	No	*Required after a body repair in the surrounding area of the sensor. **Comply with the regulations for repainting!**
Windscreen:					
Camera-based driver support systems camera	no*	No	Yes	No	*Necessary after **replacement of the windscreen**
Rain sensor (separate document)					

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41 00 ... Overview of consumables (Electronic Parts Catalogue)

1.0 Adhesives

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
Adhesive K1	Body adhesive K1	83 19 0 413 015	195 ml
Adhesive K2	Body adhesive K2	83 19 2 355 849	2x290 ml
Adhesive K3	Body adhesive K3	83 19 0 417 144	2 x 300 ml
Adhesive K4	Body adhesive K4	83 19 2 456 697	50 ml
Adhesive K5	Body adhesive K5	83 19 2 158 654	50 ml
Adhesive K5	Body adhesive K5	83 19 5 A59 935	195 ml
Adhesive K6	Adhesive set K6	83 19 2 317 925	

1.1 Primer / activator

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
PrimerP1	PrimerP1	83 19 0 302 556	50 ml
PrimerP2	Primer P2/Gas cartridge	83 19 0 302 555	50 ml
Betawipe 4800	Betawipe 4800	83 19 2 357 707	10 ml
Bonding base VP 206	Bonding base VP 206	83 19 9 407 777 83 19 2 450 377 (US)	30 ml
Aktivator 205	Aktivator 205	83 19 0 030 155	250 ml

1.2 Cleaning agent

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
Filler S1	Alluvial tin replacement	83 19 2 464 575	175 ml

1.3 Fillers

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
Cleaning agent R1	Cleaning agent R1	83 19 2 211 217	125 ml
Cleaning agent R2	Cleaning agent R2	83 19 0 417 324	500 ml
Cavity sealing wax remover	Cavity sealing wax remover	83 12 0 390 086	500 ml

2.0 Rivet

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
Blind rivet N1	Blind rivet N1	83 19 0 301 414	dia. 6.5 mm; clamping range 2.8-4.8 mm
Blind rivet N2	Blind rivet N2	83 19 0 301 419	dia. 6.5 mm; clamping range 4.8-6.8 mm
Blind rivet N3	Blind rivet N3	83 19 0 301 421	dia. 4 mm; clamping range 1-3 mm
Punch rivetN4	Punch rivetN4	83 19 2 457 307	dia. 3 mm; length 4 mm
Punch rivetN5	Punch rivetN5	83 19 2 158 079	dia. 5 mm; length 5 mm

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Blind rivet N6	Blind rivet N6	83 19 2 158 655	dia. 4 mm; clamping range 3-5 mm
Blind rivet N7	Blind rivet N7	83 19 2 240 352	dia. 6.5 mm; clamping range 1.5-3.5 mm
Blind rivet N8	Blind rivet N8	83 19 2 355 998	dia. 6.5 mm; clamping range 6.8-8.8 mm
Blind rivet N9	Blind rivet N9	83 19 7 239 634	dia. 6.5 mm; clamping range 8.8-10.8 mm
Blind rivet N10	Blind rivet N10	83 19 9 144 282	dia. 6.5 mm; clamping range 10.8-12.8 mm
Blind rivet N11	Blind rivet N11	07 14 7 391 057	Blind rivet for carbon connections dia. 4.8 mm; clamping range 2.2-4.7 mm
Blind rivet N12	Blind rivet N12	07 14 7 391 046	Blind rivet for carbon connections dia. 4.8 mm; clamping range 4.5-7.5 mm

2.1 Plastic nuts

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
Cap nut	Plastic nut	51 16 1 943 122	Dia. 18 mm
Cap nut	Plastic nut	07 14 7 169 847	Dia. 22 mm

3.0 Primer/paint spray aerosol

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
Primer	Emergency program base filler 2K spray	51 91 0 432 615	200 ml; application time 8 h
Welding primer	INOX spray welding primer	83 40 0 409 992	500 ml
Paint spray aerosol, cathodic dip coating, grey	Paint spray aerosol, inside filler of spare wheel well	51 91 0 411 026	400 ml
Spray can, black, matte	Spray paint, black matt	51 91 1 900 346	400 ml

4.0 Sealant

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
Sealant D1	Seam sealing	83 42 2 409 985	310 ml
Sealant D2	Sealant D2	83 42 5 A54 7B9	290 ml

5.0 Cavity preservation

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
Cavity sealant	Cavity sealant spray	83 42 2 457 337	400 ml

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Cavity sealant	Cavity preservation	83 42 2 457 338	1000 ml

6.0 Cavity foam

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
Cavity foamHS1	Cavity foam	83 42 9 410 694	400 ml
Structural foamHS2	Structural foam	No longer available	
Cavity foamHS3	2K polyurethane foam	83 42 2 288 930	50 ml

7.0 EMC screw (electromagnetic compatibility)

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
EMC screw	Screw	83 19 0 301 639	SF Plus M5x15

8.0 Twist drill

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
Drill bit	Drill bit	83 19 2 460 424	4.2 x 120 mm
Drill bit	Drill bit	83 19 2 460 425	6.8 x 150 mm
Drill bit	Twist drill	83 19 2 166 463	4.2 x 55 mm
Drill bit	Twist drill	83 19 2 166 464	6.8 x 74 mm
Drill bit	High-strength drill	83 19 2 359 262	6.8 x 79 mm
Drill bit	High-strength drill	83 19 2 359 263	4.2 x 66 mm

9.0 Spacer

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
Spacer	Adhesive tape	51 71 7 901 759	

10.0 Adhesive tape

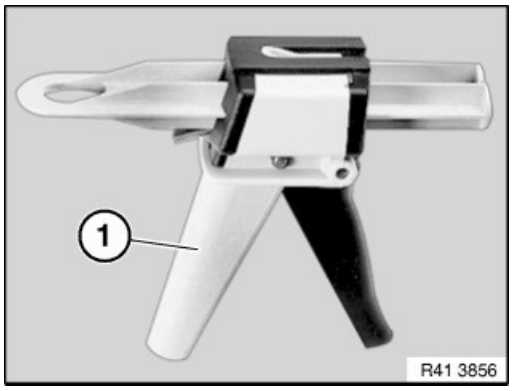
Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
Aluminium adhesive tape	Adhesive tape	11 00 7 769 948	Width 50 mm

11.0 reinforcement plates

Designation, repair instructions	Naming of Electronic Parts Catalogue	Part number of Electronic Parts Catalogue	Remarks
Reinforcement plate, universal	Reinforcement plate, universal	41 21 7 275 563	

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41 00 ... Overview of glue cartridge guns



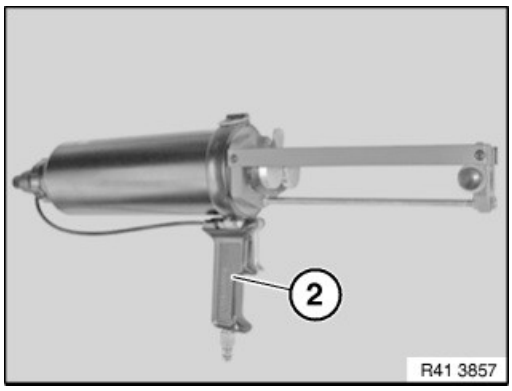
Adhesive gun 83 19 2 149 522

Obtainable via Electronic Parts Catalogue.

Usable for adhesives K4, K5a.

Usable for BMW 2K polyurethane foam.

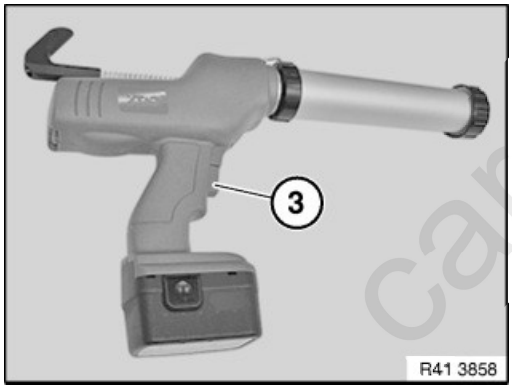
Including insert 1:1 and 2:1.



Adhesive gun 81 49 0 443 166

Orderable via BMW Workshop Equipment Catalogue.

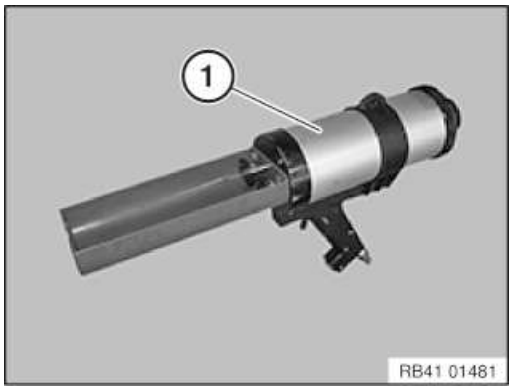
Usable for adhesive K3.



Adhesive cartridge gun 81 49 2 213 059

Orderable via BMW Workshop Equipment Catalogue.

Usable for adhesives K1, K5b, sealant D1/D2, window glass adhesive and all 310 ml Euro cartridges.



Adhesive cartridge gun 81 49 2 355 475

Orderable via BMW Workshop Equipment Catalogue.

Usable for adhesive K2 (2x290 ml glue cartridge)

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41 00 ... Punch rivets

The "Bonding and Riveting" repair method involves the use for the first time of punch rivets in the repair. This requires new tools and procedures.

The punch rivets are matched in size to the material thickness and quality used at the respective connection point.

1.0 Recommended tools and equipment

- Punch rivet tool (see Service Information 05 03 09 (535))

Sourcing reference via Aftersales Assistance Portal (ASAP) - Service/Technology - Workshop Equipment (Start BMW) - Shop Workshop Equipment or at www.bmwgroup-wep.com.

Setting punch rivets:

- Refer to the vehicle-specific repair instructions for the punch rivet size.
- Mark the positions of the rivets on the vehicle. Set punch rivets at roughly equal spacings.
  Punch rivets do not require a predrilled hole. They are pressed directly into the full material.
- Insert punch rivet in riveting die. Position punch rivet tool on sheet metal parts to be riveted.

  Riveting direction:
  Always from new part to used part.
  Deviations are specified in the vehicle-specific repair instructions.
- Rivet punch rivets with punch rivet tool. In the meantime clean riveting die and matrix if fouled with adhesive.
- Seal punch rivets in moist area (e.g. wheel arch or carrier support) on both sides with sealantD1 (risk of corrosion).
- Seal cavities after painting vehicle with cavity sealant (risk of corrosion).

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41 00 ... Quality standard

- The overall requirements relating to a vehicle can only be implemented by including "all" components. This applies in particular to the body. With regard to an optimum crash result, it is necessary to maintain the structural measures.

  The procedures described in the repair instructions must be complied with. Deviations are only permitted after arrangement with and approval by BMW. Should you have any questions, please contact the country-specific Hotline.

  The use of non-approved repair steps or tools may have serious consequences for the structure of the vehicle (e.g. in the event of a crash). In the end, this can result in safety and product liability risks which cannot be calculated.

  Corrosion protection measures during and after repair work are vital for ensuring the vehicle retains its value.

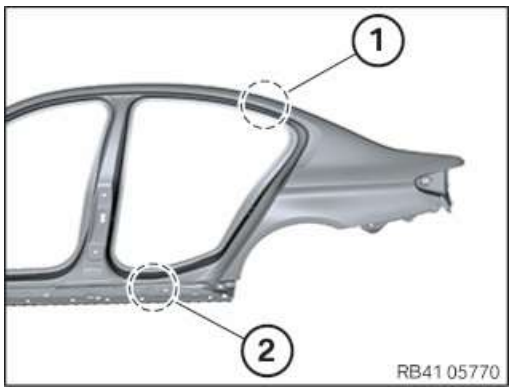
- For repair work, only use original BMW/MINI parts, or parts that are of an equivalent quality, and approved auxiliary materials and operating fluid.

  For repairs that are settled by a warranty or goodwill, only original BMW/MINI parts may be used.

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41 00 ... Reinforcement plate with stud bolt (bonded or welded)

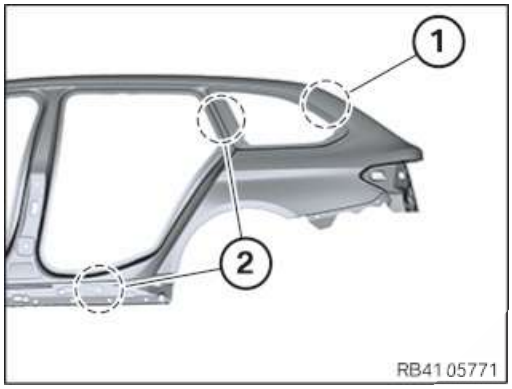
When replacing the rear side panel, reinforcement plates are bonded or welded on the separation points.



Applicable to Saloon, hatchback, Coupé.

Welding is done in area (1) (incl. water channel).

Bonding is done in area (2).

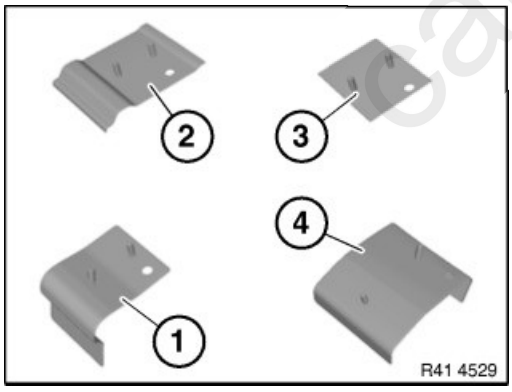


Applicable to Touring, X models, Gran Coupé, Gran Turismo.

Welding is done in area (1) (incl. water channel).

Bonding is done in areas (2).

Note:
The following graphics serve as general illustrations of reinforcement plate repair work. They apply to sectional repairs on the outer skin which are produced using the adhesive joining method.



Overview of the reinforcement plates (for sourcing reference, see Electronic Parts Catalogue):

(1) Reinforcement plate, sill

(2) Reinforcement plate, C-pillar

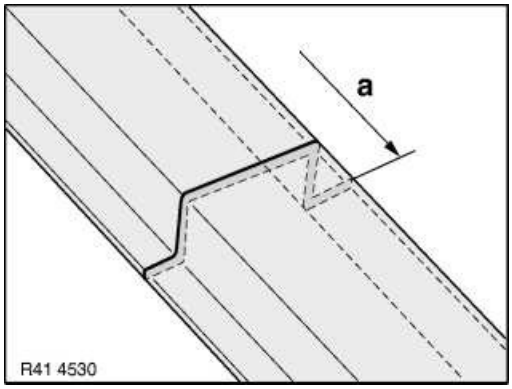
(3) Reinforcement plate, universal

(4) Reinforcement plate, C- or D-pillar

(5) Nuts (not shown)

- Plastic nut dia. 18 mm, part number 07 14 1 943 122
- Plastic nut ⌀ 22 mm, part number 07 14 7 169 847

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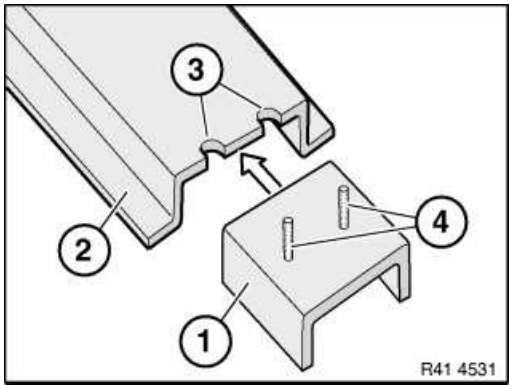


Mark side panel according to dimension a and detach it.

Preparation of the reinforcement plate (bonded or welded)

Some reinforcement plates are oversized.

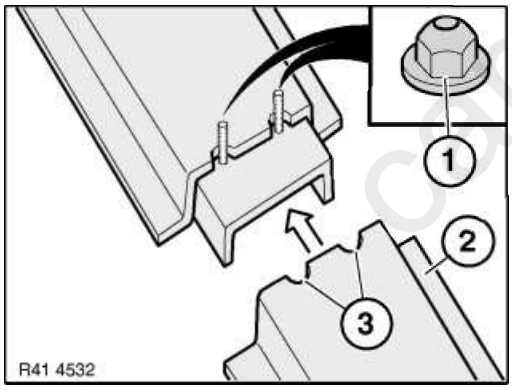
It may be necessary to rework the reinforcement plates at the edges or cut them to size until they rest against the outer skin free of tension.



Adjust reinforcement plate (1) to fit in component (2) on vehicle.

Make semicircular recesses (3) for the stud bolts (4).

Diameter of recesses approx. 10 - 12 mm.



Fix the reinforcement plate using plastic nuts (1).

Fit new part (2).

Make semi-circular recesses (3) in the new part.

Diameter of recesses approx. 10 - 12 mm.

Remove reinforcement plate.

Note:

Bonded reinforcement plates:

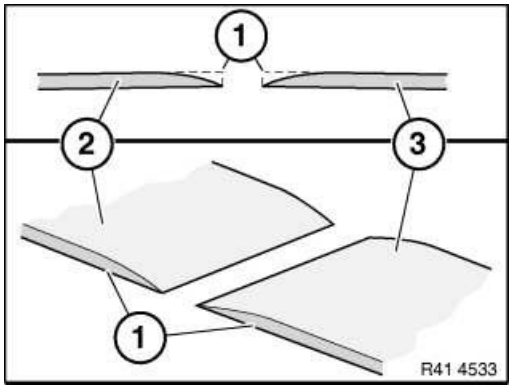
Width of joint between new part and component on vehicle approx. 5 - 8 mm (at least 30 mm flange width per side).

Welded reinforcement plates:

Width of joint between new part and component on vehicle approx. 2 - 3 mm.

Grind down to the metal in the area of the joint.

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Carry out the following step only if the reinforcement plates are bonded.

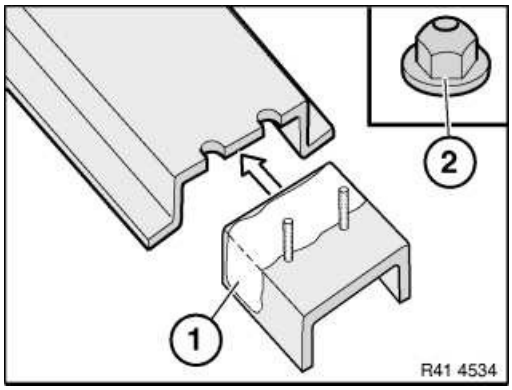
Chamfer cutting edges (1) on joint by grinding.

(2) Component on vehicle

(3) New part

If the cutting edges have not been sufficiently chamfered, there may be voids in the paintwork after painting.

Installing bonded reinforcement plate



Clean <u>all</u> bonding surfaces.

Apply the adhesive in area (1) on the reinforcement plate.

Apply more adhesive in the radii to avoid air pockets.

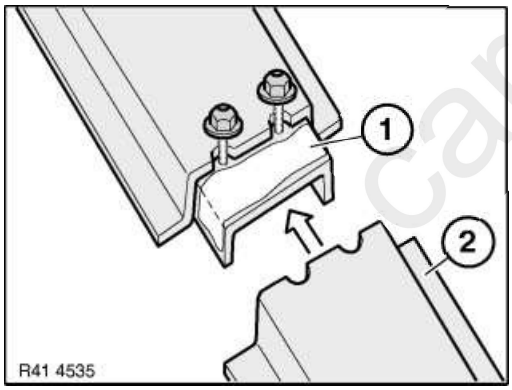
Apply additional adhesive to the outer skin around radii.

Slide the reinforcement plate carefully into the component on the vehicle and fix plastic nuts (2).

Screw on the nuts with only a few turns.

Attention!

When joining the reinforcement plate, make sure that there is sufficient adhesive on the bonding surfaces!



Apply the adhesive on bonding surface (1) of the reinforcement plate.

Apply more adhesive in the radii to avoid air pockets.

Apply additional adhesive to the outer skin around radii.

Fit new part (2).

Align new part to adjoining component and secure with gripping pliers.

First tighten the plastic nuts at the radii.

Only then tighten all the plastic nuts in the flat areas.

Tightening torque 41 14 1AZ.

Attention!

Check that the transition of the components is OK at the separation point. Corrections can only be made <u>before</u> the adhesive has hardened. Straightening at a later stage is not possible.

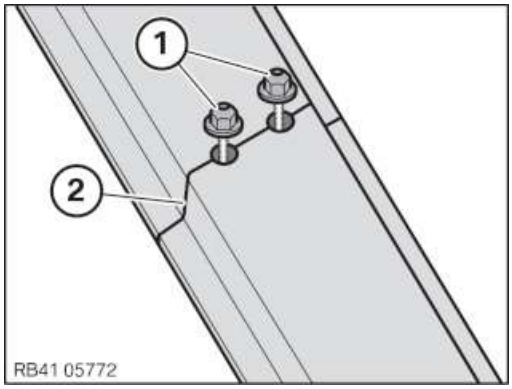
<u>After adhesive has hardened:</u>

Grind off stud bolts and surplus adhesive flush.

Paint area as specified in BMW Painting Handbook.

Installing welded reinforcement plate

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Attention!

Risk of damage!

Protect the adjacent components from heat and flying sparks.

Align new part to adjoining component and secure with gripping pliers.

First tighten the plastic nuts at the radii.

Only then tighten all the plastic nuts in the flat areas.

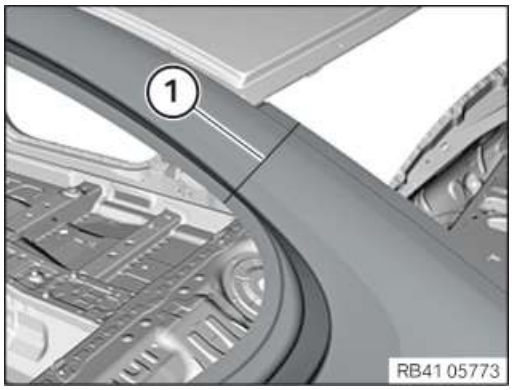
Tightening torque 41 14 1AZ.

Weld joint (2) between plastic nuts (1).

Release plastic nuts (1).

Grind down stud bolt until flush.

Weld joint (2) in the remaining areas.



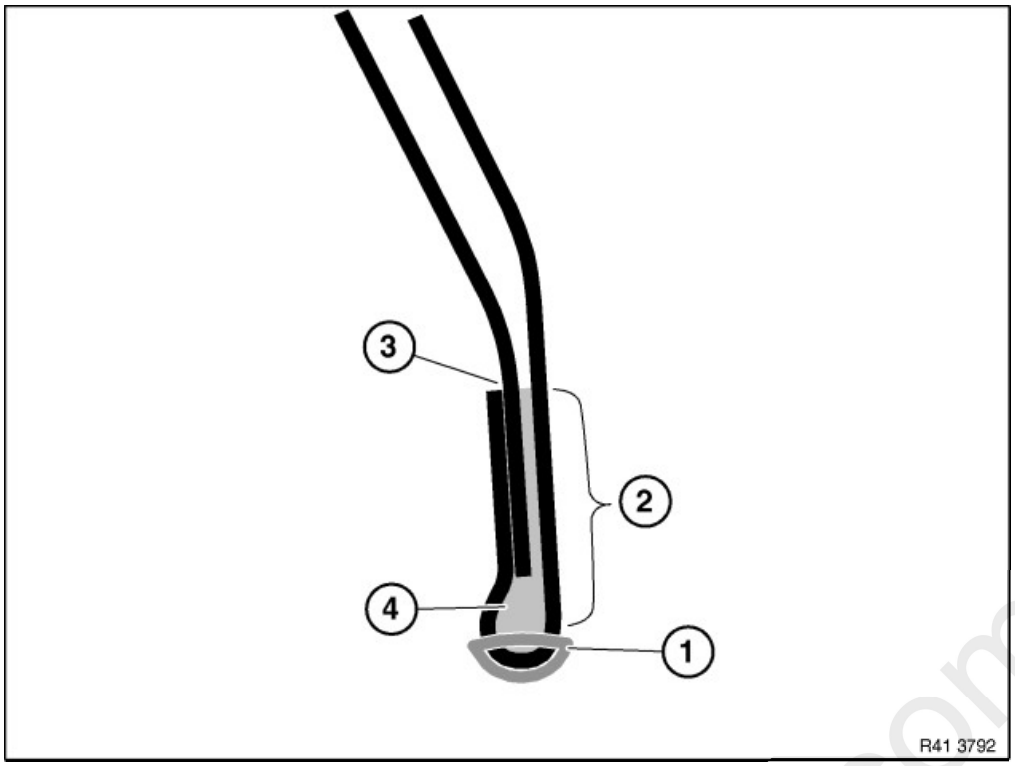
Grind weld seam (1) until flush.

If necessary, straighten area (1) and level it with a multi-functional spatula.

Paint area as specified in BMW Painting Handbook.

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41 05 800 Releasing bonded folded seam connections



- Remove area (1) of bead edge on wheel arch bend with a one-hand angle grinder and rough grinding wheel.
- Heat area (2) with hot air blower.
  Caution! Extract vapours and gases.
- Release connection flange with chisel.
- Grind adhesive residue (4) off wheel arch connection flange.
  Caution! Wear a grinding dust mask.
- Remove remnants of sealing material in area (3).

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41 00 ... Repair methods, repair stages 1

All work as part of which screwed body components must be replaced.

Repair techniques -> Repairing threads

Repair stage 1a

-> Blind rivet

-> Blind rivet nuts and bolts

-> Glass pane

All procedures during which repairs are to be done on the outer skin.

Repair techniques -> Straightening outer skin -> Straightening aluminium parts

Repair stage 1b

-> Straightening steel components

-> Repairing plastic components

-> Grinding -> Grinding aluminium components

-> Grinding steel parts

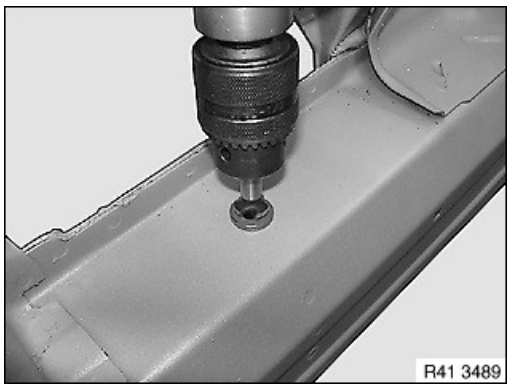
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41 00 ... Repair solution for straight shank/hexagon rivet nut



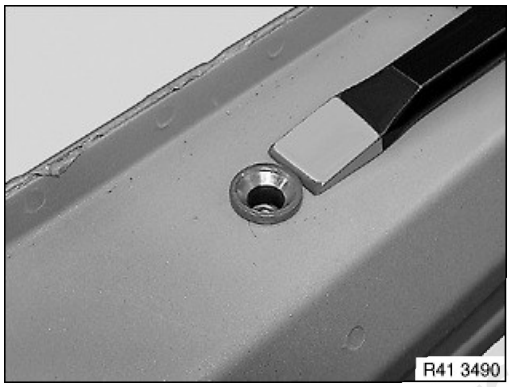
Protective measures!

- Wear safety goggles
- Wear protective gloves



Caution!
To prevent the material from tapering, do not drill out the rivet head.

1. Carefully spot-drill rivet head with a larger drill bit/countersink



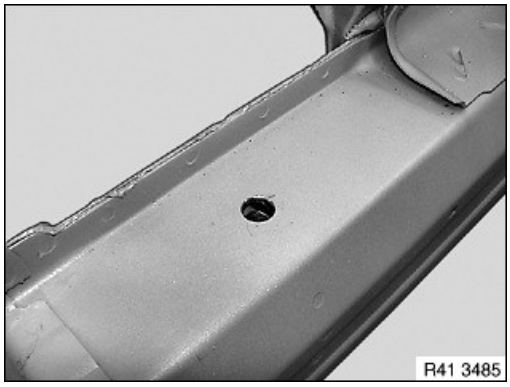
Caution!
Avoid paint damage

2. Knock rivet head away with a chisel

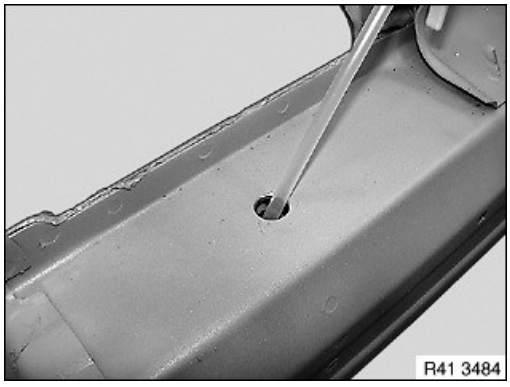


3. Punch through rivet shank into cavity, remove if necessary

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4. Clean component, eliminate paint damage if necessary

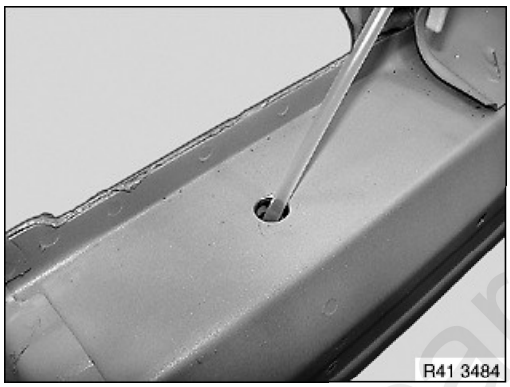


If the rivet shank can be removed: **Caution!**

To avoid corrosion, stop chips/swarfs by means of cavity preservation.

Follow notes on corrosion protection.

5. Preserving cavity



If the rivet shank cannot be removed: **Warning!**

Danger of injury!

Observe notes on cavity foam.

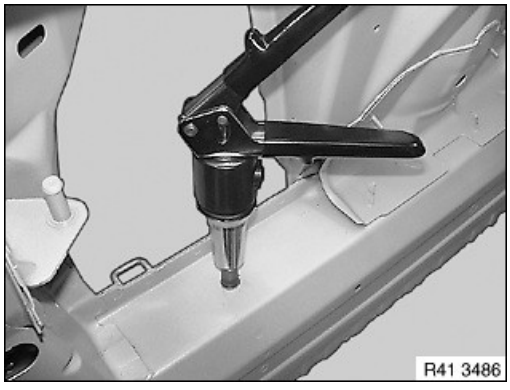
Caution!

To avoid corrosion and rattling noises, stop chips/swarf and rivet nut shank with cavity foam.

Remove foam remnants with isohexane (benzine).

5. Stop rivet shank by means of specific foaming
6. Set rivet nut with hand rivet gun

Note:
Fit rivet nut as quickly as possibly, ideally before the cavity foam hardens.



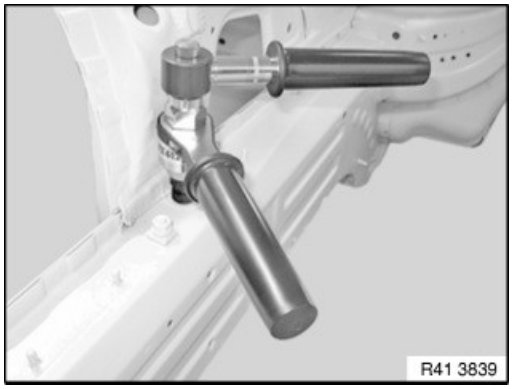
Hexagon head/ straight shank rivet nut (up to thread M8) with hand rivet gun ZS308 Caution!

Follow manufacturer's operating instructions.

Make sure rivet nut correctly contacts component.

Note:
Shown tool is suitable up to thread M8 according to the manufacturer (see S-Gate/Dealer's equipment catalogue).

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Hexagon head/ straight shank rivet nut (up to thread M12) with hand rivet gun MB512 Caution!

Follow manufacturer's operating instructions.

Make sure rivet nut correctly contacts component.

Note:
Shown tool is suitable up to thread M12 according to the manufacturer (see S-Gate/ dealer's equipment catalogue).

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41 00 ... Repair techniques, repair stage 2

Repairs that are carried out by bonding and riveting and/or welded with MAG welder without the use of a straightening bench.

Repair techniques -> Removing used part -> Opening welded connections
-> Opening brazed connections
-> Opening rivet connections
-> Opening bonded connections

-> Grinding aluminium components
-> Grinding steel components

-> Sectional repair -> Reinforcement plate (bonded)
-> Installing new part -> Notes on consumables
-> Notes on adhesive
-> Bonding on painted surfaces
-> Blind rivet
-> Punch rivets
-> Welding steel components
-> Cavity sealing
-> EMC screws

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41 00 ... Repair techniques, repair stage 3

Repairs that are carried out by bonding and riveting with the use of a straightening bench or welding.

Repair techniques -> Straightening structure -> Straightening aluminium components on the structure
-> Straightening steel components on the structure

-> Removing used part -> Opening welded connections
-> Opening brazed connections
-> Opening rivet connections
-> Opening bonded connections
-> Removing carbon components

-> Grinding aluminium components
-> Grinding steel components

-> Sectional repair -> Welding in reinforcement plate (sheet steel)
-> Sectional repair (steel) with repair element
Sectional repair (aluminium) with repair element

-> Installing new part -> Welding aluminium components
-> Welding steel components
-> Spot-weld bonding steel components
-> Soldering steel components
-> Notes on consumables
-> Notes on adhesive
-> Bonding aluminium on steel
-> Bonding steel on steel
-> Blind rivets
-> Punch rivets
-> Cavity sealing
-> EMC screws

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63 12 ... Repairing headlights

It is possible to repair the following damage:

- Deformed or broken holders can be replaced using the available repair kits.
  Replacement of headlight is **not required**!
  For reasons of pedestrian safety it is **not permitted** to use adhesive or reinforcements to repair broken holders!

Note:

Headlight repair kits are not available for every vehicles (see Electronic Parts Catalogue).

Follow the vehicle-specific repair instructions.

It is not possible to repair the following damage:

- Deformed or broken headlight housing.
- Scratched or damaged headlight lenses
  The standard coating of headlight lens cannot be restored. Commercially available repair systems are unable to provide sufficient protection from ultraviolet radiation and external influences (stone chipping).

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41 00 ... Repairing plastic components

1.0 General notes

- In general, the economic viability must be checked prior to the repair.
- The following painted components on the outer skin are suitable for repair:
  - Bumper panels (exception: E52)
  - Side sill trim panels
  - Side Panels
  - Door outer skin
  - Hardtop/roof
  - Soft top compartment lid
  - Rear lid
- **It is possible to repair the following damage:**
  - Slight deformations without visible cracks in the paint.
    Visible cracks reach the component and it is not possible to permanently rectify the damage.Cracks once again become visible on the paintwork after a certain period of time.
  - Slight damage, e.g. scrapes, if the component underneath does not become visible.
  - Cracks, holes up to 2.5 centimetre in length.
    Cracks must **not** reach the edge of the component.
- **Attention!**
  The following components **cannot** be repaired:
  - Components that are not painted as standard.
    Unable to restore grained surface.
  - Fuel tank, fluid tank (e.g. window washer system, brake fluid, coolant expansion tank, etc.)

2.0 Reshaping of plastic parts

- A hot air blower can be used to reshape plastic parts as per the aforementioned criteria.

3.0 Bonding of plastic parts

Important!

Conform with safety regulations!

- A plastic repair box is offered (sourcing reference via BMW Parts Department) for inexpensive repair with fair time values.
- The procedure for repair of plastic parts is included in the plastic repair box.
  Clamps or other metal reinforcements must **not** be used for reasons of pedestrian protection.

4.0 Welding plastic parts

- Plastic welding procedures are permitted as they are cost-effective repairs in line with the components' current value.
- Clamps or other metal reinforcements must **not** be used for reasons of pedestrian protection.

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41 00 ... Replacing blind rivets

Special tools required:

- 2 348 128
- 72 1 210

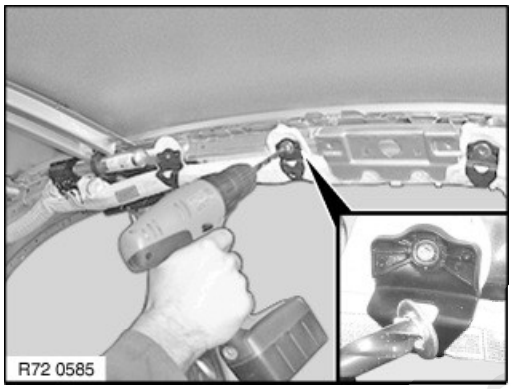


Important!

Lay out protective mats to protect the interior equipment against swarf from the drilled-out rivets and damage.

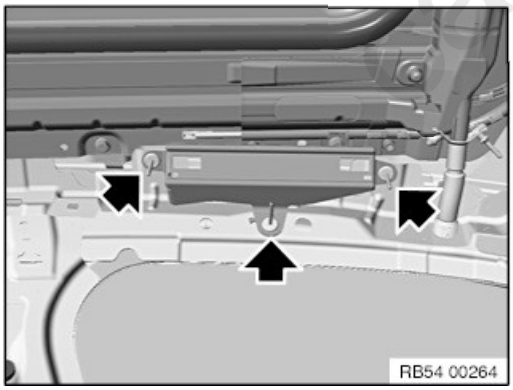
Lay out protective mats in the relevant working area:

- Instrument panel
- Entrance area
- Passenger compartment



<u>Schematic diagram of folding pack holder for head airbag:</u>

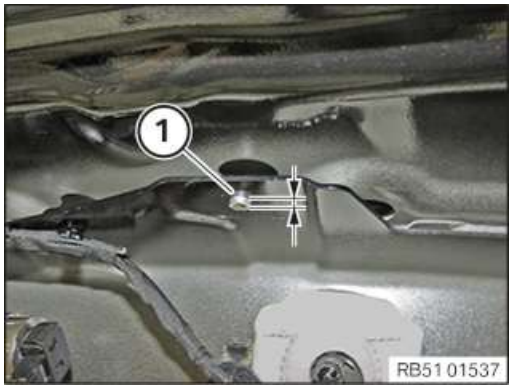
Drill off rivet plate down to rivet shank with a 10 mm twist drill bit.



<u>Described for grab handle holder:</u>

Drill off rivet plate down to rivet shank with a 10 mm twist drill bit.

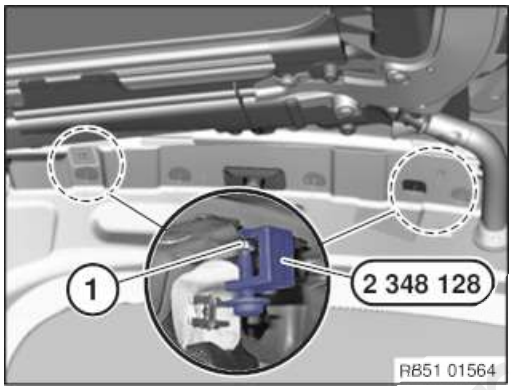
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Drill out all blind rivet protusions (1) up to the body.

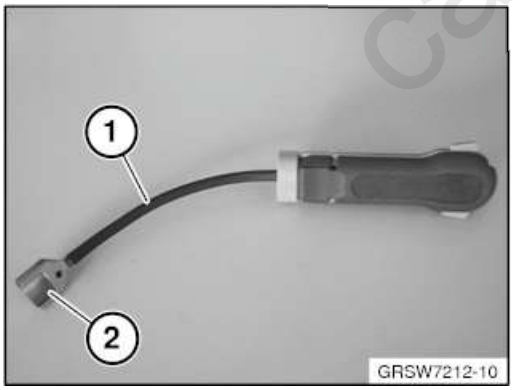
Installation note:
Apply primer to paintwork damages on side frame.
Note:
Depending on accessibility, the rivet heads will have to be removed using special tool 2 348 128 or 72 1 210 .

In areas that cannot be reached using special tools, cavity foam HS3must first be applied around the rivet head before the rivet head is then punched out immediately..



Removal of rivet head with special tool 2 348 128:

Press off rivet heads (1) using special tool 2 348 128 and remove.



Removal of rivet head with special tool 72 1 210:

Shank (1) of special tool 72 1 210 is flexible and can be adapted to the relevant body contours.

Note:
Insert butyl in the collecting tray (2) to secure rivet heads and prevent them from falling out.

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Insert special tool 72 1 210 through bore hole in body next to attachment points.

Position special tool from rear on rivet head in cavity.

Note:
A second person will be needed to help hold the special tool on the rivet head during the driving-out operation.

Make sure collecting tray is correctly fitted on rivet head.

Drive out stem with hammer and 6 mm punch.

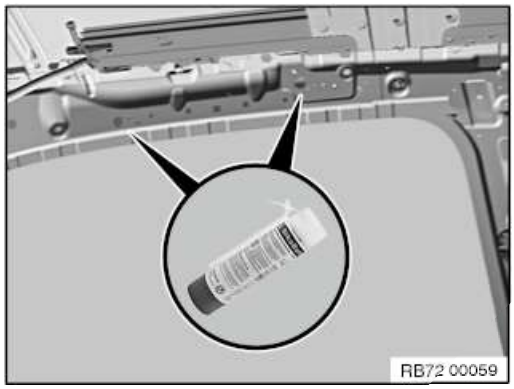
Carefully feed special tool out of body so that rivet head does not fall out of collecting tray.

Note:
If the rivet falls out of the collecting tray into the side frame when the special tool is fed out, this area must be generously filled with foam.

For details of procedure for filling cavities with foam, see further operations.

Use cavity preservation (refer to BMW Group Parts) for foam filling.

Cavity foam (refer to BMW Group Parts) may also be used if required.



Fit tube to foam can.

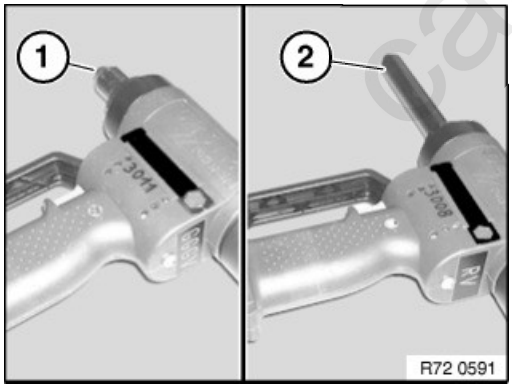
Push the hose in through the pillar holes.

Fill cavity with a filling material.

Warning!

Empty foam can completely onto cardboard and after hardening dispose of foam and can in residual waste.

Can may burst if not completely emptied.



<u>Overview of rivet gun:</u>

Riveting of gas generator housing and holders for folding pack with rivet gun (refer to BMW Workshop Catalogue).

The interchangeable head is changed for the different work operations.

Riveting of gas generator housing with:

1.) 17/36 nosepiece and short shank

Riveting of holders for folding pack:

2.) 17/40 nosepiece and long shank

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41 00 ... Safety at work

Note national regulations.

1.0 Compressed air:

- Air guns must not be pointed at individuals. "Blowing off" the body with compressed air may lead to serious injury.
- The devices are not permitted to be cleaned with compressed air due to dust contamination.

2.0 Electrical systems/devices:

- Only perfectly functioning systems and devices may be used.
- Repairs on electrical systems and devices must only be performed by certified electricians.

3.1 Working with aluminium dust:

- Wear a fine dust mask.
- The following applies only to E52 and BMWi: Use explosion-proof exhaust extraction unit.
- Note national regulations.

3.2 Removing sealant.

- Hydrochloric acid is created when PVC sealing material is heated to temperatures in excess of 180 °C.
- Remove PVC sealant with a rotating wire brush only or heat material with a hot air blower to maximum 180 °C and remove with a spatula.
- For good ventilation or direct extraction.

3.3 Arc welding and brazing solder:

Important!

> The extremely bright arc during welding may cause serious injury to the eyes if appropriate protective measures are not taken.

- Use a welding screen suitable for the relevant welding method (metal active gas or metal inert gas).
- Separation of workbays with protective curtains.
- Use a welding-emissions extractor facility.
- Wear protective clothing and gloves suitable for welding (not combustible).
- A fire extinguisher must be located within reach of the welding area.
- Do not carry out any welding work in the proximity of a fuel tank e.g. when it is installed.
- Note national regulations.

3.4 Working with chemical products (adhesive, cleaning agents, fillers, etc.):

Heed the manufacturer's material safety data sheets.

Important!

> Handling chemical products may result in allergic skin and breathing reactions.

- Do not eat, drink or smoke while working with these products.
- Avoid direct contact with eyes and skin.
- Wear safety goggles, protective gloves and if necessary an apron.
- For good ventilation or direct extraction.
- Use a breathing apparatus with a suitable filter type when ventilation is insufficient.
- Wear impermeable protective clothing.
- Immediately change contaminated work clothing.
- After finishing work, thoroughly clean your hands and apply protective skin cream.
- Always keep an eye douche on hand, change the water regularly (once a month).

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- Store bonding products in a secure cabinet only.
- Keep bonding products away from naked flames and other ignition sources.
- Protect bonding products against strong heat sources and direct sunlight.
- Note national regulations.

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. If necessary, consult a doctor.

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 adhesive vapours ensure ample supply of fresh air. Stay calm. Keep air passages open. Consult a doctor.

3.5 Working with carbon dust:

- Do not eat, drink or smoke while working with these products.
  After finishing work, thoroughly clean your hands. Use protective hand cream.
- Fire, smoking and naked flames are forbidden.
- Wear work clothes, safety shoes, safety goggles and protective gloves.
- Only carry out grinding and cutting work with explosion-proof extraction (BMWi only).
- Wear ear protectors.
- Wear a dust mask (minimum protection class FFP2).
- Avoid carbon dust contact with skin, eyes and clothing.
- Regularly clean the working area with a vacuum cleaner and wipe the surfaces with a damp cloth.
- Separate workbay by means of mobile partition walls or protective curtains.

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

Warning!

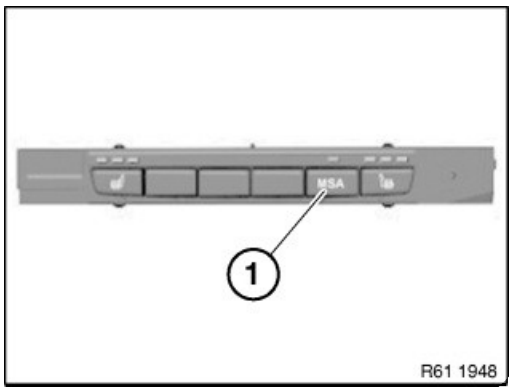
If the engine hood/bonnet contact is pulled upwards (workshop mode), the information "switch closed" is output. The automatic engine start-stop function is active.

An automatic engine start is possible.

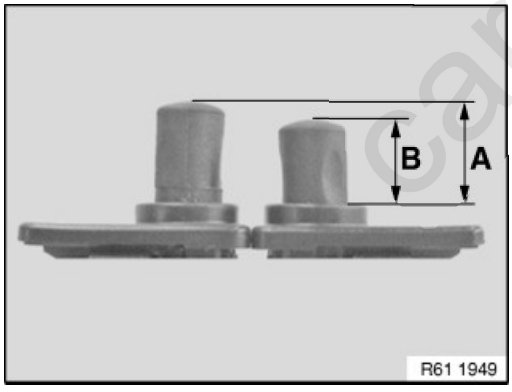
Observe safety precautions when working on MSA vehicles.

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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41 00 ... Safety instructions for handling magnets

Precautionary measures are necessary when handling magnets in order to exclude any potential danger.

If the distance between the magnets falls below the minimum distance, the magnets will be abruptly attracted to each other. The brittle magnets will then collide with each other at high speed.

Very sharp splinters (similar to glass splinters) may then be chipped off.

Crush or cut injuries may also be caused.

Observe the manufacturer's safety data sheets.

Warning!

- Danger of crush injuries
- Danger of injury due to splinters
- Danger of injury due to magnetic fields

Handling instructions

- Wear safety goggles and protective gloves.
- Persons with heart pacemakers must not use the magnets.
- Do not store any iron parts (tools, small parts) close to the magnets.
- Keep magnets away from magnetic data media (credit cards, memory cards).
- Do not machine the magnets.
- Keep the magnets away direct heat and naked flames.
- Do not eat, drink or smoke while working with these products.

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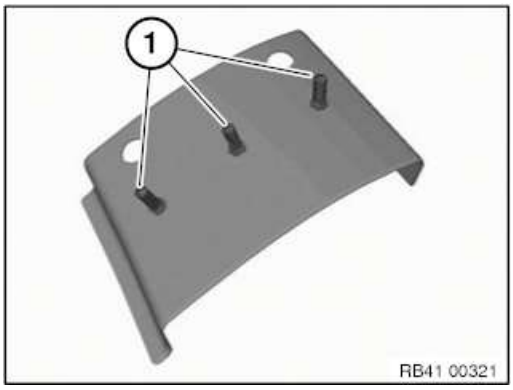
41 00 ... Separating cut determination with a template

In the case of a partial replacement piece, a body component is cut at a point described in the repair instructions.

A template may be used for the exact position determination for the separating cut.

The template is made from the reinforcement plate and can be reused.

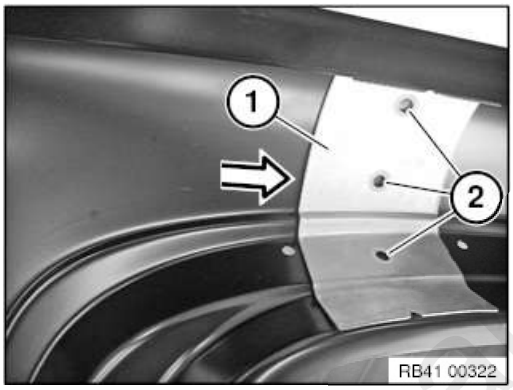
Carry over schematic diagram at the separation cut C-pillar to the relevant vehicle type.



Remove stud bolts (1).

Set bore holes Ø 4 mm at the positions of the removed stud bolts.

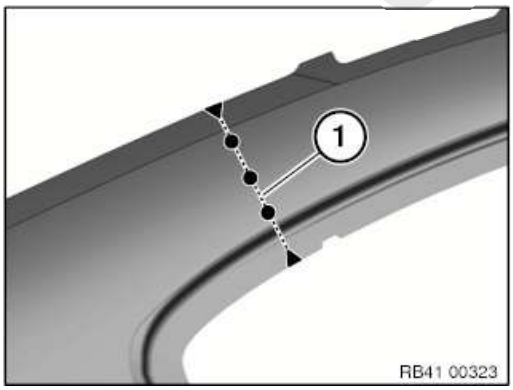
If applicable, place additional bore holes in the area of the edges.



Insert the template (1) into the new part (in direction of arrow) until it is flush (without gap).

Carry over the positions of the holes (2) to the new part.

Remove reinforcement plate again.



Connect marks (positions of holes) to the separating cut line (1).

Carry out the separating cut.

Tear and separate the separating cut on the vehicle according to the new part.

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41 00 ... Setting blind rivet nuts and bolts

- Studs welded as standard are always replaced by blind rivet bolts.
- Drill holes (0.2 mm larger than the outside diameter of the blind rivet nuts or blind rivet bolts).
- Blind rivet nuts and studs must have a special coating for anti-corrosion purposes (sourcing reference: BMW Parts Department).

Use the blind rivet nuts and bolts supplied in the case of the manual riveting tool for steel only!

- It will no longer be possible to set a blind rivet nut if the drilled hole is too big. In this event, set a clip nut (sourcing reference: BMW Parts Department). This nut tightens itself automatically when screwed to the component.
- Insert blind rivet nuts or bolts and tighten down with rivet tool .
- Seal blind rivet nuts and blind rivet bolts with sealantD1 (risk of corrosion).

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41 00 ... Soldering steel components

Attention!

Comply with the following topics from ”Body, General”:

Safety regulations.

Handling electrical system, electronics, airbags and restraint systems.

1. General information

- For repair cases the following procedure will implemented:
  - Autogenous brazing solder
- The MIG soldering procedure is not used in repairs for strength reasons. MIG soldered/brazed seams used in standard production are replaced in repairs by MAG weld seams.
- Brazed areas from vehicle production are bonded following the same procedure.

2. Work materials

- Tube pack and torch (autogenous torch)
- Brazing solder
- Gas bottles (oxygen and acetylene)
- Welding goggles

3. Preparation

- Remove the paint and zinc layer in an area of approx. 30 mm around the seam to be soldered.

4. Implementation

- Execute brazed seam without overheating the solder and with low heat dissipation. If necessary, use heat protecting paste.

5. Subsequent treatment of brazed connections:

- Remove burnt residual zinc completely. Align and grind visible connection faces.
- Remove burnt paint with a stainless steel wire brush.

6. Notes on melting/tinning:

Only applicable within the European Union!

The European End-of-life Vehicles Act prohibits the use of leaded tin in vehicles introduced after 01.07.2003!

Even out unevenness smaller than 2 mm with filler according to painting handbook.

Only perform in visible areas of the outer skin and on the carrier support.

All areas which have covers on the vehicle are not to be processed.

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41 00 ... Spot-weld bonding steel components

Important!

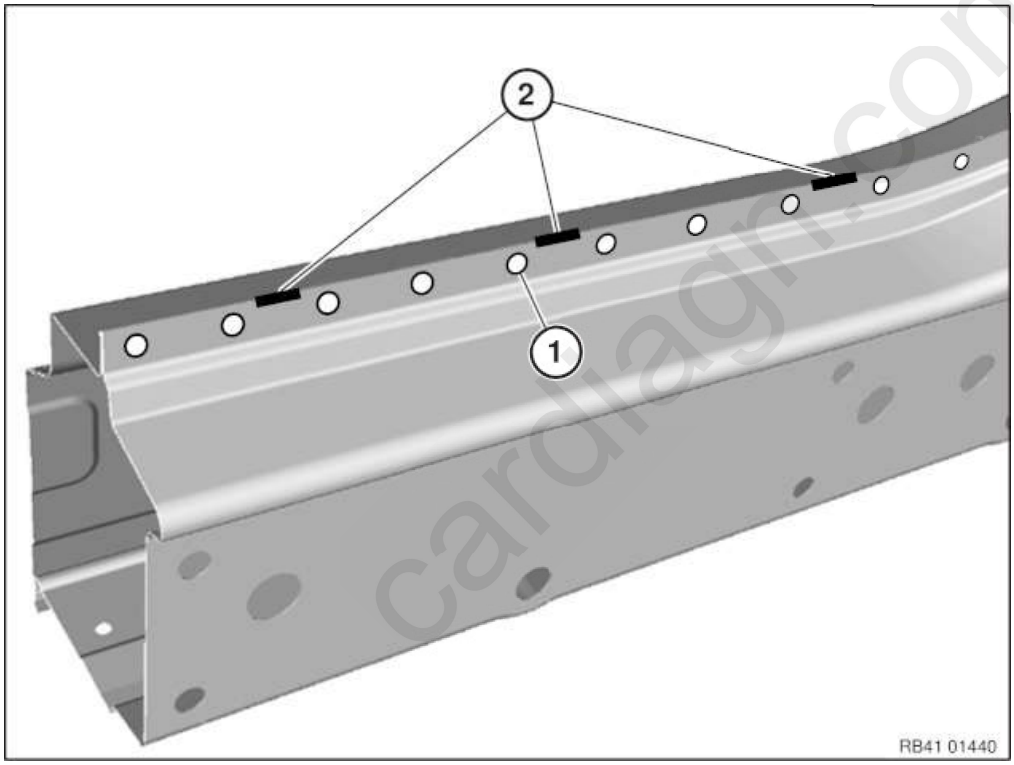
Comply with the following topics from ”Body, General”:

Safety regulations .

Handling electrical system, electronics, airbags and restraint systems.

Welding steel components.

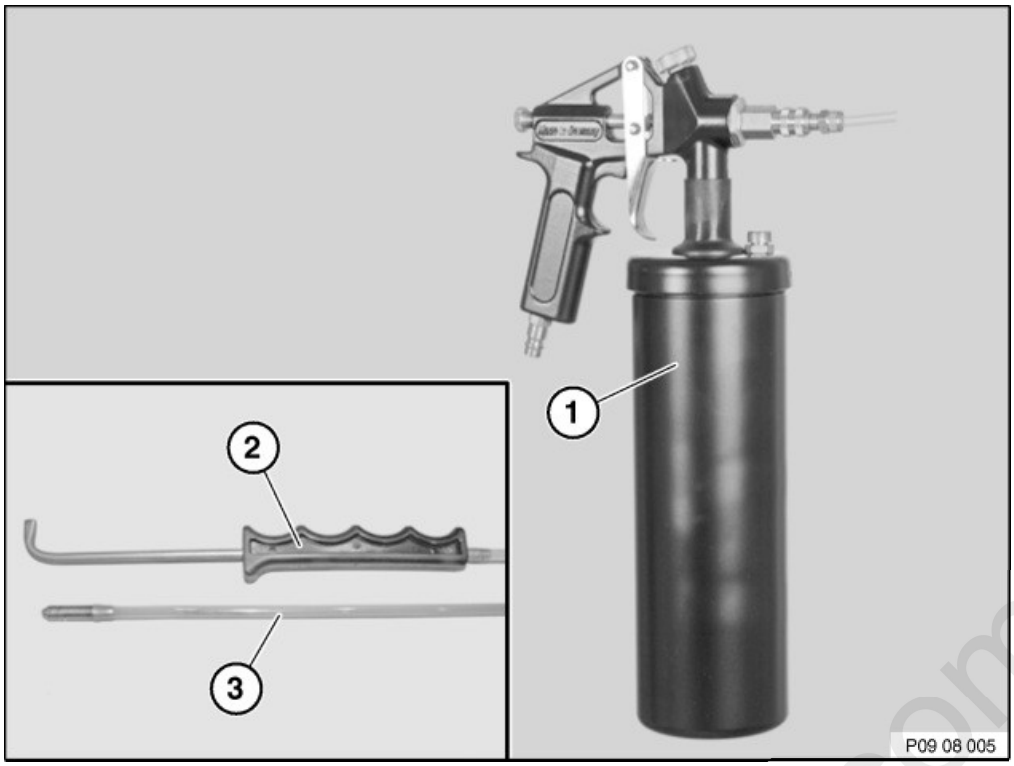
- Beginning with E65 the spot-weld bonding process is used to increase vehicle rigidity. In partial body areas, a 1-component adhesive is applied to the spot flanges and this is followed by resistance pressure spot welding. The adhesive is hardened only after the paint drying process (at approx. 180 °C).
- In the case of repairs, adhesive is **not** applied to the spot flanges. The number of welding spots is **doubled** as a substitute for the omitted adhesive.
- Minimum distance between welding spots (1) is 25 mm. Important! The minimum distance must not be undershot! If there is not enough space for twice the number of resistance weld points, each non-made resistance weld point must be replaced by a MAG weld seam (2). Length of a MAG weld seam = 20 mm. Set the MAG weld seams at equal intervals distributed on the face.



- The following procedures are used as a substitute for spot-weld bonding:
  - MAG welding (**M**etal **Ac**tive **G**as welding)
  - Resistance pressure spot welding (referred to in the following and in the repair instructions as spot welding).
- Adhesive is not applied between the spot flanges on new parts in the case of 2- or multi-sheet joints. Areas which cannot be reached by the spot-welding tongs can be joined by MAG plug welding. The number of welding spots is doubled as a substitute for the omitted adhesive.
- **Exceptions** (e.g.E65) are described in the relevant repair instructions. Apply welding spots to existing welding spots on new part. This is necessary because the adhesive between the spot flanges of the new part acts as an insulator.
- **Caution:** Extract smoke and fumes during welding work.

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41 00 ... Spray gun for cavity sealant



1.0 Delivery specification:

- Owner's Handbook
- Pressure reservoir spray gun (1) for cavity sealant
- Spray set, consisting of spray hoses: Angle nozzle (2) and round spray nozzle (3)

Important!
Prior to start-up read and familiarise yourself with the manufacturer's operating and safety instructions.

2.0 Start-up:

- Open the pressure reservoir and insert the cavity sealant in the form of a 1-litre can.
  Close the pressure reservoir.
- Connect the spray hose to the quick-release coupling.
- Connect the device to the compressed air supply.
  Operating pressure 2-6 bar, max. 8 bar!

3.0 Operating principle:

Note:
Unlike previous devices you can alter the spray pattern on this device with the air volume regulating screw (large knurled screw).

- Twisting the air volume regulating screw in decreases the air volume and thus reduces the formation of material mist.
  This facilitates optimum working when preserving open components/surfaces.

- Twisting the air volume regulating screw out increases the air volume and thus increases the formation of material mist. (For closed cavities)
- The trigger has two settings.
  1st setting - air discharge only.
  2nd setting - air and material discharge.

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- After finishing work, press the first setting to clean the spray hose with compressed air.
- Prior to storing, remember to twist the air volume regulating screw closed to reduce the risk of the material drying out.
- Prior to an extended period of non-use (2 weeks and more), clean the gun.
- To ensure that the spray hoses function properly, do not store them coiled up e.g. in the side member area!
  Store the spray hoses stretched out.

4.0 Application examples:

- Use the appropriate spray hoses for the different types of cavity and surface.
- Example - doors, lids and hatches:
  Spray hose with angle nozzle. Reduce air volume to keep the formation of mist low.
- Example - side members:
  Long spray hose with round spray nozzle. The air volume must be increased a little, depending on the type used.
- Basically, keep the formation of mist low to avoid fouling and unpleasant odours.

5.0 Safety instructions:

- Do not inhale spray mist.
- Use in well ventilated rooms only.
- Operating pressure max. 8 bar.

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41 00 ... Straightening aluminium component on the outer skin

1.0 Prerequisites

The component must be replaced if cracks are present.

The welding of cracks is not permitted.

2.0 Recommended tools

- Only use tools specifically designed for aluminium repairs.
- Do not use tools and operating fluids that have already been used for steel repairs (e. g. grinding wheel). Danger of contact corrosion.
- Do not use any sharp-edged tools (notch effect).
- We recommend the "Alu Slimliner A (6106)" tool to repair minor and moderate body damage. Sourcing reference BMW Workshop Equipment Catalogue.

3.0 Straightening outer skin.

- ”Cold” straightening: Press dents out from their centre and smooth in an outwards direction with gentle taps. In the case of small, soft dents (hail and parking damage), this is also possible without damaging the paintwork. This requires special tools and trained employees.
- ”Hot” straightening: Heat the component in the damaged area with a hot air blower to approx. 60 °C. This significantly reduces the force that needs to be applied for straightening.
- Avoid notching and cracking.
- Avoid hardening and overstretching.
- Avoid heating and excess temperature the outer skin over large areas.

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41 00 ... Straightening aluminium components in structure

- **Reshaping or heating extruded profiles and cast parts is not permitted!**
  Failure to comply with this requirement would have the following results:
  In the case of reshaping, weld seams or bonded connections tear in the surrounding area.
  In the case of reshaping, the material loses up to 40 % of its original strength.
  In the case of heating, the material loses up to 40 % of its original strength.
  The adhesive is destroyed at temperatures ≥120 °C.

  Extruded profiles and cast parts which show visible or measurable signs of deformation must be replaced.
  Perform the check for deformation with the aid of the straightening system.
  For optical testing, strip adjoining components in cases of doubt.
  Extruded profiles are used as engine supports, body pillars, side members, etc.
  Cast parts are used as spring supports or rear side members.
- Reshaping of extruded profiles and cast parts may only be used to achieve optimum joining of connection faces (e.g. when bulkhead is damaged). Reshaped parts must be replaced.
- Repairs which affect the attachment points of mechanical assemblies and chassis/suspension components must be carried out on the straightening bench. Use the vehicle-specific set of attachments set or vehicle-specific data sheet.
  Straightening attachment supports and data sheets are also available for the top section, e.g.: door posts, soft top mounts, cowl panel, tailgate hinges, etc.
- Check windscreen and rear window apertures for curvature by inserting the original glass.
- Take the gap dimensions for doors, engine compartment lid and tailgate from the vehicle-specific gap dimension diagram.
- Exceptions on the E60, E61, E63, E64:
  Carrier support and bulkhead may be straightened if they do not have any cracks, sharp-edged damage or holes. After repair work, check parts again for cracks.
  Examine adjoining adhesive flanges for peeling off. If necessary, seal and preserve with sealant.
  Observe the frame reference dimension for the carrier support.
  Any repairs to the bulkhead if cracked outside the approved scope of repair work are only permitted after consultation with and approval by BMW. Should you have any questions, please contact the country-specific Hotline.

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41 00 ... Straightening steel components in the structure

- High-strength and super-high-strength steel plates as a rule cannot be reshaped. Reshaping only serves as a preparatory measure to replacing the component in order to achieve optimal joining of the connection points.
- Bearing body components such as e.g. engine supports, door pillars, side members etc. with deformations which can no longer be returned to their original shape by ”cold straightening” must be replaced.
  Heating bearing body components for better reshaping is not permitted!
  Failure to comply with this requirement would result in a loss of original strength of up to 40 %.
- **The body must be anchored as follows for reshaping:**
  If using vehicle-specific/universal straightening attachment sets (Carbench/ Celette/ Car-O-Liner), it is necessary to secure the body **additionally** with 4 retaining clips to the spot flange of the entrance or to the 4 jacking points. The spot flange (if available) is to be preferred.
  If using universal electronic or mechanical straightening systems (Car-O-liner/ Celette), it is necessary to secure the body with 4 retaining clips to the spot flange of the entrance or to the 4 jacking points. The spot flange (if available) is to be preferred. **In addition** anchor at least 2 points with the securing set.
  Failure to comply with these instructions will result in damage to the body during reshaping in non-damaged areas. Vehicle-specific straightening attachments and universal mounts may be damaged.
- Repairs affecting the mounting points of assemblies and chassis/suspension components must be carried out on the straightening bench with the matching straightening attachment set or specification sheet for the vehicle. Straightening attachments and specification sheets are also available for the top section, e.g.: door pillars, convertible top mounts, cowl, rear lid hinges, etc.
- Check windshield and rear window apertures for curvature by inserting the original glass.
- Take the gap dimensions for doors, engine hood and rear lid from the vehicle-specific gap dimension diagram.

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41 00 ... Straightening steel components on the outer skin

1.0 Recommended tools.

Only use those tools designed for steel repairs (sourcing reference BMW Workshop Equipment Catalogue).

2.0 Straightening outer skin.

- ”Cold” straightening: Press dents out from their centre and smooth in an inwards direction with gentle taps.
  In the case of small, soft dents (hail and parking damage), this is also possible without damaging the paintwork.
  This requires special tools and trained employees.
- In the event of damage that is only accessible from one side it is possible to use a dent removal system featuring welding.
- Avoid cracking.
- Avoid hardening and overstretching.
- Prevent overheating small areas of the outer skin.
- When the surface exhibits an unevenness no greater than 2 mm after straightening, putty compound can be used to even out the area (see Painting Handbook).
  Only applicable within the European Union!
  European used-vehicle regulations prohibit the use of tin containing lead in vehicles introduced after 01.07.2003!
- For high-security vehicle, note the special information in the repair instructions!

2.1 Straightening the wheel arch (rear side panel).

Vehicles in which the wheel arch is not welded but bonded and bordered can be straightened.

This is possible in the following situations:

- Rear side panel (wheel arch) is not torn in the area of the bonding. Welding in this area is not permissible.
- The outer skin has not become separated from the outer wheel arch section.

In general, the following applies:

When performing straightening work on the wheel arch, apply sealant to the inside. After straightening, the area must be primed and resealed with sealant D1. Protect from the inside using cavity preservation.

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99 00 ... Touching up paintwork damage

These notes apply to paintwork damage on the body aperture that occurred when detaching bonded window glass.

To ensure long-term corrosion protection, it is absolutely essential to touch up damage to paintwork!

The ”BMW Color System” painting handbook forms the basis of these repair instructions and must be observed without fail.

Ground down damage to paintwork on body aperture and touch up with BMW multibase filler.

Grind larger areas or damage down to the bare sheet metal and coat with BMW multibase filler (layer thickness 30 to 40 µm).

Hardening time:

- With infrared, at least 10 minutes
- Without infrared for at least 60 °C, at least 30 minutes
- Without infrared for at least 20 °C, at least 24 hours

If a complete build-up of paint is required in the visible area:

- Tape off primed adhesive flange before applying top coat

Important!

Observe hardening time of BMW multibase filler otherwise a perfect bond cannot be guaranteed!

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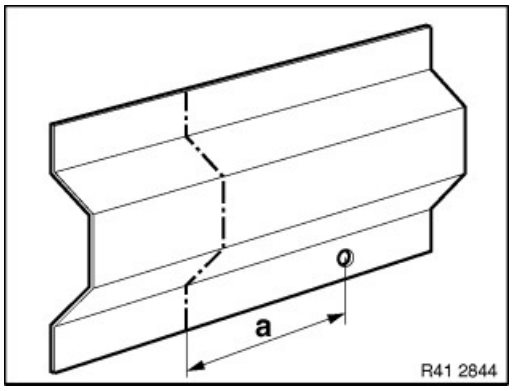
41 00 ... Welding in reinforcement plate (sheet steel)

In the case of a partial replacement piece, a body component is cut at a point described in the repair instructions.

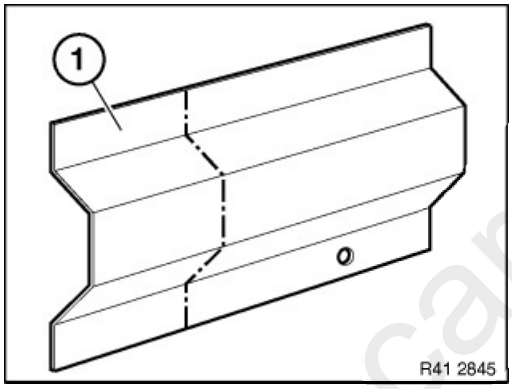
A reinforcement plate is welded in to ensure sufficient strength.

Follow notes for welding steel components.

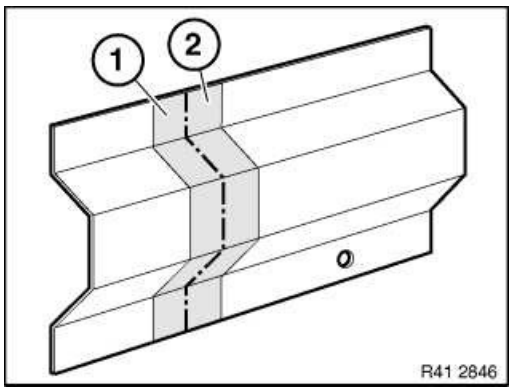
Note:
The following graphics serve as general illustrations of reinforcement plate repair work. They are applicable to all sectional repairs.



Mark component in accordance with dimension A and cut.



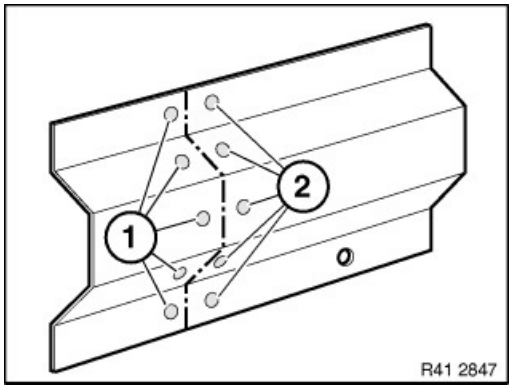
Cut new part (1) in accordance with cut and if necessary adjust to fit with alignment bracket or universal mount.*Installation note:*
Maintain a distance of approximately one to no more than two material thicknesses at the severance cut to ensure welding with the reinforcement metal and enable more tolerant adjustment.



Clean inner and outer sides of connection faces (1) on new part and (2) on body.

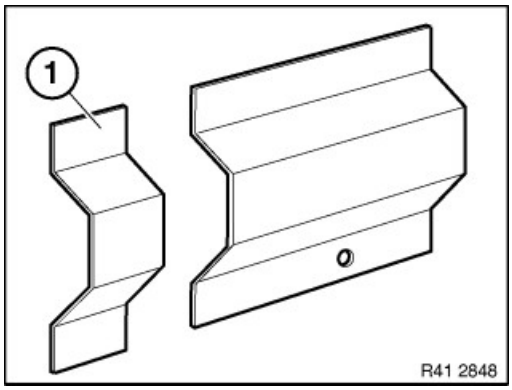
Coat insides with welding primer.

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Drill bore holes (1) and (2) at distance of 25 mm to each other.

Hole diameter approx. 8 mm.

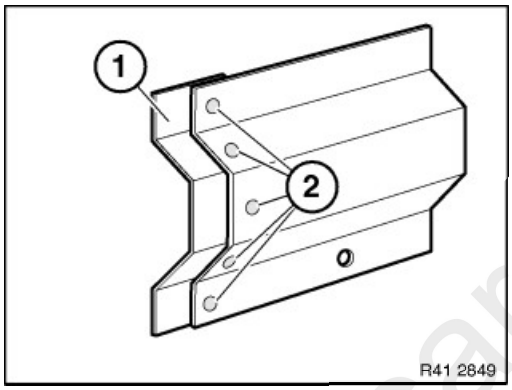


Make reinforcement plate (1) from trim of new part.

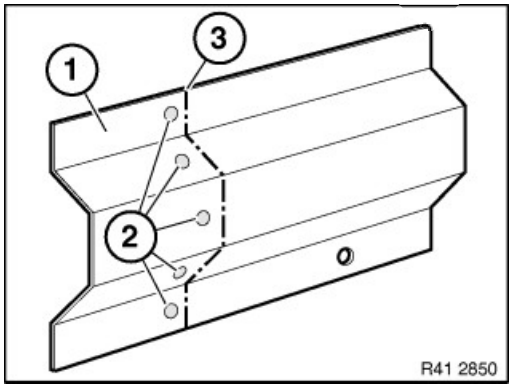
If applicable, produce more reinforcement plates.

Length of reinforcement plates is min. 40 mm.

Coat reinforcement plates (1) and (2) on both sides with welding primer.



Push reinforcement plate (1) into component on body up to half way and plug-weld (2).



If applicable, adjust the new part (1) with the alignment bracket or universal tool and plug-weld (2)

MAG weld the joint (3).

Grind and clean weld seam and plug weld spots.

Only visible areas of the outer skin and on the carrier support must be tinned.

All areas which have covers on the vehicle are not to be tinned.

Note:
Only applicable within the European Union!

European used-vehicle regulations prohibit the use of tin containing lead in motor vehicles introduced after 01.07.2003!

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41 00 ... Welding steel components

Caution!

Comply with the following topics from ”Body, General”:

Safety regulations.

Handling electrical system, electronics, airbags and restraint systems.

1. General notes

- The following procedures are used for repairs:
  - MAG welding (**M**etal **Ac**tive **G**as welding)
  - Resistance pressure spot welding (referred to in the following and in the repair instructions as spot welding).
- Take the number and position of welding spots and MAG weld seams from the separated part. Replace areas inaccessible to spot-welding tongs with MAG plug welding at the same distance. Diameter of bore holes for plug welding 8 mm.
- In the case of emissions extraction, observe a minimum distance of 30 cm for MAG welding during the welding process. Otherwise the inert gas would be drawn off.
- Follow the equipment manufacturer's instructions for use.

2. Equipment

- MAG welding:
  - Steel welder (see Workshop Equipment).
  - Steel welding wire - G3SI1 (SG2) or alternatively G4SI1 (SG3)
  - Welding mask
  - Gas bottle containing inert gas (82% argon, 18% CO_2)
- Resistance pressure spot welding:
  - Spot-welding apparatus (see Workshop Equipment).
  - Safety goggles

3. Preparations for MAG and spot-welding

- Remove the paint coating in an area of approx. 30 mm around the weld seam or spot.
  - The zinc layer underneath must be removed during the MAG welding method.
  - It is not necessary to remove the zinc layer underneath during spot-welding.
- Remove the paint coating on the reverse side of the weld seam or spot.
  - Contaminants will otherwise enter the weld pool via the root of the weld seam.
  - An insufficient electron flow prevents an optimum spot-weld joint.
- Coat all metal overlaps and welding spot flanges with welding primer.
- In order to keep the electron flow short during MAG welding on the body, you must if possible attach the ground terminal directly to the component to be welded.

4. Welding

- During MAG welding, the weld gap must be kept as small as possible. The larger the weld gap, the lower will be the strength of the joint.
- During spot-welding, the sheet metal flanges to be joined must be placed as close together as possible without gaps.
  The larger the gap, the lower will be the strength of the joint.
  Minimum distance between welding spots 25 mm.

5. Subsequent treatment of welded connections:

- When grinding a weld seam, do not grind thin the base material next to the seam.
- After joining, clean all weld seams and spots with a stainless steel wire brush.
- Remove burnt paint with a stainless steel wire brush.

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- All welded connections sealed off with body sealing compound in original condition must be primed and sealed off again thoroughly after repairing. Replace damaged or removed anti-drumming layers.

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41 00 ... Working with 2-component PU cavity foam

Sourcing reference for cavity foam, refer to BMW Parts Service.

Properties of cavity foam:

- 2-component PU foam, solvent-free.
- Excellent flow capacity, enabling complete sealing of cavities.
- Good strength, preventing slipping in cavities.
- Low water absorption, preventing corrosion.
- Ideal for use as insulating and sealing compound

Information on dangers/hazards:

- Avoid eye and skin contact.
  Wear protective goggles, solvent-resistant protective gloves and protective clothing.
- Do not inhale.
  Apply in well ventilated rooms only.

- **Warning!**
  Application time after mixing: within **8 minutes!**
  Completely empty open can after use.
- Remaining amounts which are not used can cause the **can to explode** on account of a chemical reaction (buildup of heat)!
  Alternatively, cool the can containing the non-removed remaining amount for several hours in cold water.
- Do not eat, drink or smoke during this operation.
- Keep heat and ignition sources well away.
- Read the manufacturer's information on hazards/dangers (printed on the can) prior to application.

Application instructions:

- Use by date on can.
  Do not use the spray can after the Use by date on the can has expired. After the Use by date the properties of the cavity foam will no longer meet the requirements of the BMW Group.
- Cavity sealing of repair area possible after an air drying time of 1 hour.
- Backing surface must be
  clean and free from
  dust,
  grease,
  oil and stripping agent.
- Application temperature at least 15 °C. Optimally 20 °C.
- Remove fresh, non-hardened PU foam with adhesive cleaner 208.
  Sourcing reference: BMW Parts Service.
  Hardened PU foam can only be removed by mechanical means (machine).
- Excess, hardened PU foam can be disposed of as residual waste.
  Cans which are not entirely empty and unused whose Use by date has expired are classed as hazardous waste.
  Observe country-specific waste-disposal regulations.
- Observe the manufacturer's application instructions (printed on the can).
- Important!
  Foam expands many times over as it sets (change in volume).
- Setting takes approx. 30 minutes. Mechanical processing (e.g. drilling, cutting, etc.) is then possible.

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41 00 ... Workshop equipment (BMW and MINI vehicles)

Minimum requirements for workshop equipment to guarantee professional body repairs:

The tools listed below **must be used**.

Repair stage 1a:

Tool*	Sourcing reference	Screwed parts (steel or plastic)	Screwed parts (aluminium)
Body tool trolley	81 64 2 153 204 or 81 64 2 410 578	x	x
Drill	conventional Span width 0 to min. 10 mm	x	x
Blind riveting tongs	81 43 0 301 744	x	x
Manual riveting machine for blind rivet nuts	81 43 2 155 739 (up to M12) or 81 43 9 429 204 (up to M8)	x	x

Repair stage 1b:

Tool*	Sourcing reference	Screwed parts (steel or plastic)	Screwed parts (aluminium)
Aluminium bodywork tool assortment	81642336755		x
Pressure cup spray gun for cavity preservation	81452148795	x	x
Drill	conventional Span width 0 to min. 10 mm	x	x
Blind riveting tongs Electrical or pneumatic With rivet head extension	81430301744 with extension 81432158706 or 81432159003	x	x
Manual riveting machine for blind rivet nuts	81432155739 (up to M12) or 81439429204 (up to M8)	x	x

Repair stage 2:

		Steel		Aluminium	
Tool*	Sourcing reference	Structure	Outer skin	Structure	Outer skin
Body tool trolley accessory set	81642334947	x	x		
Bodywork saw	81432156415 or 81432410594	x	x		
Belt sander	81432236488 (230V) or 81432333873 (100-115V)	x	x	x	x
Single-handed grinder	81430303336	x	x	x	x
Welding spot remover	81439428600	x	x		

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Punch riveting tool	8132158708	x	x	x	
MAG welding apparatus	conventional	x	x		
Cartridge gun for adhesives		x	x	x	x
Infrared heater	81442211107 (220V) or 81452211615 (110V)		x		
Thermometer	81312211265		x		

In addition, the repair stage 1 tools are required.

Repair stage 3:

	Steel		Aluminium	
Tool*	**Structure**	**Outer skin**	**Structure**	**Outer skin**
Spot welding apparatus	x	x		
Straightening system	x		x	
Stud welding apparatus	x		x	
Flame coating set			x	
MIG welding apparatus			x (E52 only)	

In addition, the repair stage 1 and 2 tools are required.

*Sourcing reference BMW Workshop Equipment Catalogue

Attention!

In vehicles from model year 2001, higher-tensile and high-tensile steels are used in certain areas.

It is essential to check whether the spot-welding apparatus used conforms to the technical requirements of the currently recommended welding sets. Should you have any questions, please contact the country-specific Hotline.

The use of technically obsolete equipment may have serious consequences for the structure of the vehicle (e.g. in the event of an accident). In the end, this can result in safety and product liability risks which cannot be calculated.

Use and restrictions:

Definition of recommendation:

All currently recommended spot welding sets comply according to the *latest* information with the requirements relating to reliable welding of today's and future BMW Group vehicles. A spot welding unit will lose its recommendation as soon as tests with materials and material combinations designated for future use in BMW Group vehicles return negative results (see Table Group 1). All previous application before the withdrawal of the recommendation shall remain unaffected.

	Device designation	Manufacturer
Group 1 Devices currently *no* longer recommended	CR500	CAR-O-LINER
	Spot9000	Tecna
	ATL 400V	Wieländer&Schill
	MIDIspot QSVM12000T	CAR-O-LINER
	MIDIspot QSVM12000T	Elmatech
	MIDIspot QSVM9000	CELETTE
	MIDIspot QSVM9000	Elmatech

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	CR600 QSM	CAR-O-LINER
Group 2 Devices currently *recommended*	Multispot MI-100 Control	Elektron
	Inverta Spot GT BM	Wieländer&Schill
	3664 BM	Tecna
	CTR12000T	CAR-O-LINER

Application options and restrictions of above devices.

Vehicle	Group 1	Group 2
All BMW convertibles from E64	x Except A-pillar, B-pillar, sill	x
All BMW model ranges from E70	x Except B-pillar	x

Note:

As at May 2016

All BMW and MINI vehicles not mentioned can be repaired with the equipment of Group 1 and Group 2.

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41 ... 0 Notes on the repair technique used in the main group 41

Two different repair techniques are used in body repair.

These are welding and bonding/riveting.

If the repair instructions do not specify a repair technique, then welding must **always** be used.

The bonding/riveting repair technique is **always** described in detail in the repair instructions.

Quality standards must be met.

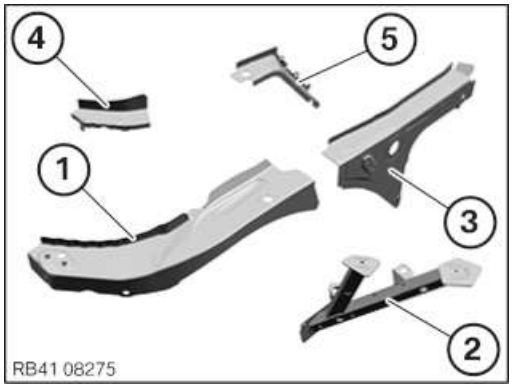
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41 11 205 Completely replacing the left carrier support

TECHNICAL INFORMATION

- Observe the procedure for repair stage 3.
For additional information see: 41 00 ... Repair method for repair stage 3
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Prepare the following new parts (see Electronic Parts Catalogue EPC):

  Carrier support, wheel arch, front(1)

  Support for the carrier support (2)

  Extension for wheel arch carrier support (3)

  Bottom wheel arch carrier support (4)

  A-pillar partition plate (5)

  Front wheel arch carrier support shaped part

TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

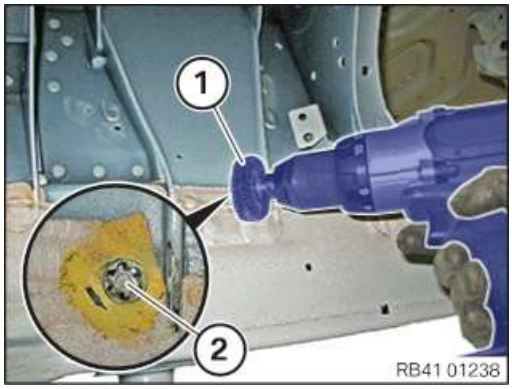
Material	Quantity
Adhesive K1	1
Blind rivet N1	40
Blind rivet N2	5
Punch rivet N4	20
EMC screw	31
Cleaner R1	1
Cleaner R2	1
Sealing compound D1	1
Cavity sealing wax remover	1

2 – Removing self-tapping screws

NOTICE

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

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- Remove the sealant with a wire brush attachment (1).
- Completely remove the sealant from the screw head (2).



- Vertically position the battery-powered drill (1) using special tool on the self-tapping screw and release the self-tapping screw.

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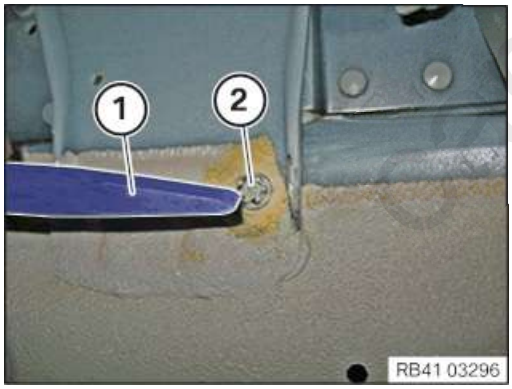
3 – Removing damaged self-tapping screws

Prerequisite

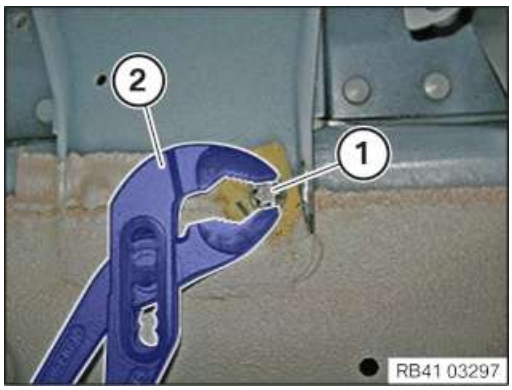
Sealant has been removed from the screw head.

NOTICE

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



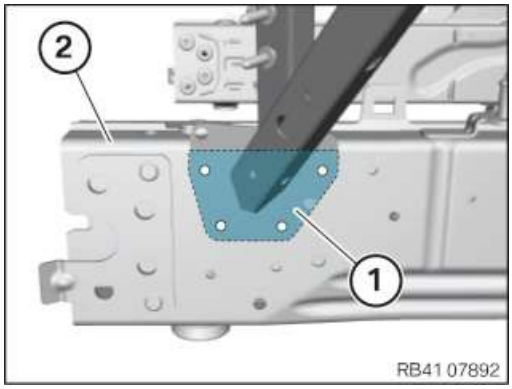
- Position the chisel (1) on the side of the screw head.
- Loosen the screw (2) by hitting it with a hammer.
- Repeat the process until the screw (2) has turned by approximately 90°.



- Remove the screw (1) using pliers (2).

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4 – Removing carrier support



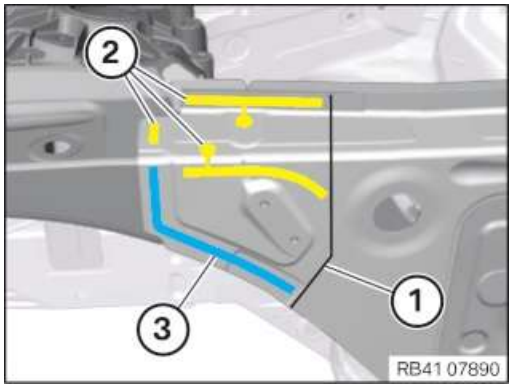
- Release the self-tapping screws in area (1).

TECHNICAL INFORMATION

For more information see: 41 00 ... Releasing bonded connections

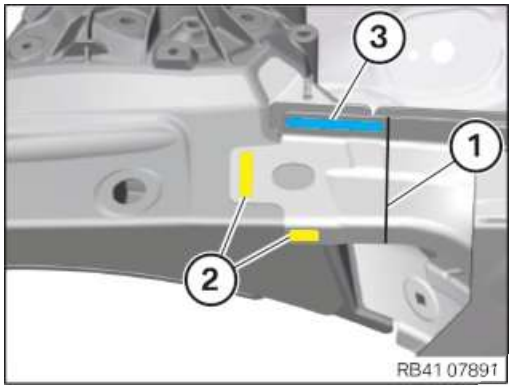
- Heat the bonded connection in the area (1) and release it.

  Do not damage the aluminium engine support (2)!



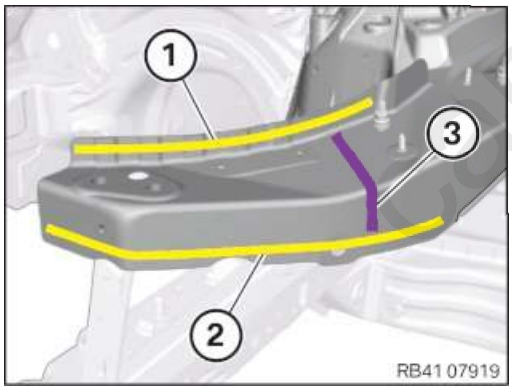
- Carry out the separating cut (1) as shown. Thereby disconnect only the outer panel.
- Release the welded connections in the areas (2) and (3).
- Heat the bonded connection in the area (1) and release it. Do not damage the aluminium spring support in the process!

  Remove the section of the carrier support.



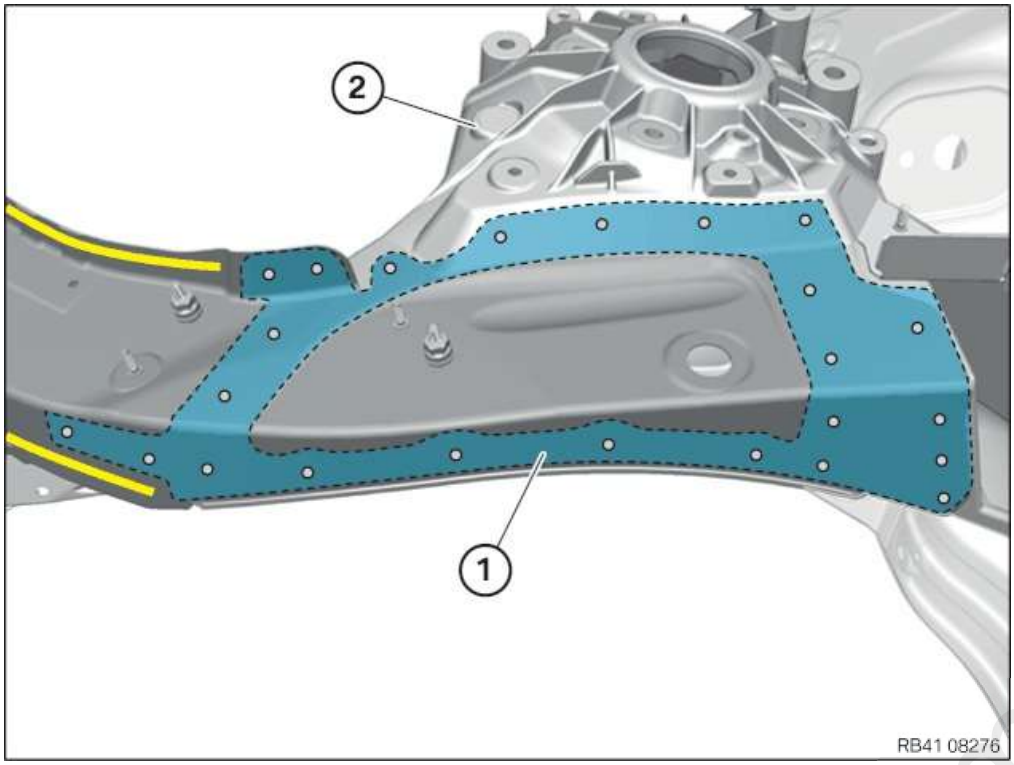
- Carry out the separating cut (1) as shown. Thereby disconnect only the outer panel.
- Release the welded connections in the areas (2) and (3).
- Heat the bonded connection in the area (3) and release it. Do not damage the aluminium spring support in the process!

  Remove the section of the bulkhead.



- Open welded connections in areas (1) and (2).
- Release carrier support from the cavity sealing (3).

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TECHNICAL INFORMATION

For more information see:
Open riveted joints (41 00).

- Release the rivet connections in the area (1) .
- Heat the bonded connection in the area (1) and release it. Do not damage the aluminium spring support in the process!

  Remove the carrier support.

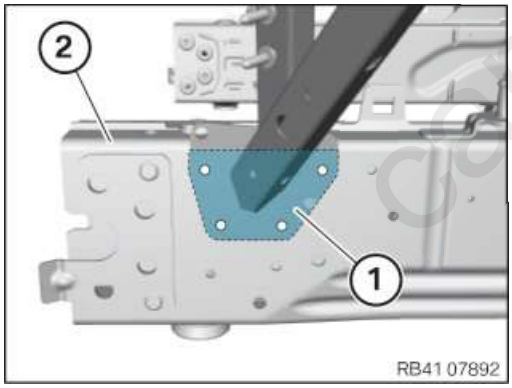
5 – Prepare new part

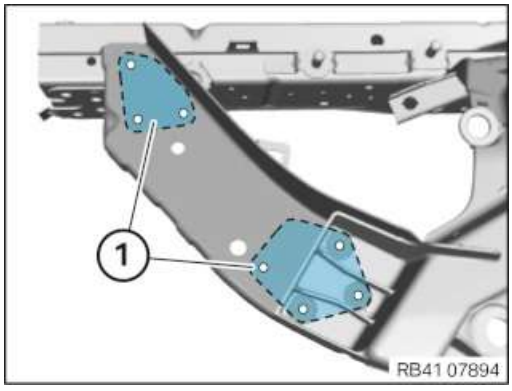
TECHNICAL INFORMATION

Structure bonding.

Observe preparation of bonding surfaces.

For additional information see: 41 00 ... BMW bonding instructions





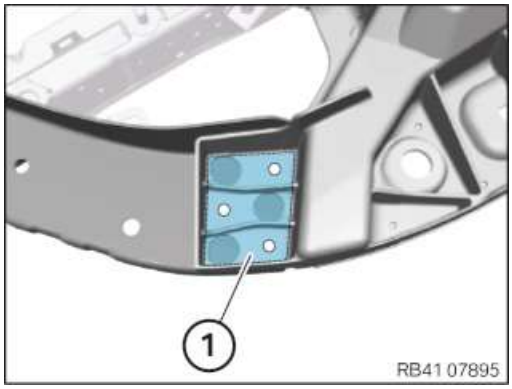
- Remove adhesive residue from all bonding surfaces.
- Adjust new parts with an alignment bracket or a universal fixture and secure.
- Prepare area (1) for a structural bonding with blind rivets of steel to aluminium.

TECHNICAL INFORMATION

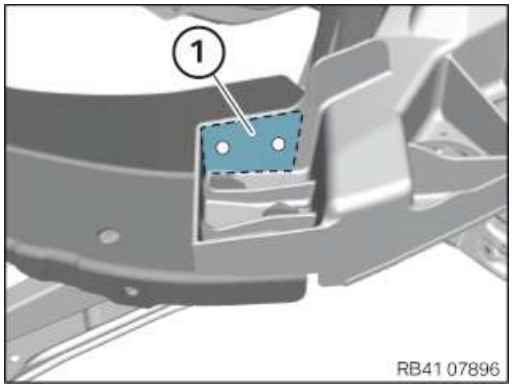
For more information see: 41 00 ... Transferring hole pattern.

- In area (1), transfer the hole pattern of the engine support (2) onto new part. Drill out holes to Ø 6.8 mm.
- Prepare areas (1) for the structural bonding of steel on steel with blind rivets.
- Drill seven holes Ø 6.8 mm in areas (1) in accordance with the illustration. Compare the position of the rivet holes with the welds of the standard components.

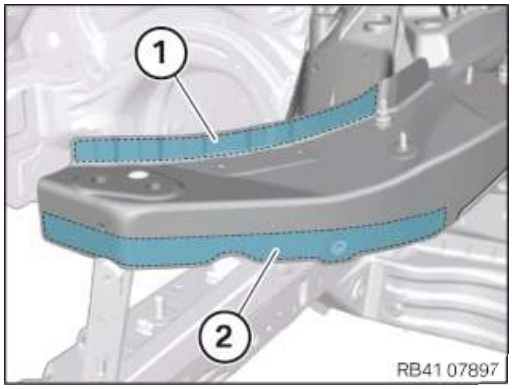
cardiagn.com



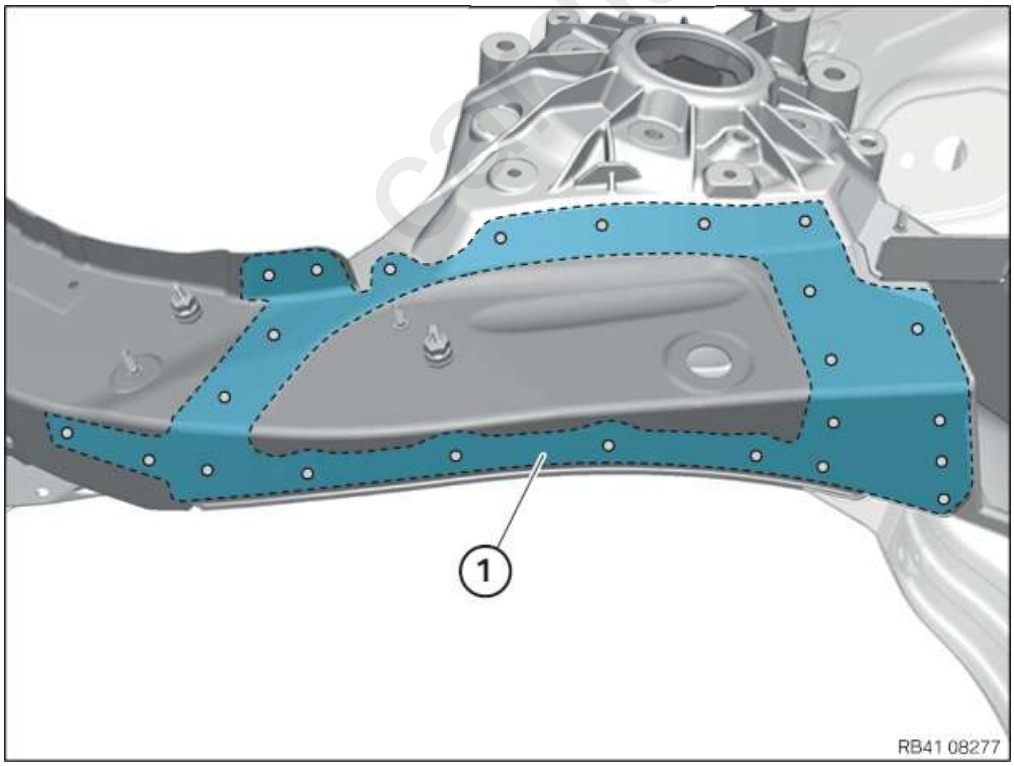
- Prepare area (1) for the structural bonding with blind rivets of steel to aluminium.
- In the area (1), transfer the 3 holes onto the new part. Drill out holes to Ø 6.8 mm.



- Prepare area (1) for the structural bonding with blind rivets of steel to aluminium.
- In the area (1), transfer the 2 holes onto the new part. Drill out holes to Ø 6.8 mm.

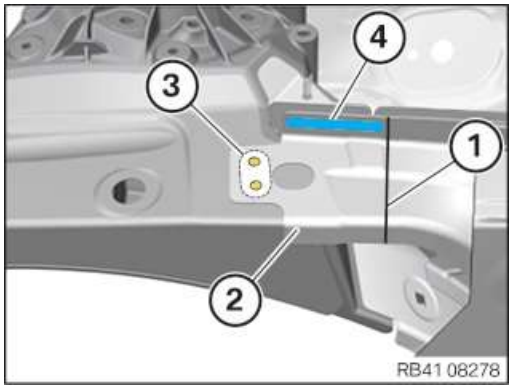


- Prepare areas (1) and (2) for the structural bonding of steel on steel with punch rivets.



- Prepare area (1) for the structural bonding with blind rivets of steel to aluminium.
- In the area (1), transfer the positions of the punch rivet holes from the spring support to the carrier support. Drill out holes to Ø 6.8 mm.

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- Make separating cut (1) on the bulkhead new part (2) in accordance with separating cut on vehicle.
- Adjust bulkhead new part (2).

TECHNICAL INFORMATION

For additional information see: 41 00 ... Weld in the reinforcement plates (sheet steel)

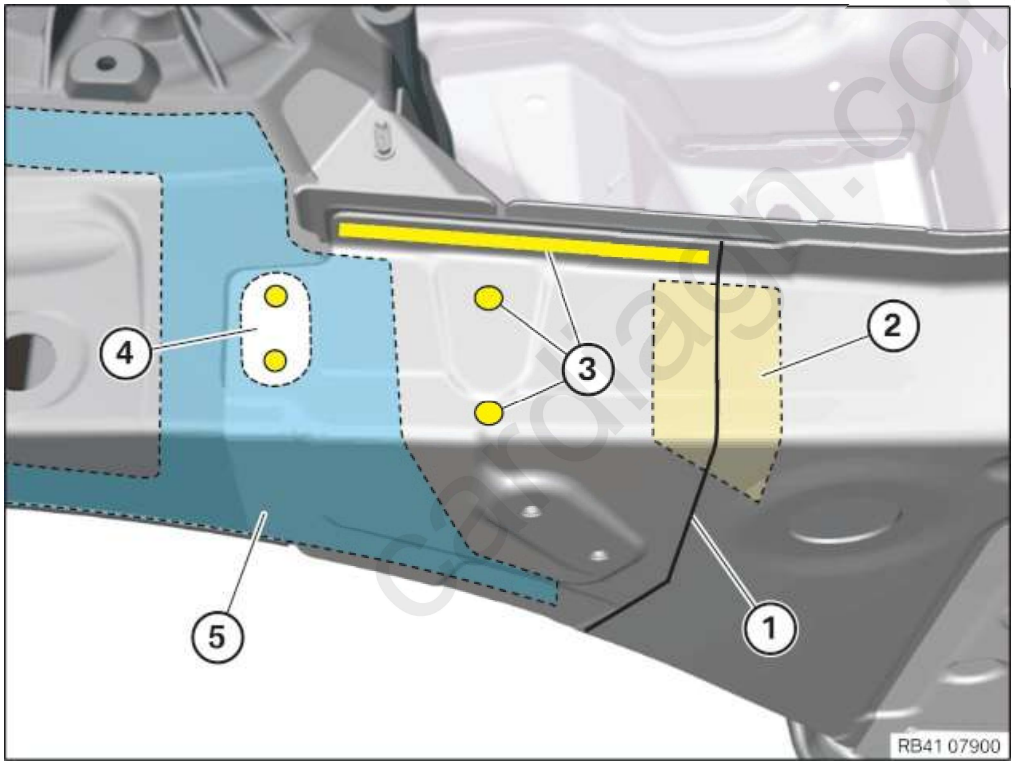
- Prepare a reinforcement plate for the separating cut (1).
- In the area of the recess (3), prepare for joining by 2 x spot-welds.

TECHNICAL INFORMATION

For more information see: 41 00... Spot-weld bonding steel components

- Prepare area (4) for joining by welding.

  In this process, observe the procedure for replacing spot-welded adhesive joints for the standard production.

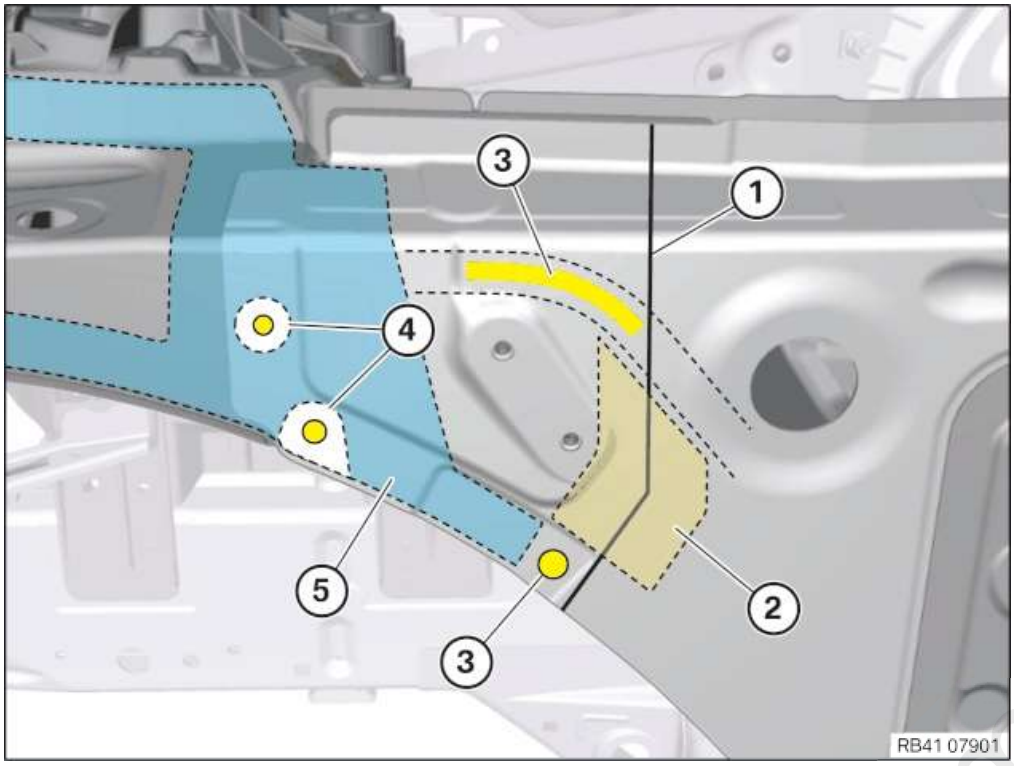


- Make severance cut (1) on the new part in accordance with severance cut on vehicle.
- Prepare a reinforcement plate (1) for the separating cut (2).

  Prepare the separating cut (1) and the reinforcement plate (2) for joining by welding.
- Prepare areas (3) for joining by welding.
- In the area of the recess (4), prepare for joining by 2 x spot-welds.

  Observe the underlying structural bonding in the area (5).

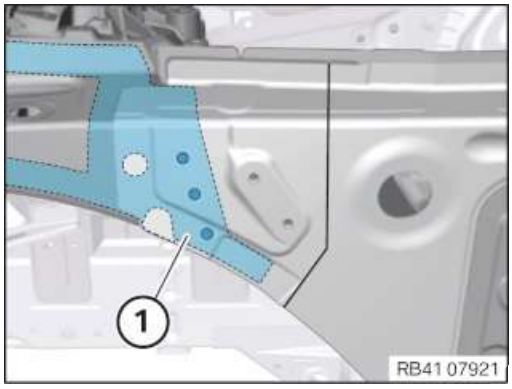
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- Prepare a reinforcement plate (1) for the separating cut (2).

  Prepare the separating cut (1) and the reinforcement plate (2) for joining by welding.
- Prepare areas (3) for joining by welding.
- In the recesses (4), prepare for joining by 2 x spot-welds.

  Observe the underlying structural bonding in the area (5).



- Prepare area (1) for the structural bonding with blind rivets.
- In area (1), transfer the positions of the 3 punch rivet holes to the new part. Drill out holes to Ø 6.8 mm.
- Remove new parts and deburr bore holes.

6 – Install carrier support

- Pre-clean the bonding surfaces at the new part and vehicle using R2 solvent cleaner.

Expendable materials

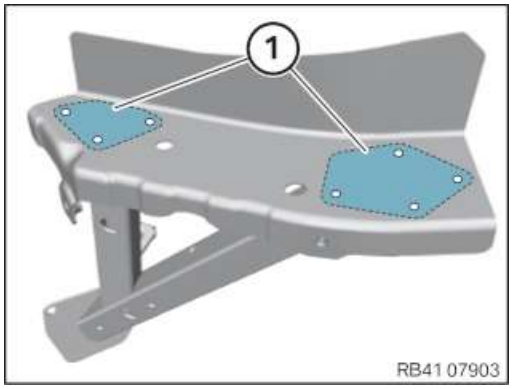
Cleaning agent R2	500 ml	83190417324

- Clean bonding surfaces on vehicle and on new part with cleaning agent R1.

Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

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- Apply adhesive K1 to the bonding surfaces (1).

Adhesive

Body adhesive K1	195 ml	83190413015

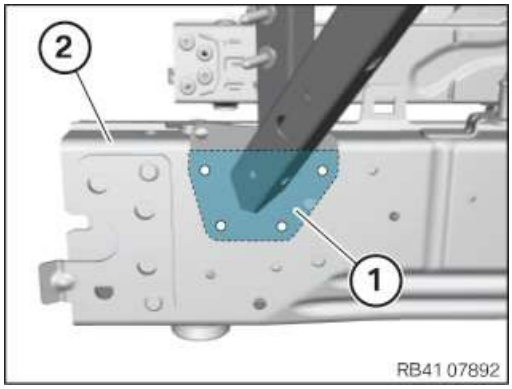
- Join new parts and rivet in areas (1) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414

- Apply adhesive K1 to bonding surfaces.
- Install the new parts with an alignment bracket or a universal mount.

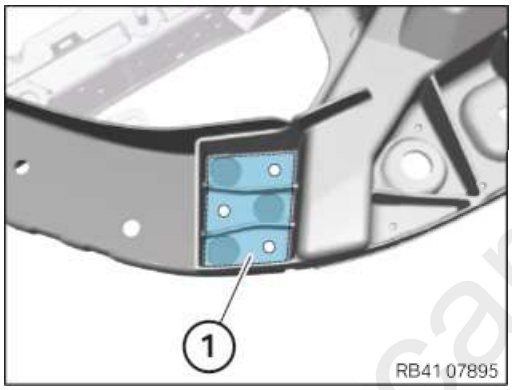
  While installing, make sure that there is sufficient adhesive on the bonding surfaces.



- Rivet the new part and engine support (2) in area (1) with blind rivets N2.

Expendable materials

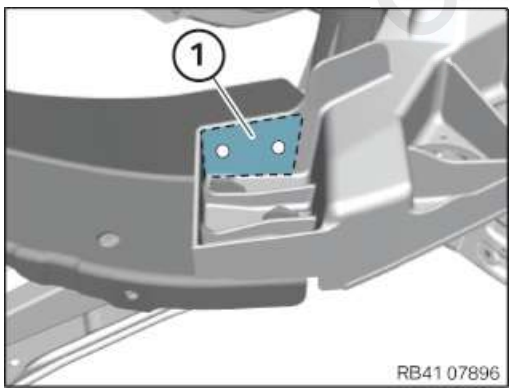
Blind rivet N2 Ø 6.5 mm ; clamping area 4.8-6.8 mm		83190301419



- Rivet the new part in area (1) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414

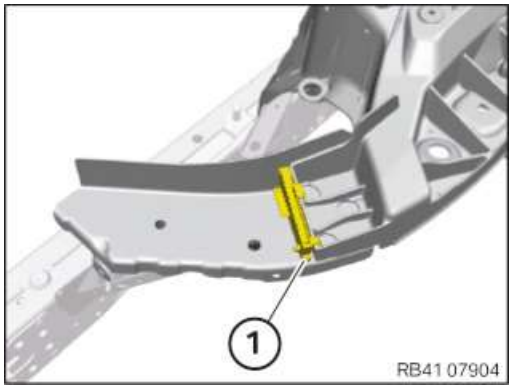


- Rivet the new part in area (1) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414

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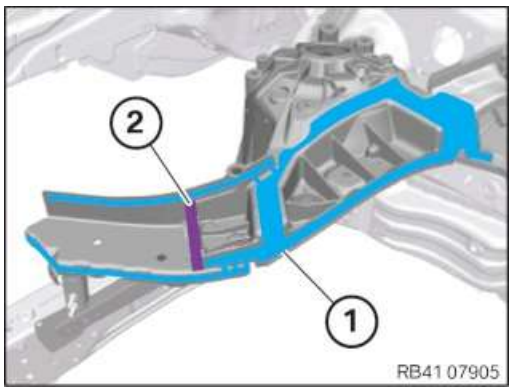
TECHNICAL INFORMATION

For more information see: 41 00 ... Installation of a cavity sealing (not expanding)

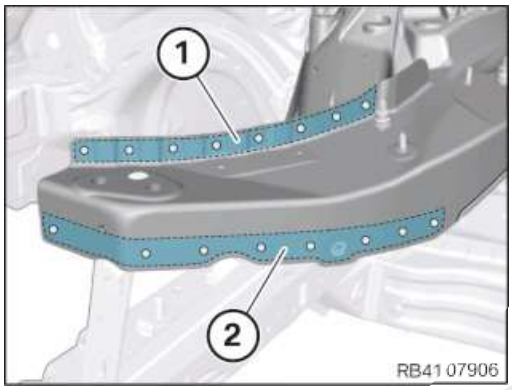
- Apply sealing agent D1 to the cavity bulkhead (1) and install cavity bulkhead.

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985



- Clean bonding surface (1) with cleaning agent R2 and R1.
- Apply adhesive K1 to the bonding surfaces.
- Apply sealant D1 to cavity sealing (1).
- Install new part. While installing, make sure that there is sufficient adhesive on the bonding surfaces.

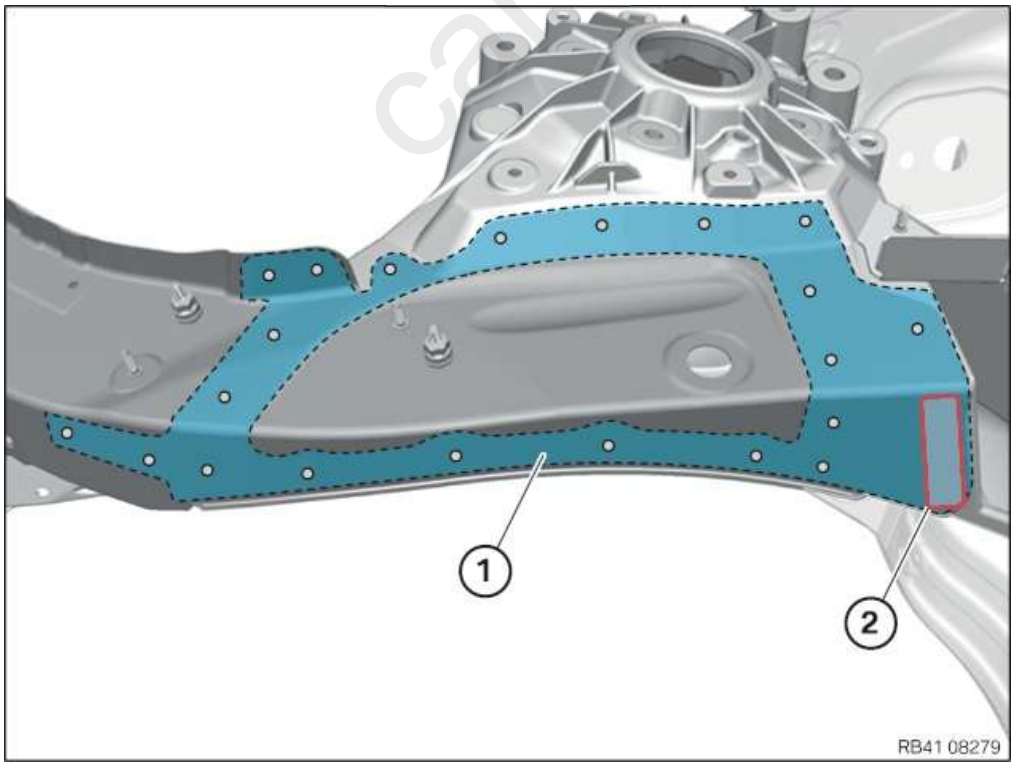


- Rivet new part in the areas (1) and (2) using the punch rivets N4 according to the diagram.

Area	Description	Number
1	N4	8
2	N4	8

Expendable materials

Punch rivet N4 Ø 3 mm ; 4 mm long		83192457307



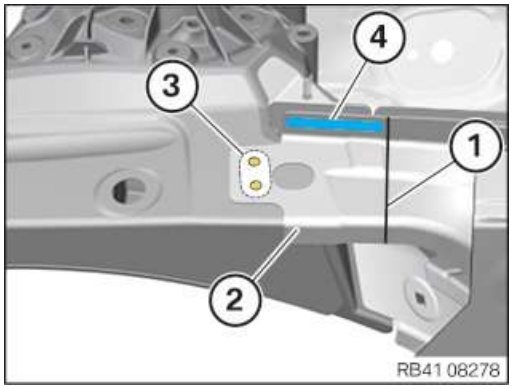
- Rivet the new part in area (1) with blind rivets N1.

Expendable materials

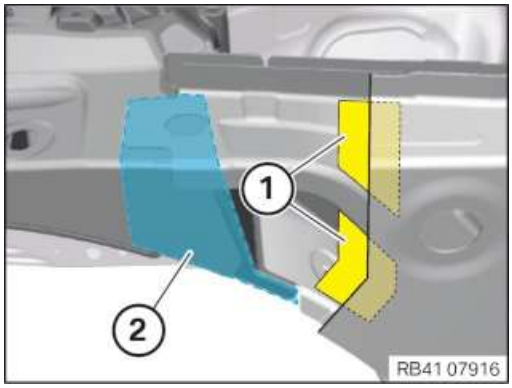
Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm	83190301414

- Do not install any blind rivets in the area (2).

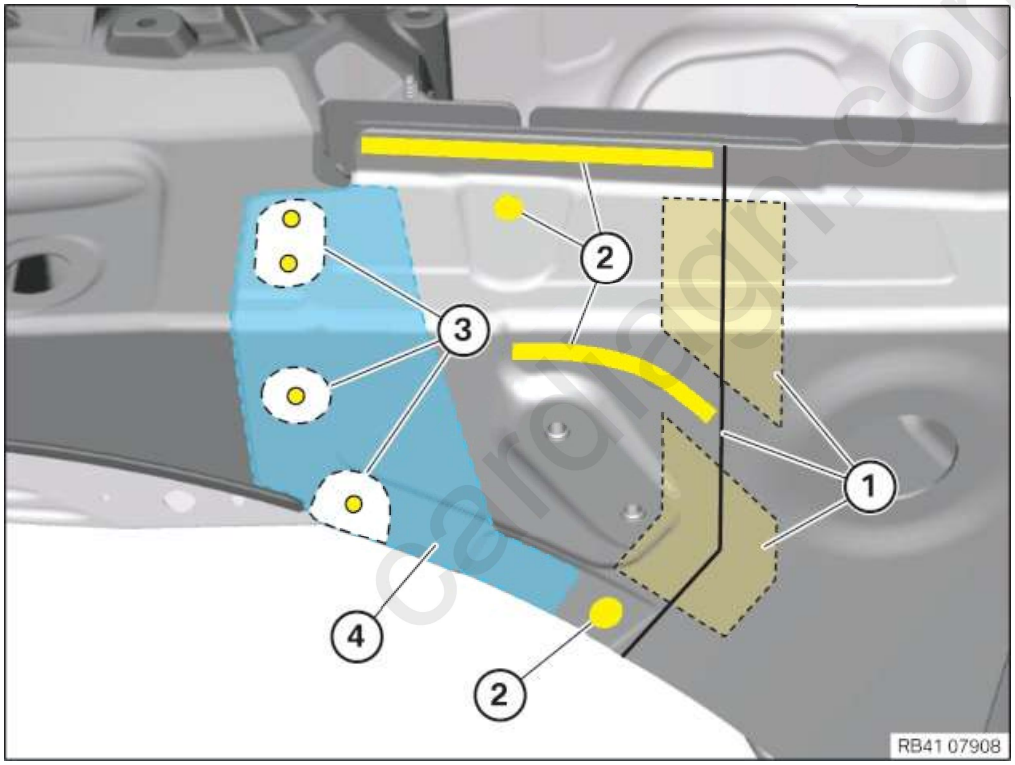
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- Install the new bulkhead (2) and reinforcement plate.
- Weld separating cut (1), the reinforcement plate and the areas (3) and (4) as per new part preparation process.



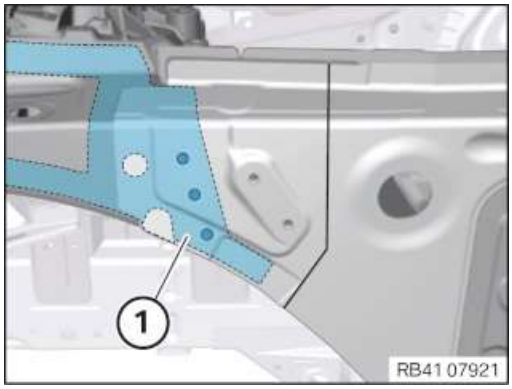
- Install the reinforcement plate (1) and attach by welding.
- Clean bonding surface (2) with cleaning agent R2 and R1.
- Apply adhesive K1 to the bonding surface (2).



- Install new part section and weld in areas (1) to (3).

  While doing so, observe the adhesive area (4) of the aluminium spring support.

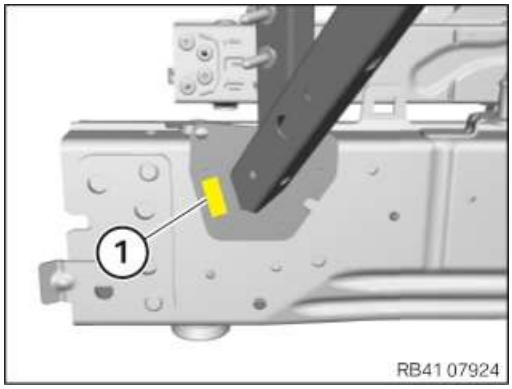
  Avoid introducing too much heat in the adhesive area (4).



- Rivet new part in adhesive area (1) with 3 blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414



- After the adhesive has hardened in area (1), install an electromagnetic compatibility screw.

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639

Additional Information

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Transferring hole pattern	5

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Opening bonded connections	4
41 00 ... Opening rivet connections	4
41 00 ... BMW bonding instructions	5
41 00 ... Spot-weld bonding steel components	5
41 0 Repair techniques, repair stage 3	

Repair instructions	Used in step
41 00 ... Installing cavity sealing (not expanded)	6

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41 11 091 Replacing engine support in front of bulkhead, left

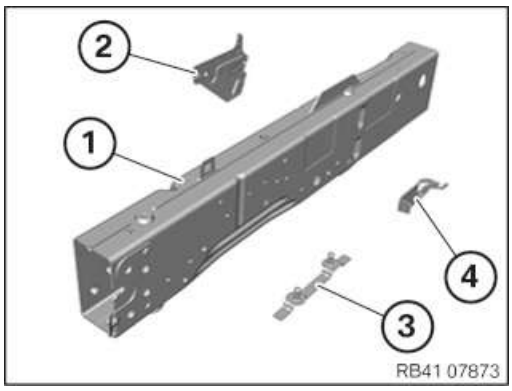
Prerequisite

- Vehicle is secured on the straightening bench.

TECHNICAL INFORMATION

- Observe the procedure for repair stage 3.
For additional information see: 41 00 ... Repair method for repair stage 3
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Prepare the following new parts (see Electronic Parts Catalogue):

  Centre engine support (1)

  Reinforcement, engine support, inner (2)

  Dynamic Stability Control (DSC) holder (3)

  Bracket, radio data system (RDS) (4)

TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

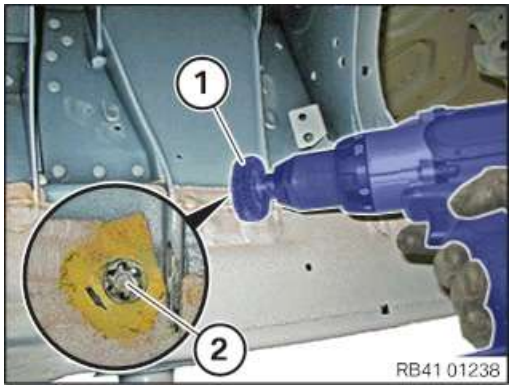
Material	Quantity
Adhesive K1	1
Blind rivet N1	25
Blind rivet N2	20
Earth pin	5
Coarse thread bolt	5
EMC screw	3
Cleaner R1	1
Cleaner R2	1
Sealing compound D1	
Cavity sealing wax remover	

2 – Removing self-tapping screws

NOTICE

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

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- Remove the sealant with a wire brush attachment (1).
- Completely remove the sealant from the screw head (2).



- Vertically position the battery-powered drill (1) using special tool on the self-tapping screw and release the self-tapping screw.

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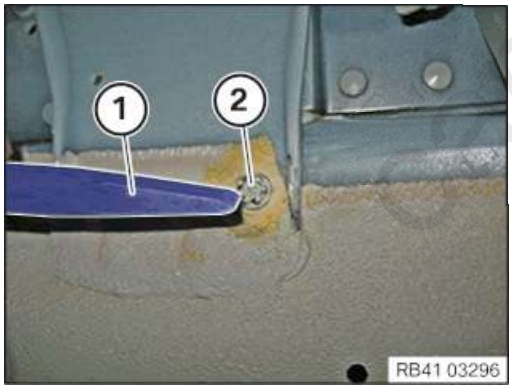
3 – Removing damaged self-tapping screws

Prerequisite

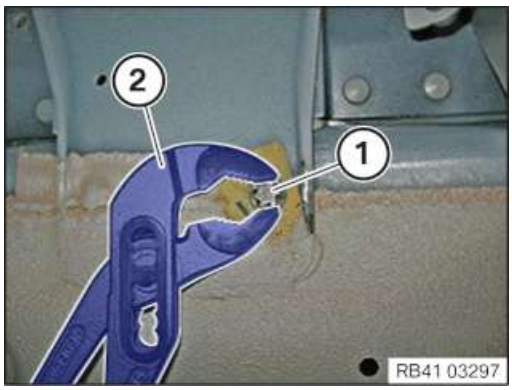
Sealant has been removed from the screw head.

NOTICE

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



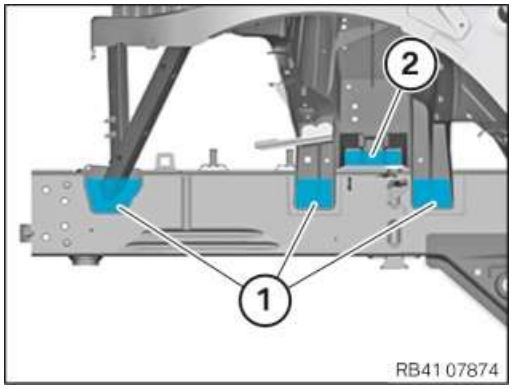
- Position the chisel (1) on the side of the screw head.
- Loosen the screw (2) by hitting it with a hammer.
- Repeat the process until the screw (2) has turned by approximately 90°.



- Remove the screw (1) using pliers (2).

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4 – Remove engine support.



TECHNICAL INFORMATION

For more information see: Open riveted joints (41 00).

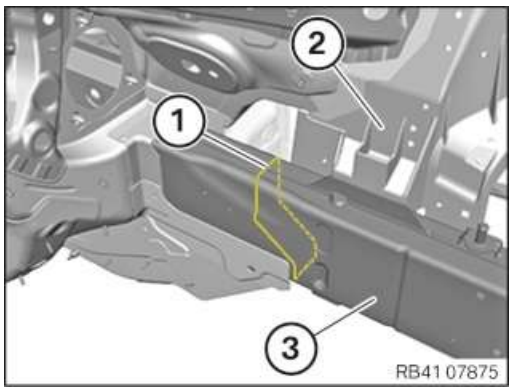
- Release the self-tapping screws in the areas (1) and rivet connections in the area (2).

TECHNICAL INFORMATION

For more information see: 41 00 ... Releasing bonded connections

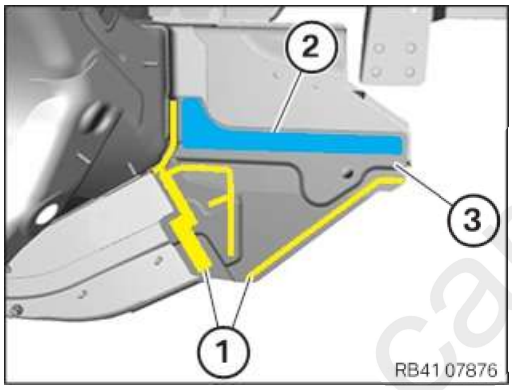
- Heat the bonded connections in the areas (1) and (2) and release them.

  While doing so, do not damage the aluminium spring support or the carrier support.

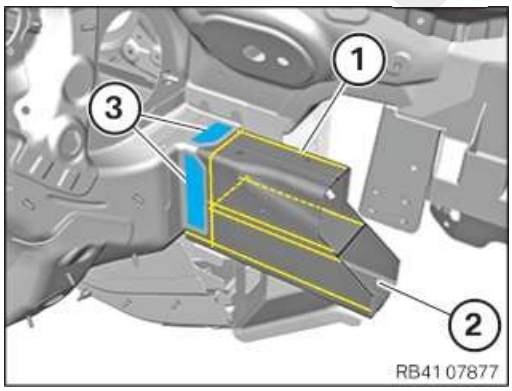


- Carry out the separating cut (1) as shown.

  Do not damage aluminium spring support (2) in the process!
- Remove engine support section (3).



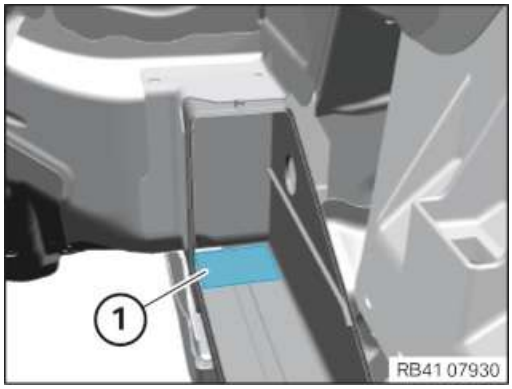
- Release welded connections in areas (1).
- Release the self-tapping screws in the area (2).
- Heat the bonded connection in the area (2) and release it.
- Remove reinforcement (3).



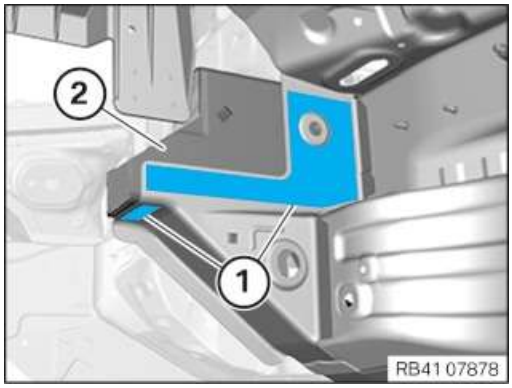
- Carry out the separating cut (1) as shown and detach the engine support (2) section-wise.
- Release the rivet connections in the areas (3).
- Heat the bonded connections in the areas (3) and release them.

Your browser doesn't support HTML5 video.

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- Heat the bonded connection in the area (1) and release it.



- Release the self-tapping screws in the areas (1).
- Heat the bonded connections in the areas (1) and release them and remove the engine support (2).

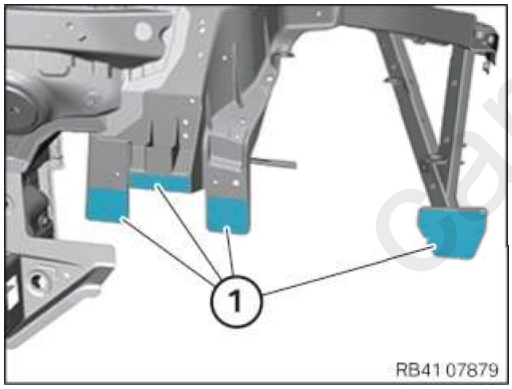
5 – Prepare new part

TECHNICAL INFORMATION

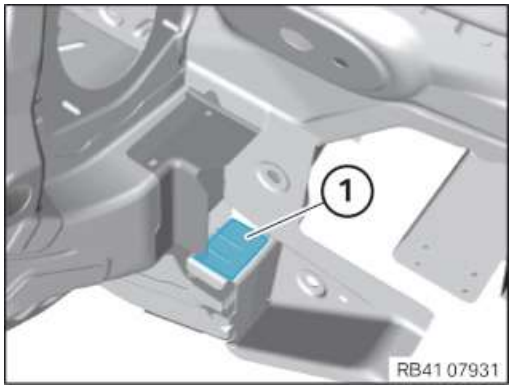
Structure bonding.

Observe preparation of bonding surfaces.

For additional information see: 41 00 ... BMW bonding instructions

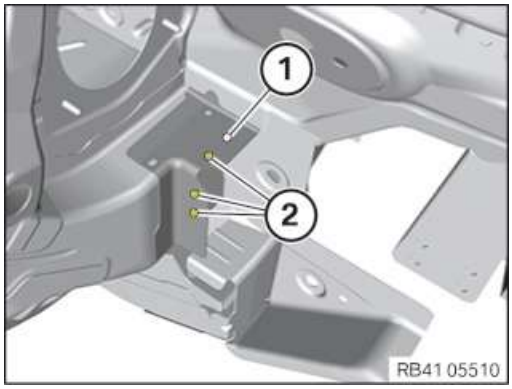


- Remove adhesive residue on the bonding surfaces (1). In this process, do not damage the spring strut dome and the carrier support!
- Prepare areas (1) for a aluminium-on-aluminium and aluminium-on-steel structure bonding.

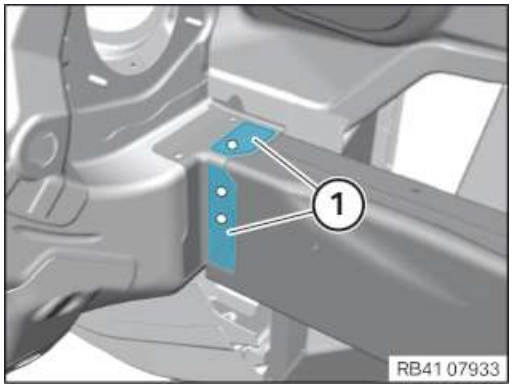


- Remove adhesive residue from the bonding surface (1).
- Prepare the bonding surface (1) for structural bonding steel to aluminium.

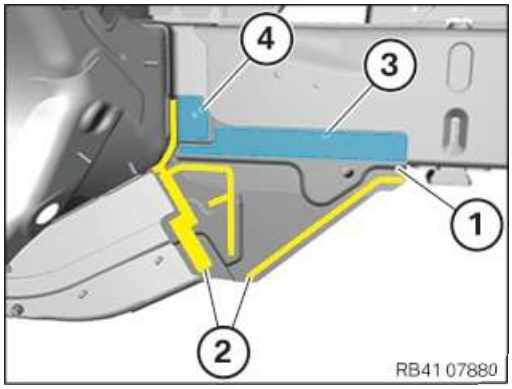
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- Remove adhesive residue from bonding surfaces.
- Seal the hole (1) by MAG weld.
- Drill out holes (2) to dia. 6.8 mm.
- Remove adhesive residue from all other bonding surfaces.



- Adjust engine support new part using an alignment bracket or a universal fixture and secure.
- Prepare areas (1) for a steel-on-aluminium structure bonding with blind rivets.
- In areas (1), transfer the holes onto the new part. Drill holes with 6.8 mm diameter.

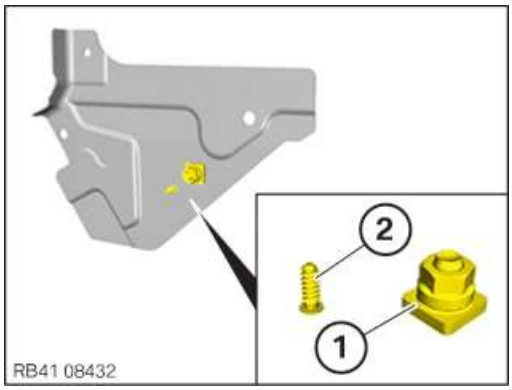


- Adjust new part (1).
- Prepare areas (2) for joining by welding.
- Prepare area (3) for a steel-on-aluminium structure bonding with blind rivets.
- In the area (3), drill holes to 6.8 mm diameter. Select the number and position, same as the self-tapping screws in standard production.
- Prepare area (4) for a steel-on-steel structure bonding with blind rivet.
- In area (4), drill a hole with Ø 6.8 mm. Select the position as per the series production flow drill screw.

▸ Welding the ground pin and the coarse-thread bolt onto the reinforcement of the motor support

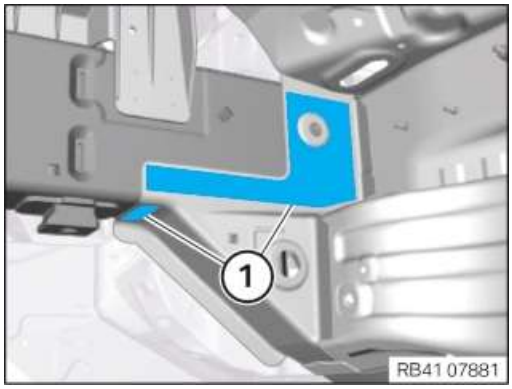
NOTICE

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

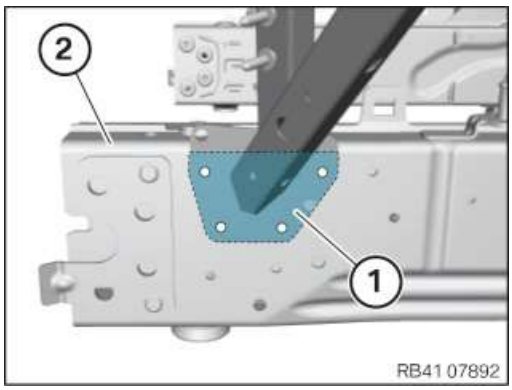


- Take the quantity and position from the component to be replaced.
- Weld the ground pin (1) and the coarse thread bolt (2) onto the new part.

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- Prepare areas (1) for a steel-on-aluminium structure bonding with blind rivets.
- In areas (1), transfer the holes onto the new part. Drill holes with 6.8 mm diameter.

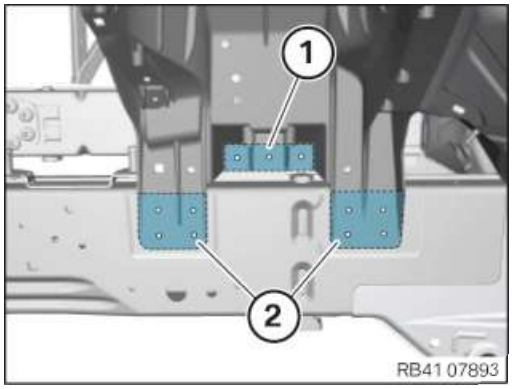


- Prepare area (1) for a structural bonding with blind rivets of steel to aluminium.

TECHNICAL INFORMATION

For more information see: 41 00 ... Transferring hole pattern.

- In area (1), transfer the hole pattern of the engine support (2) onto new part. Drill out holes to Ø 6.8 mm.

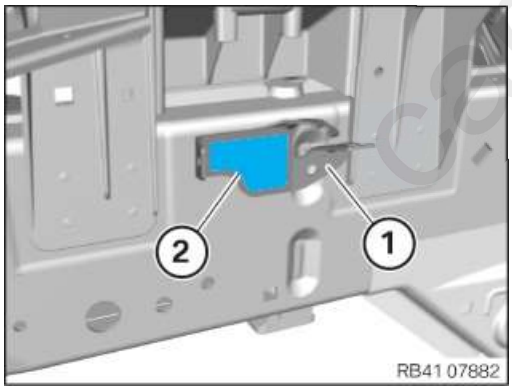


- Prepare areas (1) and (2) for a structural bonding of aluminium on aluminium with blind rivets.
- In area (1) transfer the positions of the holes from the engine support to the spring support. Drill out holes to Ø 6.8 mm.

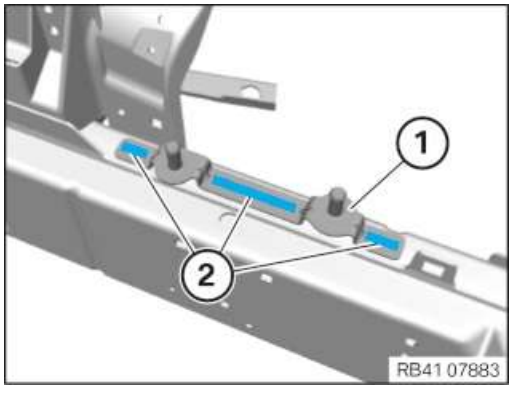
TECHNICAL INFORMATION

For more information see: 41 00 ... Transferring hole pattern.

- In areas (2), transfer the hole patterns from the engine support to the spring support. Drill out holes to Ø 6.8 mm.



- Position holder (1).
- Prepare area (2) for a aluminium-on-aluminium structure bonding with blind rivets.
- In the area (2), drill holes to 6.8 mm diameter. Select the number and position, same as the self-tapping screws in standard production.



- Position holder (1).
- Prepare the areas (2) for structural bonding of aluminium on aluminium.
- In the areas (2), drill holes of 6.8 mm diameter. Select the number and position, same as the self-tapping screws in standard production.

6 – Insert engine support

- Pre-clean the bonding surfaces at the new part and vehicle using R2 solvent cleaner.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean bonding surfaces on vehicle and on new part with cleaning agent R1.

Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

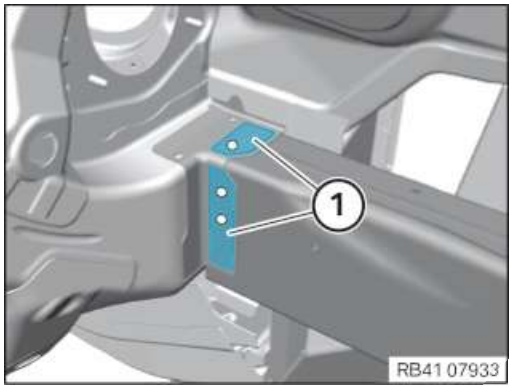
- Apply adhesive K1 to the bonding surfaces.

Adhesive

Body adhesive K1	195 ml	83190413015

- Install the new parts with an alignment bracket or a universal mount.

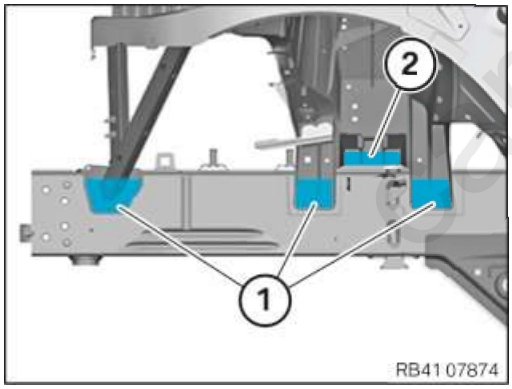
  During installation, ensure that sufficient adhesive has been applied to all bonding surfaces.



- Rivet new parts in the areas (1) using 3 blind rivets N1.

Expendable materials

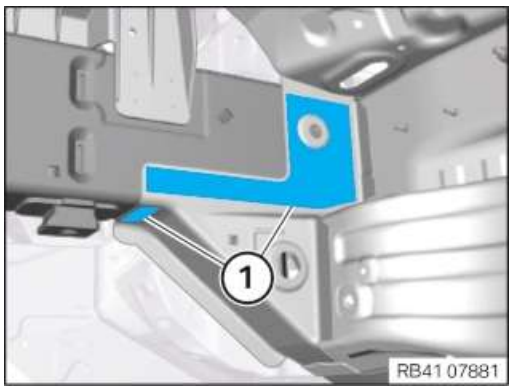
Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414



- Rivet the new part in the areas (1) and (2) with blind rivets N2.

Expendable materials

Blind rivet N2 Ø 6.5 mm ; clamping area 4.8-6.8 mm		83190301419

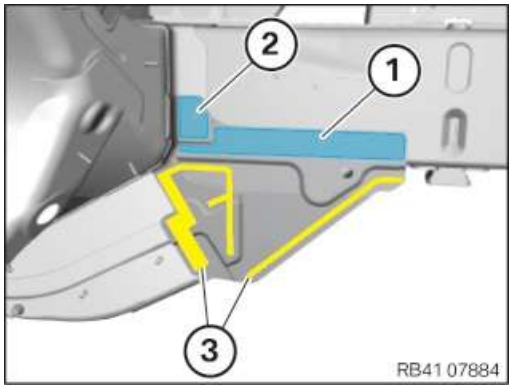


- Rivet the new part in the areas (1) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414

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- Position the new part and rivet it in the area (1) with blind rivetsN1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414

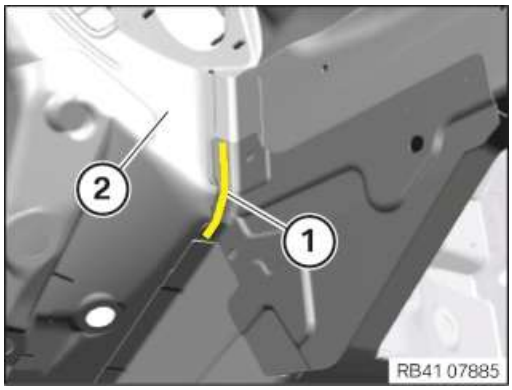
- In area (2) rivet new parts with blind rivet N2.

Expendable materials

Blind rivet N2 Ø 6.5 mm ; clamping area 4.8-6.8 mm		83190301419

- Weld the new part in areas (3).

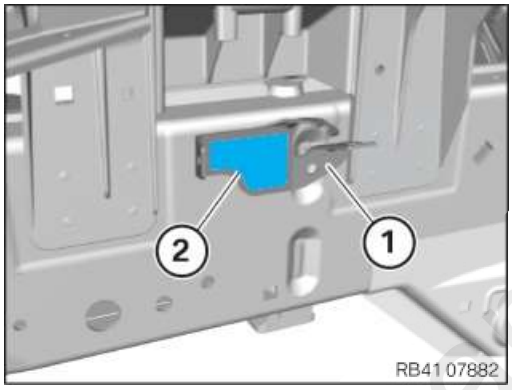
  Avoid excessive application of heat to adhesive areas .



- Weld the new part in the area (1).

  Avoid excessive application of heat in this process.

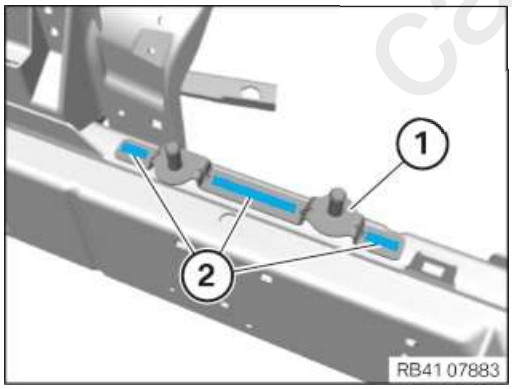
  The bulkhead cross member (2) is filled with hardly inflammable cavity foam.
- In case of smoke formation: Stop the welding procedure and cool the welded area with compressed air if applicable.



- Rivet holder (1) in area (2) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414



- Rivet holder (1) in areas (2) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414

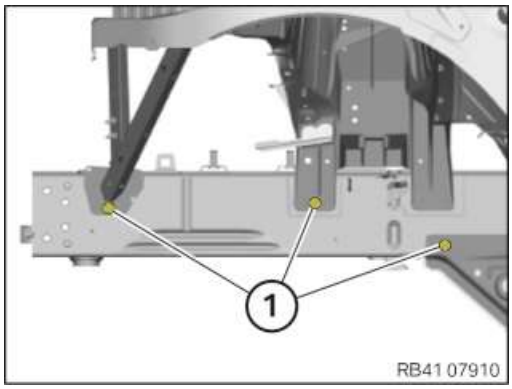
▸ **Installing the EMC screw**

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- Drill a hole with a diameter of 4.2 mm after the adhesive has hardened completely .
- Screw in the EMC screw.
- Seal the EMC screw with sealant.

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985



- Install 3 EMC screws after the adhesive in the areas (1) has hardened.

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639

Additional Information

Overview of Special Tools

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Opening bonded connections	4
41 00 ... Opening rivet connections	4
41 00 ... BMW bonding instructions	5
41 0 Repair techniques, repair stage 3	

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41 11 071 Replacing engine support with left wheel arch in front of bulkhead

Prerequisite

- Vehicle is secured on the straightening bench.

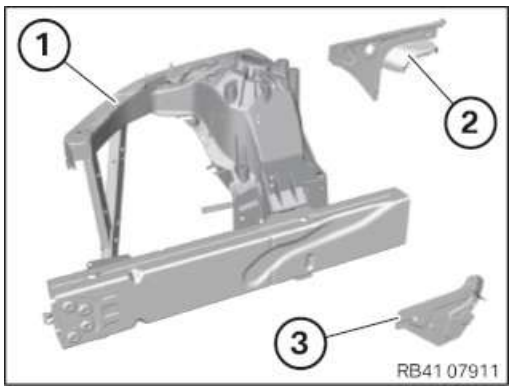
TECHNICAL INFORMATION

- Observe the procedure for repair stage 3.

For additional information see: 41 00 ... Repair method for repair stage 3

- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Front wheel arch(1)

  Extension for wheel arch carrier support (2)

  Reinforcement, engine support, inner (3)

TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

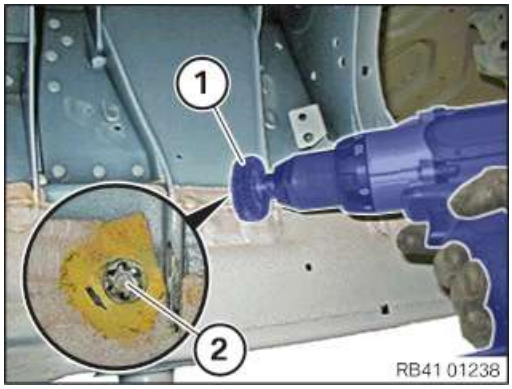
Material	Quantity
Adhesive K1	1
Blind rivet N1	45
Blind rivet N2	5
Coarse thread bolt	5
Earth pin	5
EMC screw	2
Cleaner R1	1
Cleaner R2	1
Sealing compound D1	1
Cavity sealing wax remover	1

2 – Removing self-tapping screws

NOTICE

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

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- Remove the sealant with a wire brush attachment (1).
- Completely remove the sealant from the screw head (2).



- Vertically position the battery-powered drill (1) using special tool on the self-tapping screw and release the self-tapping screw.

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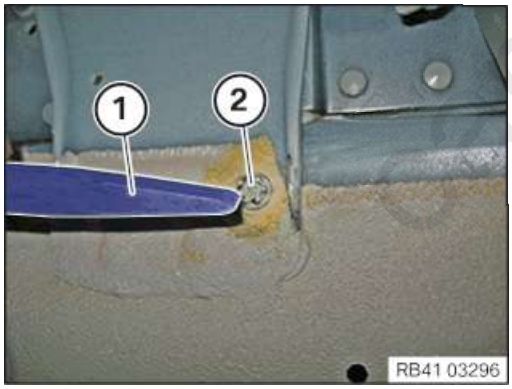
3 – Removing damaged self-tapping screws

Prerequisite

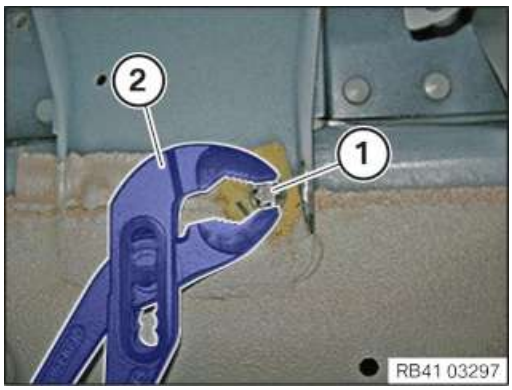
Sealant has been removed from the screw head.

NOTICE

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



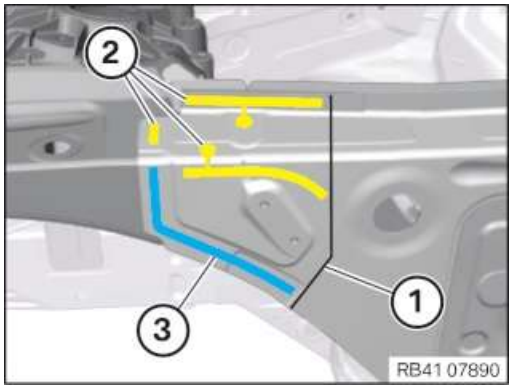
- Position the chisel (1) on the side of the screw head.
- Loosen the screw (2) by hitting it with a hammer.
- Repeat the process until the screw (2) has turned by approximately 90°.



- Remove the screw (1) using pliers (2).

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4 – Removing engine support in front of bulkhead with wheel arch

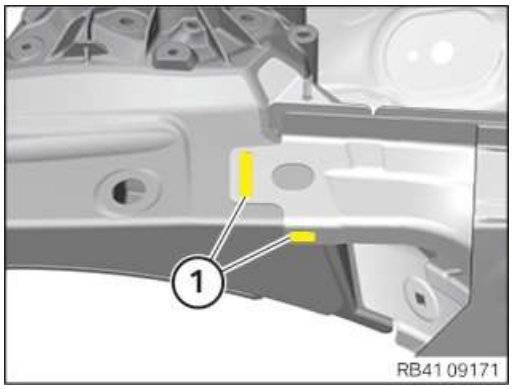


- Make the separating cut (1) according to the schematic diagram. Thereby disconnect only the outer panel.
- Release welded connections in areas (2).

TECHNICAL INFORMATION

For more information see: 41 00... Spot-weld bonding steel components

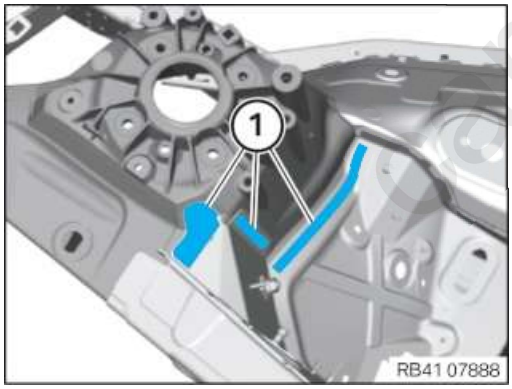
- Open the spot-welded adhesive joints in the area (3) and remove the carrier support section.



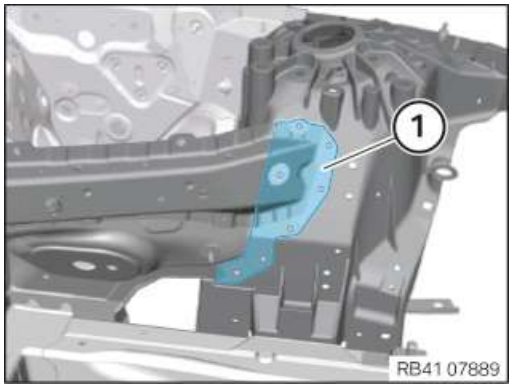
- Release welded connections in areas (1).



- Open bonded rivet connections in area (1).

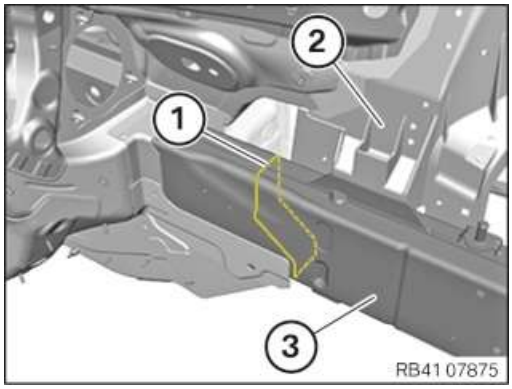


- Loosen the bonded rivet connection joints in the areas (1).

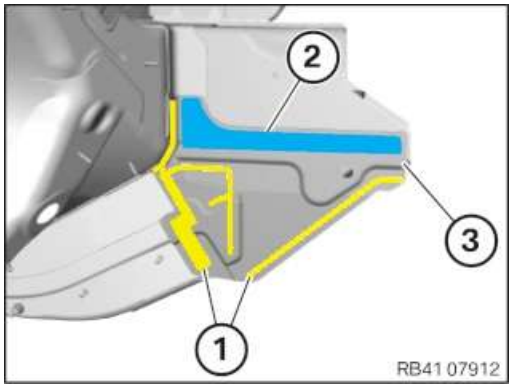


- Open bonded rivet connections in area (1).

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- Mark rough separating cut (1) as shown and cut.
- Remove wheel arch (2) together with engine support section (3).

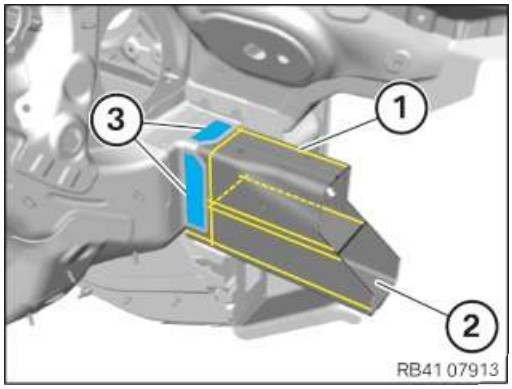


- Release welded connections in areas (1).

TECHNICAL INFORMATION

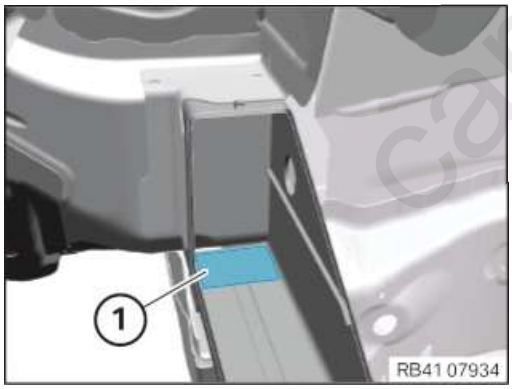
For more information see: 41 00 ... Releasing bonded connections

- Loosen self-tapping screws and bonded connection in area (2).
- Remove reinforcement (3).

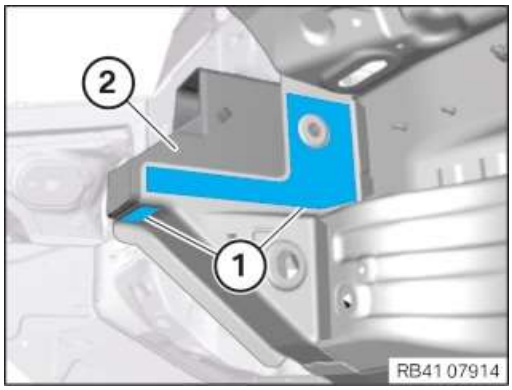


- Execute the separating cut (1) in accordance with schematic diagram and separate engine support section by section (2).
- Release the bonded rivet connection joints in the areas (3).

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- Release bonded connection in area (1).



- Release the self-tapping screws and bonded connections in the areas (1) and remove the engine support (2).

5 – Preparing new parts

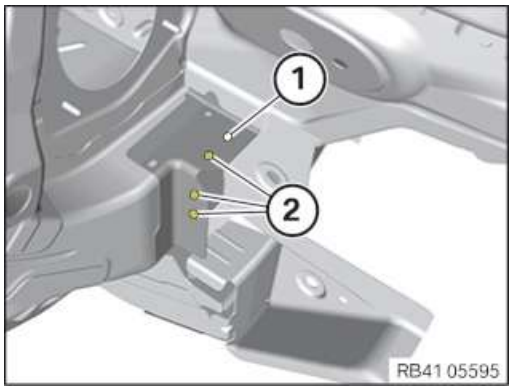
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TECHNICAL INFORMATION

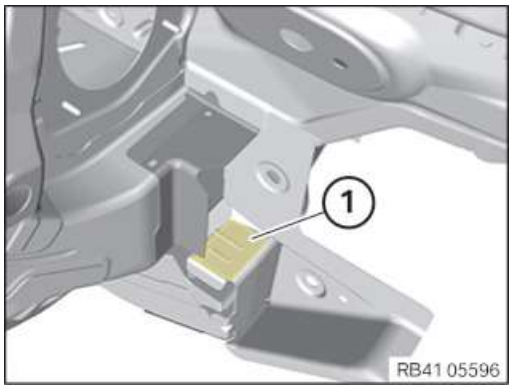
Structure bonding.

Observe preparation of bonding surfaces.

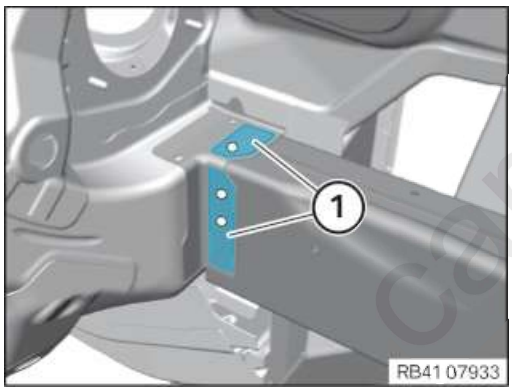
For additional information see: 41 00 ... BMW bonding instructions



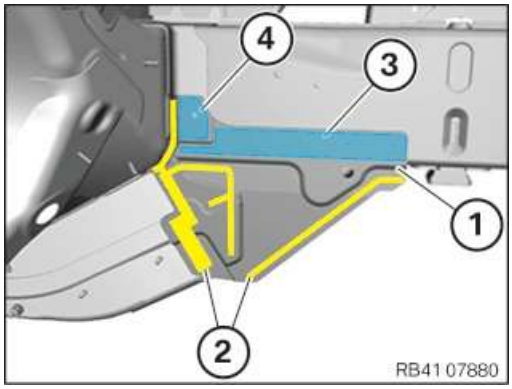
- Remove adhesive residues on the bonding surfaces of the connecting plate.
- Seal the hole (1) by MAG weld.
- Drill out holes (2) to dia. 6.8 mm.



- Remove adhesive residue from all bonding surfaces.
- Prepare area (1) for the structural bonding of steel on aluminium.



- Adjust the new part using an alignment bracket or a universal fixture and secure it.
- Prepare areas (1) for a steel-on-aluminium structure bonding with blind rivets.
- In areas (1), transfer the holes onto the new part. Drill holes with 6.8 mm diameter.



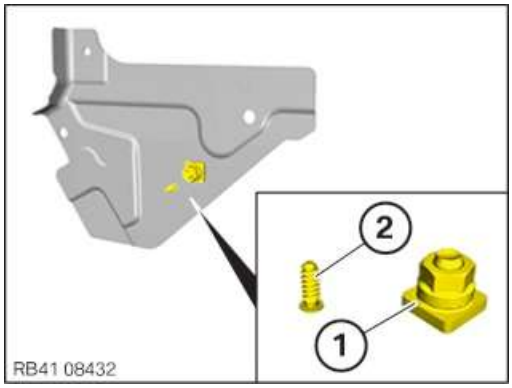
- Adjust new part (1).
- Prepare areas (2) for joining by welding.
- Prepare area (3) for a steel-on-aluminium structure bonding with blind rivets.
- In the area (3), drill holes to 6.8 mm diameter. Select the number and position, same as the self-tapping screws in standard production.
- Prepare area (4) for the structural bonding of steel on steel with blind rivets.
- In area (4), drill a hole with Ø 6.8 mm. Select the position as per the series production flow drill screw.

▸ Welding the ground pin and the coarse-thread bolt onto the reinforcement of the motor support

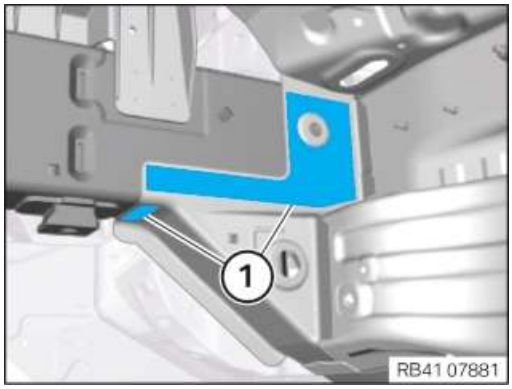
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NOTICE

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



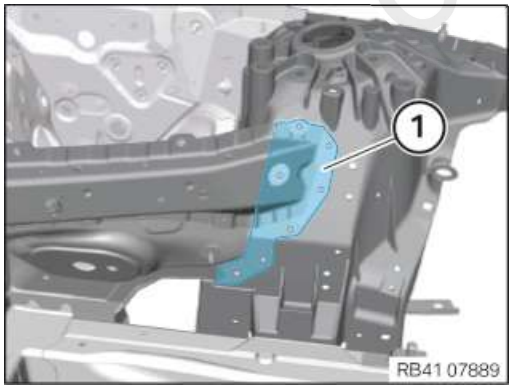
- Take the quantity and position from the component to be replaced.
- Weld the ground pin (1) and the coarse thread bolt (2) onto the new part.



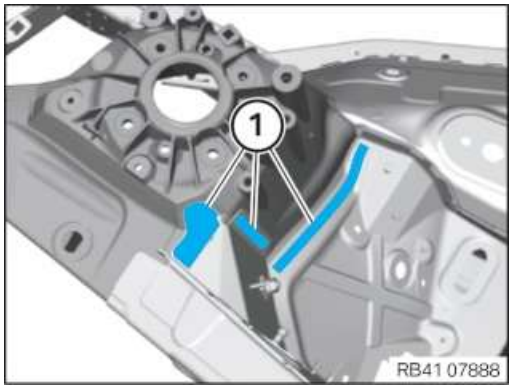
- Prepare areas (1) for a steel-on-aluminium structure bonding with blind rivets.
- In areas (1), transfer the holes onto the new part. Drill holes with 6.8 mm diameter.



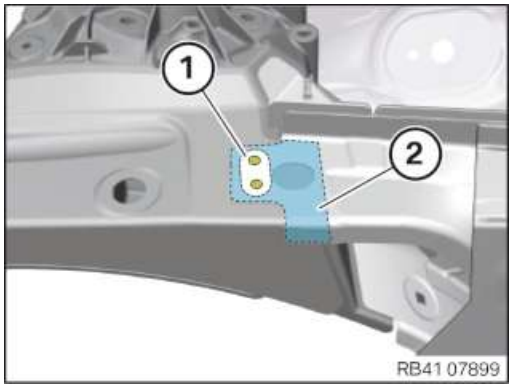
- Prepare area (1) for the structural bonding of aluminium on steel with blind rivets.
- In area (1), transfer the positions of the holes from the wheel arch to the spring supports. Drill out holes to Ø 6.8 mm.



- Prepare area (1) for the structural bonding of aluminium on steel with blind rivets.
- In area (1), transfer the positions of the holes from the engine bulkhead to the spring support. Drill out holes to Ø 6.8 mm.

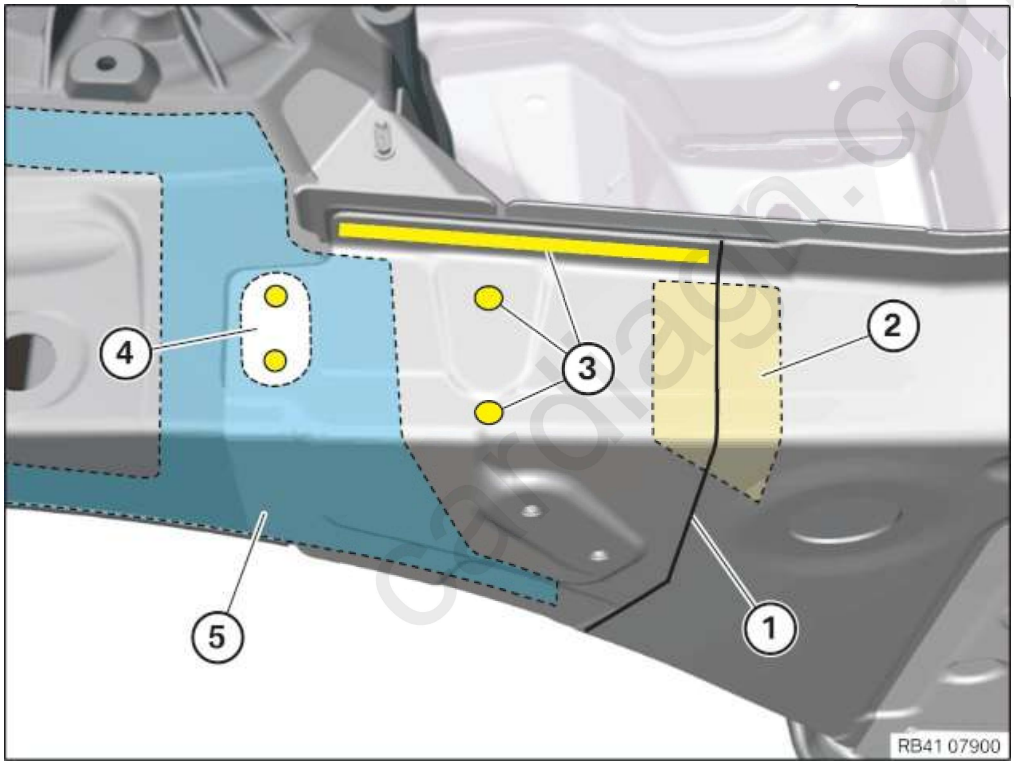


- Prepare areas (1) for the structural bonding of aluminium on steel with blind rivets.
- In area (1), transfer the positions of the holes from the wheel arch to the spring supports. Drill out holes to Ø 6.8 mm.



- In the area of the recess (1), prepare for joining by 2 x spot-welds.

  Note the structural bonding in the area (2).



- Make severance cut (1) on the new part in accordance with severance cut on vehicle.

TECHNICAL INFORMATION

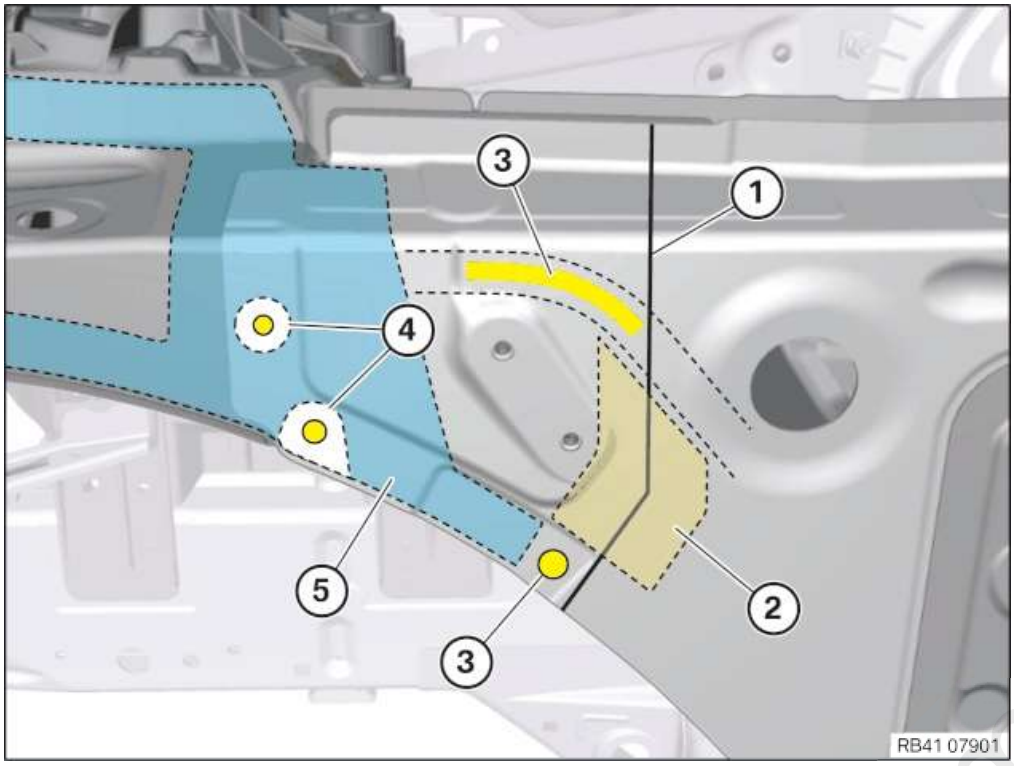
For additional information see: 41 00 ... Weld in the reinforcement plates (sheet steel)

- Prepare a reinforcement plate (1) for the separating cut (2).

  Prepare the separating cut (1) and the reinforcement plate (2) for joining by welding.
- Prepare areas (3) for joining by welding.
- In the area of the recess (4), prepare for joining by 2 x spot-welds.

  Note the structural bonding in the area (5).

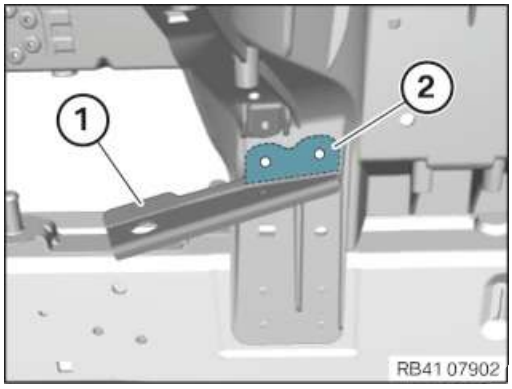
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- Prepare a reinforcement plate (1) for the separating cut (2).

  Prepare the separating cut (1) and the reinforcement plate (2) for joining by welding.
- Prepare areas (3) for joining by welding.
- In the recesses (4), prepare for joining by 2 x spot-welds.

  Note the structural bonding in the area (5).



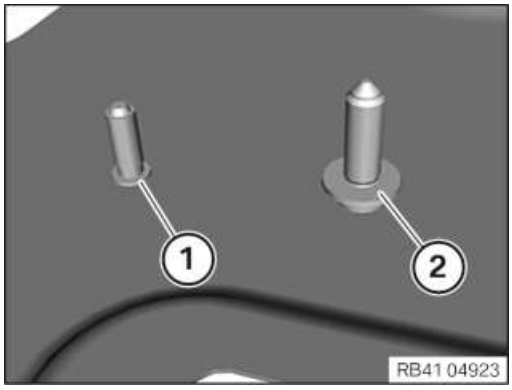
- Position holder (1) for the brake hose on the wheel arch.

  Prepare area (2) for a structural bonding with blind rivets of aluminium to aluminium.
- Drill 2 holes Ø 6.8 mm in area (1) in accordance with the illustration.
- Remove new parts and deburr bore holes.

▸ Replacing the coarse thread bolt and threaded weld bolt, steel surface

NOTICE

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



- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

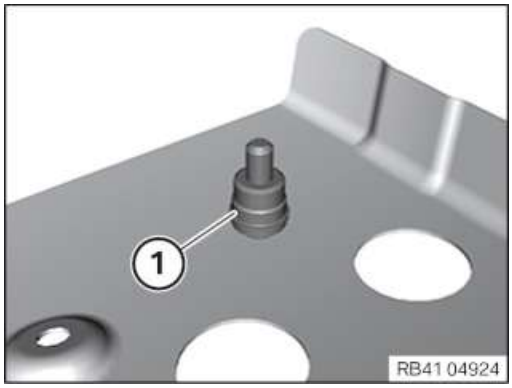
  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

▸ Checking the ground pin and replacing if necessary

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NOTICE

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



- Check the ground pin (1) for stability and renew where required.

6 – Installing engine support in front of bulkhead with wheel arch

- Pre-clean all the bonding surfaces with solvent cleaner R2.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean all bonding surfaces with solvent cleaner R1.

Expendable materials

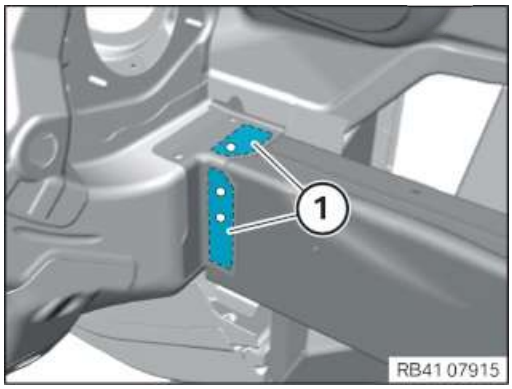
Cleaning agent R1	100 ml, Bottle	83192211217

- Apply adhesive K1 to bonding surfaces.

Adhesive

Body adhesive K1	195 ml	83190413015

- When installing the new parts make sure that sufficient adhesive is applied to all the bonding surfaces.
- Install the new part with an alignment bracket or a universal fixture.

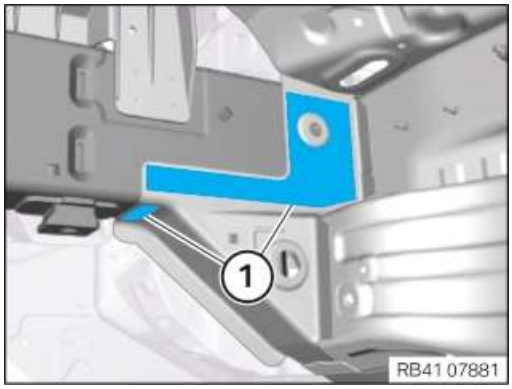


- Rivet new parts in the areas (1) using 3 blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414

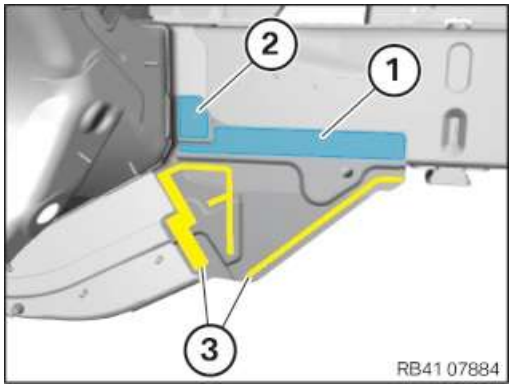
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- Rivet the new part in area (1) and (2) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414



- Install new part and rivet in area (1) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414

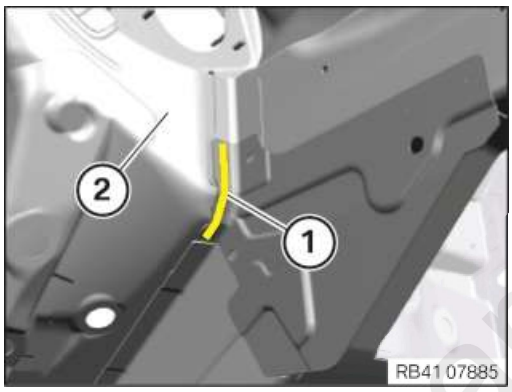
- In area (2) rivet new parts with blind rivet N2.

Expendable materials

Blind rivet N2 Ø 6.5 mm ; clamping area 4.8-6.8 mm		83190301419

- Weld the new part in areas (3).

  Avoid excessive application of heat to adhesive areas .



- Weld the new part in the area (1).

  Avoid excessive application of heat in this process.

  The bulkhead cross member (2) is filled with hardly inflammable cavity foam.

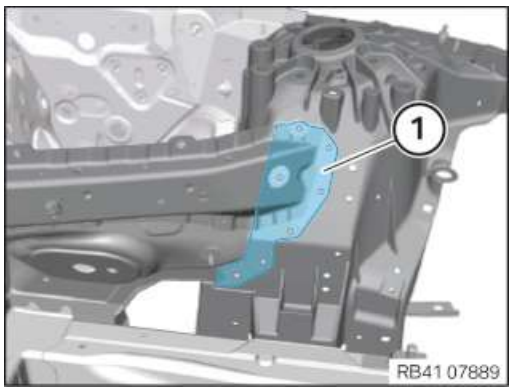
- In case of smoke formation: Stop the welding procedure and cool the welded area with compressed air if applicable.



- Rivet the new part in the areas (1) and (2) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414

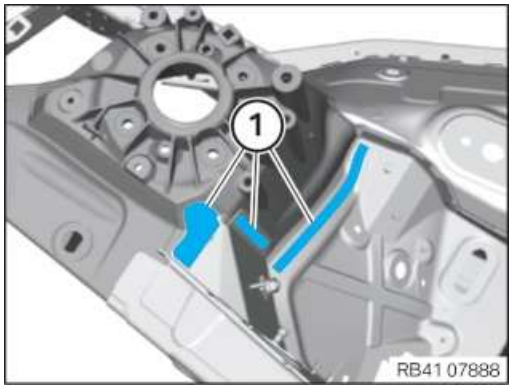


- Rivet the new part in the areas (1) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414

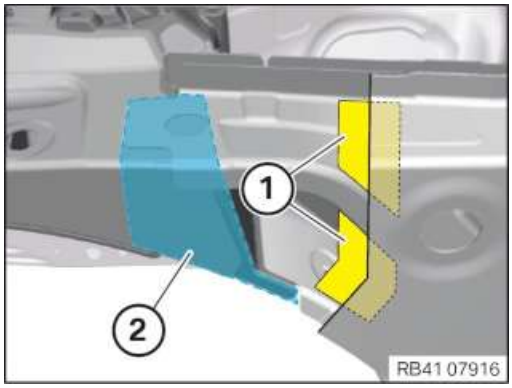
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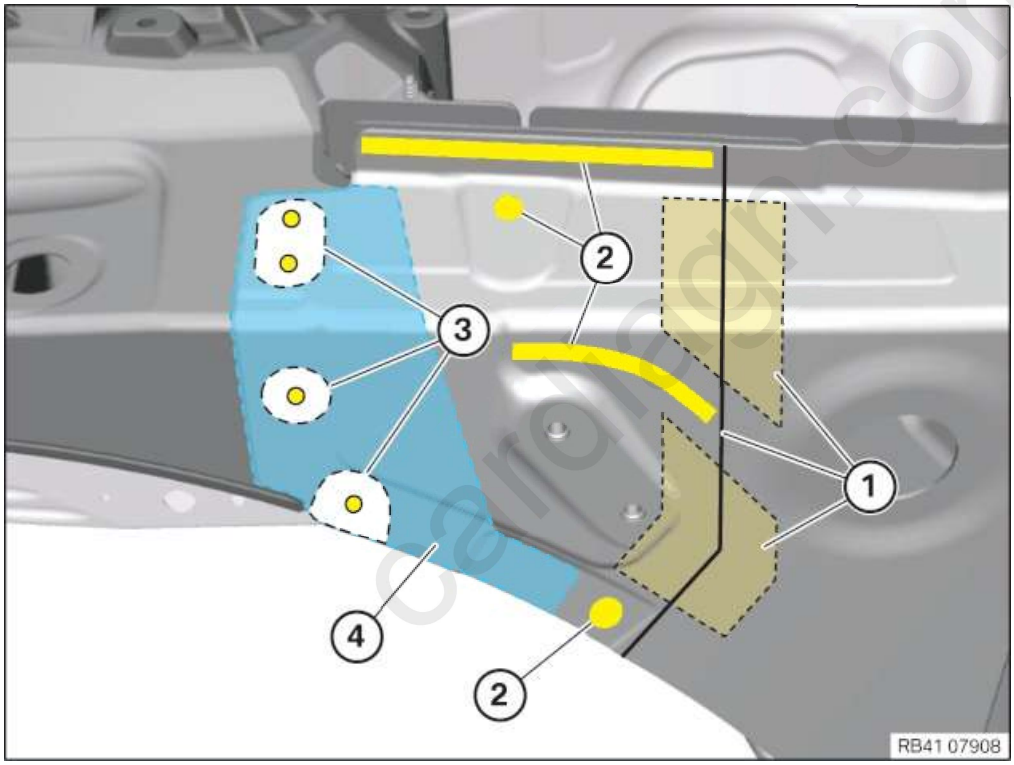
- Rivet the new part in the areas (1) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414

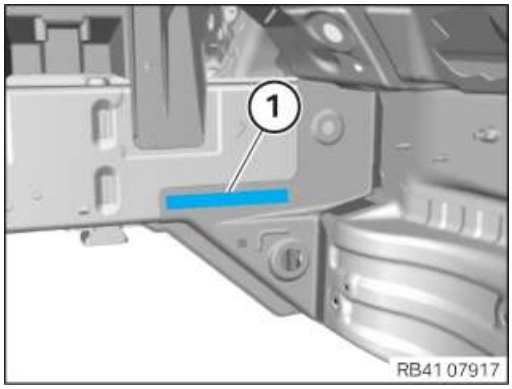


- Install the reinforcement plates (1) and attach by welding.
- Observe the bonding surface (2) of the aluminium spring support.



- Install the new part section and weld it in the areas (1) to (3).
- While doing so, observe the adhesive area (4) of the aluminium spring support.

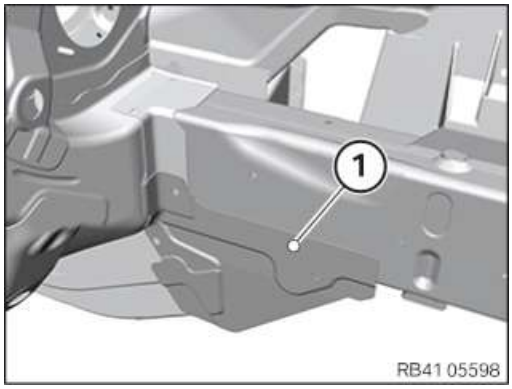
  Avoid applying too much heat to adjacent adhesive area (4).



- Install an EMC screw in area (1).

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639



- Install an EMC screw in area (1).

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639

Additional Information

Overview of Special Tools

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Opening bonded connections	4
41 00 ... Opening rivet connections	4
41 00 ... BMW bonding instructions	5
41 00 ... Spot-weld bonding steel components	5
41 0 Repair techniques, repair stage 3	

Repair instructions	Used in step
41 00 ... Installing cavity sealing (not expanded)	6

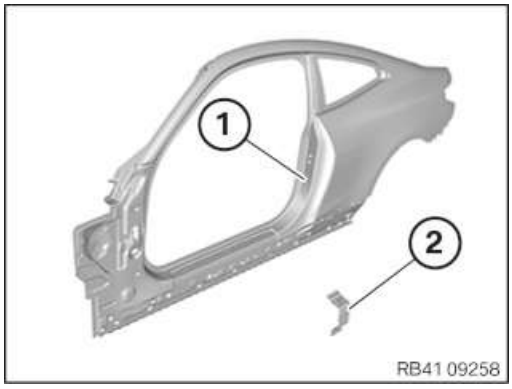
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41 11 311 Replacing entrance for door front left

TECHNICAL INFORMATION

- Observe the procedure for repair stage 3.
For additional information see: 41 00 ... Repair method for repair stage 3
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required

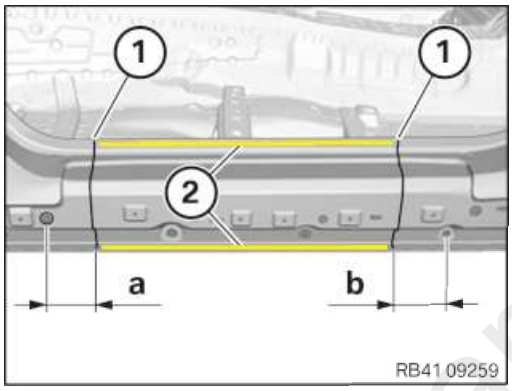


- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Side frame, outer(1)

  2 x reinforcement plates for side sill (2)

2 – Remove the door sill at the front door



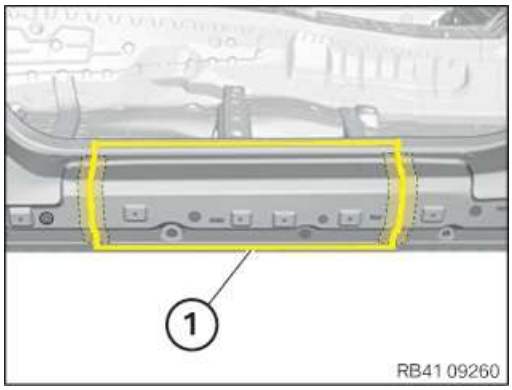
- Mark and execute the separating cuts (1) in accordance with the specified dimensions. Thereby disconnect only the outer panel.

  Dimension a = 85 mm from the central point of hole Ø 25 mm.

  Dimension b = 110 mm from the central point of the hole of Ø 15 mm.
- Release welded connections in areas (2).
- Remove the section of the side sill.

3 – Prepare new part

- Carry out separating cuts on the new part according to the separating cut on the vehicle.



TECHNICAL INFORMATION

For additional information see: 41 00 ... Weld in the reinforcement plates (sheet steel)

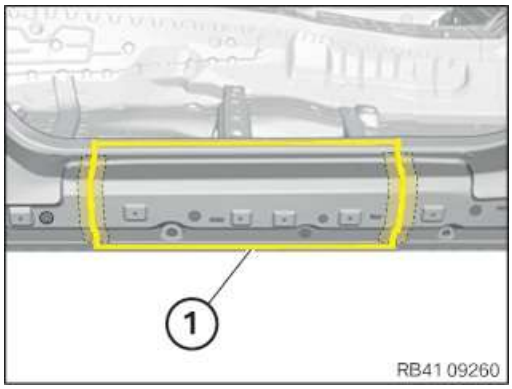
- Prepare the reinforcement plates at separating cuts.
- Adjust the new part and the reinforcement plate and in the area (1), prepare for joining by welding.

4 – Install the door sill at the front door

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TECHNICAL INFORMATION

Use only approved spot-welding apparatus for repair.
For additional information see: 41 00 ... Workshop equipment



- Install the new part and reinforcement plates and weld them in area (1).

Additional Information

Links

General repair instructions	Used in step
41 00 ... Opening bonded connections	2
41 00 ... Workshop equipment (BMW and MINI vehicles)	4
41 00 ... Repair techniques, repair stage 3	

Repair instructions	Used in step
41 00 ... Welding in reinforcement plate (sheet steel)	3

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41 ... 0 Notes on the repair technique used in the main group 41

Two different repair techniques are used in body repair.

These are welding and bonding/riveting.

If the repair instructions do not specify a repair technique, then welding must **always** be used.

The bonding/riveting repair technique is **always** described in detail in the repair instructions.

Quality standards must be met.

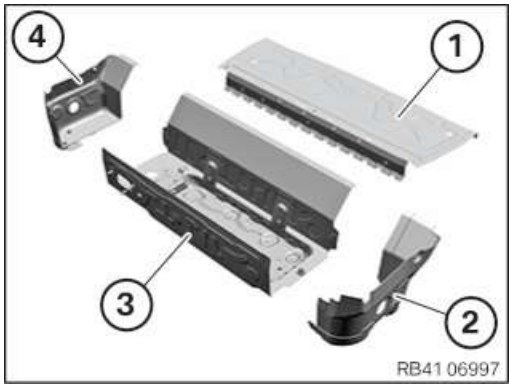
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41 12 557 Replace luggage compartment floor, middle section

TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.
For additional information see: 41 00 ... Repair method for repair stage 2
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Prepare the following new parts (see Electronic Parts Catalogue):
  - Rear luggage compartment floor (1)
  - Luggage compartment well outer section, left (2)
  - Luggage compartment well (3)
  - Luggage compartment well outer section, right (4)

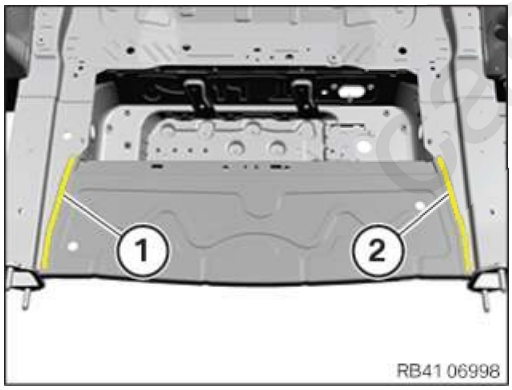
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

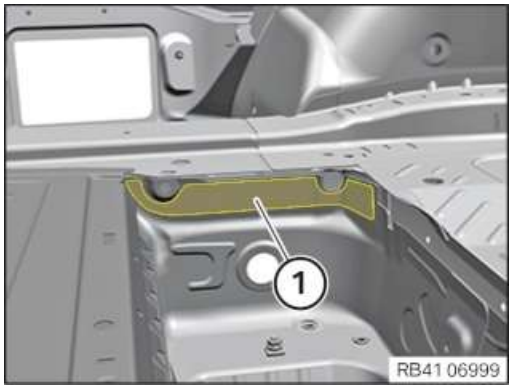
- Keep the following consumables ready:

Material	Quantity
Coarse thread bolt	25
Sealing compound D1	

2 – Removing the centre luggage compartment floor



- Open welded connections in areas (1) and (2).

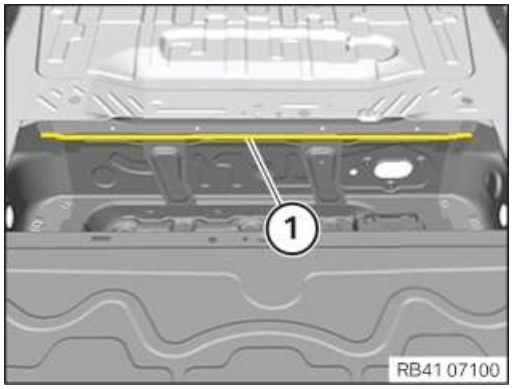


NOTICE

Perform the operations on the left and right side.

- Open welded connections in area (1).

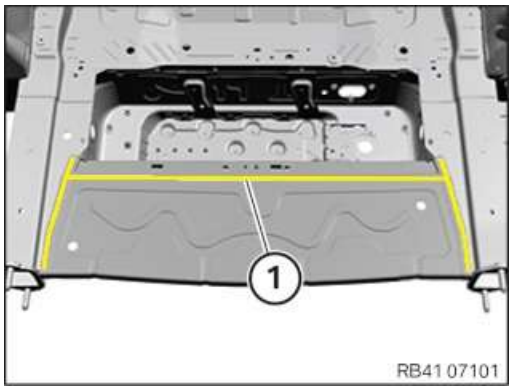
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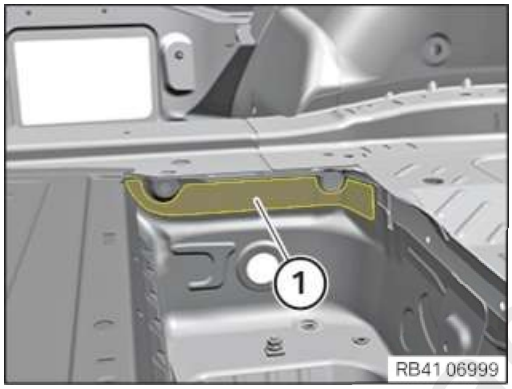
- Open welded connections in area (1) and remove the support .

3 – Prepare new part

- Adjust the new parts in combination with the tail panel to fit and secure.



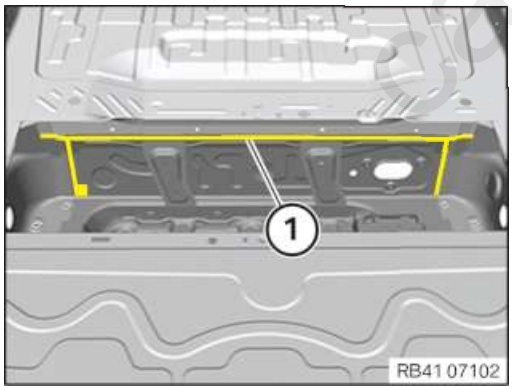
- Prepare areas (1) for joining by welding.



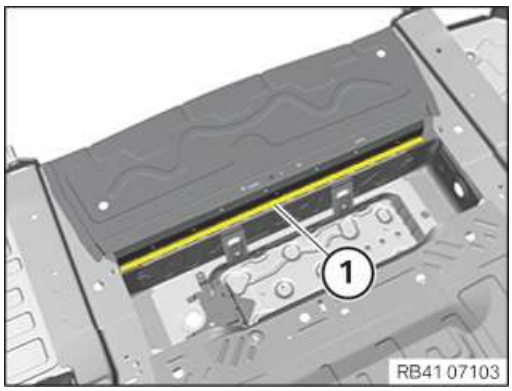
NOTICE

Perform the operations on the left and right side.

- Prepare areas (1) for joining by welding.

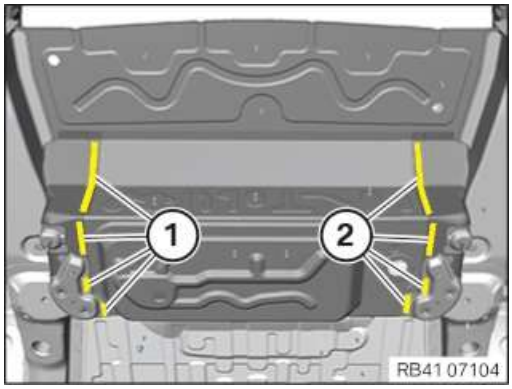


- Prepare areas (1) for joining by welding.



- Prepare areas (1) for joining by welding.

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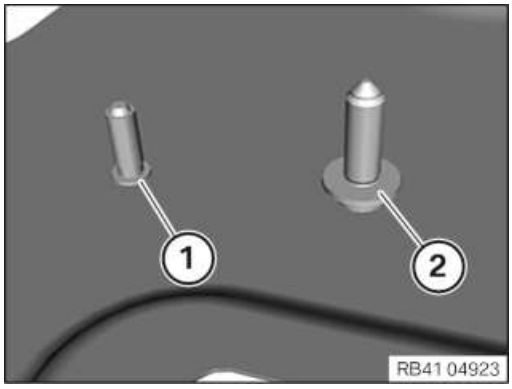


- Prepare areas (1) and (2) for joining by welding.

▸ **Replacing the coarse thread bolt and threaded weld bolt, steel surface**

NOTICE

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



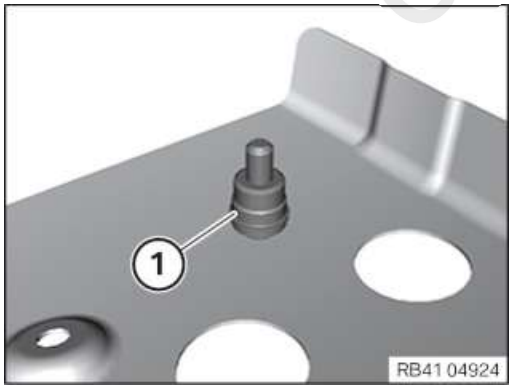
- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

▸ **Checking the ground pin and replacing if necessary**

NOTICE

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



- Check the ground pin (1) for stability and renew where required.

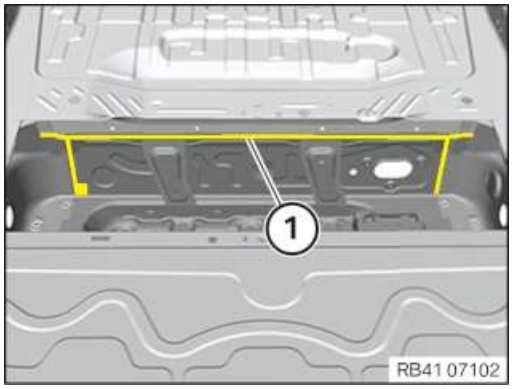
4 – Installing centre luggage compartment floor

TECHNICAL INFORMATION

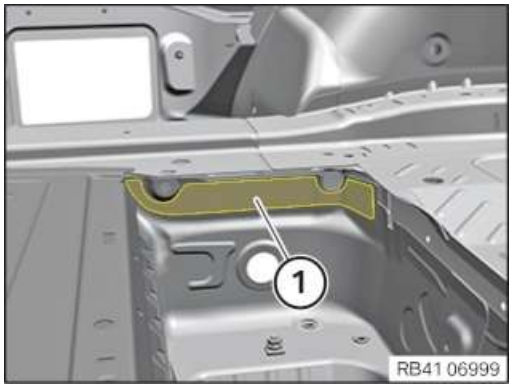
Use only approved spot-welding apparatus for repair.
For additional information see: 41 00 ... Workshop equipment

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- Install new parts and secure.



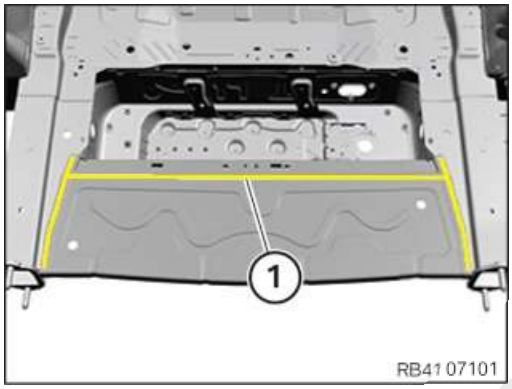
- Weld the new parts in the area (1).



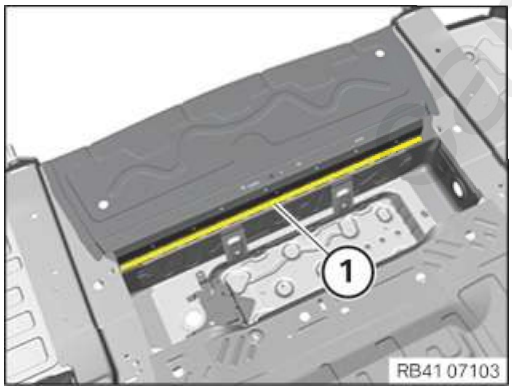
NOTICE

Perform the operations on the left and right side.

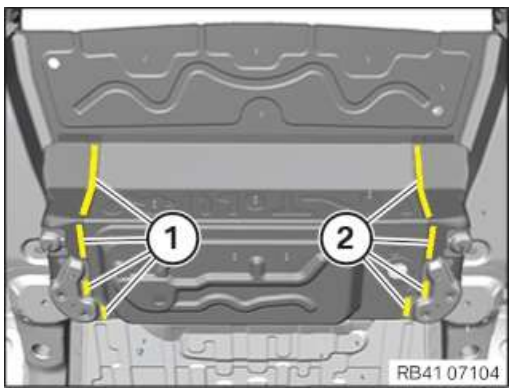
- Weld the new parts in the area (1).



- Weld the new parts in the area (1).



- Weld the new parts in the area (1).



- Weld the new parts in areas (1) and (2).

Additional Information

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Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Workshop equipment (BMW and MINI vehicles)	4
41 00 ... Repair techniques, repair stage 2	

cardiagn.com

41 12 190 Replacing left luggage compartment base

TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.
For additional information see: 41 00 ... Repair method for repair stage 2
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Luggage compartment floor, left(1)

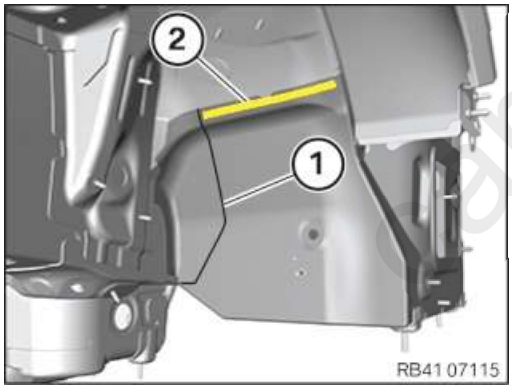
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

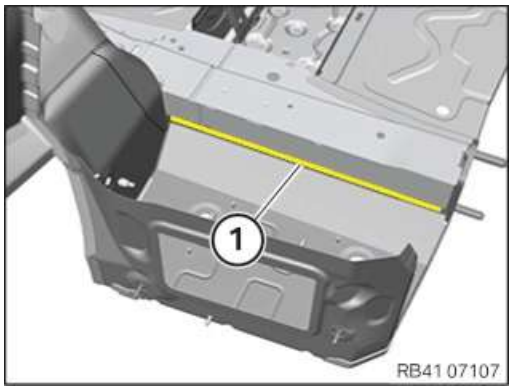
- Supply the following consumables:

Material	Quantity
Coarse thread bolt	10
Threaded weld bolt	5
Sealing compound D1	

2 – Removing the left luggage compartment floor



- Make the separating cut (1) according to the schematic diagram.
- Open welded connections in area (2).

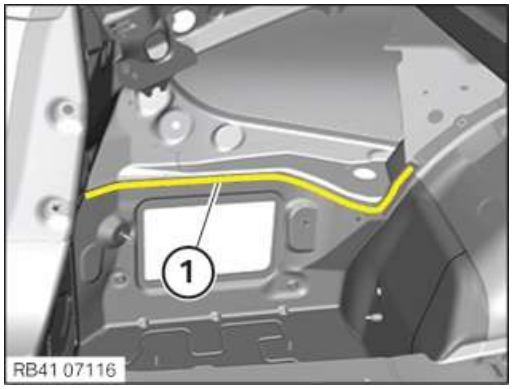


NOTICE

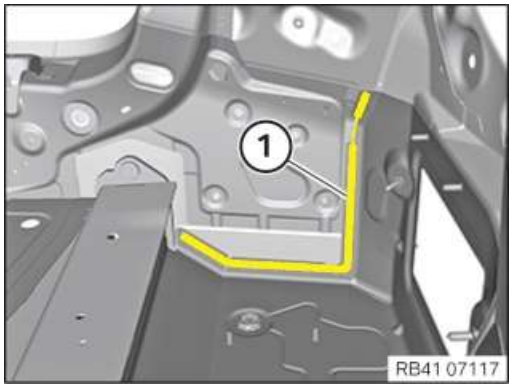
To provide a better overview: Shown without side panel and without tail panel.

- Open welded connections in area (1).

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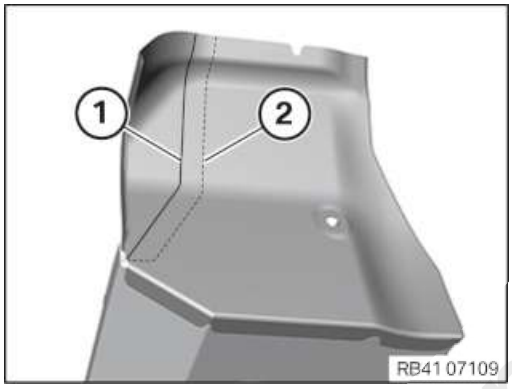


- Open welded connections in area (1).

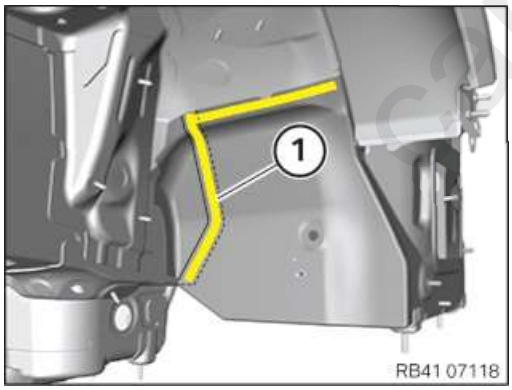


- Open welded connections in area (1) and remove the support .

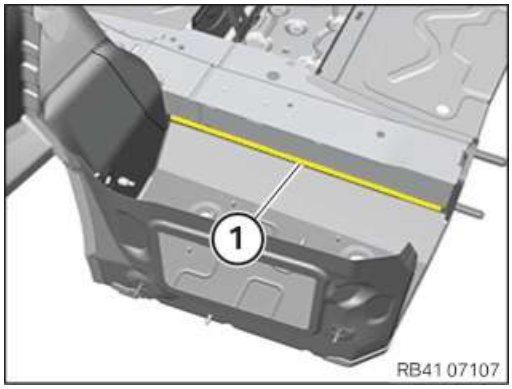
3 – Prepare new part



- Mark and carry out separating cut (1) on new part as per separating cut (2) on vehicle + 20 mm material allowance.



- Adjust new part to fit and secure.
- Prepare area (1) for joining by welding.

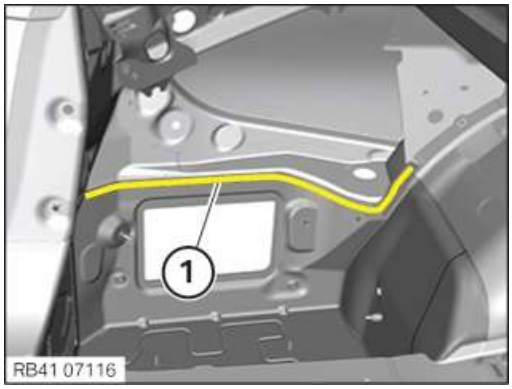


NOTICE

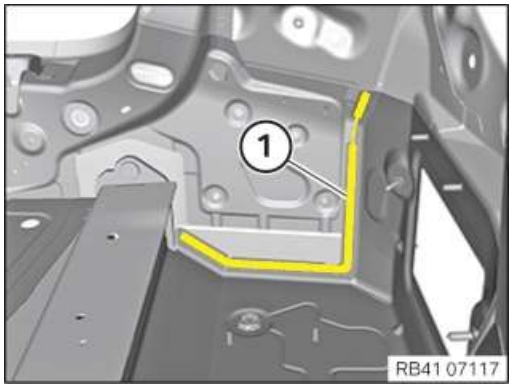
To provide a better overview: Shown without side panel and without tail panel.

- Prepare area (1) for joining by welding.

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- Prepare area (1) for joining by welding.

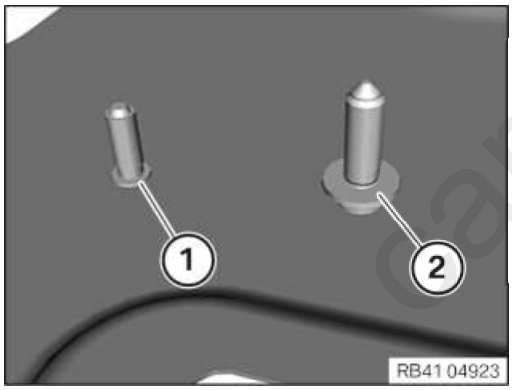


- Prepare area (1) for joining by welding.

▸ **Replacing the coarse thread bolt and threaded weld bolt, steel surface**

NOTICE

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



- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

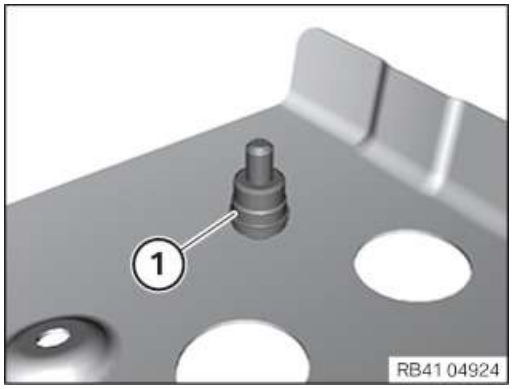
  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

▸ **Checking the ground pin and replacing if necessary**

NOTICE

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

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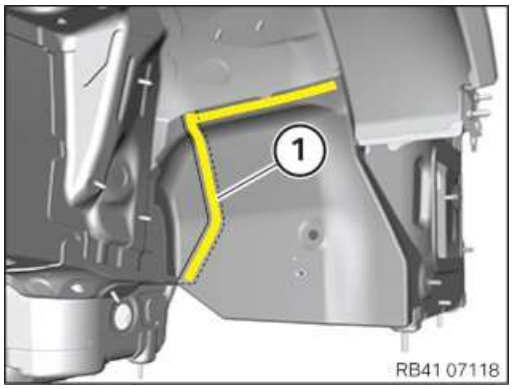


- Check the ground pin (1) for stability and renew where required.

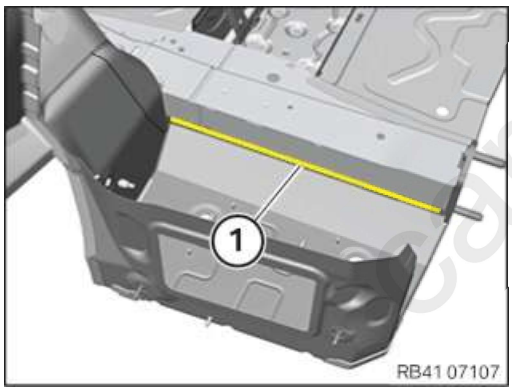
4 – Installing the left luggage compartment floor

TECHNICAL INFORMATION

Use only approved spot-welding apparatus for repair.
For additional information see: 41 00 ... Workshop equipment



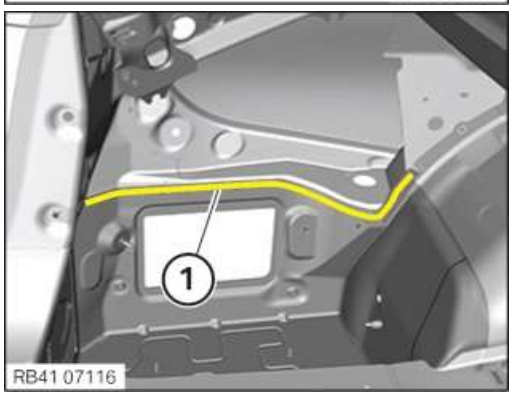
- Install new part and weld in the area (1).



NOTICE

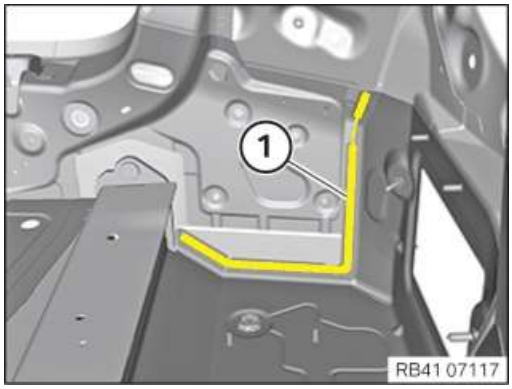
To provide a better overview: Shown without side panel and without tail panel.

- Weld the new part in the area (1).



- Weld the new part in the area (1).

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- Weld the new part in the area (1).

Additional Information

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Opening bonded connections	2
41 00 ... Workshop equipment (BMW and MINI vehicles)	4
41 00 ... Repair techniques, repair stage 2	

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41 12 653 Replacing left luggage compartment base

TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.
For additional information see: 41 00 ... Repair method for repair stage 2
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Luggage compartment floor, left(1)

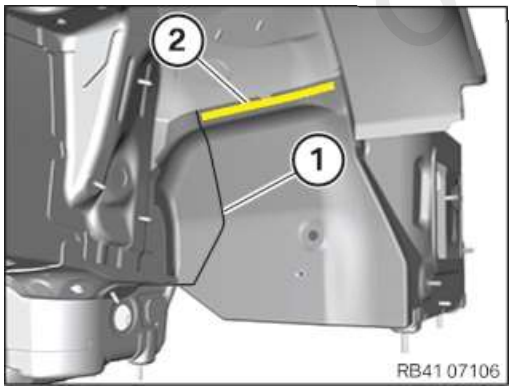
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

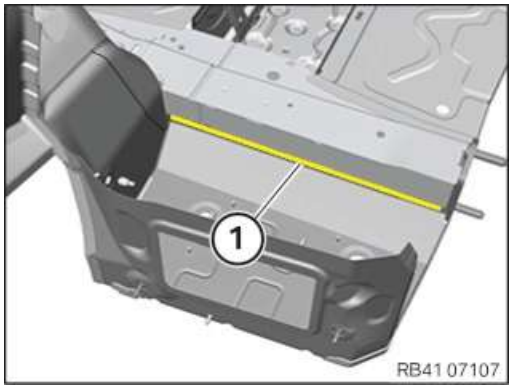
Material	Quantity
Adhesive K5 (50 ml)	1
Blind rivet N3	15
Coarse thread bolt	10
Threaded weld bolt	5
Cleaner R1	1
Cleaner R2	1
Sealing compound D1	
Cavity sealing wax remover	

2 – Removing the left luggage compartment floor

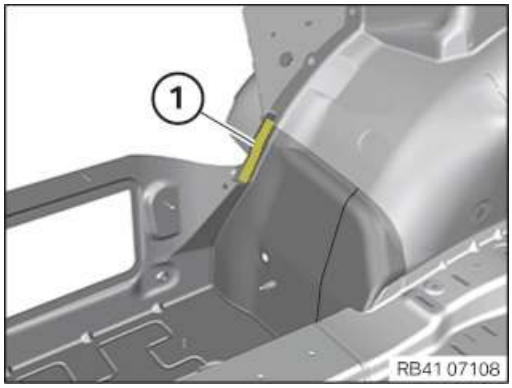


- Make the separating cut (1) according to the schematic diagram.
- Open welded connections in area (2).

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- Open welded connections in area (1).

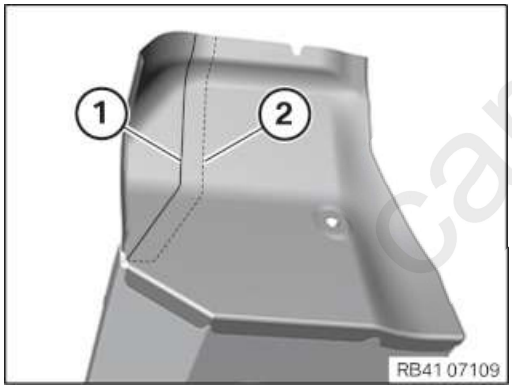


- Open welded connections in area (1) and remove the support .

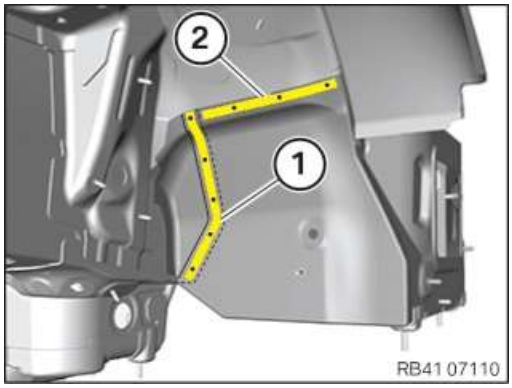
3 – Preparing the new part

TECHNICAL INFORMATION

Adhesive technology in the area of the outer skin (not for structural adhesion):
The bonding surfaces of the new parts may not sharpened or ground.
For additional information see: 41 00 ... BMW bonding instructions



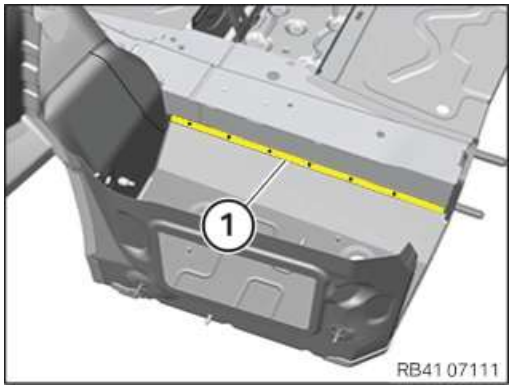
- Mark and carry out separating cut (1) on new part as per separating cut (2) on vehicle + 20 mm material allowance.



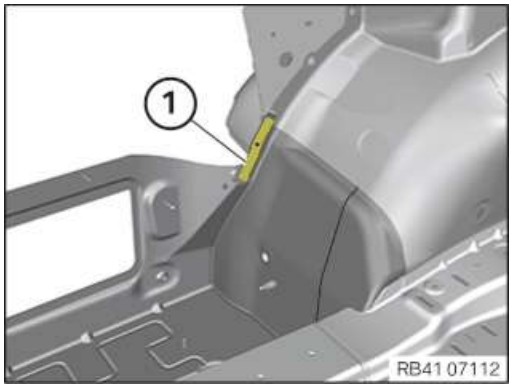
- Adjust the luggage compartment floor and secure.
- Prepare the joints in areas (1) and (2) using the bond-and-rivet method.
- In the areas (1) and (2), make 8 x bore hole with Ø 4.2 mm for blind rivet.

Area	Number
1	5
2	3

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- Prepare area (1) for joining by glue rivet method.
- In area (1), set 6 bore holes diameter 4.2 mm for blind rivets.

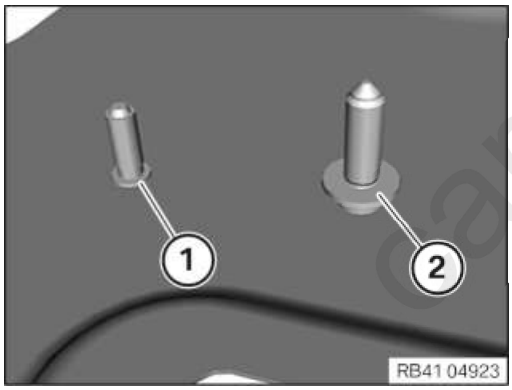


- Prepare area (1) for joining by bonded rivet method.
- In the area (1), drill out a bore hole of diameter 4.2 mm for blind rivet.
- Remove new component. Deburr bore holes.

▸ Replacing the coarse thread bolt and threaded weld bolt, steel surface

NOTICE

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



- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

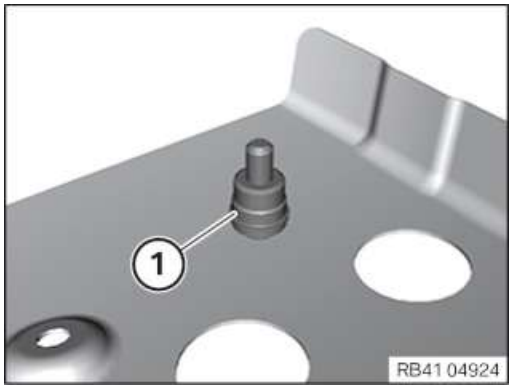
  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

▸ Checking the ground pin and replacing if necessary

NOTICE

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

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- Check the ground pin (1) for stability and renew where required.

4 – Installing the left luggage compartment floor

- Pre-clean the bonding surfaces at the new part and vehicle using R2 solvent cleaner.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean bonding surfaces on vehicle and on new part with cleaning agent R1.

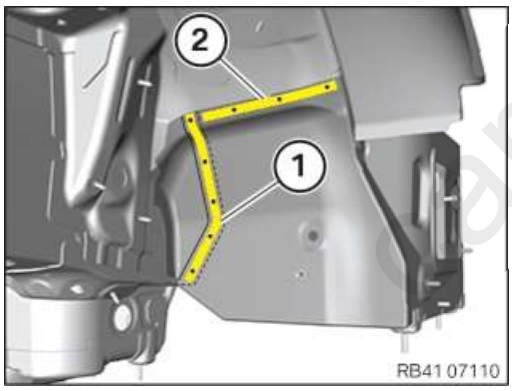
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

- Apply adhesive K5 to the bonding surfaces.

Adhesive

Body adhesive K5	50 ml	83192158654



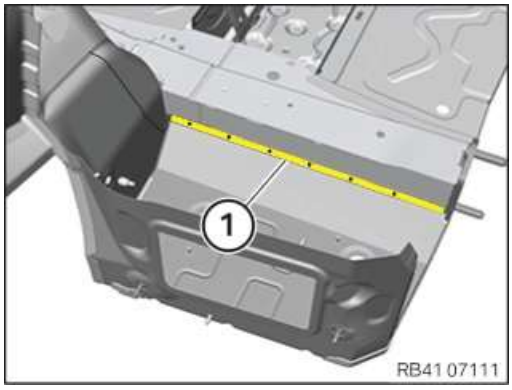
TECHNICAL INFORMATION

When installing the new part, make sure that all bonding surfaces have sufficient adhesive.

- Install the new part and rivet it in the areas (1) and (2) with blind rivets N3.

Expendable materials

Blind rivet N3 Dia. 4 mm; clamping area 1-3 mm		83190301421

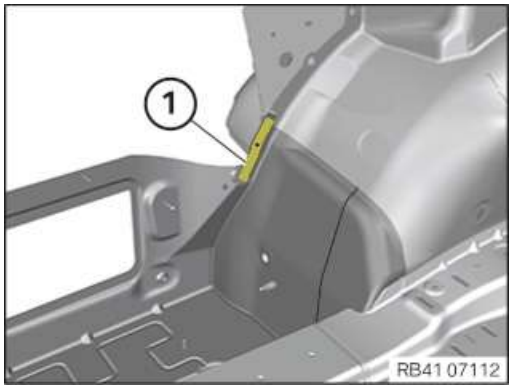


- Rivet the new part in area (1) with blind rivets N3.

Expendable materials

Blind rivet N3 Dia. 4 mm; clamping area 1-3 mm		83190301421

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- In area (1), rivet the new part with blind rivet N3.

Expendable materials

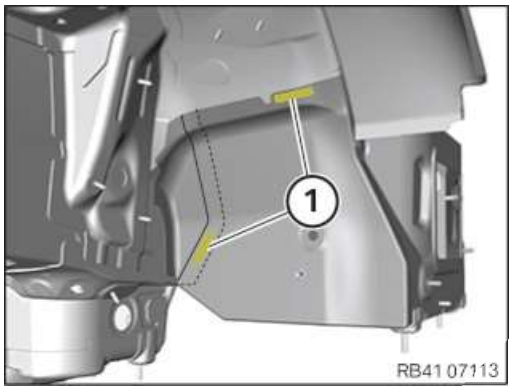
Blind rivet N3 Dia. 4 mm; clamping area 1-3 mm		83190301421

▸ **Installing the EMC screw**

- Drill a hole with a diameter of 4.2 mm after the adhesive has hardened completely .
- Screw in the EMC screw.
- Seal the EMC screw with sealant.

Expendable materials

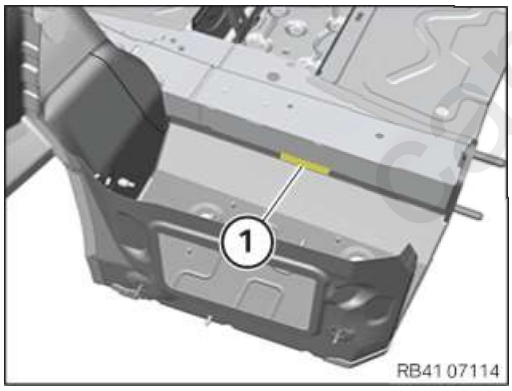
Sealant D1 (seam sealing)	310 ml	83422409985



- After the adhesive hardens, install two EMC screws in areas (1) .

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639



- After the adhesive has hardened in area (1), install an electromagnetic compatibility screw.

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639

Additional Information

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Opening bonded connections	2
41 00 ... BMW/MINI bonding instructions	3
41 00 ... Spot-weld bonding steel components	3
41 00 ... Workshop equipment (BMW and MINI vehicles)	4
41 00 ... Repair techniques, repair stage 2	

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41 12 700 Replacing the left luggage compartment floor and side member

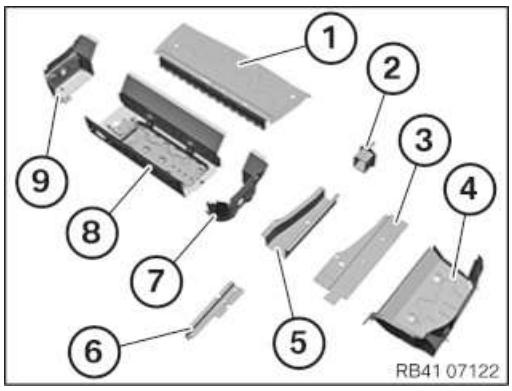
Prerequisite

- Vehicle is fixed on straightening bench.

TECHNICAL INFORMATION

- Observe the procedure for repair stage 3.
For additional information see: 41 00 ... Repair method for repair stage 3
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

Rear luggage compartment floor (1)

Panel for rear bumper (2)

Extension of rear top side member (3)

Side section of luggage compartment floor (4)

Extension of rear bottom side member (5)

reinforce., side member(6)

Luggage compartment well, left(7)

Luggage compartment well(8)

Luggage compartment well, right(9)

TECHNICAL INFORMATION

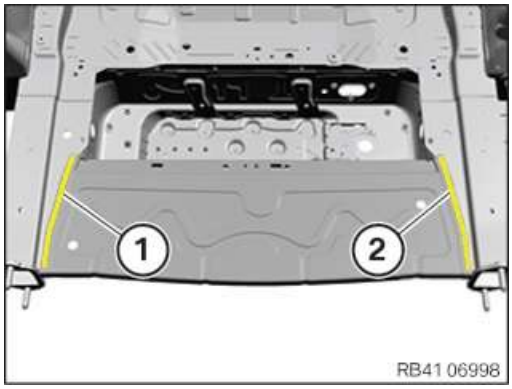
For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

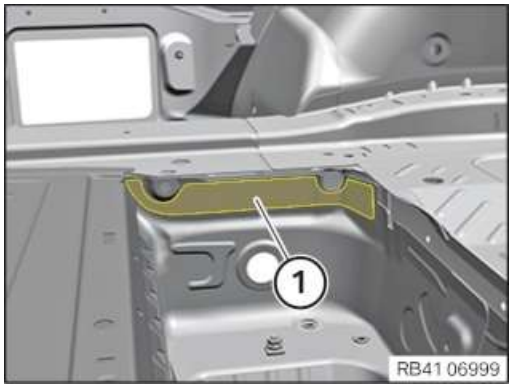
Material	Quantity
Adhesive K5 (50 ml)	1
Blind rivet N3	20
Coarse thread bolt	25
Threaded weld bolt	5
EMC screw	3
Cleaner R1	1
Cleaner R2	1
Sealing compound D1	1
Cavity sealing wax remover	

2 – Remove luggage space tray and left side rail

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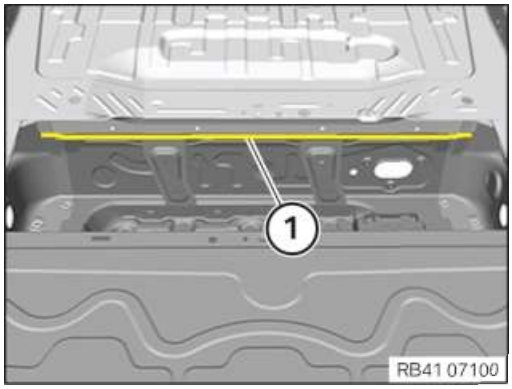
- Open welded connections in areas (1) and (2).



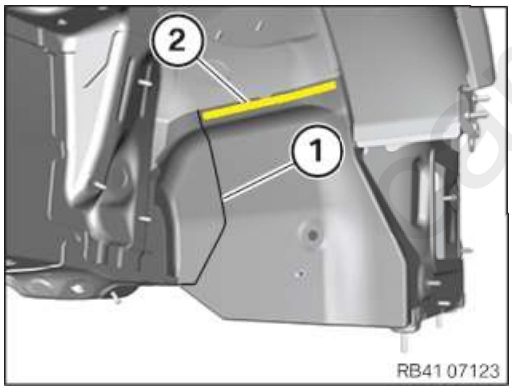
NOTICE

Perform the operations on the left and right side.

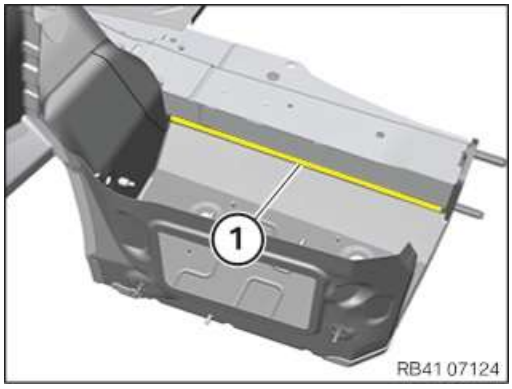
- Open welded connections in area (1).



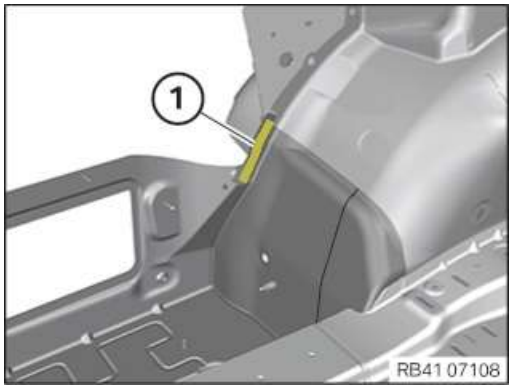
- Open welded connections in area (1) and remove the support .



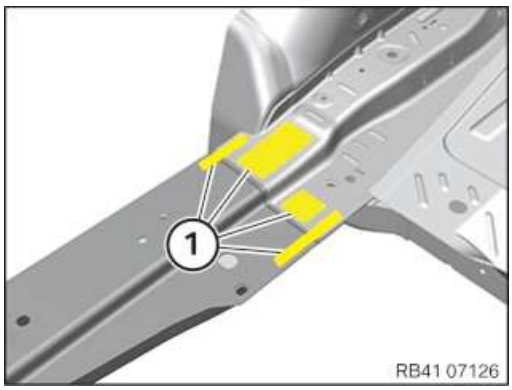
- Make the separating cut (1) as shown.
- Open welded connections in area (2).



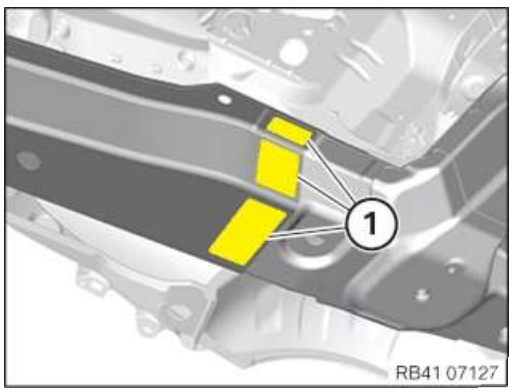
- Open welded connections in area (1).



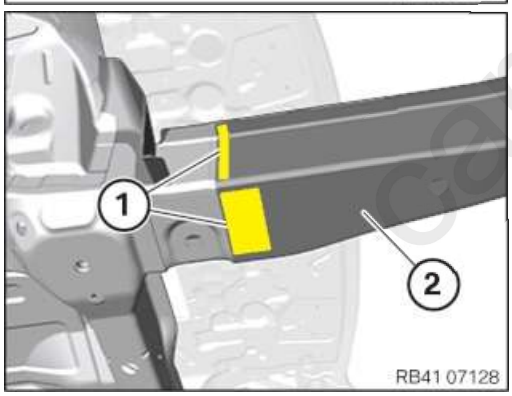
- Open welded connections in area (1) and remove the support .



- Release welded connections in areas (1).



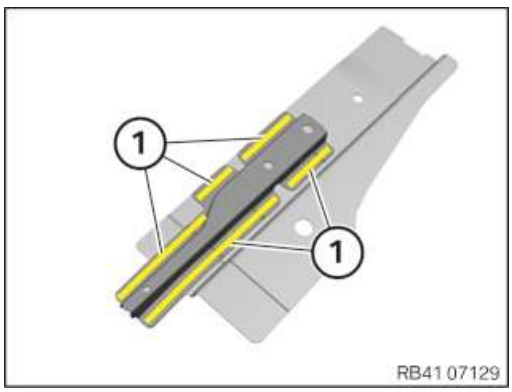
- Release welded connections in areas (1).



- Release the welded connections in areas (1) and remove the side member (2).

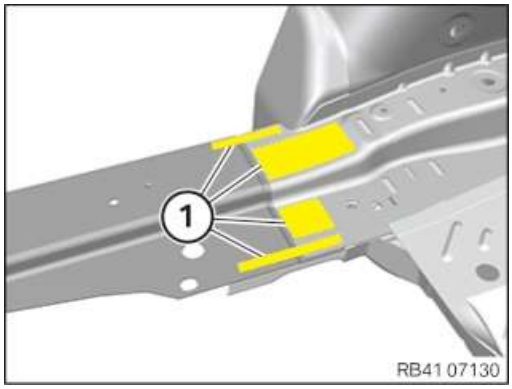
3 – Preparing new parts

▸ **Prepare left side member**

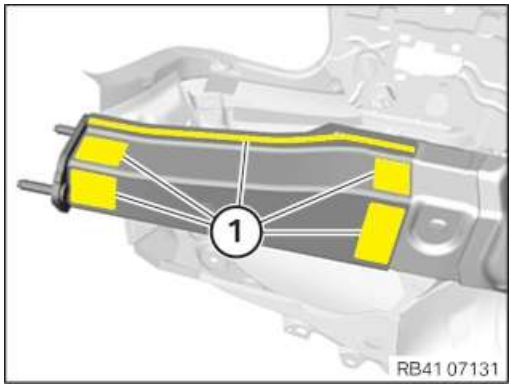


- Position new parts and prepare for welding in the areas (1).

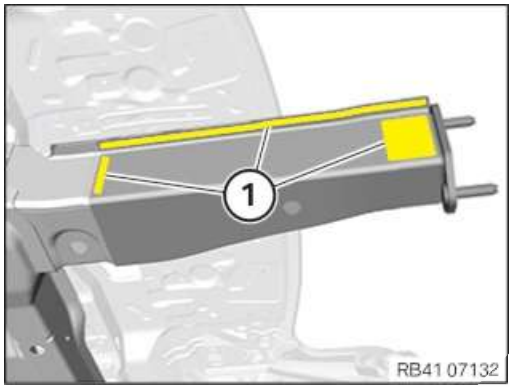
cardiagn.com



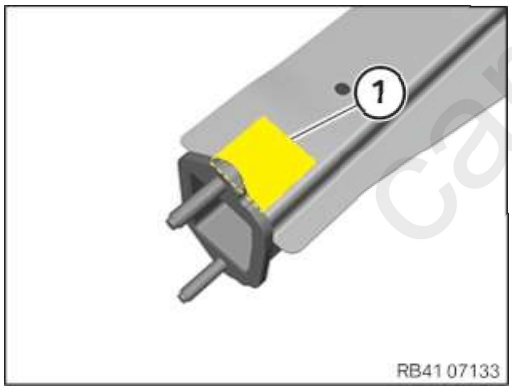
- Adjust new parts to fit with alignment bracket or universal fixture and secure.
- Prepare new parts for welding in the areas (1).



- Adjust the new parts and prepare for welding in the areas (1).



- Prepare new parts for welding in the areas (1).



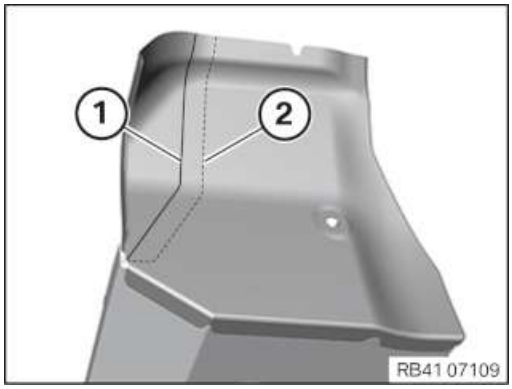
- Prepare new parts for welding in the area (1).

▸ **Preparing the luggage compartment floor net on the left**

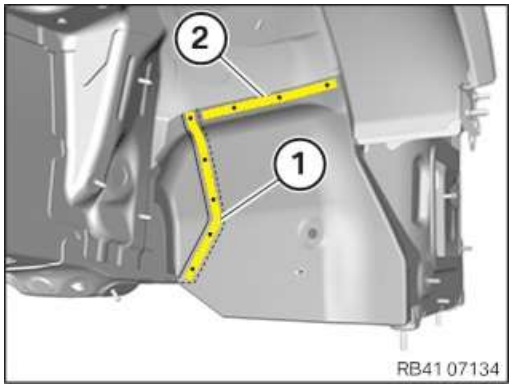
TECHNICAL INFORMATION

Adhesive technology in the area of the outer skin (not for structural adhesion):
The bonding surfaces of the new parts may not sharpened or ground.
For additional information see: 41 00 ... BMW bonding instructions

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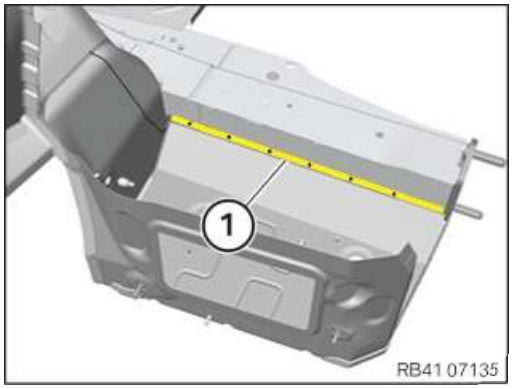


- Mark and carry out separating cut (1) on new part as per separating cut (2) on vehicle + 20 mm material allowance.

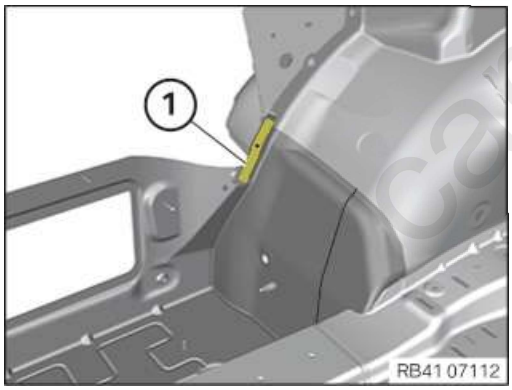


- Adjust and fix the new part together with the tail panel.
- Prepare the joints in areas (1) and (2) using the bond-and-rivet method.
- In the areas (1) and (2), set 8 bore holes of Ø 4.2 mm for blind rivet.

Area	Number
1	5
2	3



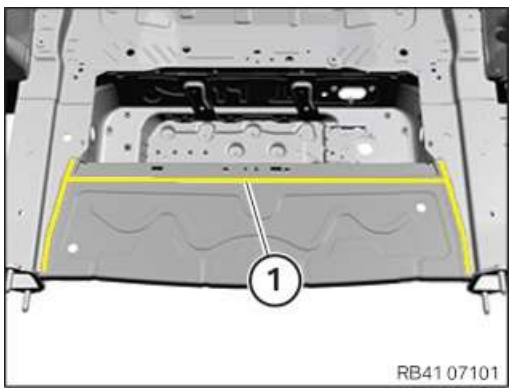
- Prepare area (1) for joining by glue rivet method.
- In the area (1), drill out 6 bore holes of Ø 4.2 mm for blind rivet.



- Prepare area (1) for joining by bonded rivet method.
- In the area (1), drill out a bore hole of Ø 4.2 mm for blind rivet.
- Remove new component. Deburr bore holes.

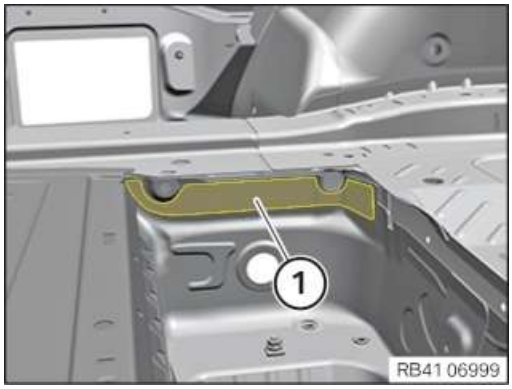
▸ Preparing the centre luggage compartment floor

- Adjust the new parts in combination with the tail panel to fit and secure.



- Prepare area (1) for joining by welding.

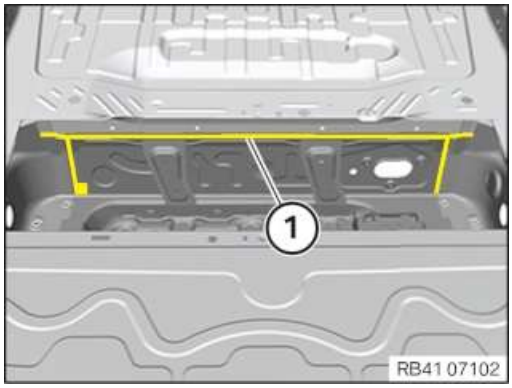
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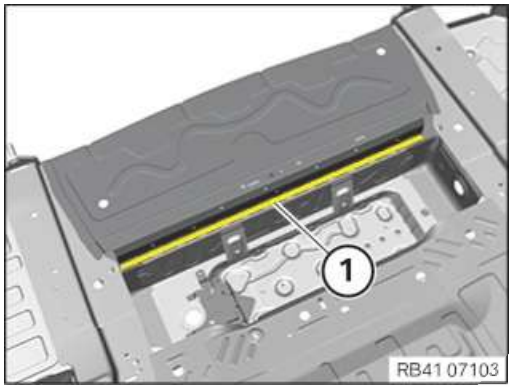
NOTICE

Perform the operations on the left and right side.

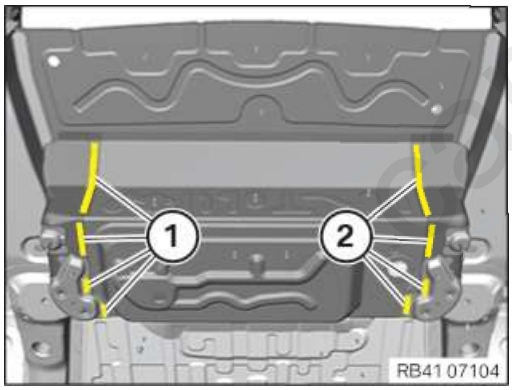
- Prepare area (1) for joining by welding.



- Prepare area (1) for joining by welding.



- Prepare area (1) for joining by welding.



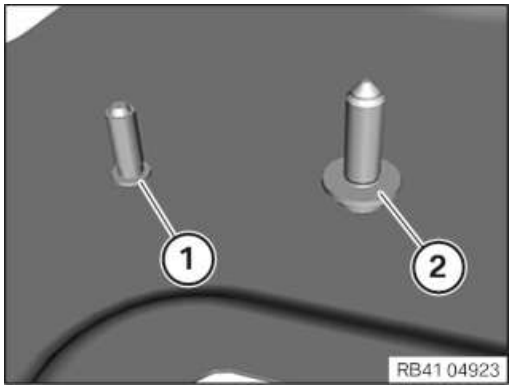
- Prepare areas (1) and (2) for joining by welding.

▸ Replacing the coarse thread bolt and threaded weld bolt, steel surface

NOTICE

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

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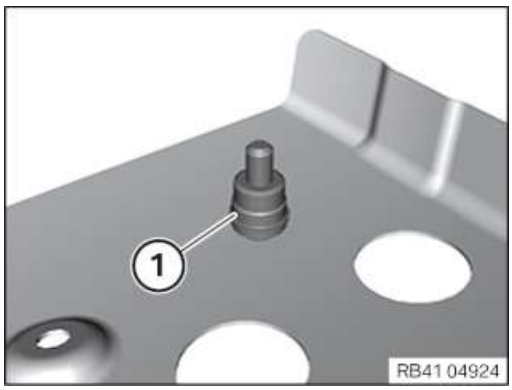
- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

▸ **Checking the ground pin and replacing if necessary**

NOTICE

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



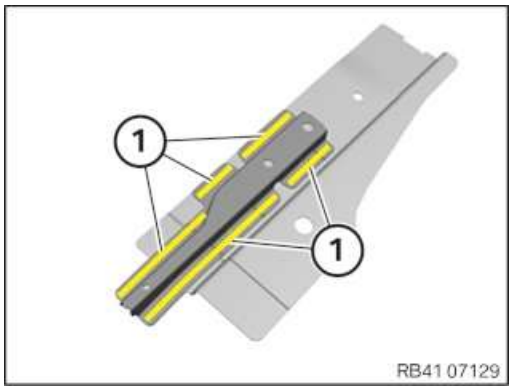
- Check the ground pin (1) for stability and renew where required.

4 – Install new parts

▸ **Installing left side member**

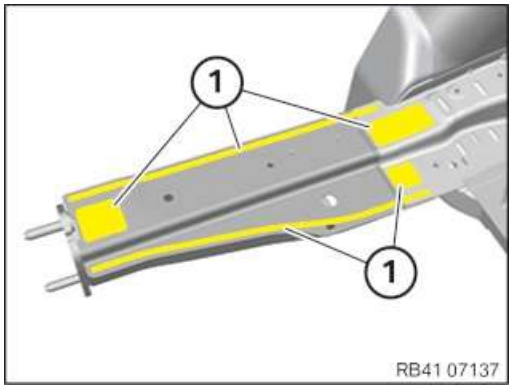
TECHNICAL INFORMATION

Use only approved spot-welding apparatus for repair.
For additional information see: 41 00 ... Workshop equipment

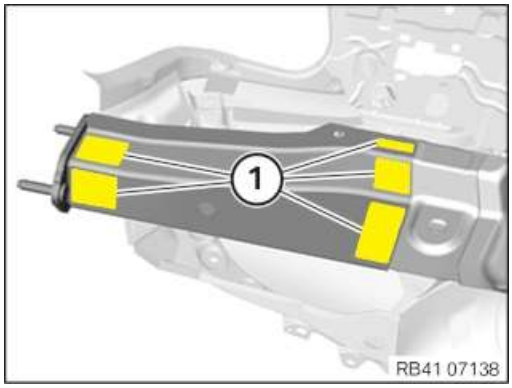


- Weld new part in the area(1).

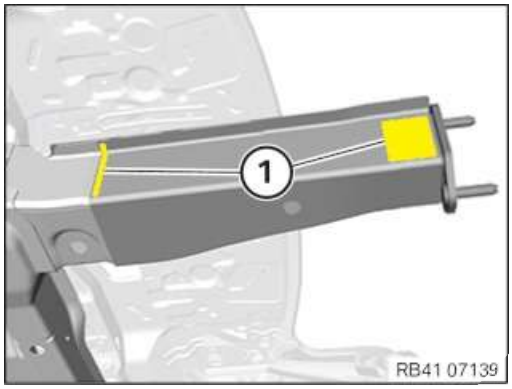
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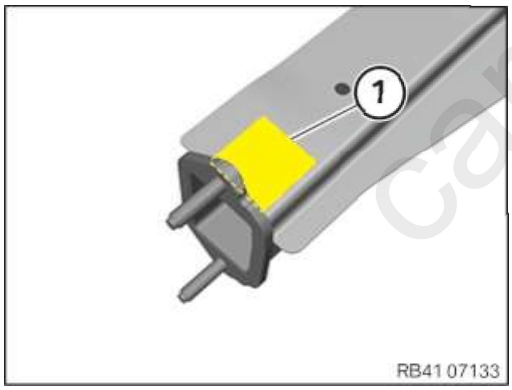
- Adjust new parts to fit with alignment bracket or universal mount and secure.
- Weld new part in the area(1).



- Weld new part in the area(1).



- Weld new part in the area(1).



- Weld the new parts in the area (1).

▸ **Installing the left luggage compartment floor**

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- Pre-clean the bonding surfaces at the new part and vehicle using R2 solvent cleaner.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean bonding surfaces on vehicle and on new part with cleaning agent R1.

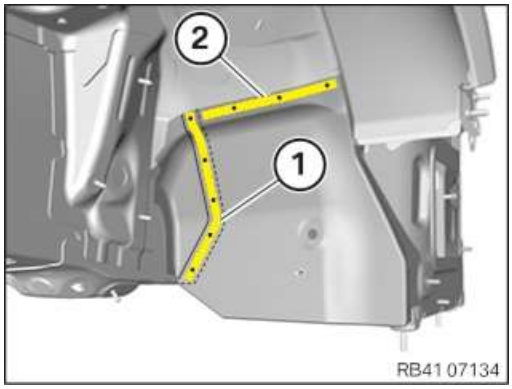
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

- Apply adhesive K5 to the bonding surfaces.

Adhesive

Body adhesive K5	50 ml	83192158654



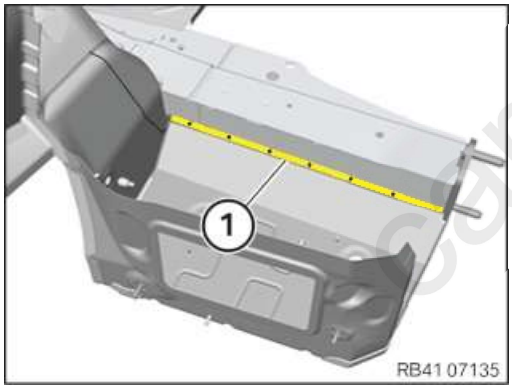
TECHNICAL INFORMATION

When installing the new part, make sure that all bonding surfaces have sufficient adhesive.

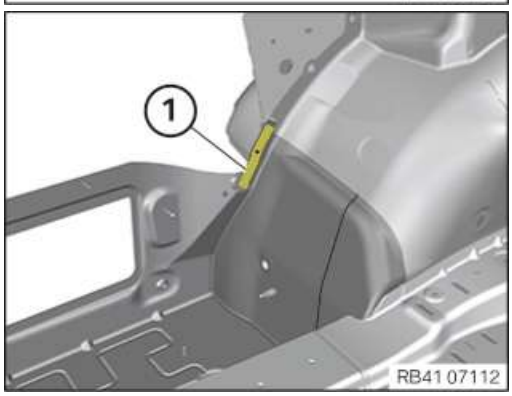
- Install the new part and rivet it in the areas (1) and (2) with blind rivets N3.

Expendable materials

Blind rivet N3 Dia. 4 mm; clamping area 1-3 mm		83190301421



- Rivet the new part in area (1) with blind rivets N3.



- In area (1), rivet the new part with blind rivet N3.

▷ **Installing the EMC screw**

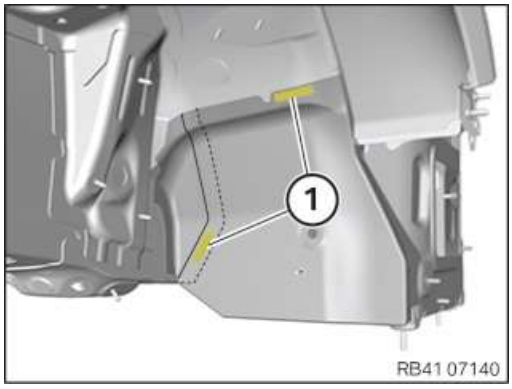
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- Drill a hole with a diameter of 4.2 mm after the adhesive has hardened completely .
- Screw in the EMC screw.
- Seal the EMC screw with sealant.

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985

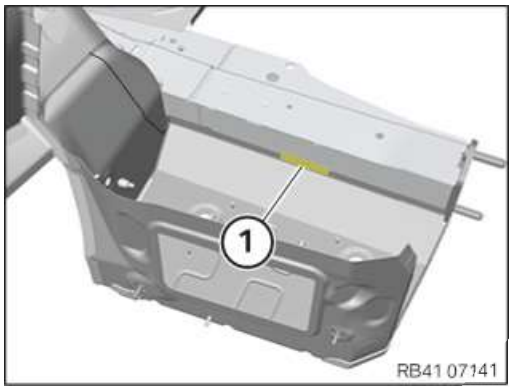
◁



- After the adhesive hardens, install two EMC screws in areas (1) .

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639



- After the adhesive has hardened in area (1), install an electromagnetic compatibility screw.

Expendable materials

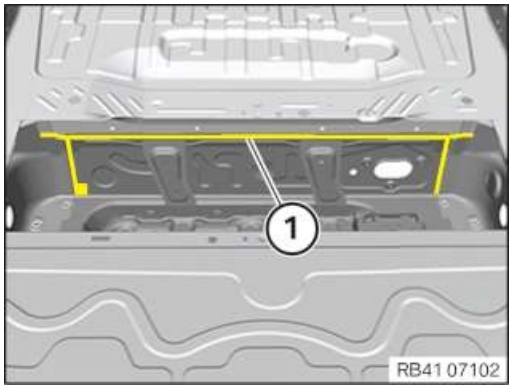
Screw EMC screw, SF Plus, M5x15		83190301639

▶ **Installing centre luggage compartment floor**

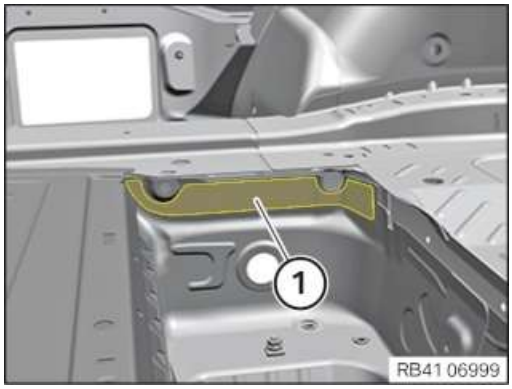
TECHNICAL INFORMATION

Use only approved spot-welding apparatus for repair.
For additional information see: 41 00 ... Workshop equipment

- Install new parts and secure.
- Weld the new parts in the area (1).



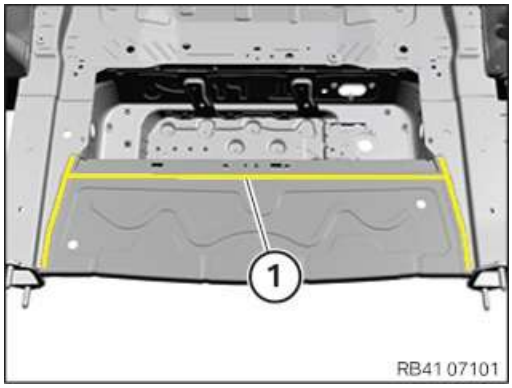
cardiagn.com



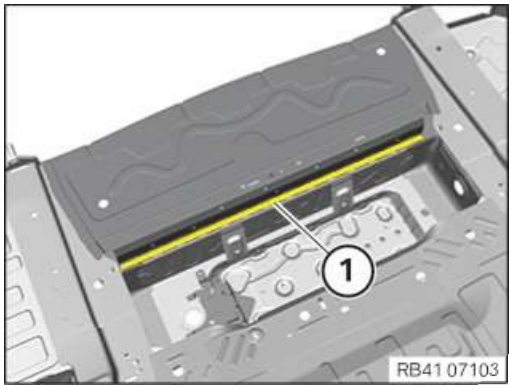
NOTICE

Perform the operations on the left and right side.

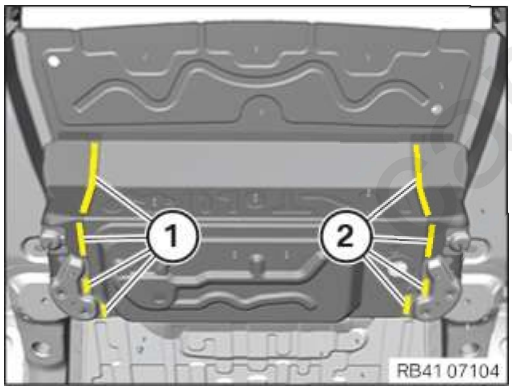
- Weld the new parts in the area (1).



- Weld the new parts in the area (1).



- Weld the new parts in the area (1).



- Weld the new parts in areas (1) and (2).

Additional Information

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... BMW/MINI bonding instructions	3
41 00 ... Workshop equipment (BMW and MINI vehicles)	4
41 00 ... Repair techniques, repair stage 3	

41 12 701 Replacing the luggage compartment floor and right-hand side member

Prerequisite

- Tail panel has been removed.

  Vehicle is fixed on straightening bench.

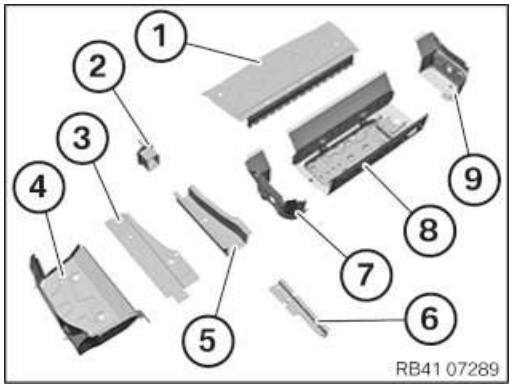
TECHNICAL INFORMATION

- Observe the procedure for repair stage 3.

For additional information see: 41 00 ... Repair method for repair stage 3

- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Rear luggage compartment floor (1)

  Panel for rear bumper (2)

  Extension of rear top side member (3)

  Side section of luggage compartment floor (4)

  Extension of rear bottom side member (5)

  reinforce., side member(6)

  Luggage compartment well, right(7)

  Luggage compartment well(8)

  Luggage compartment well, left(9)

  Holder for power distribution box

TECHNICAL INFORMATION

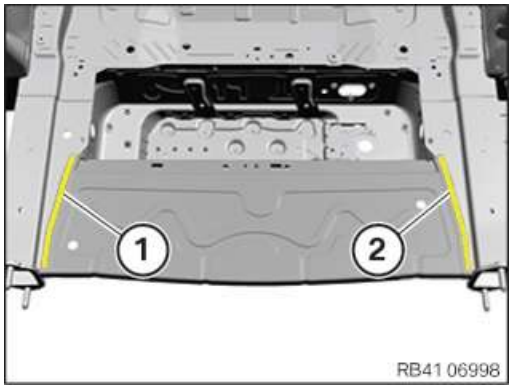
For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

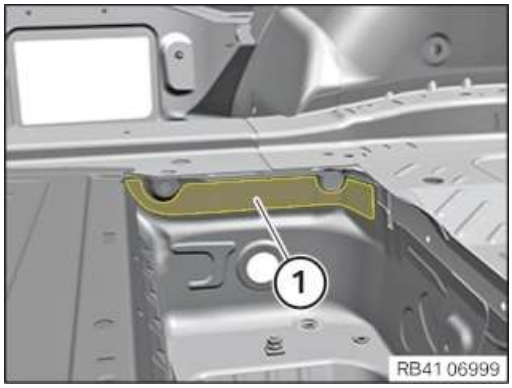
Material	Quantity
Adhesive K5 (50 ml)	1
Blind rivet N3	20
Coarse thread bolt	25
Threaded weld bolt	5
EMC screw	3
Cleaner R1	1
Cleaner R2	1
Sealing compound D1	1
Cavity sealing wax remover	

2 – Removing the luggage compartment floor and right-hand side member

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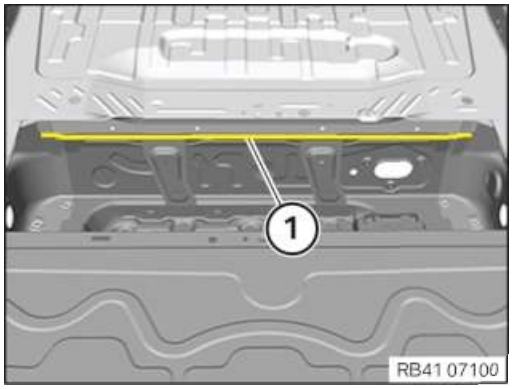
- Open welded connections in areas (1) and (2).



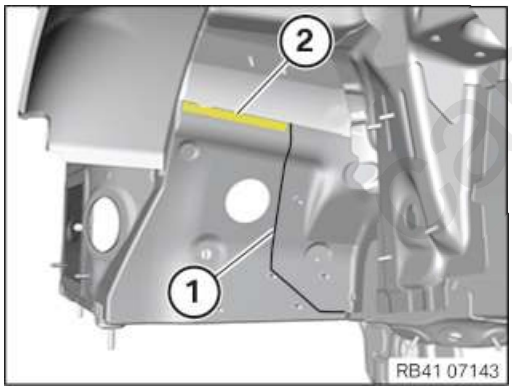
NOTICE

Perform the operations on the left and right side.

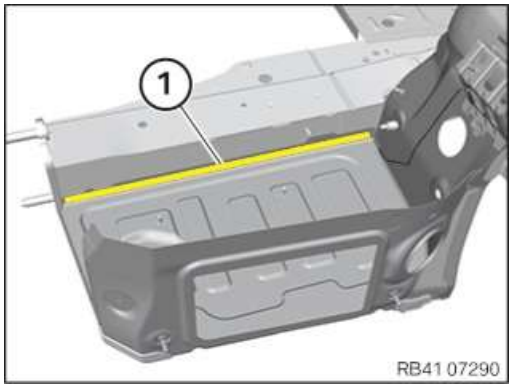
- Open welded connections in area (1).



- Open welded connections in area (1) and remove the support .



- Make the separating cut (1) according to the schematic diagram.
- Open welded connections in area (2).

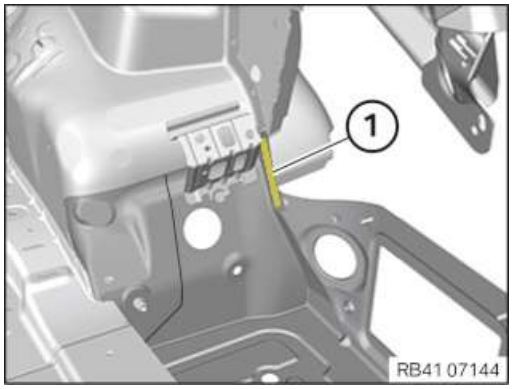


NOTICE

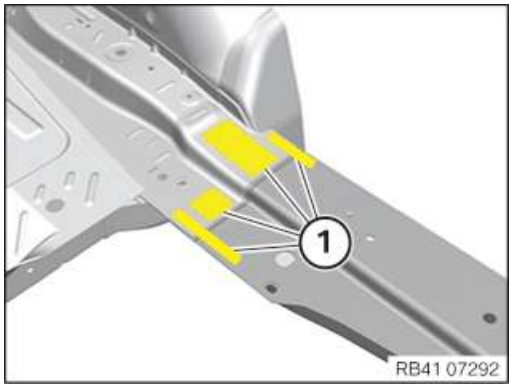
To provide a better overview: Side panel omitted for clarity.

- Open welded connections in area (1).

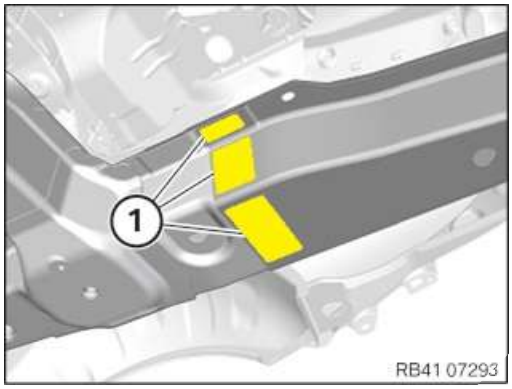
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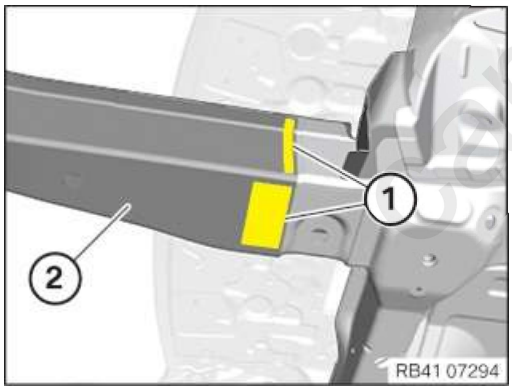
- Open welded connections in area (1).



- Release welded connections in areas (1).



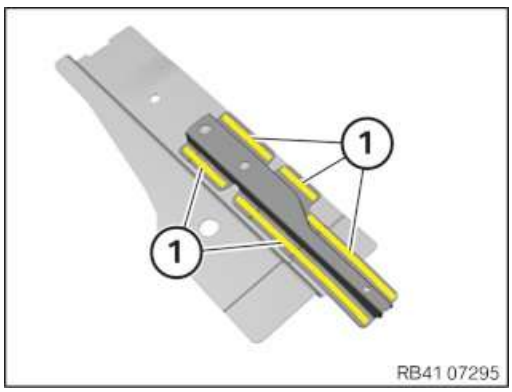
- Release welded connections in areas (1).



- Release the welded connections in areas (1) and remove the side member (2).

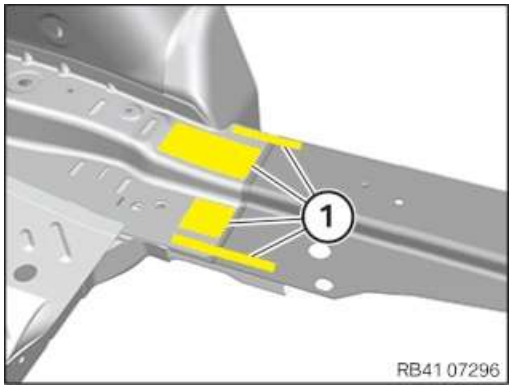
3 – Preparing new parts

▸ **Preparing the new part, right side member**

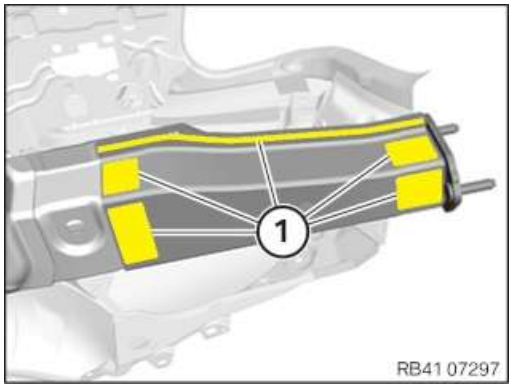


- Position new parts and prepare them for joining by welding in areas (1).

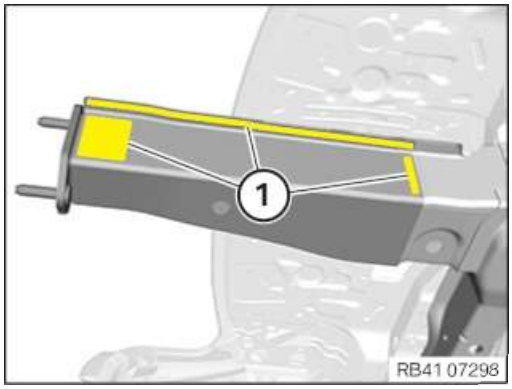
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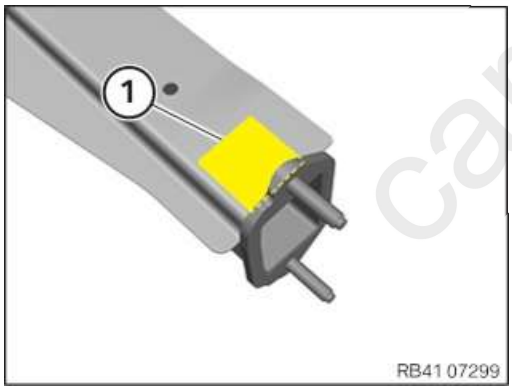
- Adjust new parts to fit with alignment bracket or universal mount and secure.
- Prepare the new parts in the areas (1) for joining by welding.



- Insert new parts and prepare for joining by welding in areas (1).

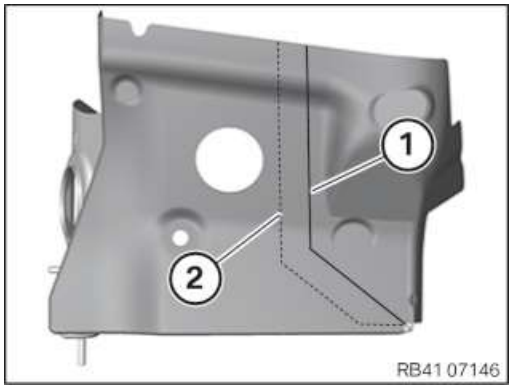


- Prepare the new parts in the areas (1) for joining by welding.



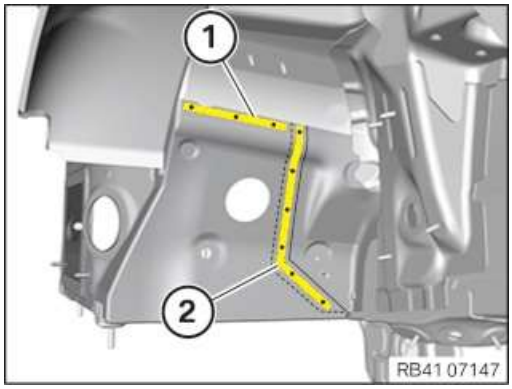
- Prepare the new parts for joining by welding in the area (1).

▸ **Preparing the new part, right luggage compartment floor**



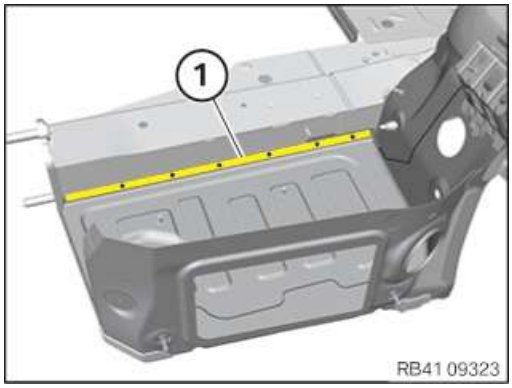
- Mark and carry out separating cut (1) on new part as per separating cut (2) on vehicle + 20 mm material allowance.

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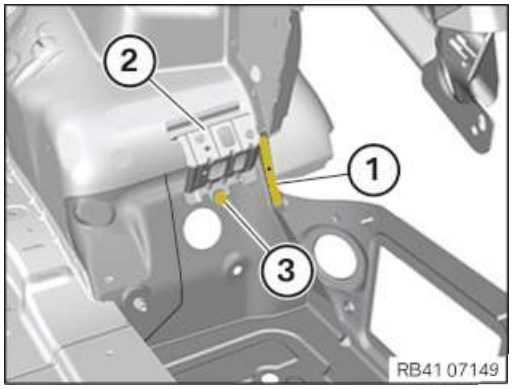


- Adjust the luggage compartment floor and secure.
- Prepare the joints in areas (1) and (2) using the bond-and-rivet method.
- In areas (1) and (2), set 9 x bore holes of diameter 4.2 mm for blind rivet.

Area	Number
1	3
2	6



- Prepare area (1) for joining by glue rivet method.
- In the area (1), drill out 6 bore holes of Ø 4.2 mm for blind rivet.

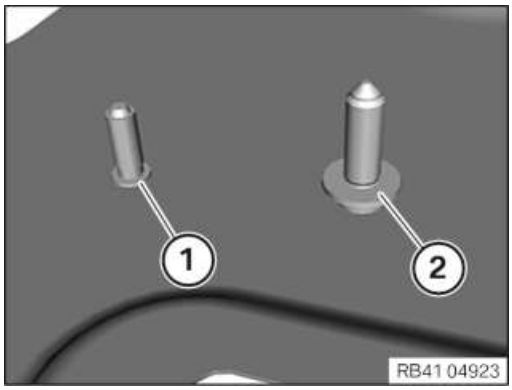


- Prepare area (1) for joining by bonded rivet method.
- In the area (1), drill out a bore hole of Ø 4.2 mm for blind rivet.
- Insert holder (2) and prepare for joining by welding in area (3).
- Remove new component. Deburr bore holes.

▷ Replacing the coarse thread bolt and threaded weld bolt, steel surface

NOTICE

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



- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

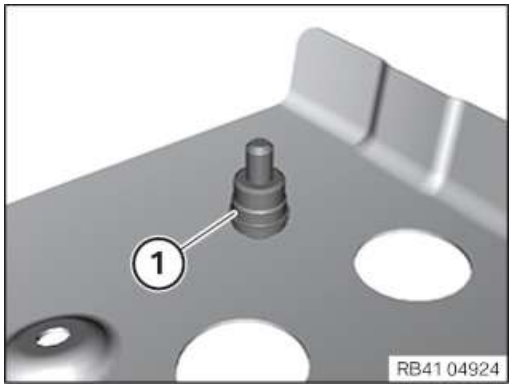
◁

▷ Checking the ground pin and replacing if necessary

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NOTICE

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

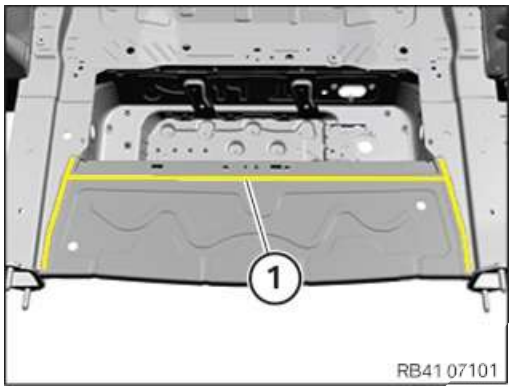


- Check the ground pin (1) for stability and renew where required.

◁

▸ **Preparing the centre luggage compartment floor**

- Adjust the new parts in combination with the tail panel to fit and secure.
- Prepare area (1) for joining by welding.

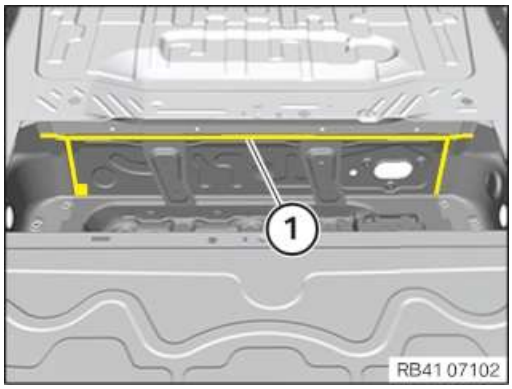




NOTICE

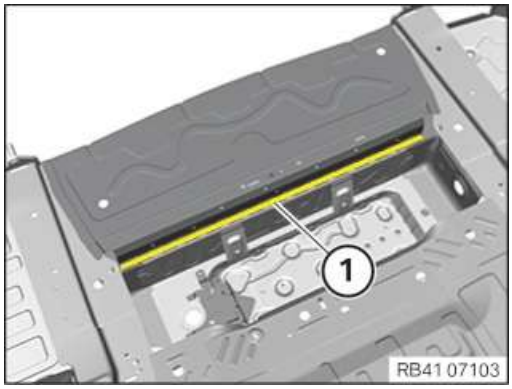
Perform the operations on the left and right side.

- Prepare area (1) for joining by welding.

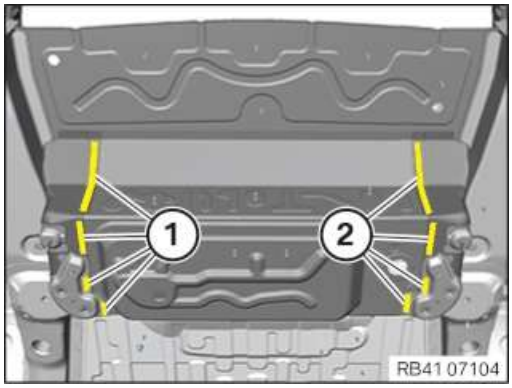


- Prepare area (1) for joining by welding.

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- Prepare area (1) for joining by welding.

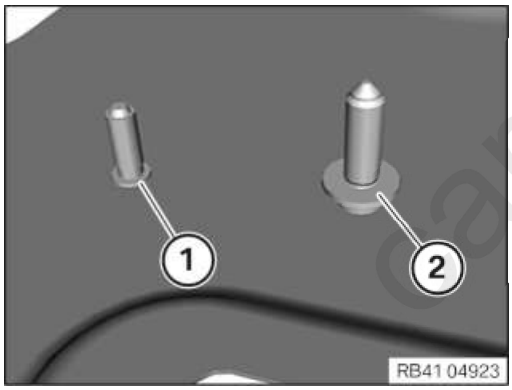


- Prepare areas (1) and (2) for joining by welding.

▸ Replacing the coarse thread bolt and threaded weld bolt, steel surface

NOTICE

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



- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

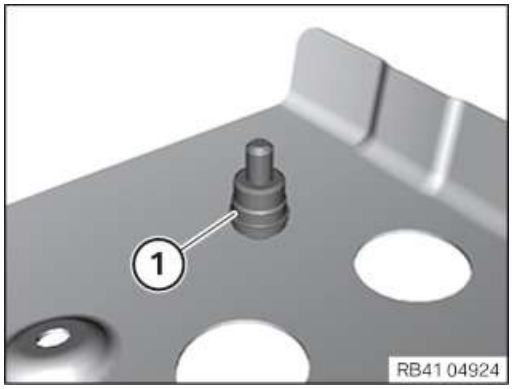
  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

▸ Checking the ground pin and replacing if necessary

NOTICE

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

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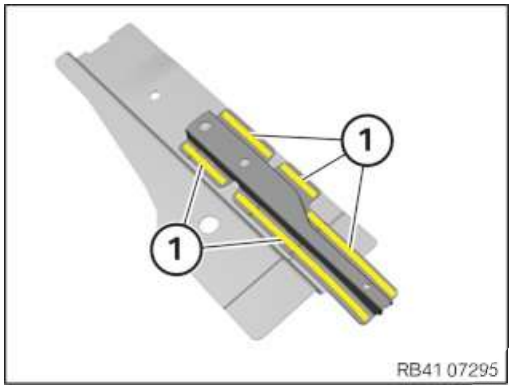
- Check the ground pin (1) for stability and renew where required.

4 – Install new parts

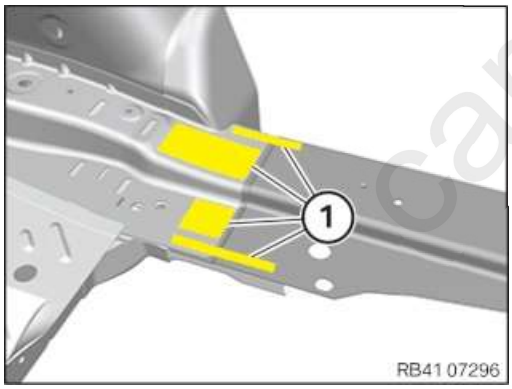
▸ **Installing the right side member**

TECHNICAL INFORMATION

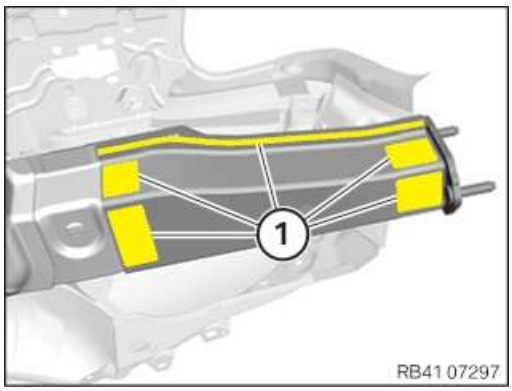
Use only approved spot-welding apparatus for repair.
For additional information see: 41 00 ... Workshop equipment



- Weld new part in the area(1).

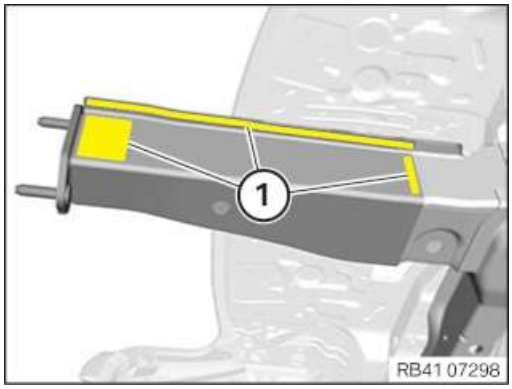


- Adjust new parts to fit with alignment bracket or universal mount and secure.
- Weld new part in the area(1).

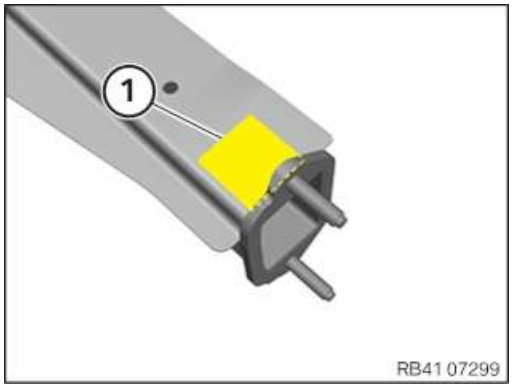


- Weld new part in the area(1).

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- Weld new part in the area(1).



- Weld the new parts in the area (1).

▸ **Install the luggage compartment floor on the right**

- Pre-clean the bonding surfaces at the new part and vehicle using R2 solvent cleaner.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean bonding surfaces on vehicle and on new part with cleaning agent R1.

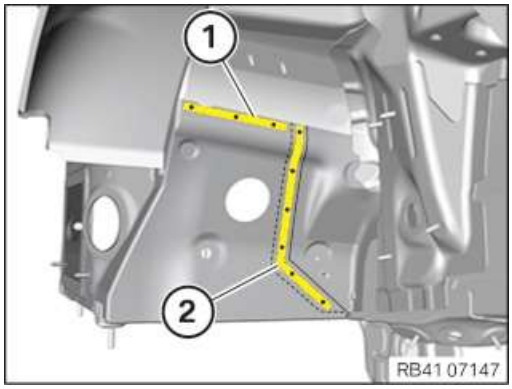
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

- Apply adhesive K5 to the bonding surfaces.

Adhesive

Body adhesive K5	50 ml	83192158654



TECHNICAL INFORMATION

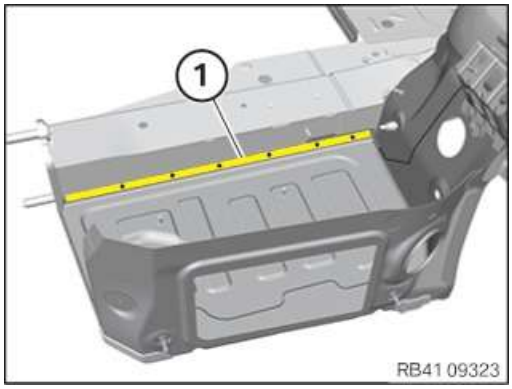
When installing the new part, make sure that all bonding surfaces have sufficient adhesive.

- Install the new part and rivet it in the areas (1) and (2) with blind rivets N3.

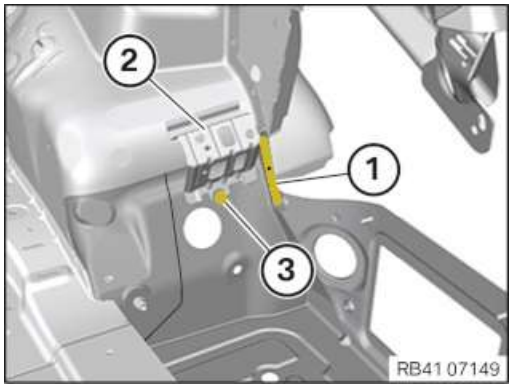
Expendable materials

Blind rivet N3 Dia. 4 mm; clamping area 1-3 mm		83190301421

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- Rivet the new part in area (1) with blind rivets N3.



- In area (1), rivet the new part with blind rivet N3.
- Install holder (2)and weld in area (3).

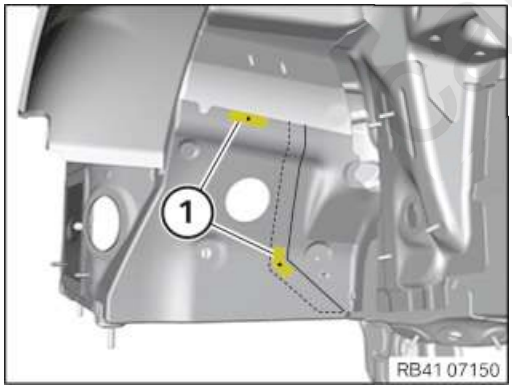
▷ **Installing the EMC screw**

- Drill a hole with a diameter of 4.2 mm after the adhesive has hardened completely .
- Screw in the EMC screw.
- Seal the EMC screw with sealant.

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985

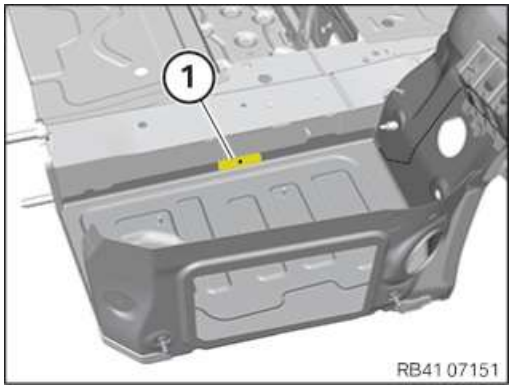
◁



- After the adhesive hardens, install two EMC screws in areas (1) .

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639



- After the adhesive has hardened in area (1), install an electromagnetic compatibility screw.

Expendable materials

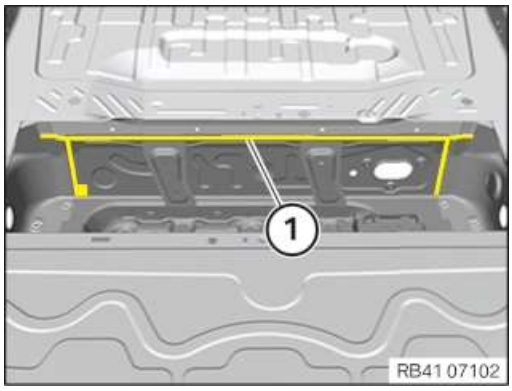
Screw EMC screw, SF Plus, M5x15		83190301639

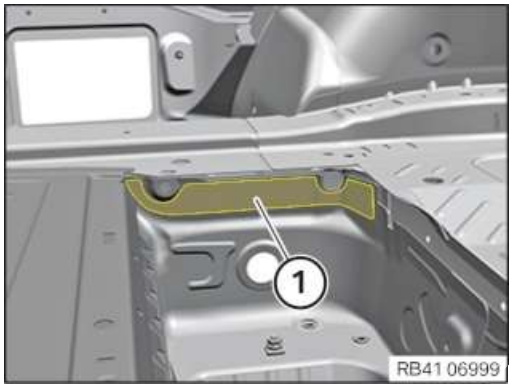
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TECHNICAL INFORMATION

Use only approved spot-welding apparatus for repair.
For additional information see: 41 00 ... Workshop equipment

- Install new parts and secure.
- Weld the new parts in the area (1).

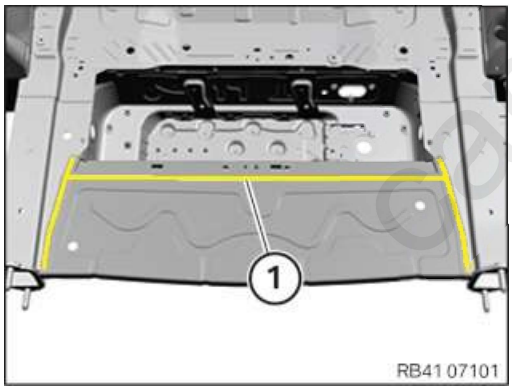




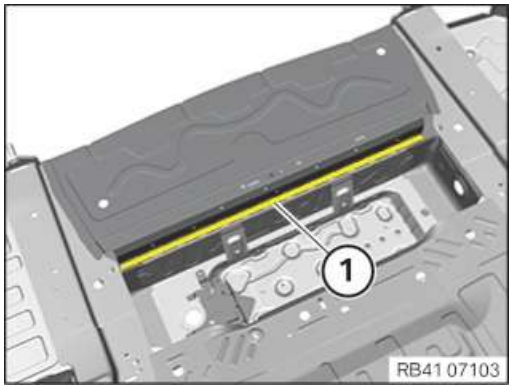
NOTICE

Perform the operations on the left and right side.

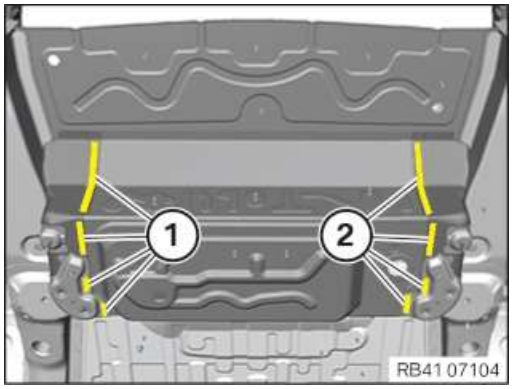
- Weld the new parts in the area (1).



- Weld the new parts in the area (1).



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- Weld the new parts in areas (1) and (2).

Additional Information

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Workshop equipment (BMW and MINI vehicles)	4
41 00 ... Repair techniques, repair stage 3	

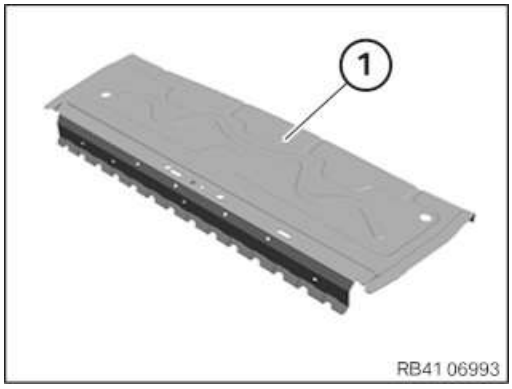
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41 12 660 Replacing the rear luggage compartment floor

TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.
For additional information see: 41 00 ... Repair method for repair stage 2
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Rear luggage compartment floor (1)

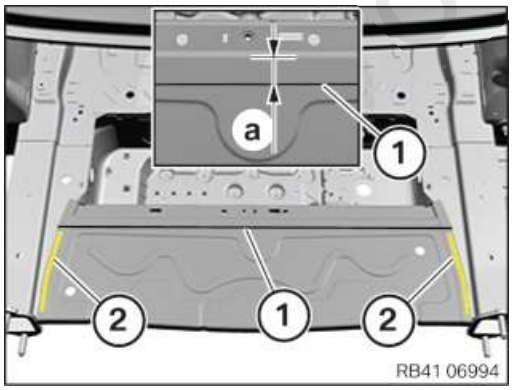
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

Material	Quantity
Adhesive K5 (50 ml)	1
Blind rivet N3	20
Coarse thread bolt	10
EMC screw	3
Cleaner R1	1
Cleaner R2	1
Sealing compound D1	
Cavity sealing wax remover	

2 – Remove rear luggage compartment floor



- Mark separating cut (1) according to dimension (a) and make the cut.

  Dimension (a) = 25 mm

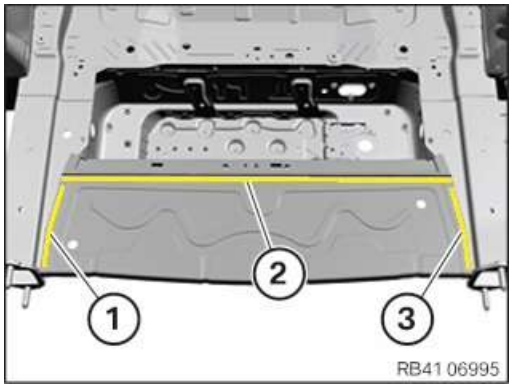
  Ensure that the new part overlaps in area of the separating cut.
- Open the welded connections in areas (2) and remove the luggage compartment floor.

3 – Prepare new part

TECHNICAL INFORMATION

Adhesive technology in the area of the outer skin (not for structural adhesion):
The bonding surfaces of the new parts may not sharpened or ground.
For additional information see: 41 00 ... BMW bonding instructions

- Mark the separating cut on the new part according to the separating cut on the vehicle + 20 mm added material and cut.



- Adjust new part in conjunction with tail panel and secure.
- In areas (1) to (3) drill out 20 bore holes of dia. 4.2 mm for blind rivet.

  When positioning the bore holes, make sure that no series spot-welds get drilled or drilled through!

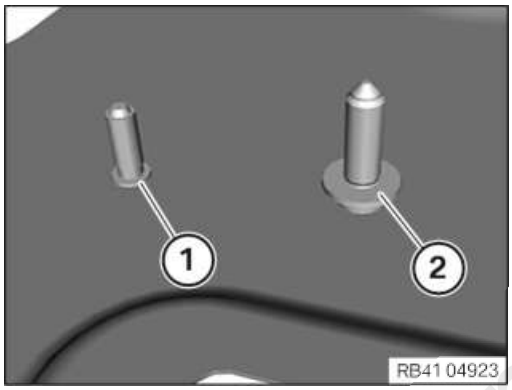
Area	Number
1	4
2	12
3	4

- Remove new part and deburr holes.

▸ Replacing the coarse thread bolt and threaded weld bolt, steel surface

NOTICE

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



- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

4 – Installing the rear luggage compartment floor

- Pre-clean the bonding surfaces at the new part and vehicle using R2 solvent cleaner.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean bonding surfaces on vehicle and on new part with cleaning agent R1.

Expendable materials

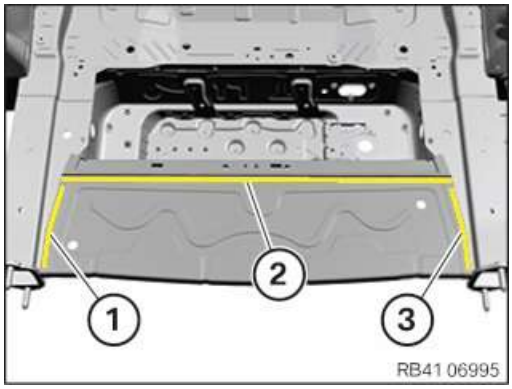
Cleaning agent R1	100 ml, Bottle	83192211217

- Apply adhesive K5 to the bonding surfaces.

Adhesive

Body adhesive K5	50 ml	83192158654

cardiagn.com



- Install the new part and rivet in areas (1) to (3) with blind rivets N3.

Expendable materials

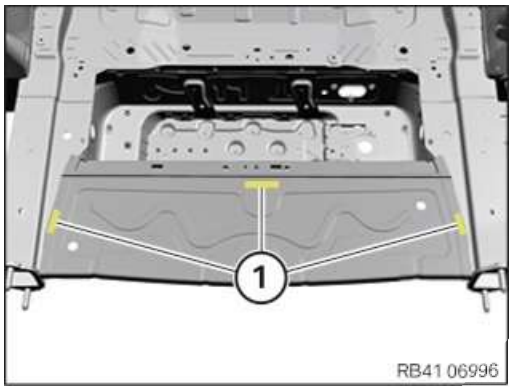
Blind rivet N3 Dia. 4 mm; clamping area 1-3 mm		83190301421

▸ **Installing the EMC screw**

- Drill a hole with a diameter of 4.2 mm after the adhesive has hardened completely .
- Screw in the EMC screw.
- Seal the EMC screw with sealant.

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985



- After the adhesive has hardened, install 3 EMC screws in the areas (1).

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639

Additional Information

Links

Repair instructions (PRE)	Used in step
EMC screws, general information	4

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... BMW/MINI bonding instructions	3
41 00 ... Repair techniques, repair stage 2	

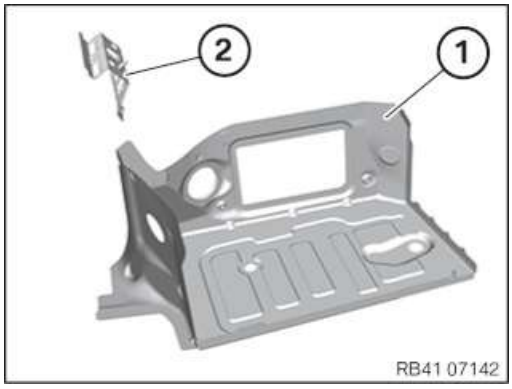
cardiagn.com

41 12 191 Replacing the right luggage compartment floor

TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.
For additional information see: 41 00 ... Repair method for repair stage 2
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Prepare the following new parts (see Electronic Parts Catalogue):
  - Luggage compartment floor, right (1)
  - Holder for the power distribution box (2)

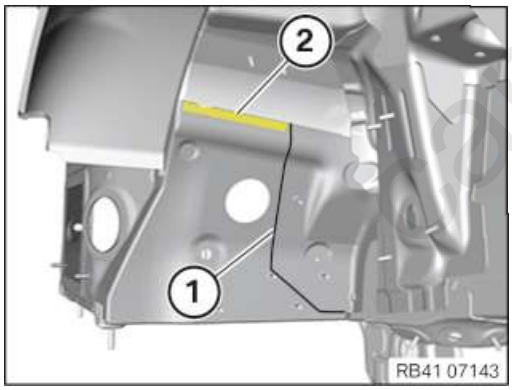
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

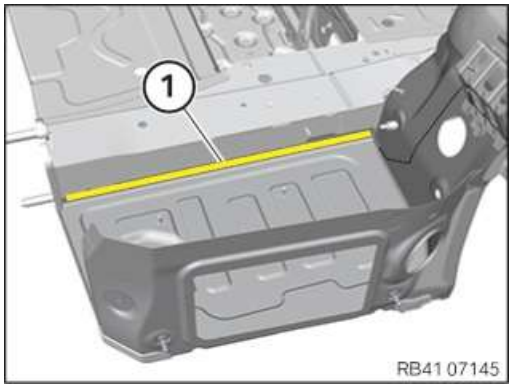
- Keep the following consumables ready:

Material	Quantity
Coarse thread bolt	10
Threaded weld bolt	5
Sealing compound D1	

2 – Remove the luggage compartment floor, right



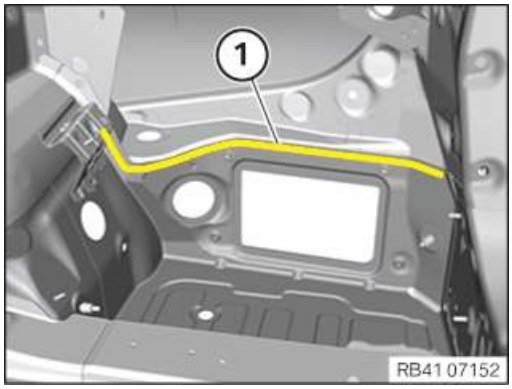
- Make the separating cut (1) according to the schematic diagram.
- Open welded connections in area (2).



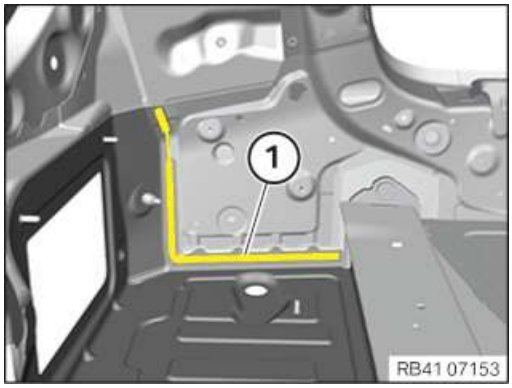
NOTICE

To provide a better overview: Shown without side panel and without tail panel.

- Open welded connections in area (1).

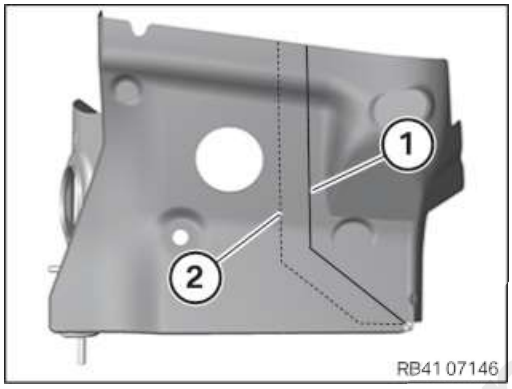


- Open welded connections in area (1).

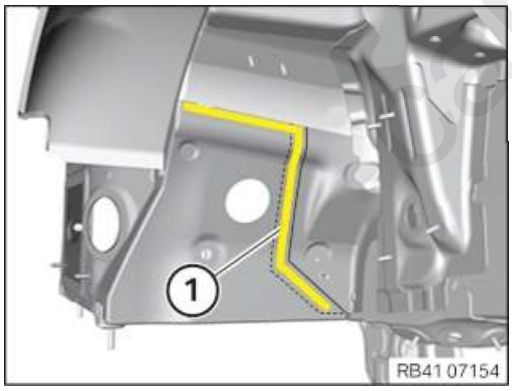


- Open welded connections in area (1) and remove the support .

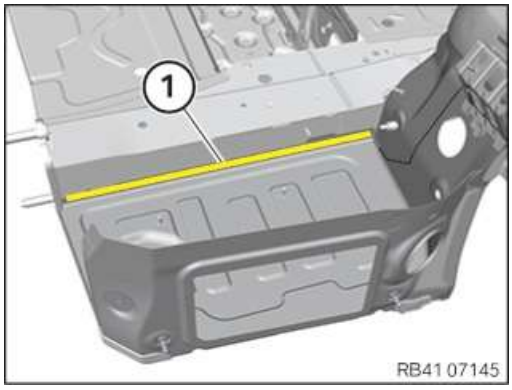
3 – Prepare new part



- Mark and carry out separating cut (1) on new part as per separating cut (2) on vehicle + 20 mm material allowance.



- Adjust new part to fit and secure.
- Prepare area (1) for joining by welding.

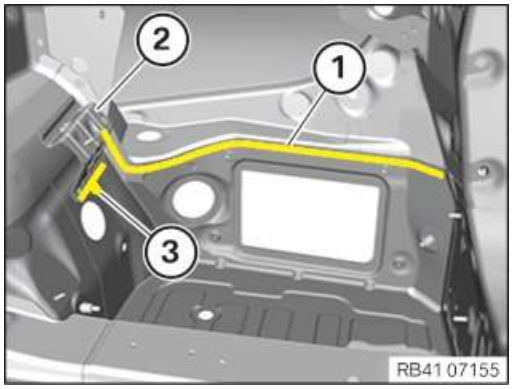


NOTICE

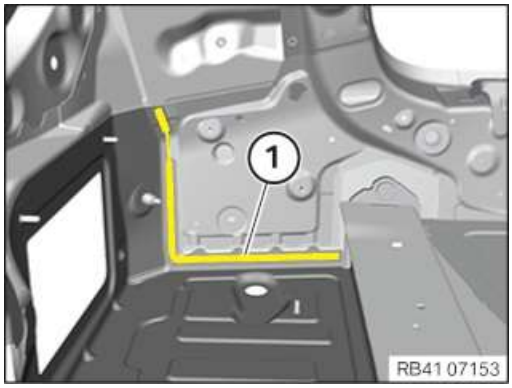
To provide a better overview: Shown without side panel and without tail panel.

- Prepare area (1) for joining by welding.

.diagn.com



- Prepare area (1) for joining by welding.
- Fit holder (2) and prepare for joining by means of welding in area (3).

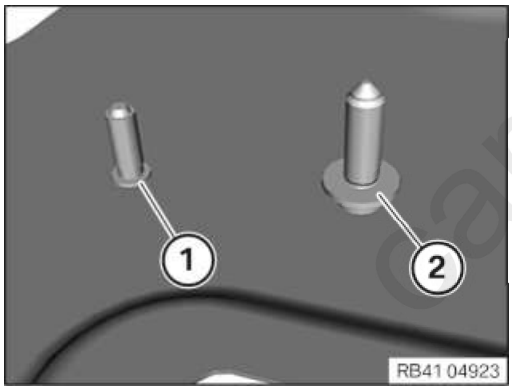


- Prepare area (1) for joining by welding.

▸ Replacing the coarse thread bolt and threaded weld bolt, steel surface

NOTICE

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



- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

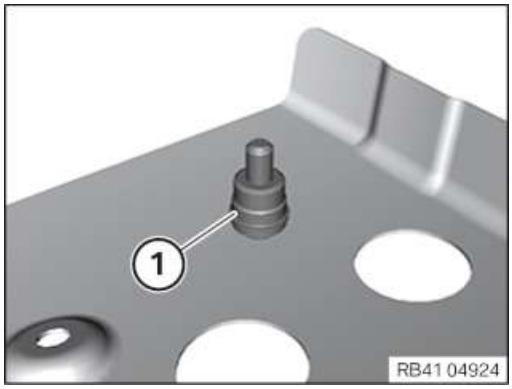
  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

▸ Checking the ground pin and replacing if necessary

NOTICE

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

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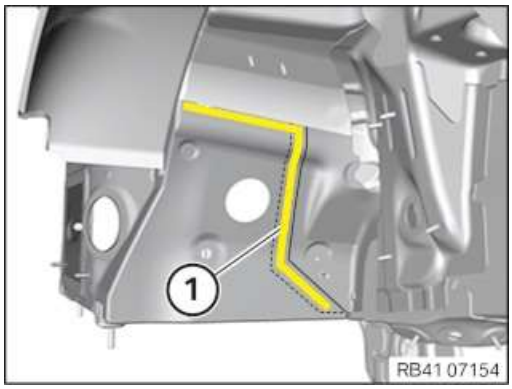


- Check the ground pin (1) for stability and renew where required.

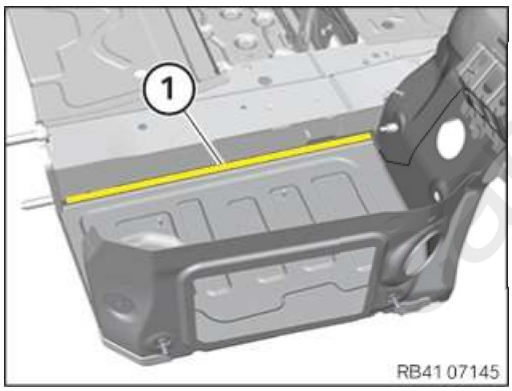
4 – Install the luggage compartment floor on the right

TECHNICAL INFORMATION

Use only approved spot-welding apparatus for repair.
For additional information see: 41 00 ... Workshop equipment



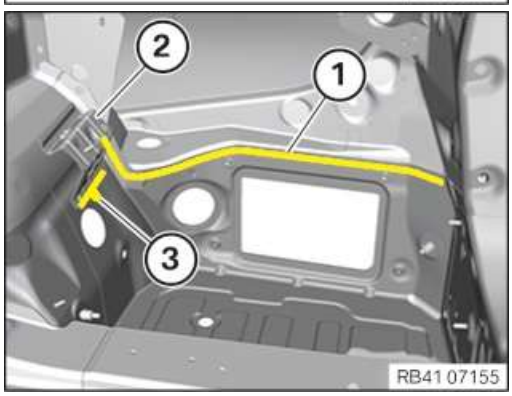
- Install new part and weld in the area (1).



NOTICE

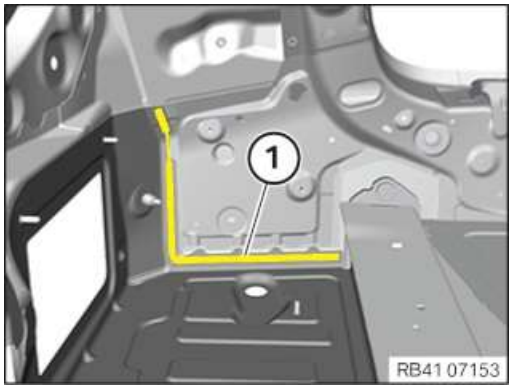
To provide a better overview: Shown without side panel and without tail panel.

- Weld the new part in the area (1).



- Weld the new part in the area (1).
- Install holder (2)and weld in area (3).

bmwfaq.com



- Weld the new part in the area (1).

Additional Information

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Workshop equipment (BMW and MINI vehicles)	4
41 00 ... Repair techniques, repair stage 2	

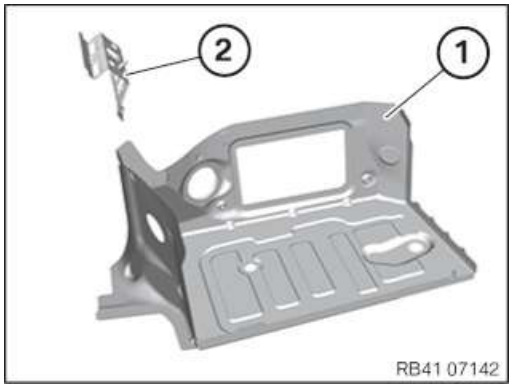
cardiagn.com

41 12 654 Replacing the right luggage compartment floor

TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.
For additional information see: 41 00 ... Repair method for repair stage 2
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):
Luggage compartment floor, right(1)
Holder for power distribution box(2)

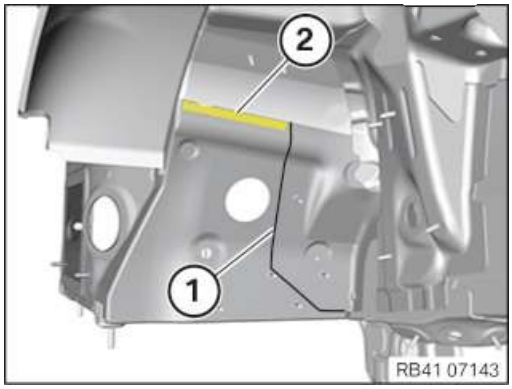
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

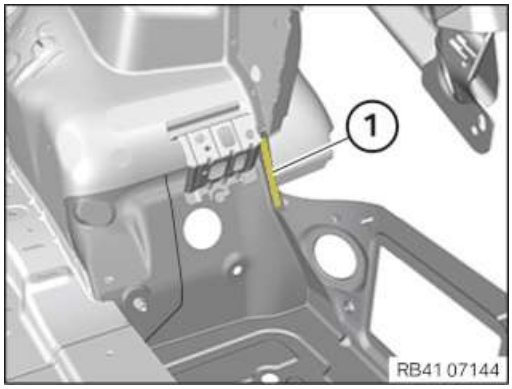
Material	Quantity
Adhesive K5 (50 ml)	1
Blind rivet N3	15
Coarse thread bolt	10
Threaded weld bolt	5
Cleaner R1	1
Cleaner R2	1
Sealing compound D1	
Cavity sealing wax remover	

2 – Remove the luggage compartment floor, right

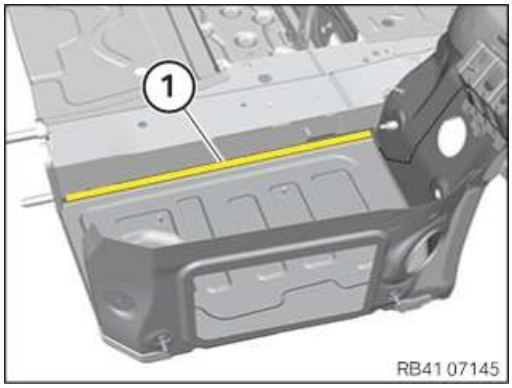


- Make the separating cut (1) according to the schematic diagram.
- Open welded connections in area (2).

carmanuals.com

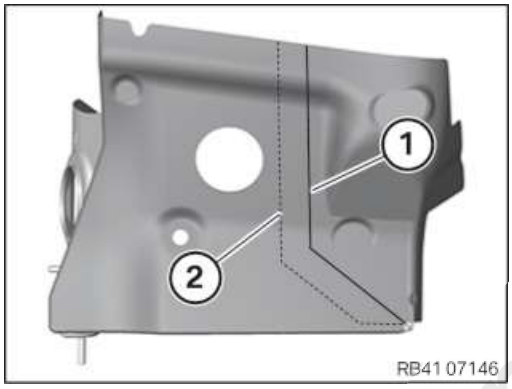


- Open welded connections in area (1).

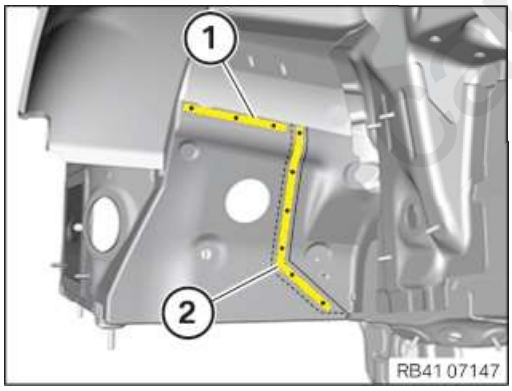


- Open welded connections in area (1) and remove the support .

3 – Prepare new part

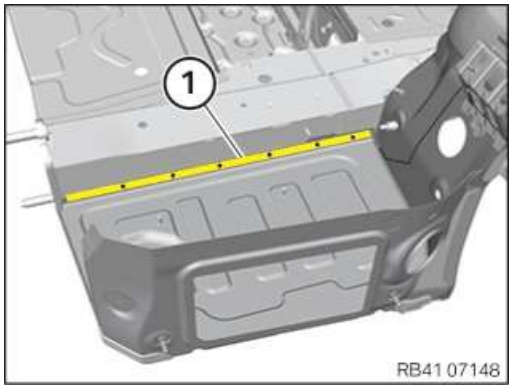


- Mark and carry out separating cut (1) on new part as per separating cut (2) on vehicle + 20 mm material allowance.

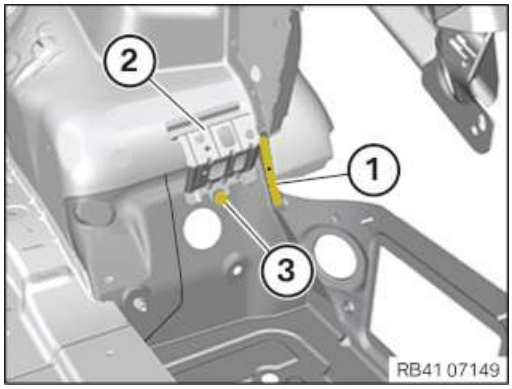


- Adjust the luggage compartment floor and secure.
- Prepare the joints in areas (1) and (2) using the bond-and-rivet method.
- In the areas (1) and (2), make 9 x bore holes with Ø 4.2 mm for blind rivet.

Area	Number
1	3
2	6



- Prepare area (1) for joining by glue rivet method.
- In the area (1), drill out 6 bore holes of Ø 4.2 mm for blind rivet.

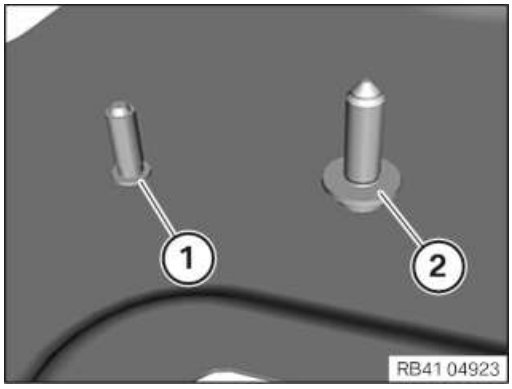


- Prepare area (1) for joining by bonded rivet method.
- In the area (1), drill out a bore hole of Ø 4.2 mm for blind rivet.
- Insert holder (2) and prepare for joining by welding in area (3).
- Remove new component. Deburr bore holes.

▸ **Replacing the coarse thread bolt and threaded weld bolt, steel surface**

NOTICE

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



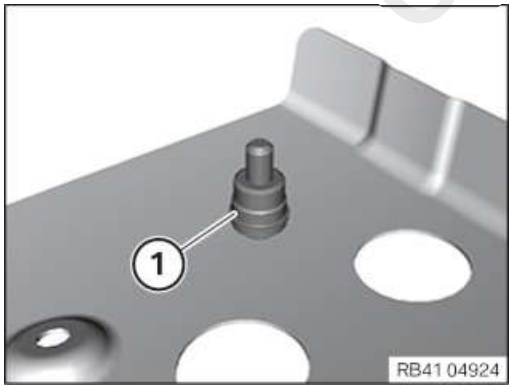
- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

▸ **Checking the ground pin and replacing if necessary**

NOTICE

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



- Check the ground pin (1) for stability and renew where required.

4 – Install the luggage compartment floor on the right

cardiagn.com

- Pre-clean the bonding surfaces at the new part and vehicle using R2 solvent cleaner.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean bonding surfaces on vehicle and on new part with cleaning agent R1.

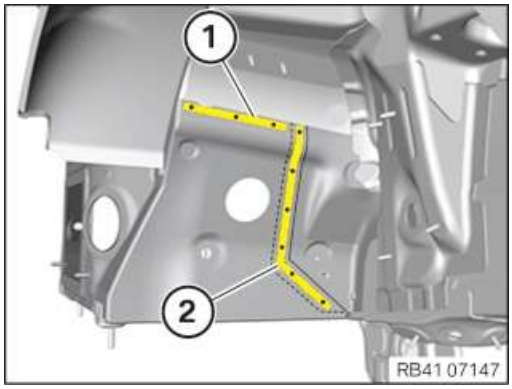
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

- Apply adhesive K5 to the bonding surfaces.

Adhesive

Body adhesive K5	50 ml	83192158654



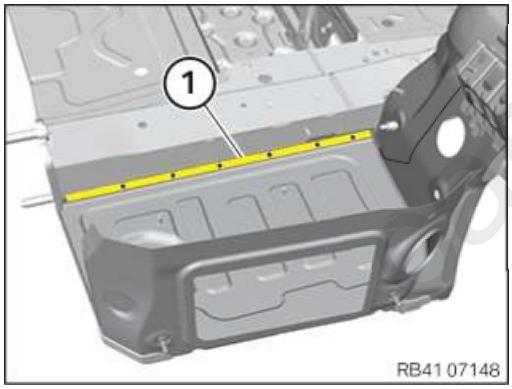
TECHNICAL INFORMATION

When installing the new part, make sure that all bonding surfaces have sufficient adhesive.

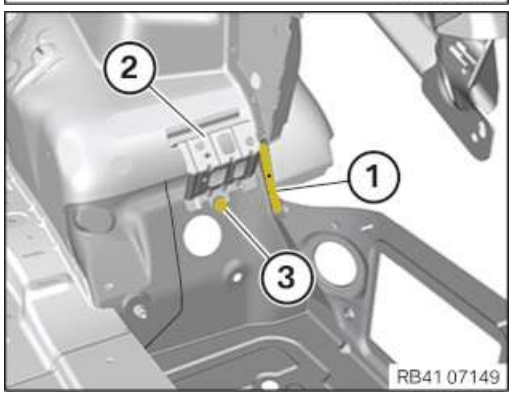
- Install the new part and rivet it in the areas (1) and (2) with blind rivets N3.

Expendable materials

Blind rivet N3 Dia. 4 mm; clamping area 1-3 mm		83190301421



- Rivet the new part in area (1) with blind rivets N3.



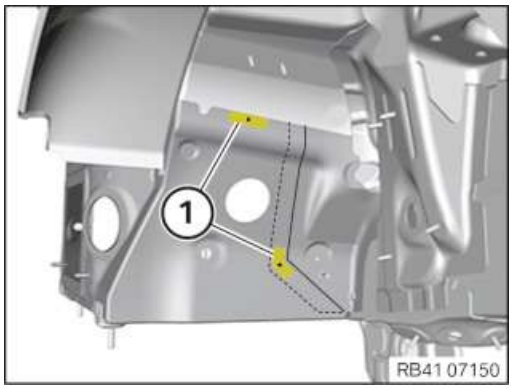
- In area (1), rivet the new part with blind rivet N3.
- Install holder (2)and weld in area (3).

▸ **Installing the EMC screw**

- Drill a hole with a diameter of 4.2 mm after the adhesive has hardened completely .
- Screw in the EMC screw.
- Seal the EMC screw with sealant.

Expendable materials

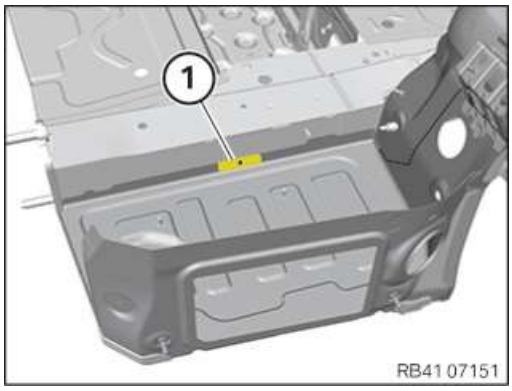
Sealant D1 (seam sealing)	310 ml	83422409985



- After the adhesive hardens, install two EMC screws in areas (1) .

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639



- After the adhesive has hardened in area (1), install an electromagnetic compatibility screw.

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639

Additional Information

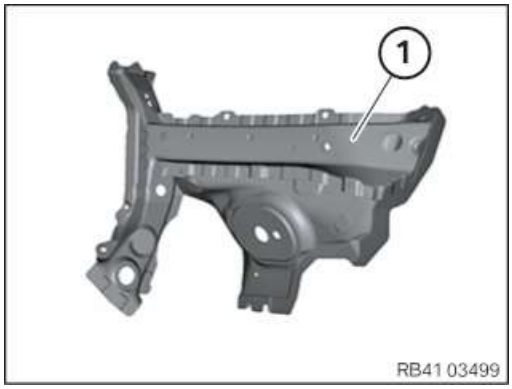
Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Repair techniques, repair stage 2	

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41 13 510 Replacing the left engine bulkhead

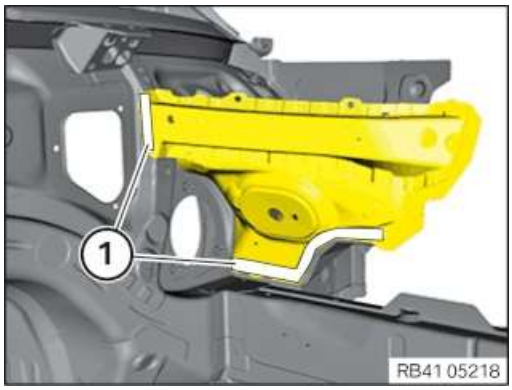
1 – Supplying the new parts required



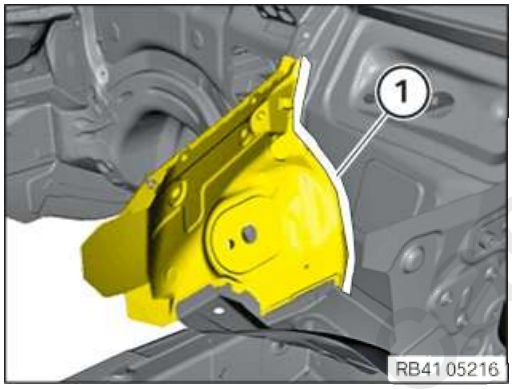
- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Engine bulkhead (1)

2 – Removing the engine bulkhead

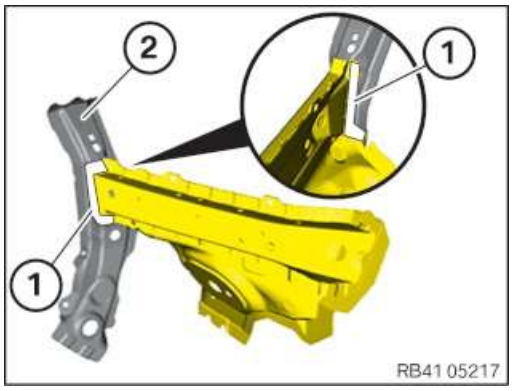


- Release welded connections in areas (1).



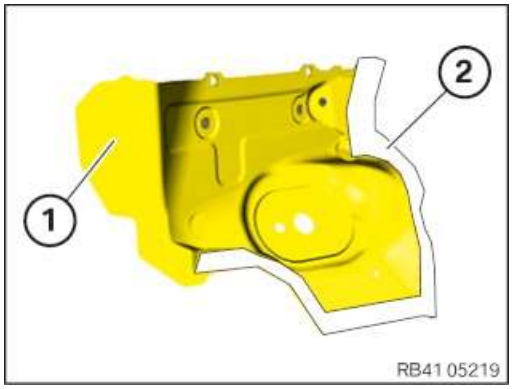
- Open welded connections in area (1).
- Remove the engine bulkhead.

3 – Preparing the new part



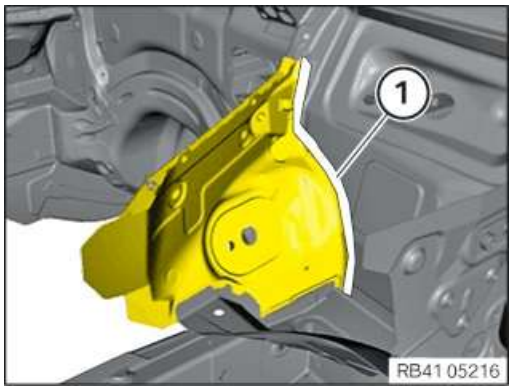
- Release welded connections in areas (1).

  Remove and dispose of the component (2).

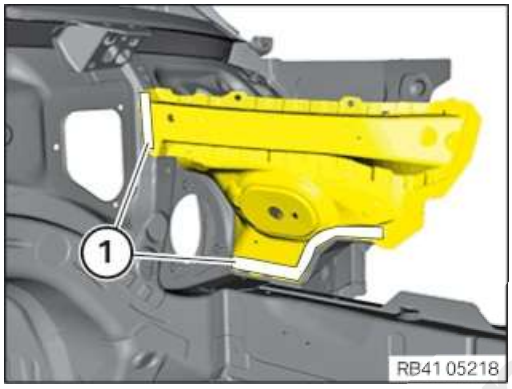


- Prepare the new part (1) in the area (2) for joining by welding.

4 – Installing the engine bulkhead



- Position new part.
- Weld the new part in the area (1).



- Weld new part in the areas (1).

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41 ... 0 Notes on the repair technique used in the main group 41

Two different repair techniques are used in body repair.

These are welding and bonding/riveting.

If the repair instructions do not specify a repair technique, then welding must **always** be used.

The bonding/riveting repair technique is **always** described in detail in the repair instructions.

Quality standards must be met.

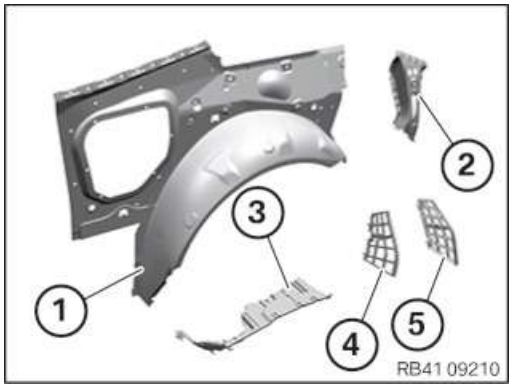
cardiagn.com

41 14 502 Replace rear outer wheel arch section with left reinforcement

TECHNICAL INFORMATION

- Observe the procedure for repair stage 3.
For additional information see: 41 00 ... Repair method for repair stage 3
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Outer wheel arch section (1)

  C-pillar reinforcement at the bottom (2)

  Shaped part for outer B-pillar (3)

  Shaped part for wheel arch, front (4)

  Shaped part for wheel arch, rear (5)

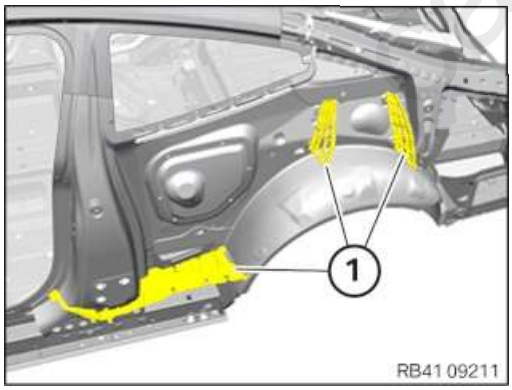
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

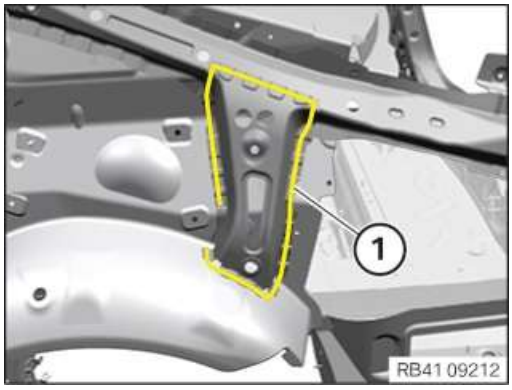
- Supply the following consumables:

Material	Quantity
Coarse thread bolt	5
Sealing compound D2	
Cavity sealing wax remover	

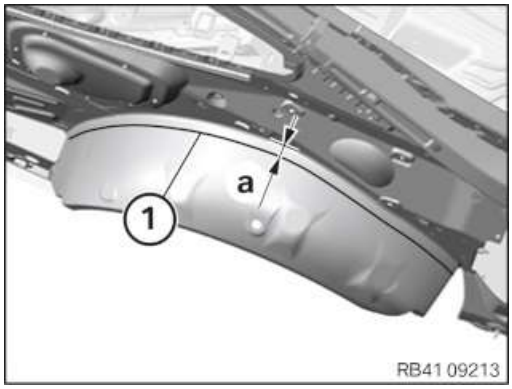
2 – Remove the outer wheel arch section with the reinforcement



- Remove cavity sealing (1).

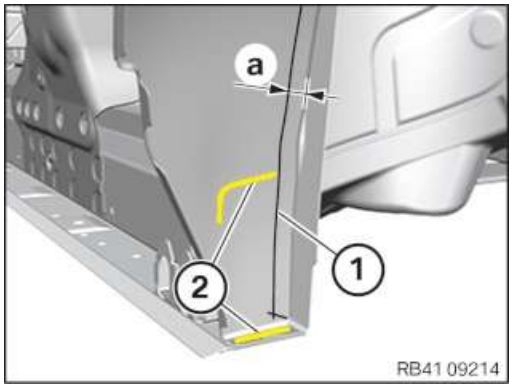


- Release the welded connections in the area (1) and remove the reinforcement of the C-pillar.



- Mark and make separating cut (1) according to dimension (a).

  Dimension (a) = 20 mm

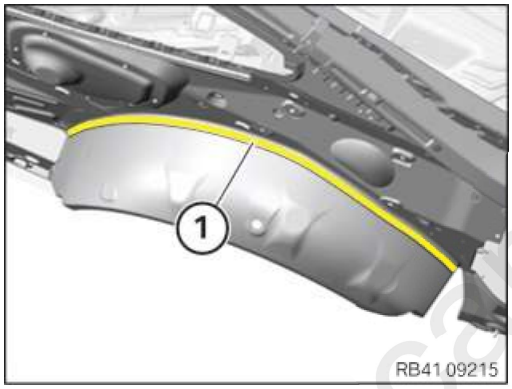


- Mark and make separating cut (1) according to dimension (a).

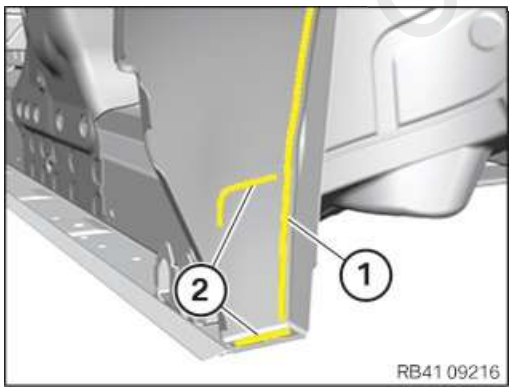
  Dimension (a) = 20 mm
- Release the welded connections in the areas (2) and remove the outer wheel arch section.

3 – Prepare new part

- Mark the separating cut on the new part according to the separating cut on the vehicle + 15 mm material allowance and cut.
- Adjust the new parts together with the side panel and fix in place.

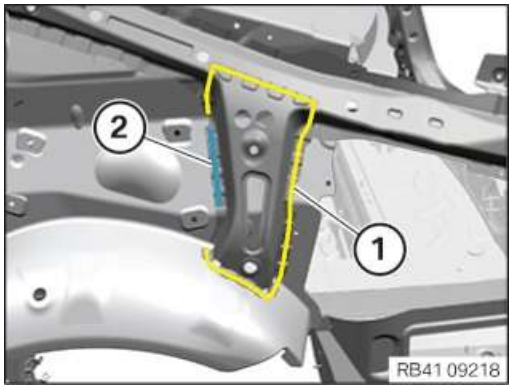


- In the area (1), prepare overlapping joints by welding.



- In the areas (1) and (2), prepare for joining by welding.

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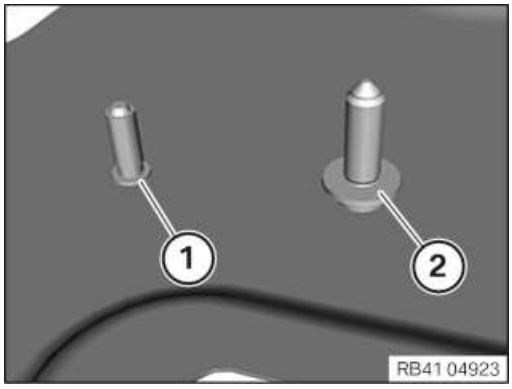
- Prepare for joining by welding in areas (1) and (2).

  In the area (2), note the spot-welded adhesive joint underneath.

▸ Replacing the coarse thread bolt and threaded weld bolt, steel surface

NOTICE

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



- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

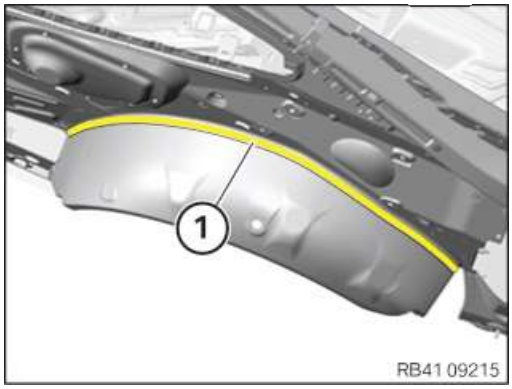
  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

4 – Install the outer wheel arch section with the reinforcement

TECHNICAL INFORMATION

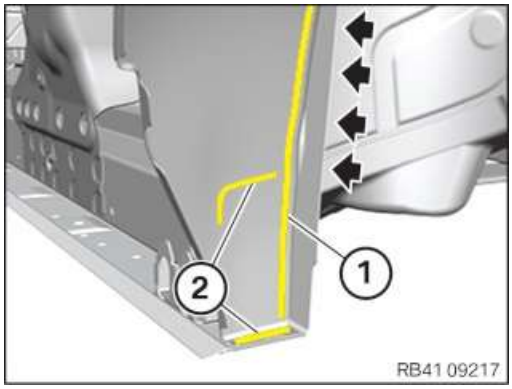
Use only approved spot-welding apparatus for repair.

For additional information see: 41 00 ... Workshop equipment



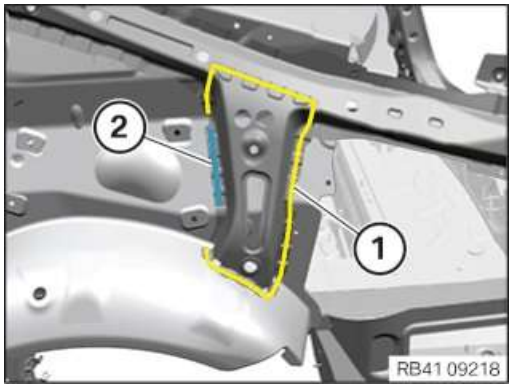
- Install the new part of outer wheel arch section and weld them in the area (1).

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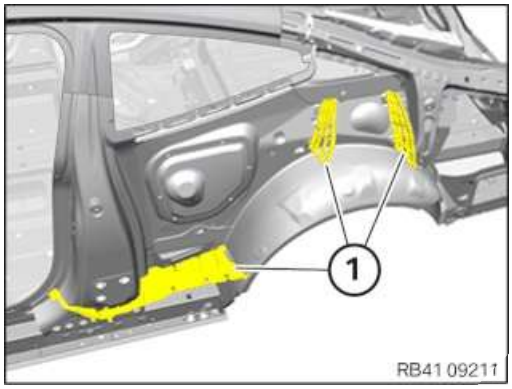
- Weld the new part in the areas (1) and (2).

  In this process, avoid excessively high heat input in the adjacent adhesive area (arrows).



- Install new part and weld in the areas (1) and (2).
- Note the spot-welded adhesive joint below that in the area (2).

  Avoid very high heat input in the area (2).



TECHNICAL INFORMATION

For more information see: 41 00 ... Installation of a cavity sealing (not expanding)

- Apply sealant to the new cavity sealings (1). Install cavity sealings (1).

Expendable materials

Sealant D2	290 ml	83425A547B9

Additional Information

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Opening bonded connections	2
41 00 ... Spot-weld bonding steel components	3
41 00 ... Workshop equipment (BMW and MINI vehicles)	4
41 00 ... Repair techniques, repair stage 3	

Repair instructions	Used in step
41 00 ... Welding in reinforcement plate (sheet steel)	3
41 00 ... Installing cavity sealing (not expanded)	4

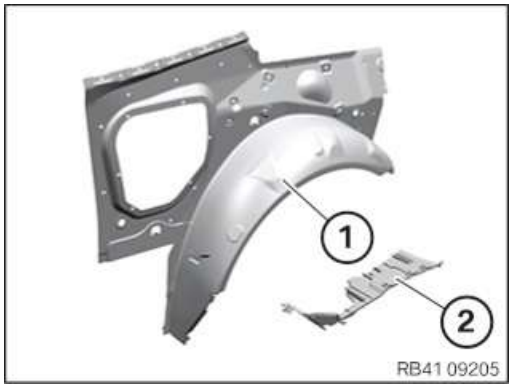
cardiagn.com

41 14 505 Replace the rear left outer wheel arch section

TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.
For additional information see: 41 00 ... Repair method for repair stage 2
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):
Outer wheel arch section (1)
Shaped part for outer B-pillar (2)

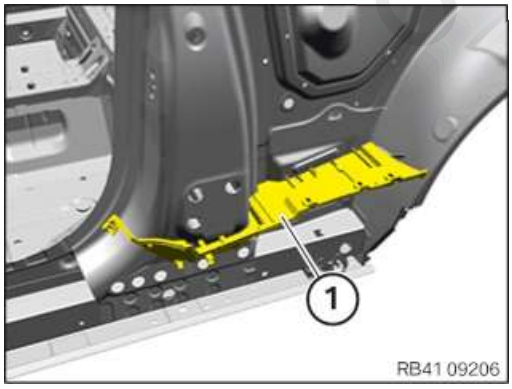
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

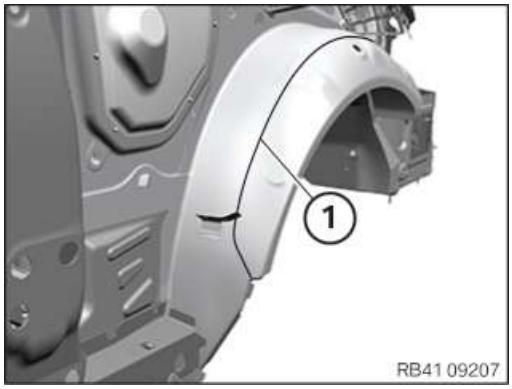
- Supply the following consumables:

Material	Quantity
Adhesive K5 (50 ml)	1
Blind rivet N3	15
Coarse thread bolt	5
Cleaner R1	1
Cleaner R2	1
Sealing compound D2	
Cavity sealing wax remover	

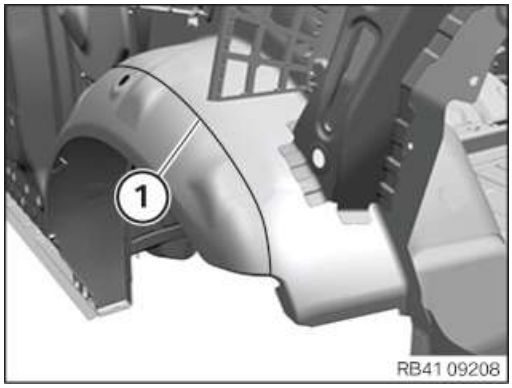
2 – Removing the rear outer wheel arch section



- Remove the cavity sealing (1).



- Mark and make separating cut (1) as shown.



- Mark and make separating cut (1) as shown.

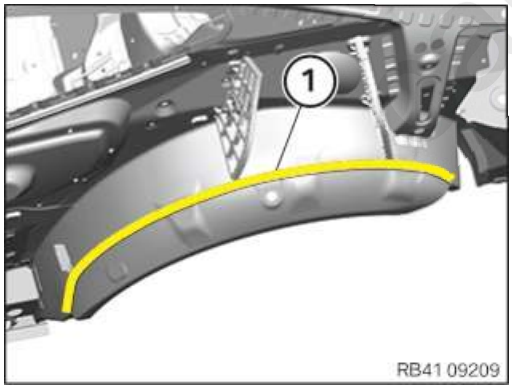
  Remove the section of the outer wheel arch section.

3 – Prepare new part

TECHNICAL INFORMATION

Adhesive technology in the area of the outer skin (not for structural adhesion):
The bonding surfaces of the new parts may not sharpened or ground.
For additional information see: 41 00 ... BMW bonding instructions

- Mark the separating cut on the new part according to the separating cut on the vehicle + 20 mm added material and cut.
- Prepare the joint areas for joining by bonded rivet method.



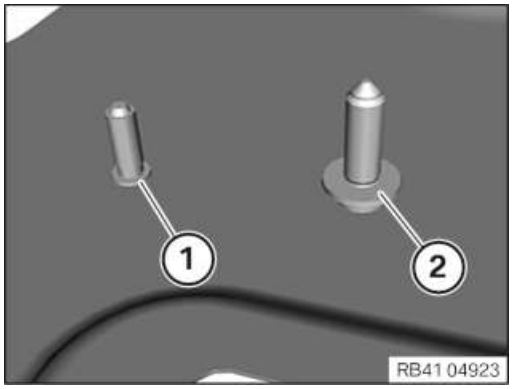
- Adjust the new part in combination with the side panel to fit and secure.
- In the area of bonding surface (1), make 13 bore holes of Ø 4.2 mm.
- Remove the new part and deburr the bore holes.

▸ Replacing the coarse thread bolt and threaded weld bolt, steel surface

NOTICE

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

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- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

4 – Installing the rear outer wheel arch section

TECHNICAL INFORMATION

When installing the new part, make sure that all bonding surfaces have sufficient adhesive.

- Pre-clean the bonding surfaces at the new part and vehicle.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean the bonding surfaces on new part and vehicle.

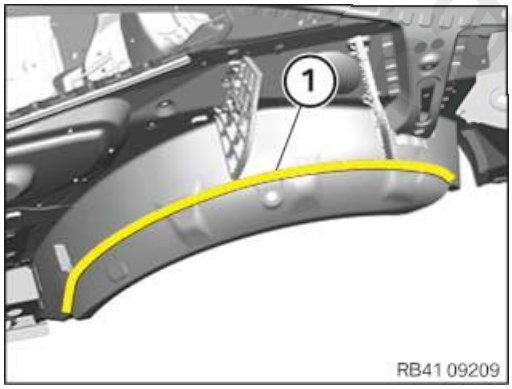
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

- Apply adhesive to bonding surfaces.

Adhesive

Body adhesive K5	50 ml	83192158654

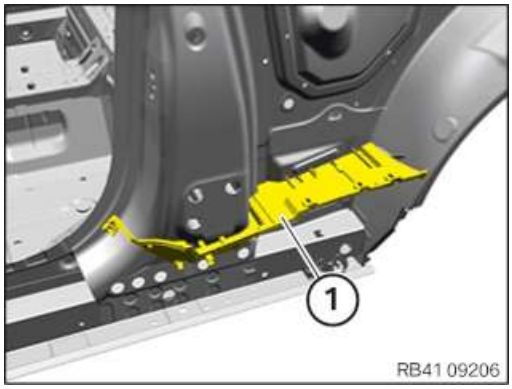


- Install new part.
- Rivet the new part in the area (1) with blind rivets.

Expendable materials

Blind rivet N3 Dia. 4 mm; clamping area 1-3 mm		83190301421

erdiagn.com



TECHNICAL INFORMATION

For more information see: 41 00 ... Installation of a cavity sealing (not expanding)

- Apply sealant to the new cavity sealing (1). Install cavity sealing (1).

Expendable materials

Sealant D2	290 ml	83425A547B9

Additional Information

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Opening bonded connections	2
41 00 ... BMW/MINI bonding instructions	3
41 00 ... Repair techniques, repair stage 2	

Repair instructions	Used in step
41 00 ... Installing cavity sealing (not expanded)	4

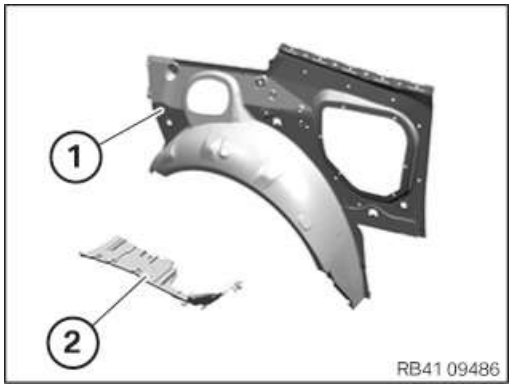
cardiagn.com

41 14 504 Replace the rear right outer wheel arch section

TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.
For additional information see: 41 00 ... Repair method for repair stage 2
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):
Outer wheel arch section (1)
Shaped part for outer B-pillar (2)

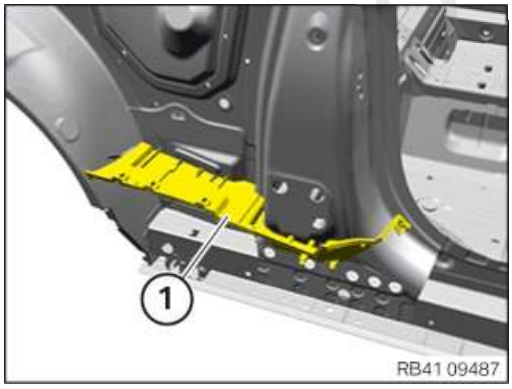
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

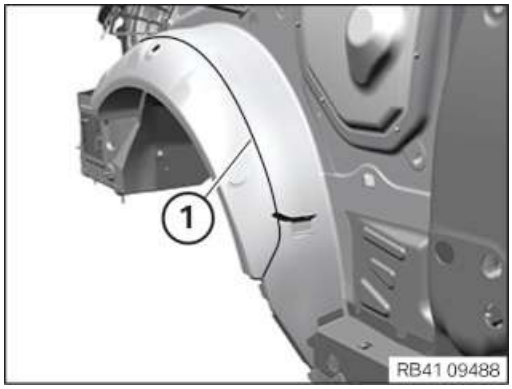
- Supply the following consumables:

Material	Quantity
Adhesive K5 (50 ml)	1
Blind rivet N3	15
Coarse thread bolt	5
Cleaner R1	1
Cleaner R2	1
Sealing compound D2	
Cavity sealing wax remover	

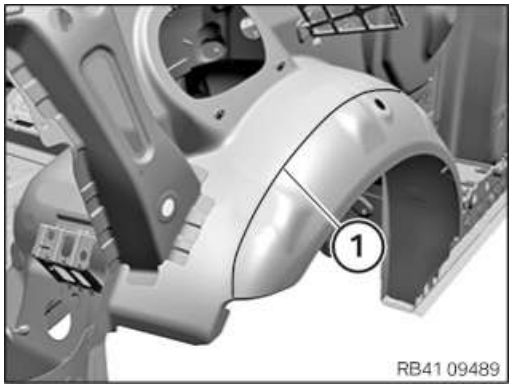
2 – Removing the rear outer wheel arch section



- Remove the cavity sealing (1).



- Mark and make separating cut (1) as shown.



- Mark and make separating cut (1) as shown.

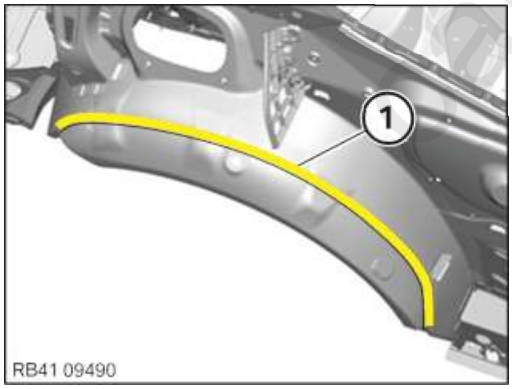
  Remove the section of the outer wheel arch section.

3 – Prepare new part

TECHNICAL INFORMATION

Adhesive technology in the area of the outer skin (not for structural adhesion):
The bonding surfaces of the new parts may not sharpened or ground.
For additional information see: 41 00 ... BMW bonding instructions

- Mark the separating cut on the new part according to the separating cut on the vehicle + 20 mm added material and cut.
- Prepare the joint areas for joining by bonded rivet method.



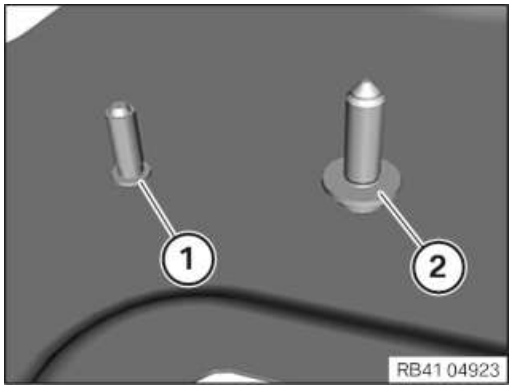
- Adjust the new part in combination with the side panel to fit and secure.
- In the area of bonding surface (1), make 13 bore holes of Ø 4.2 mm.
- Remove the new part and deburr the bore holes.

▸ Replacing the coarse thread bolt and threaded weld bolt, steel surface

NOTICE

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

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- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

4 – Installing the rear outer wheel arch section

TECHNICAL INFORMATION

When installing the new part, make sure that all bonding surfaces have sufficient adhesive.

- Preclean bonding surfaces on the new part and on the vehicle.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean the bonding surfaces on new part and vehicle.

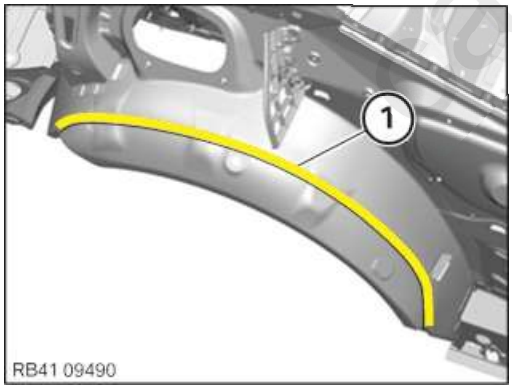
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

- Apply adhesive to bonding surfaces.

Adhesive

Body adhesive K5	50 ml	83192158654

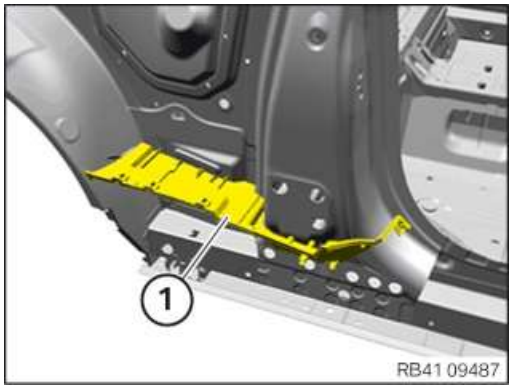


- Install new part.
- Rivet the new part in area (1) with blind rivets.

Expendable materials

Blind rivet N3 Dia. 4 mm; clamping area 1-3 mm		83190301421

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TECHNICAL INFORMATION

For more information see: 41 00 ... Installation of a cavity sealing (not expanding)

- Apply sealant to the new cavity sealing (1). Install cavity sealing (1).

Expendable materials

Sealant D2	290 ml	83425A547B9

Additional Information

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Opening bonded connections	2
41 00 ... BMW/MINI bonding instructions	3
41 00 ... Repair techniques, repair stage 2	

Repair instructions	Used in step
41 00 ... Installing cavity sealing (not expanded)	4

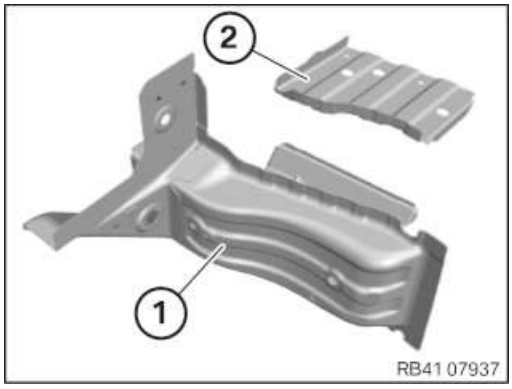
cardiagn.com

41 14 531 Replacing engine support/front left side frame connection

TECHNICAL INFORMATION

- Observe the procedure for repair stage 3.
For additional information see: 41 00 ... Repair method for repair stage 3
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Connection, side frame (1)

  Side frame reinforcement (2)

TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

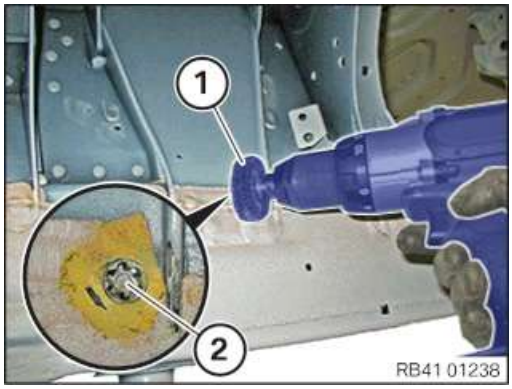
- Supply the following consumables:

Material	Quantity
Adhesive K1	1
Blind rivet N1	15
Coarse thread bolt	5
Cleaner R1	1
Cleaner R2	1
Sealing compound D1	1
Cavity sealing wax remover	

2 – Removing self-tapping screws

NOTICE

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



- Remove the sealant with a wire brush attachment (1).
- Completely remove the sealant from the screw head (2).

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- Vertically position the battery-powered drill (1) using special tool on the self-tapping screw and release the self-tapping screw.

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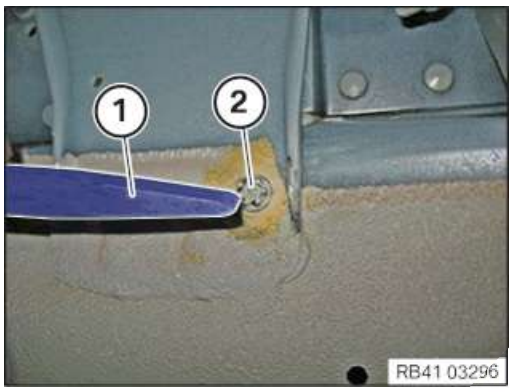
3 – Removing damaged self-tapping screws

Prerequisite

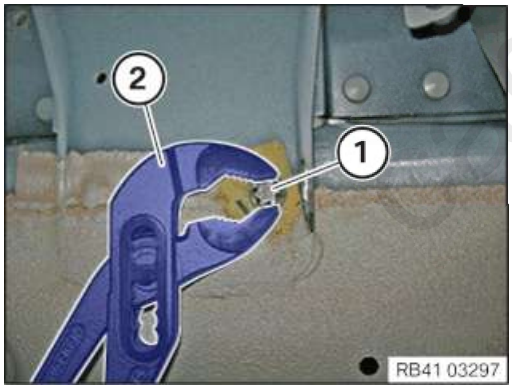
Sealant has been removed from the screw head.

NOTICE

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



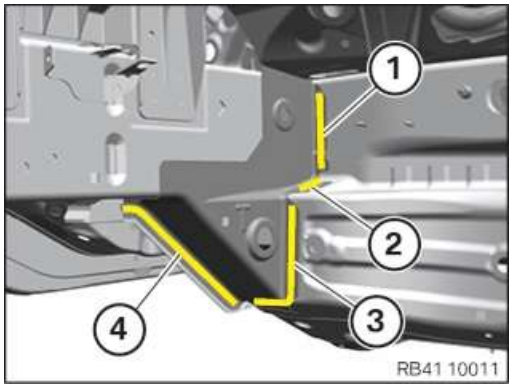
- Position the chisel (1) on the side of the screw head.
- Loosen the screw (2) by hitting it with a hammer.
- Repeat the process until the screw (2) has turned by approximately 90°.



- Remove the screw (1) using pliers (2).

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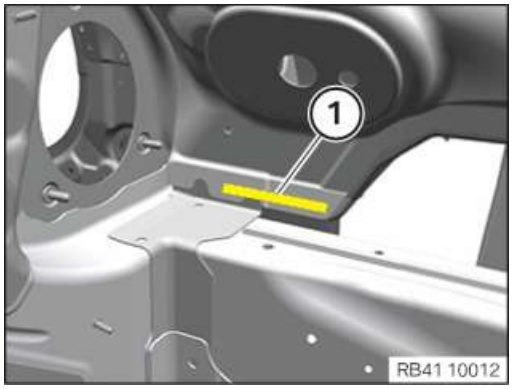
4 – Removing connection between engine support and side frame



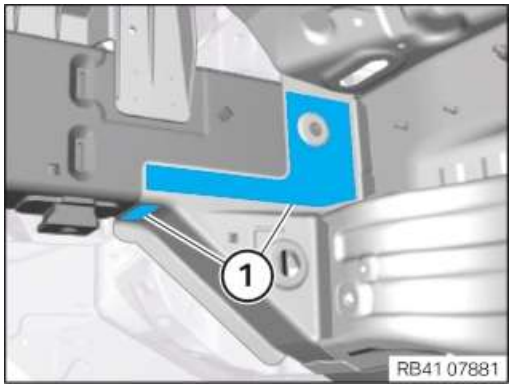
- Release the welded connections in the areas (1) to (4).

  Partially loosen welds with the belt grinder.

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- Open welded connections in area (1).

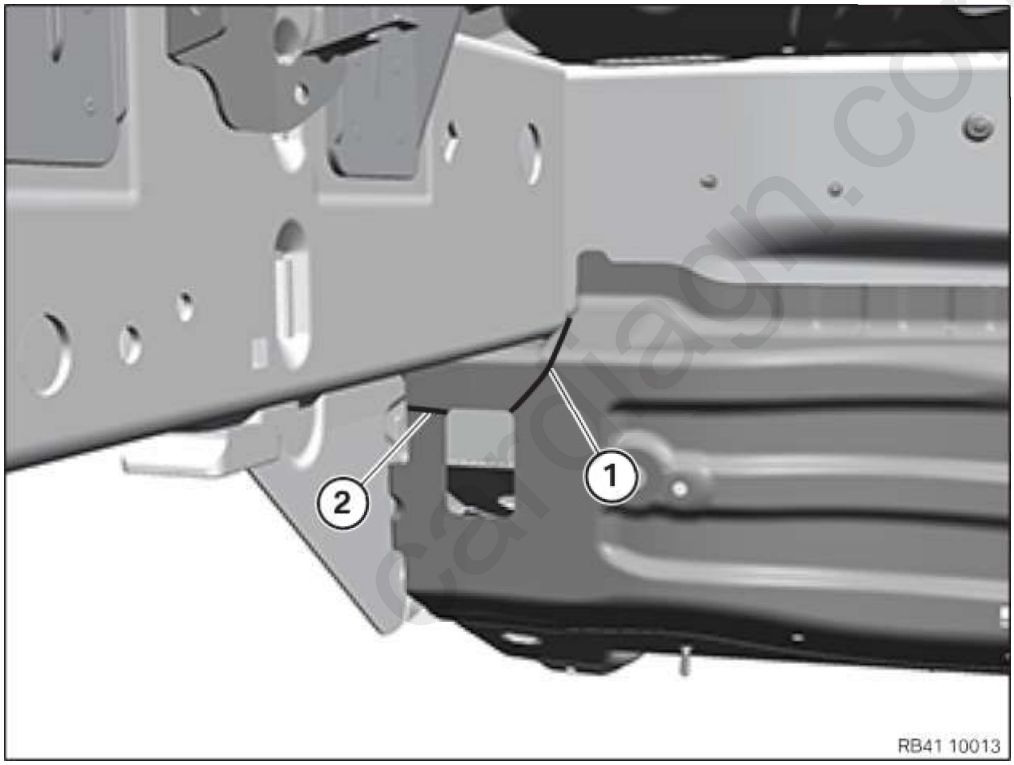


- Release the self-tapping screws in the areas (1).

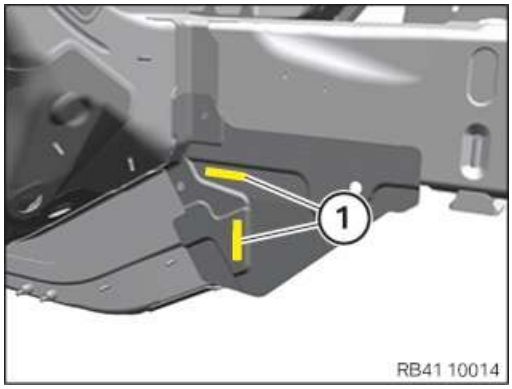
TECHNICAL INFORMATION

For more information see: 41 00 ... Releasing bonded connections

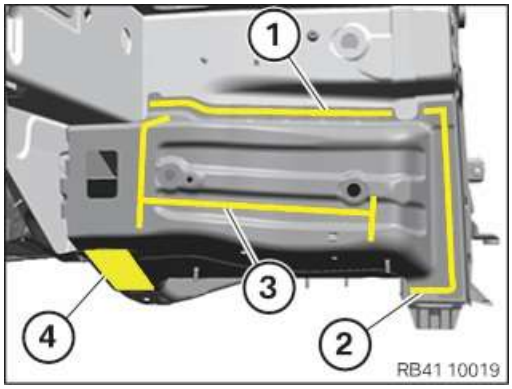
- Heat bonded connections in areas (1) and remove the connecting plate.



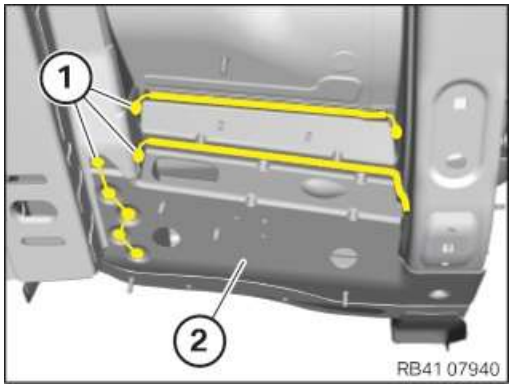
- Make rough cuts (1) and (2) as shown.



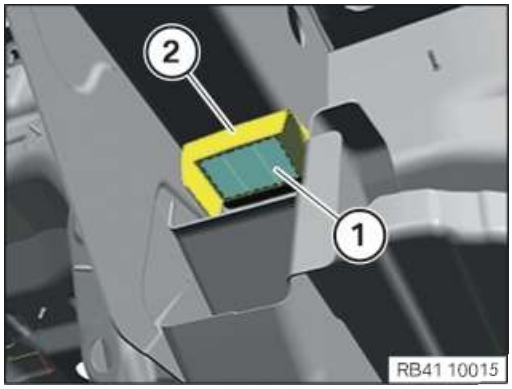
- Release welded connections in areas (1).



- Release the welded connections in the areas (1) to (4).

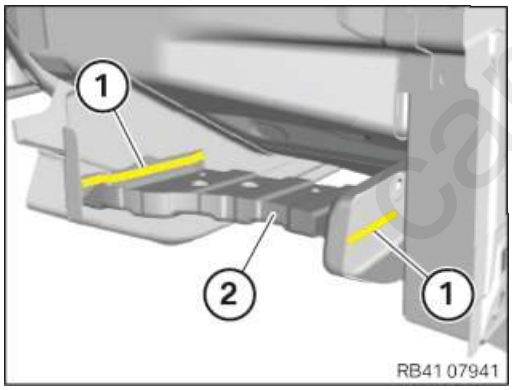


- Loosen welds in areas (1) and remove connecting panel (2).



- Heat the bonded connection in the area (1) and release it.

  Remove the section (2).



- If fitted: Release the welded connections in the area (1) and remove the reinforcement plate (2).

5 – Preparing the new part

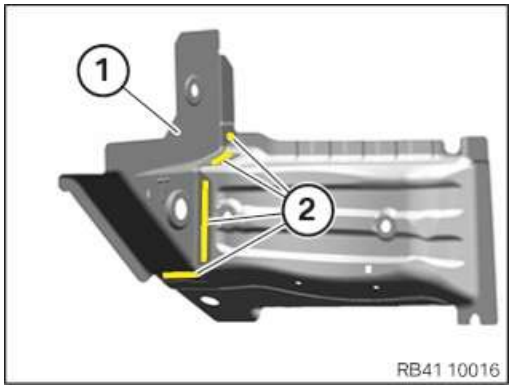
TECHNICAL INFORMATION

Structure bonding.

Observe preparation of bonding surfaces.

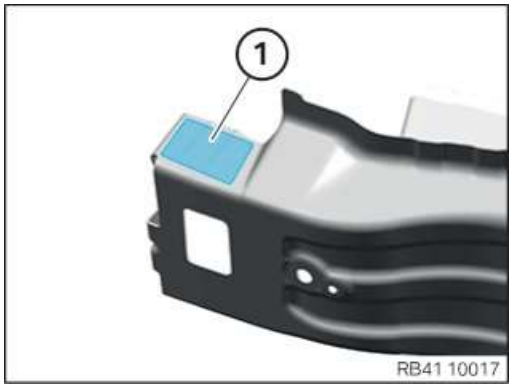
For additional information see: 41 00 ... BMW bonding instructions

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- Note: The joint plate (1) is also used and installed as a separate component.

  Release the welded connections in the areas (2) and remove the joint plate (1).



- Prepare the bonding surface (1) for a structural bonding for steel surfaces.

▸ Prepare the steel surface (used part and new part) for structural bonding

- Remove coarse contamination from the bonding surfaces using solvent cleaner R2.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean the bonding surfaces using solvent cleaner R1.

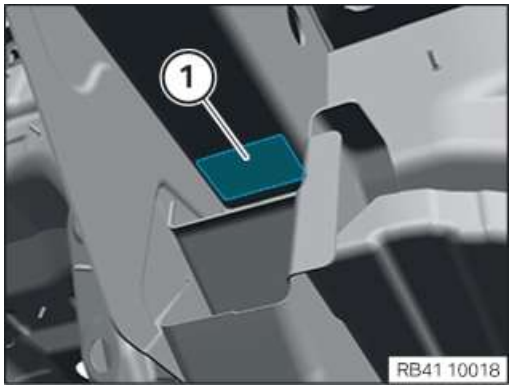
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

- Grind the bonding surface down to the bare metal.
- Clean the bonding surface with cleaning agent R1.

Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217



- Remove adhesive residue from the bonding surface (1).
- Prepare the bonding surface (1) for a structural bonding for aluminium surfaces.

▸ Preparing the aluminium surface (used part) for bonding

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- Remove coarse contamination from the bonding surfaces using solvent cleaner R2.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean the bonding surfaces using solvent cleaner R1.

Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

- Remove oxide layers or paint from bonding surfaces using a stainless steel wire brush or sandpaper with grain size 120.

  The surface must be down to the bare metal.

- Clean the bonding surfaces using solvent cleaner R1.

Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

- Allow cleaned surfaces to dry for approximately 5 min.

  The bonding surfaces must be completely dry.

- Flame spray the bonding surfaces with primer P2. Go over the bonding surfaces slowly with the flame.

  Flaming with the blue part of the flame must be avoided.

  Condensation water appears on the area that is still uncoated. The condensation water in the line of the flame must evaporate completely.

Expendable materials

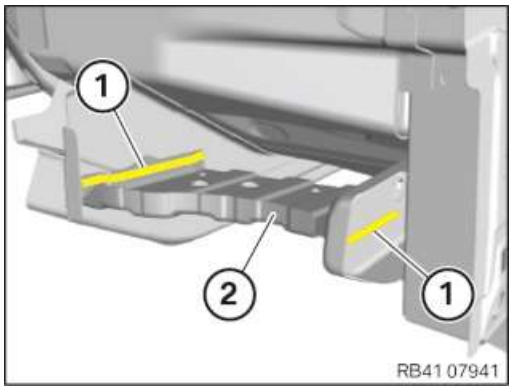
PrimerP2	50 ml, Gas cartridge	83190302555

- Immediately following flame spraying, coat the bonding surfaces that are still warm (approximately 50°C) with primer P1. Apply the primer P1 with a brush, cotton ball or similar item.

Expendable materials

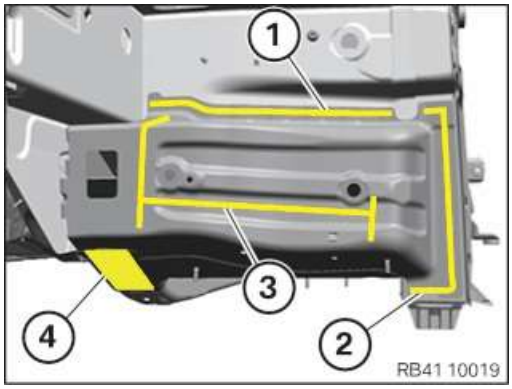
PrimerP1	50 ml, Bottle	83190302556

- Allow the bonding surfaces to dry for approximately 5 min.



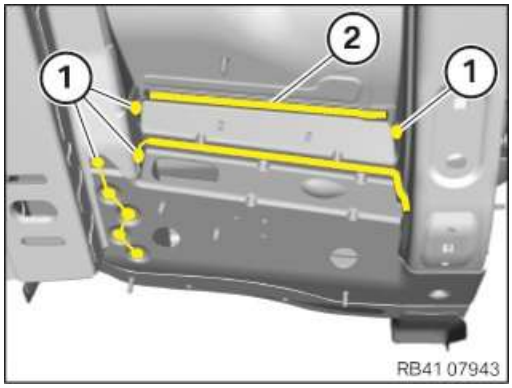
- Fit the reinforcement plate (2) in and prepare areas (1) to be welded together.

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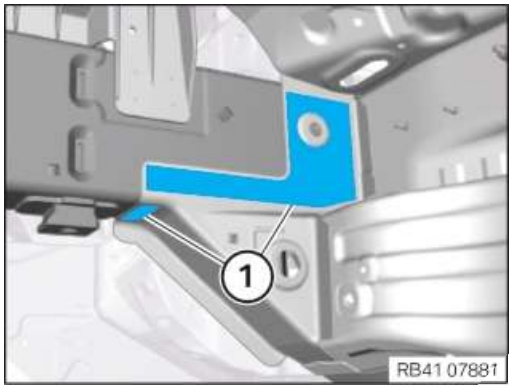
- Adjust a connecting plate and prepare for joining by welding in areas (1) to (4).

  Prepare the area (4) so that all panels are welded to one another.



- Prepare areas (1) and (2) for joining by welding.

  In the area (2), watch out for the spot-welded adhesive joints of the panel above with the floor panel.

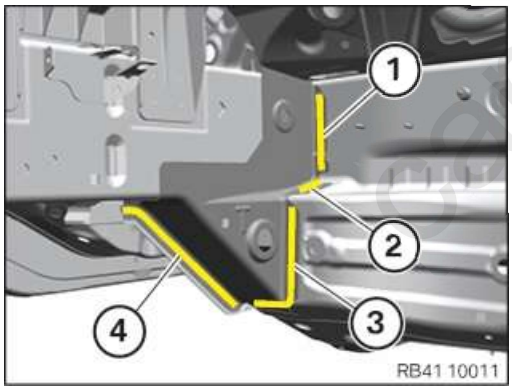


- Adjust the joint plate and prepare in the areas (1) for a structural bonding with blind rivets made of steel and aluminium.

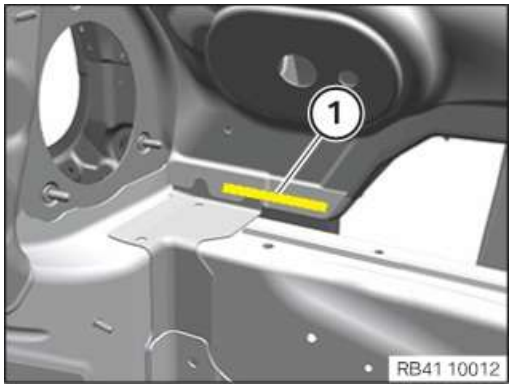
TECHNICAL INFORMATION

For more information see: 41 00 ... Transferring hole pattern.

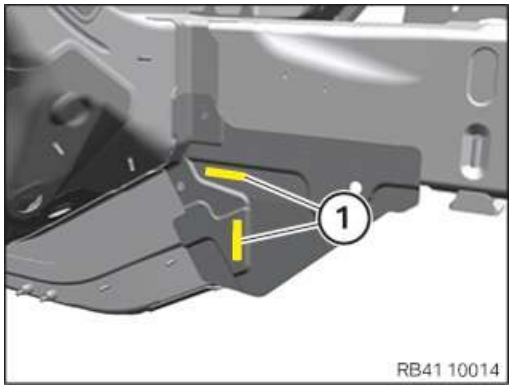
- In the areas (1), transfer the hole pattern of self-tapping screws in the engine support to new part. Drill holes with 6.8 mm diameter.



- Prepare areas (1) to (4) for joining by welding.



- Prepare areas (1) for joining by welding.

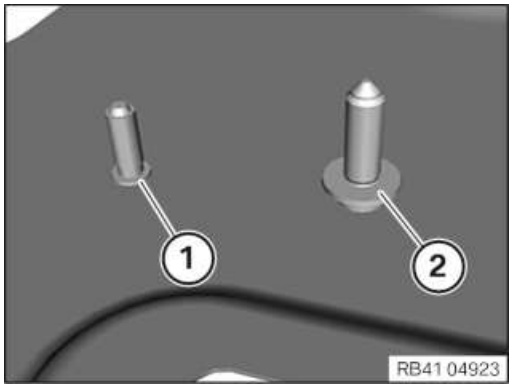


- Prepare areas (1) for joining by welding.

▸ **Replacing the coarse thread bolt and threaded weld bolt, steel surface**

NOTICE

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



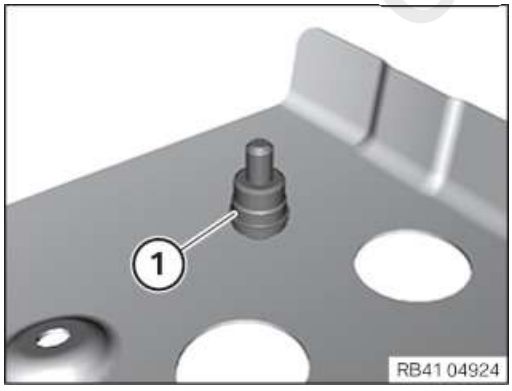
- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

▸ **Checking the ground pin and replacing if necessary**

NOTICE

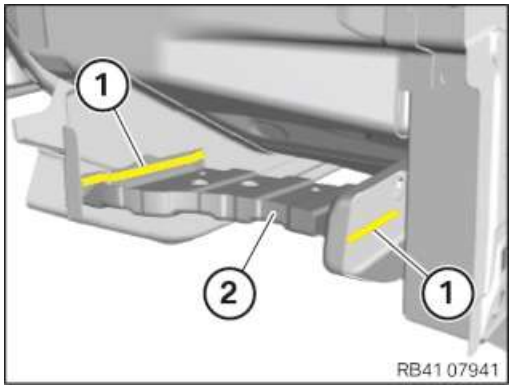
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check the ground pin (1) for stability and renew where required.

6 – Install the connection between the engine support and the side frame

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- Install reinforcement plate (2) and weld in areas (1).

- Pre-clean the bonding surfaces at the new part and vehicle using R2 solvent cleaner.

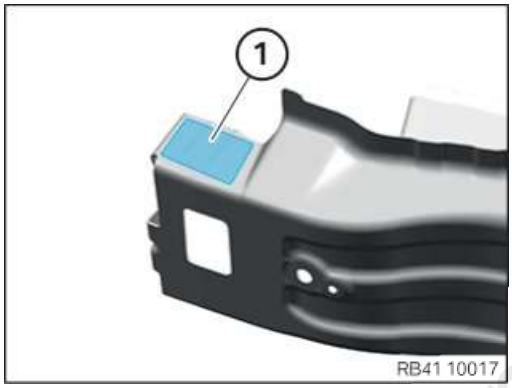
Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean bonding surfaces on vehicle and on new part with cleaning agent R1.

Expendable materials

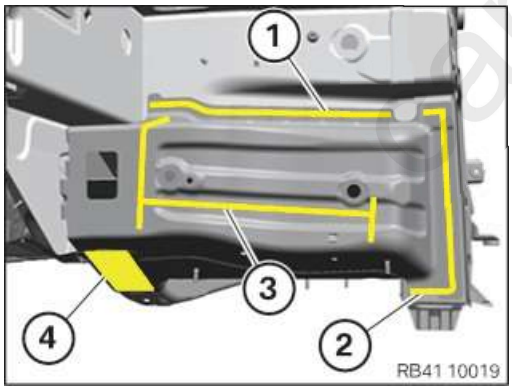
Cleaning agent R1	100 ml, Bottle	83192211217



- Apply adhesive K1 to bonding surfaces (1) on vehicle and on new part.

Adhesive

Body adhesive K1	195 ml	83190413015

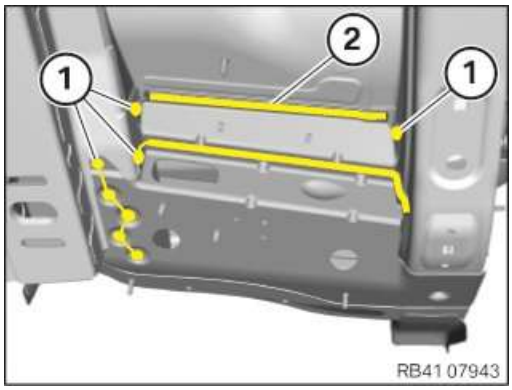


- Install connecting plate.

  During installation, ensure that sufficient adhesive has been applied to all bonding surfaces.
- Weld connecting plate in areas (1) to (4).
- Avoid very high heat input in the area (1).

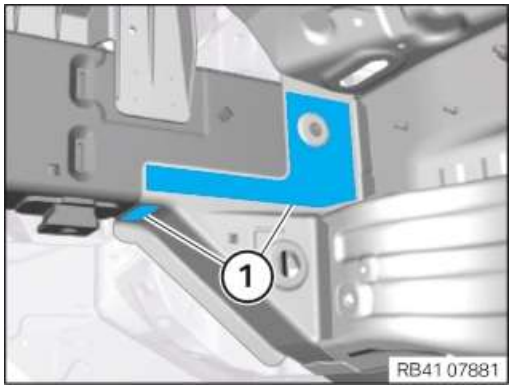
  The bulkhead cross member located behind area (1) is filled with low-flammable cavity foam.

  In case of smoke formation: Stop the welding procedure and cool the welded area with compressed air if applicable.



- Weld the new part in the areas (1)and (2).
- In the area (2), watch out for the spot-welded adhesive joints of the panel above with the floor panel. Avoid excessive application of heat. If necessary, cool area (2) with compressed air.

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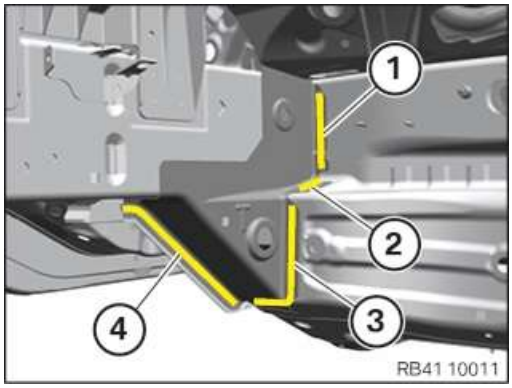


- Apply adhesive K1 to bonding surfaces (1) on vehicle and on new part.

  During installation, ensure that sufficient adhesive has been applied to all bonding surfaces.
- Install joint plate and rivet in areas (1) with blind rivets N1.

Expendable materials

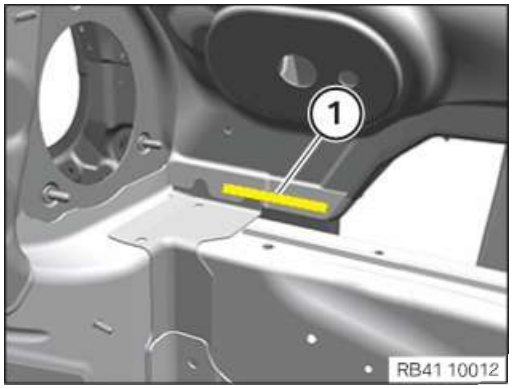
Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414



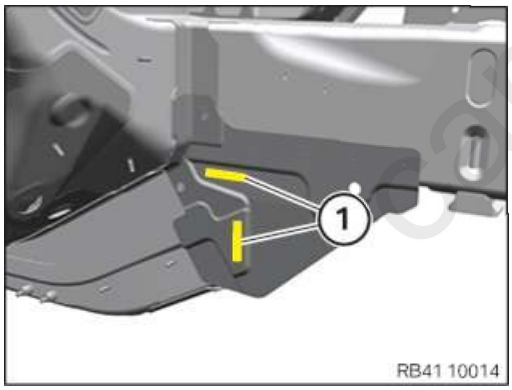
- Weld new part in the areas (1) to (4).
- Avoid very high heat input in the area (1).

  The bulkhead cross member located behind area (1) is filled with low-flammable cavity foam.

  In case of smoke formation: Stop the welding procedure and cool the welded area with compressed air if applicable.



- Weld the new part in the area (1).



- Weld new part in the areas (1).

Additional Information

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Transferring hole pattern	5

General repair instructions	Used in step
41 00 ... Opening bonded connections	4

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41 00 ... Repair techniques, repair stage 3

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41 14 020 Replacing front left wheel arch

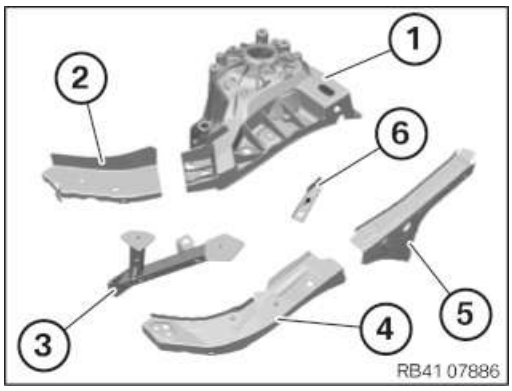
Prerequisite

- Vehicle is secured on the straightening bench.

TECHNICAL INFORMATION

- Observe the procedure for repair stage 3.
For additional information see: 41 00 ... Repair method for repair stage 3
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Front spring support(1)

  Lower wheel arch section carrier support (2)

  Support for the carrier support (3)

  Carrier support, wheel arch, front(4)

  Extension for wheel arch carrier support (5)

  Brake hose holder (6)

  Support bracket shaped part

TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

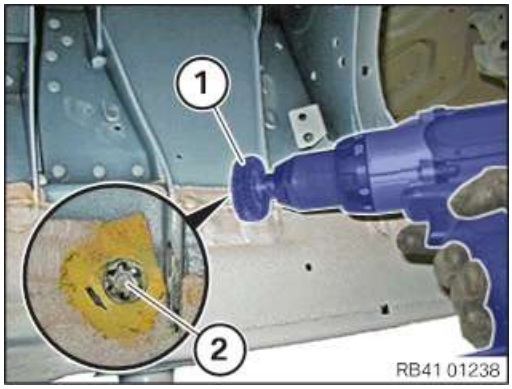
Material	Quantity
Adhesive K1	1
Blind rivet N1	60
Blind rivet N2	20
Punch rivet N4	20
EMC screw	2
Cleaner R1	1
Cleaner R2	1
Sealing compound D1	1
Cavity sealing wax remover	1

2 – Removing self-tapping screws

NOTICE

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

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- Remove the sealant with a wire brush attachment (1).
- Completely remove the sealant from the screw head (2).



- Vertically position the battery-powered drill (1) using special tool on the self-tapping screw and release the self-tapping screw.

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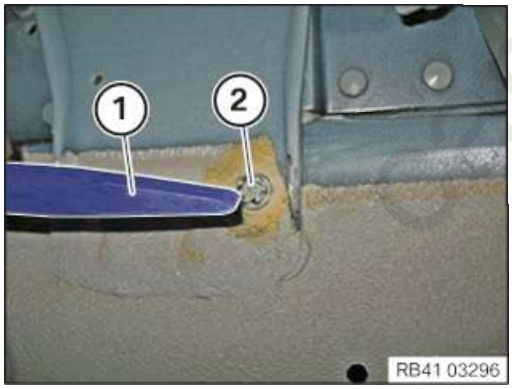
3 – Removing damaged self-tapping screws

Prerequisite

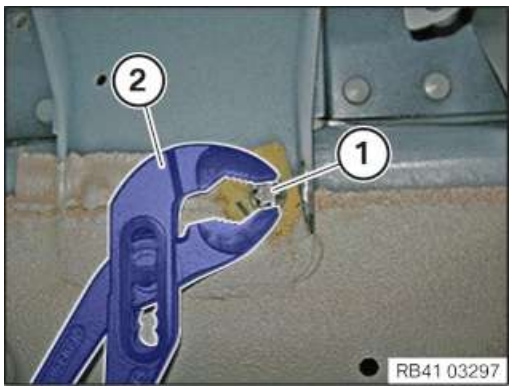
Sealant has been removed from the screw head.

NOTICE

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



- Position the chisel (1) on the side of the screw head.
- Loosen the screw (2) by hitting it with a hammer.
- Repeat the process until the screw (2) has turned by approximately 90°.



- Remove the screw (1) using pliers (2).

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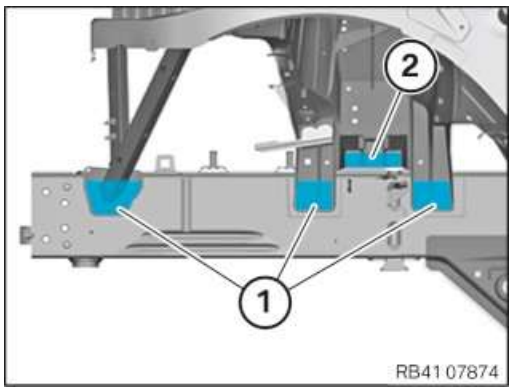
4 – Remove wheel arch

TECHNICAL INFORMATION

For more information see: 41 00 ... Releasing bonded connections

TECHNICAL INFORMATION

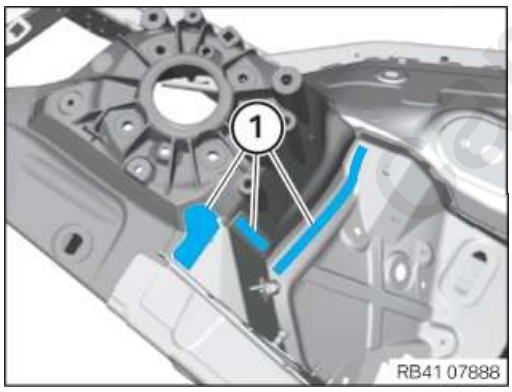
For more information see: Open riveted joints (41 00).



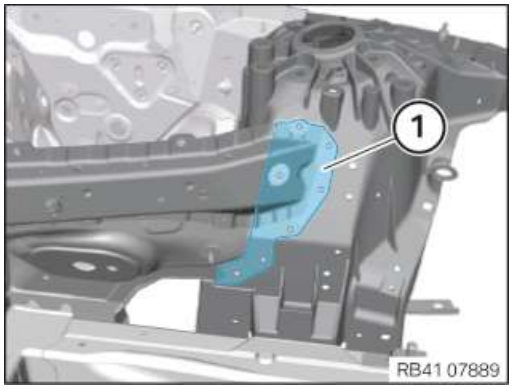
- Release the self-tapping screws in the areas (1) and rivet connections in the area (2).
- Heat and release the bonded connections in the areas (1) and (2). In doing so, do not damage the aluminium engine support.



- Release the rivet connections in the area (1) .
- (1)

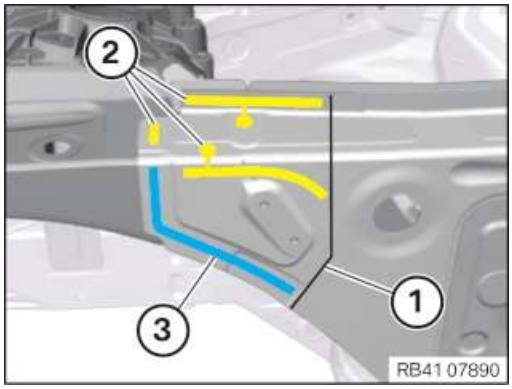


- Release the rivet connections in the areas (1).
- Heat and release the bonded connections in the areas (1).

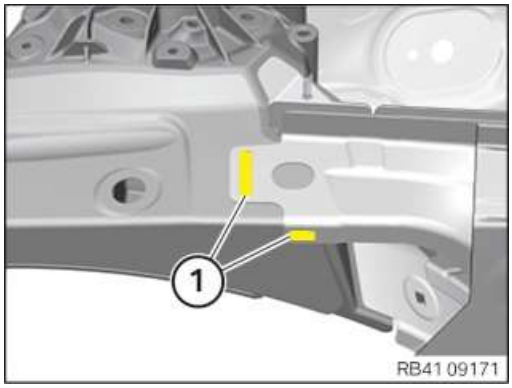


- Release the rivet connections in the area (1) .
- Heat and release the bonded connections in the area (1).

erdiagn.com



- Carry out the separating cut (1) as shown. Thereby disconnect only the outer panel.
- Release the welded connections in the areas (2) and (3).
- Heat and release the bonded connection in the area (3).
- Remove the section of the carrier support.



- Release the welded connections in the areas (1) and remove the wheel arch.

5 – Prepare new part

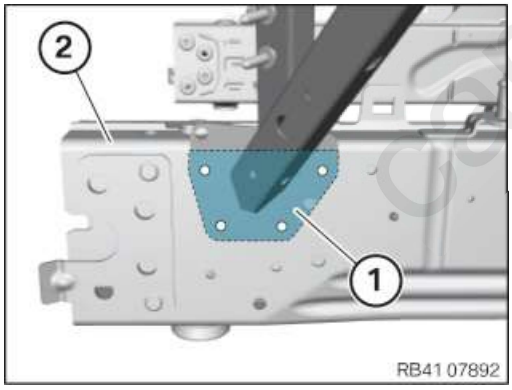
TECHNICAL INFORMATION

Structure bonding.

Observe preparation of bonding surfaces.

For additional information see: 41 00 ... BMW bonding instructions

- Remove adhesive residue on the flange surfaces.

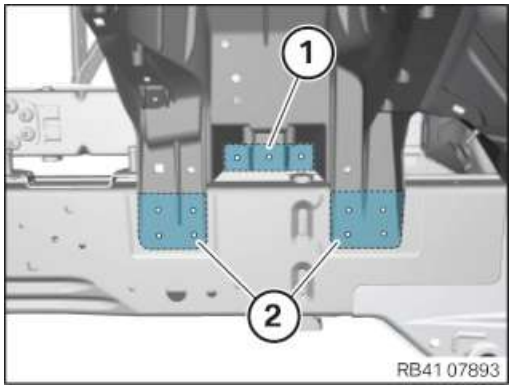


- Adjust new parts with an alignment bracket or a universal fixture and secure.
- Prepare area (1) for a structural bonding with blind rivets of steel to aluminium.

TECHNICAL INFORMATION

For more information see: 41 00 ... Transferring hole pattern.

- In area (1), transfer the hole pattern of the engine support (2) onto new part. Drill out holes to Ø 6.8 mm.



- Prepare areas (1) and (2) for a structural bonding of aluminium on aluminium with blind rivets.
- In area (1) transfer the positions of the holes from the engine support to the spring support. Drill out holes to Ø 6.8 mm.

TECHNICAL INFORMATION

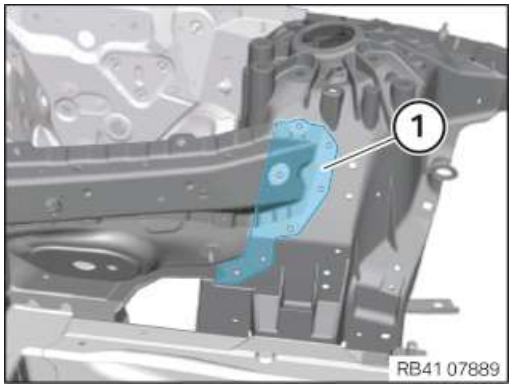
For more information see: 41 00 ... Transferring hole pattern.

- In areas (2), transfer the hole patterns from the engine support to the spring support. Drill out holes to Ø 6.8 mm.

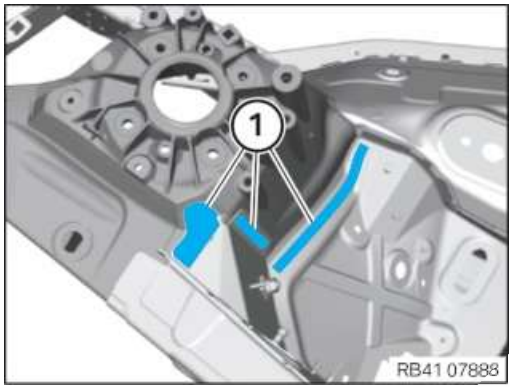
cardiagn.com



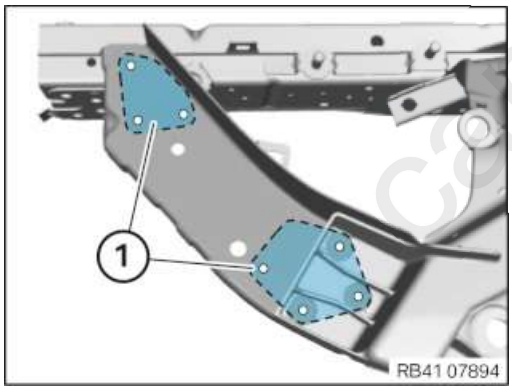
- Prepare area (1) for the structural bonding of aluminium on steel with blind rivets.
- In area (1), transfer the positions of the holes from the wheel arch to the spring supports. Drill out holes to Ø 6.8 mm.



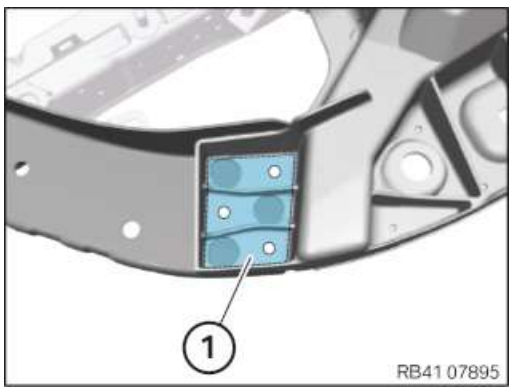
- Prepare area (1) for the structural bonding of aluminium on steel with blind rivets.
- In area (1), transfer the positions of the holes from the engine bulkhead to the spring support. Drill out holes to Ø 6.8 mm.



- Prepare areas (1) for the structural bonding of aluminium on steel with blind rivets.
- In area (1), transfer the positions of the holes from the wheel arch to the spring supports. Drill out holes to Ø 6.8 mm.

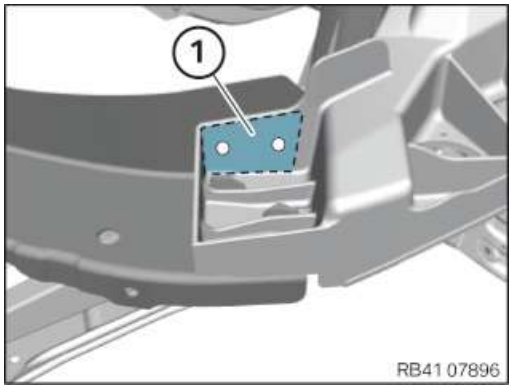


- Prepare areas (1) for the structural bonding of steel on steel with blind rivets.
- Drill seven holes Ø 6.8 mm in areas (1) in accordance with the illustration. Select the position and number of the rivet holes similar to the punch rivet connections of the standard components.

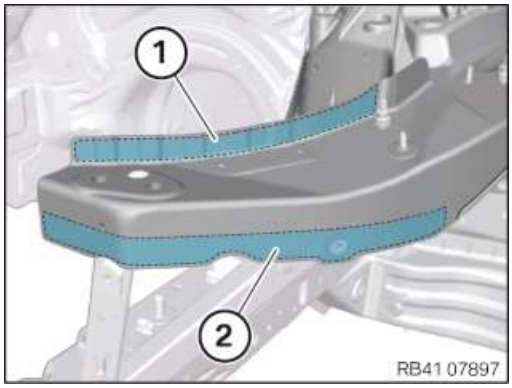


- Prepare area (1) for the structural bonding with blind rivets of steel to aluminium.
- Drill three holes Ø 6.8 mm in area (1) in accordance with the illustration. Select the position and number of the rivet holes similar to the punch rivet connections of the standard components.

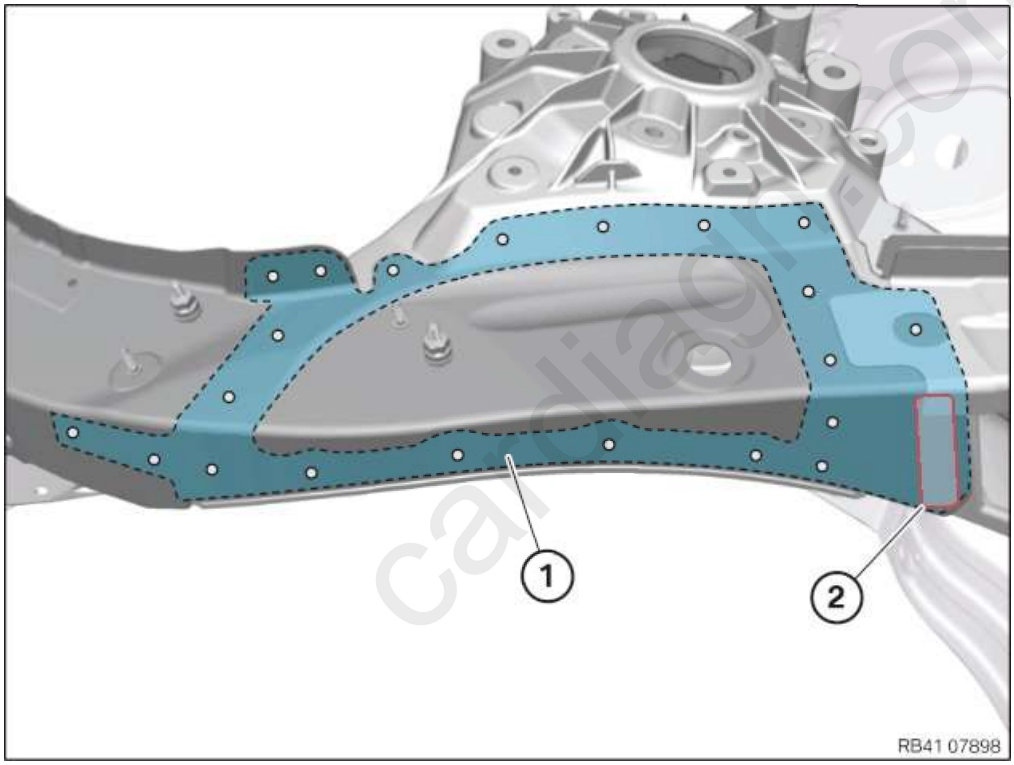
cardiagn.com



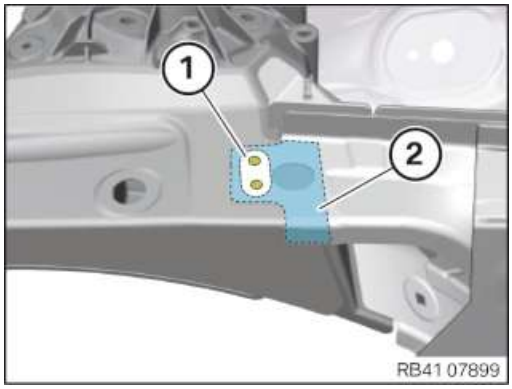
- Prepare area (1) for the structural bonding with blind rivets of steel to aluminium.
- Drill two holes Ø 6.8 mm in area (1) in accordance with the illustration. Select the position and number of the rivet holes similar to the punch rivet connections of the standard components.



- Prepare areas (1) and (2) for the structural bonding of steel on steel with punch rivets.

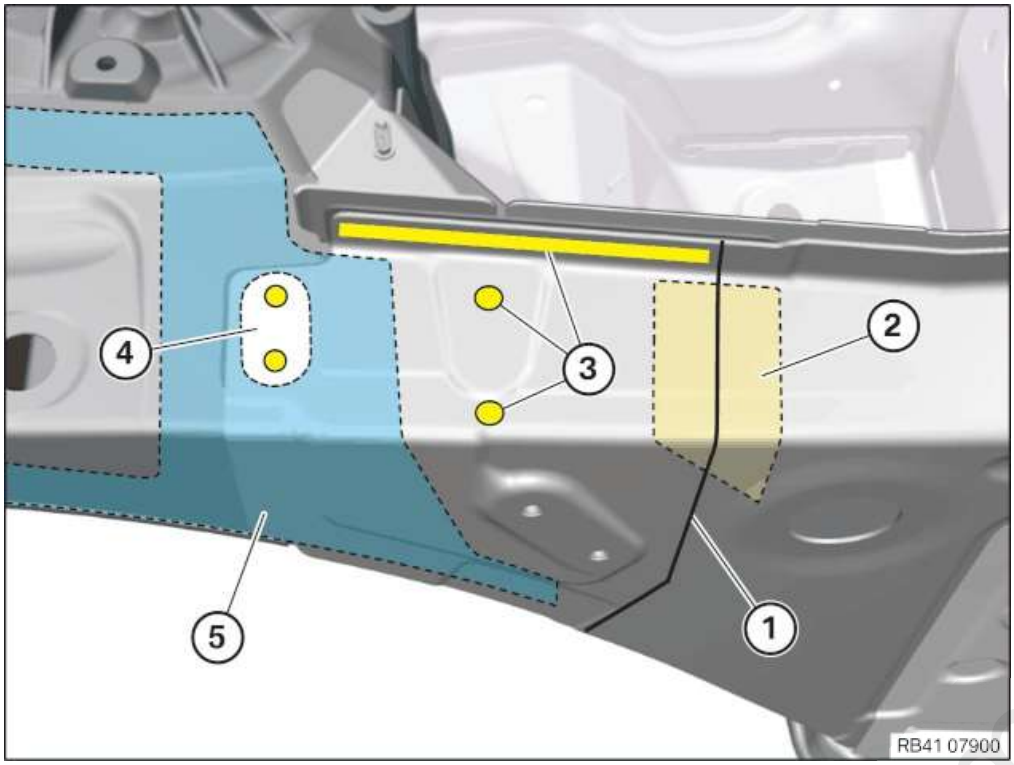


- Prepare area (1) for the structural bonding with blind rivets of steel to aluminium.
- Drill 21 holes Ø 6.8 mm in area (1) in accordance with the illustration. Select the position and number of the rivet holes similar to the punch rivet connections of the standard components.
- Do not drill any blind rivet holes in area (2). Prepare area (2) for joining by punch rivets.



- In the area of the recess (1), prepare for joining by 2 x spot-welds.

  Note the bonded connection in the area (2).



- Make severance cut (1) on the new part in accordance with severance cut on vehicle.

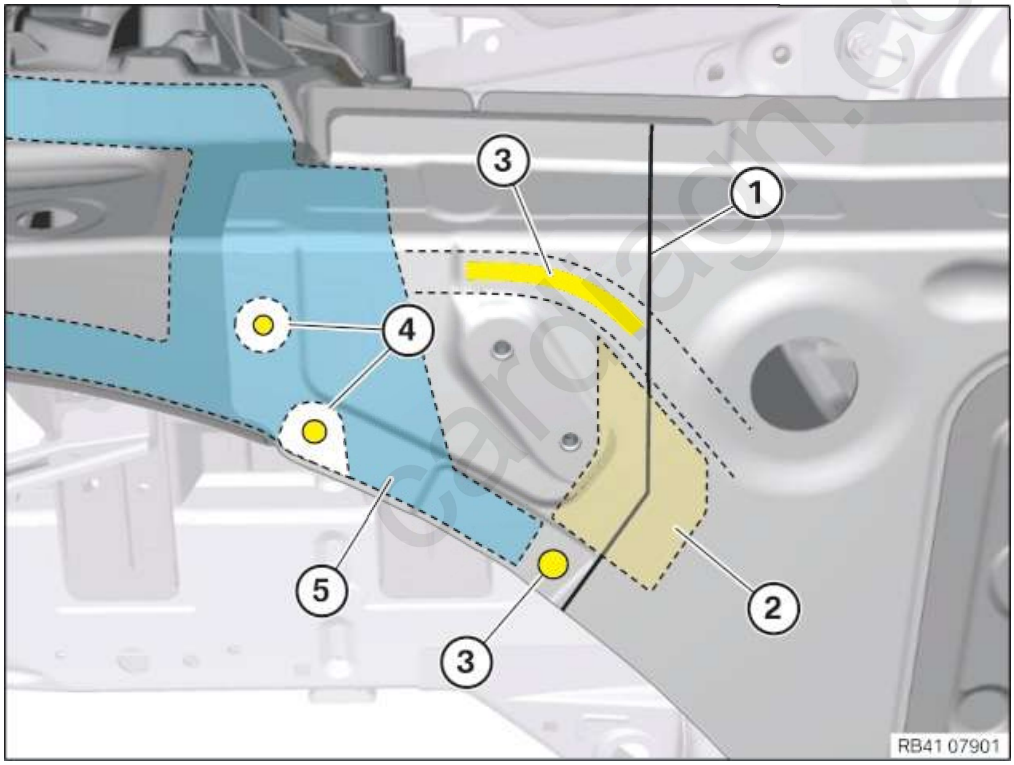
TECHNICAL INFORMATION

For additional information see: 41 00 ... Weld in the reinforcement plates (sheet steel)

- Prepare a reinforcement plate (1) for the separating cut (2).

  Prepare the separating cut (1) and the reinforcement plate (2) for joining by welding.
- Prepare areas (3) for joining by welding.
- In the area of the recess (4), prepare for joining by 2 x spot-welds.

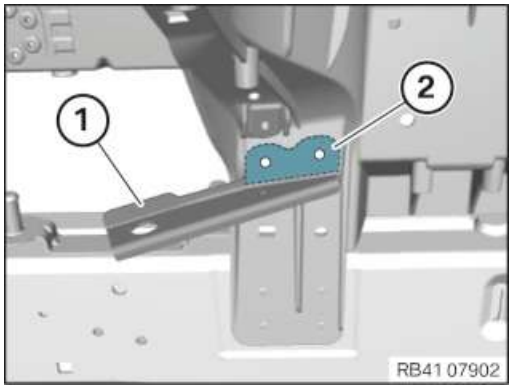
  Note the bonded connection in the area (5).



- Prepare a reinforcement plate (1) for the separating cut (2).

  Prepare the separating cut (1) and the reinforcement plate (2) for joining by welding.
- Prepare areas (3) for joining by welding.
- In the recesses (4), prepare for joining by 2 x spot-welds.

  Note the bonded connection in the area (5).



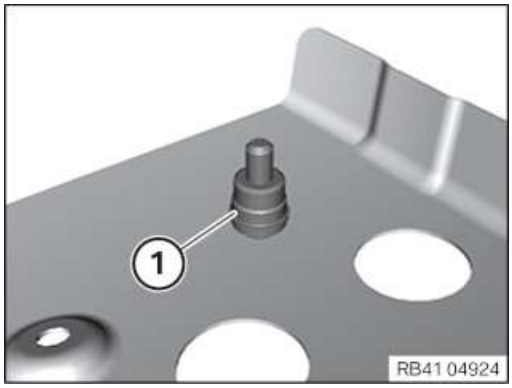
- Position holder (1) for the brake hose on the wheel arch.

  Prepare area (2) for a structural bonding with blind rivets of aluminium to aluminium.
- Drill 2 holes Ø 6.8 mm in area (1) in accordance with the illustration.
- Remove new parts and deburr bore holes.

▸ **Checking the ground pin and replacing if necessary**

NOTICE

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



- Check the ground pin (1) for stability and renew where required.

6 – Install wheel arch

- Pre-clean all the bonding surfaces with solvent cleaner R2.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean all bonding surfaces with solvent cleaner R1.

Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

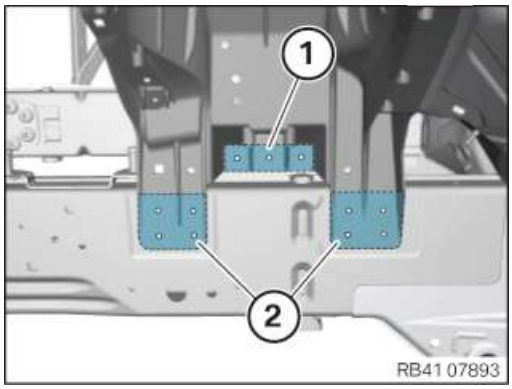
- Apply adhesive K1 to bonding surfaces.

Adhesive

Body adhesive K1	195 ml	83190413015

- Install the new parts with an alignment bracket or a universal mount.

  During installation, ensure that sufficient adhesive has been applied to all bonding surfaces.



- Rivet the new part in the areas (1) and (2) with blind rivets N2.

Expendable materials

Blind rivet N2 Ø 6.5 mm ; clamping area 4.8-6.8 mm		83190301419

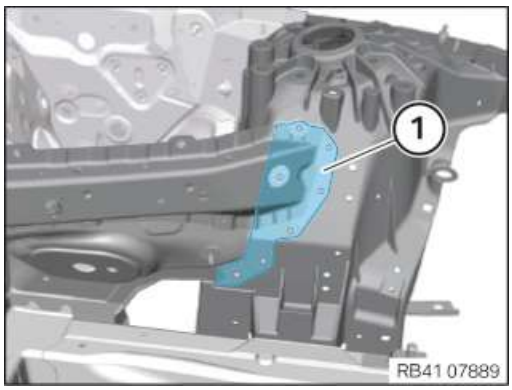
cardiagn.com



- Rivet the new part in the areas (1) and (2) with blind rivets N1.

Expendable materials

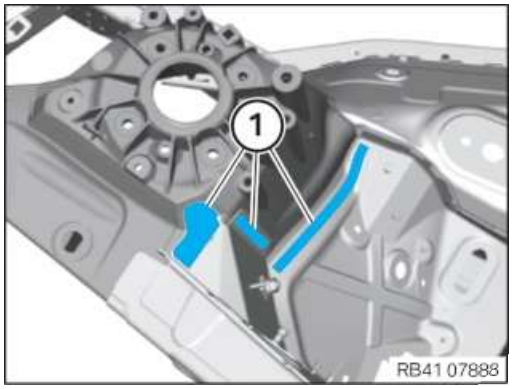
Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414



- Rivet the new part in the areas (1) with blind rivets N1.

Expendable materials

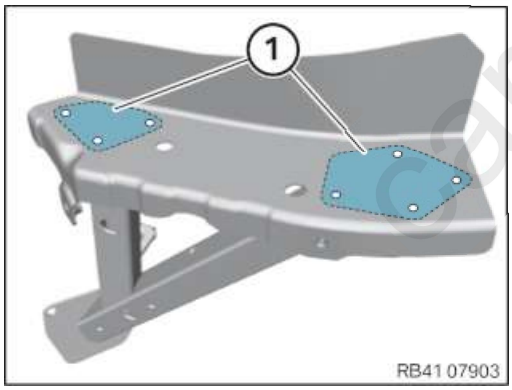
Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414



- Rivet the new part in the areas (1) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414

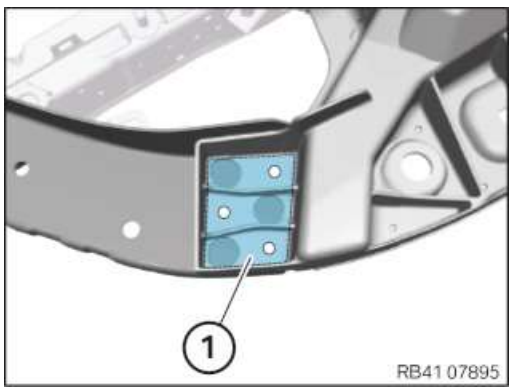


- Clean all bonding surfaces with cleaning agent R2 and R1.

  Apply adhesive K1 to bonding surfaces.
- Join new parts and rivet in areas (1) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414



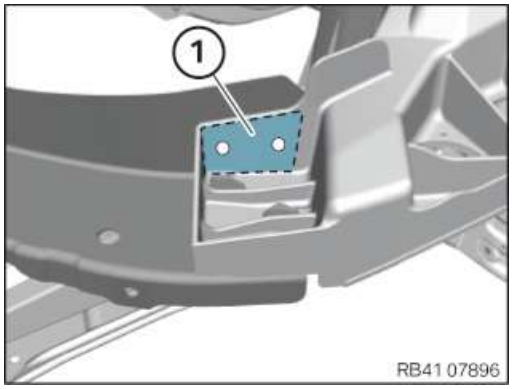
- Clean all bonding surfaces with cleaning agent R2 and R1.

  Apply adhesive K1 to bonding surfaces.
- Install new parts and rivet in area (1) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414

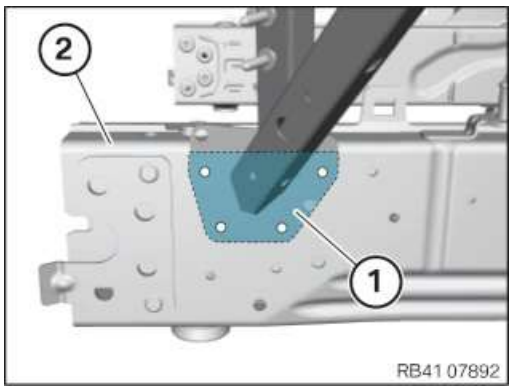
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- Rivet the new part in area (1) with blind rivets N1.

Expendable materials

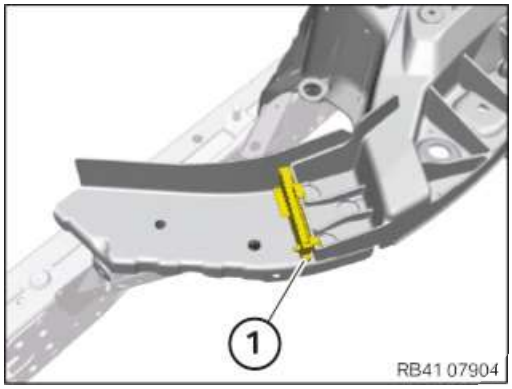
Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414



- Rivet the new part in area (1) with blind rivets N2.

Expendable materials

Blind rivet N2 Ø 6.5 mm ; clamping area 4.8-6.8 mm		83190301419



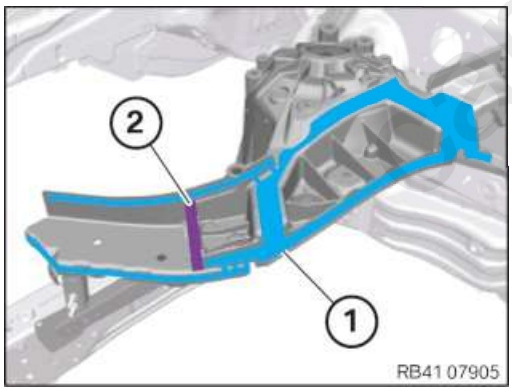
TECHNICAL INFORMATION

For more information see: 41 00 ... Installation of a cavity sealing (not expanding)

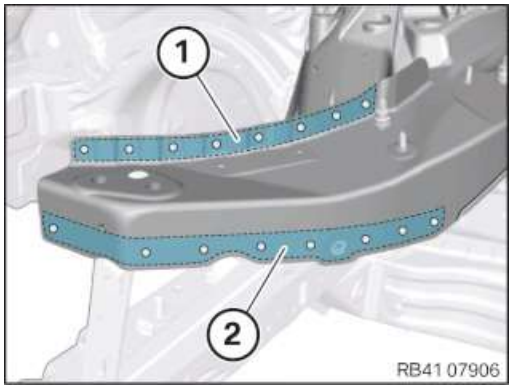
- Apply sealing agent D1 to the cavity bulkhead (1) and install cavity bulkhead.

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985



- Clean bonding surface (1) with cleaning agent R2 and R1.
- Apply adhesive K1 to the bonding surface (1).
- Apply sealant D1 to cavity sealing (2).



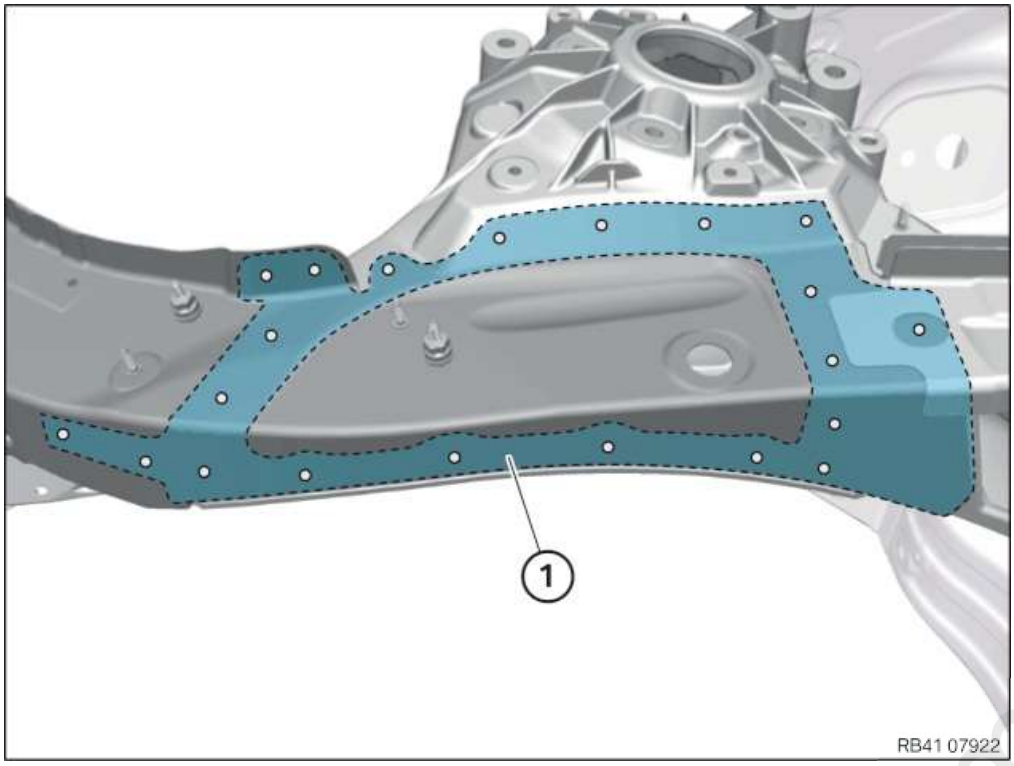
- Install the new part and rivet in the areas (1) and (2) with 16 punch rivets N4.

Area	Description	Number
1	N4	8
2	N4	8

Expendable materials

Punch rivet N4 Ø 3 mm ; 4 mm long		83192457307

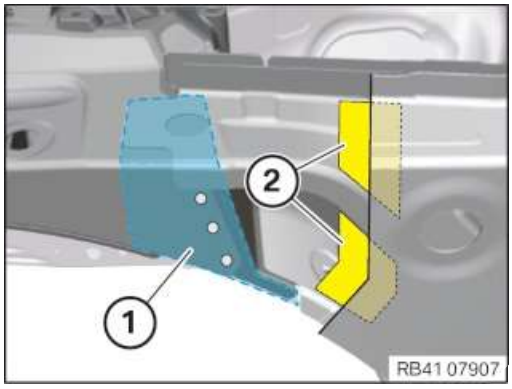
mitdiagn.com



- Rivet the new part in area (1) with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm	83190301414

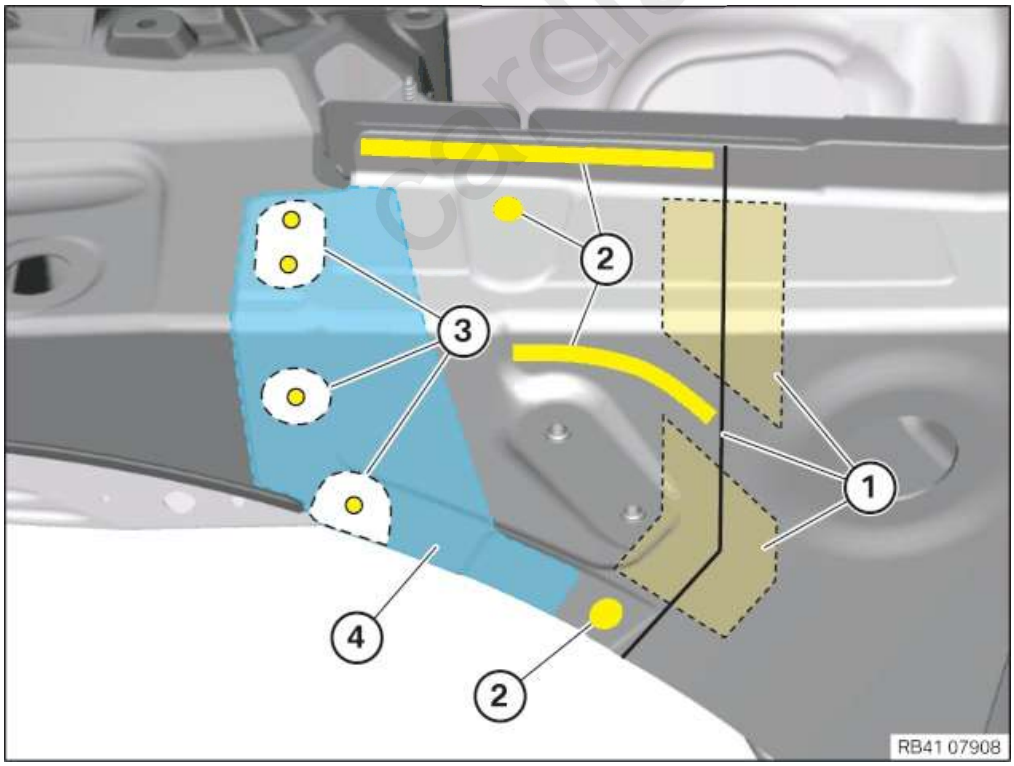


- On the bonding area (1), place 3 self-piercing rivets N4 as shown in the diagram.

Expendable materials

Punch rivet N4 Ø 3 mm ; 4 mm long		83192457307

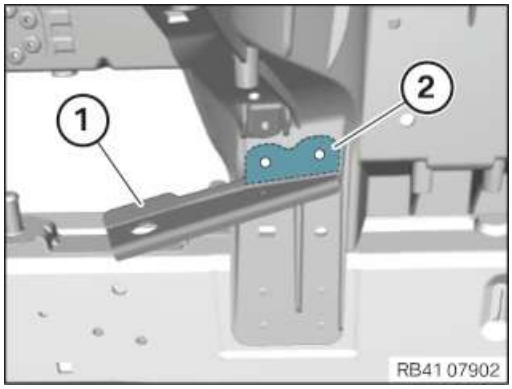
- Install the reinforcement plate (2) and attach by welding.



- Install new part section and weld in areas (1) to (3).

  Pay attention to the bonding area (4) of the aluminium spring strut dome. Avoid applying too much heat in the bonding area.

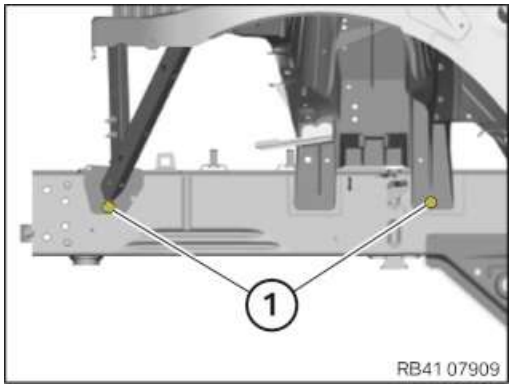
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- Clean bonding surface (2) with cleaning agent R2 and R1.
- Apply adhesive K1 to bonding surfaces (2).
- Install holder (1) and rivet with blind rivets N1.

Expendable materials

Blind rivet N1 Ø 6.5 mm ; clamping area 2.8-4.8 mm		83190301414



- Install two EMC screws in the areas (1).

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639

Additional Information

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Transferring hole pattern	5

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Opening bonded connections	4
41 00 ... Opening rivet connections	4
41 00 ... Spot-weld bonding steel components	4
41 00 ... BMW bonding instructions	5
41 00 ... Installing a cavity sealing with 2-component PU cavity foam	6
41 0 Repair techniques, repair stage 3	

Repair instructions	Used in step
41 00 ... Welding in reinforcement plate (sheet steel)	5

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41 ... 0 Notes on the repair technique used in the main group 41

Two different repair techniques are used in body repair.

These are welding and bonding/riveting.

If the repair instructions do not specify a repair technique, then welding must **always** be used.

The bonding/riveting repair technique is **always** described in detail in the repair instructions.

Quality standards must be met.

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41 21 682 Replace left B-pillar reinforcement

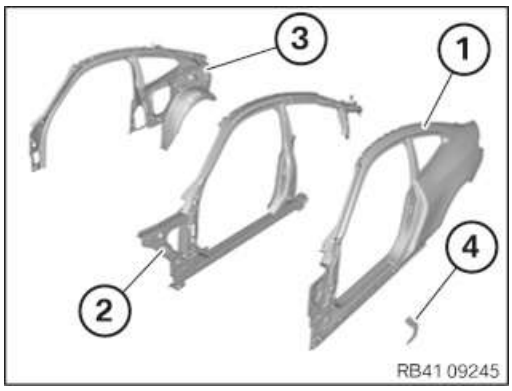
Prerequisite

- Vehicle is fixed on straightening bench.

TECHNICAL INFORMATION

- Observe the procedure for repair stage 3.
For additional information see: 41 00 ... Repair method for repair stage 3
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Outer side frame (1)

  Side frame, centre (2)

  Inner side frame (3)

  Shaped part for B-pillar, outer

  Shaped part for B-pillar, inner

TECHNICAL INFORMATION

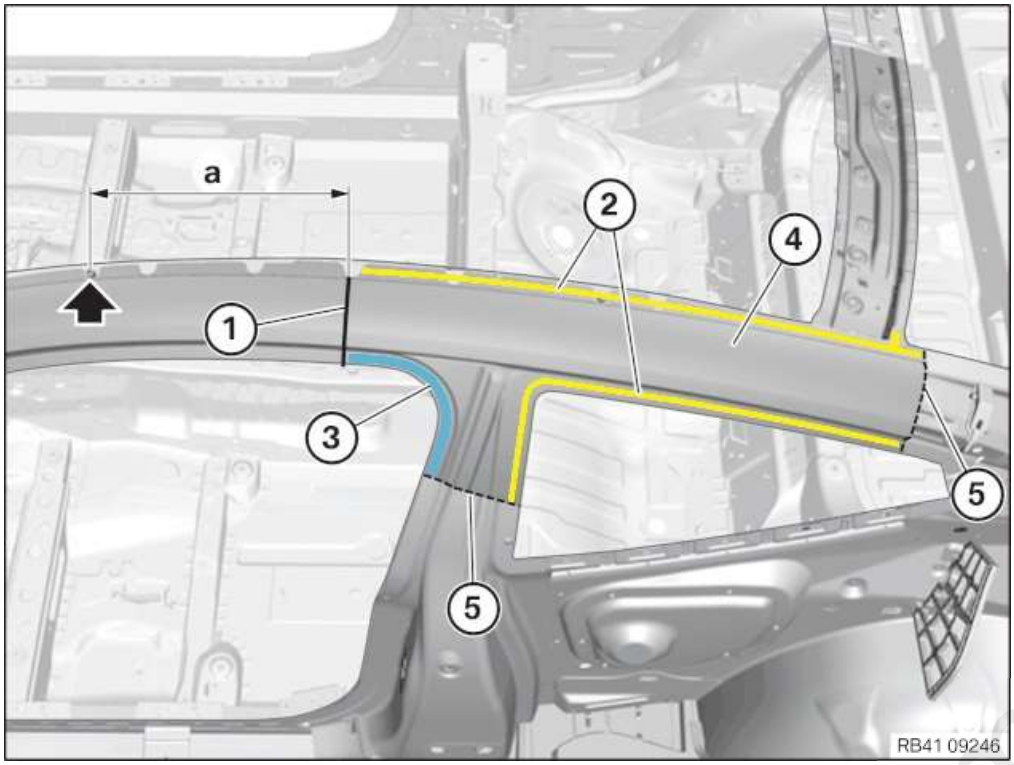
For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

Material	Quantity
Cleaner R1	1
Sealing compound D1	1
Cavity sealing wax remover	

2 – Removing B-pillar reinforcement

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NOTICE

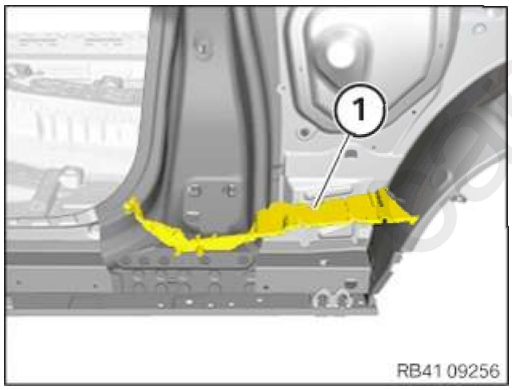
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Extended removal of side panel:
- Mark and make a separating cut (1) according to dimension a. Disconnect only the outer panel. Dimension a = 325 mm from the centre point of the screw fastening (arrow).
- Release welded connections in areas (2).

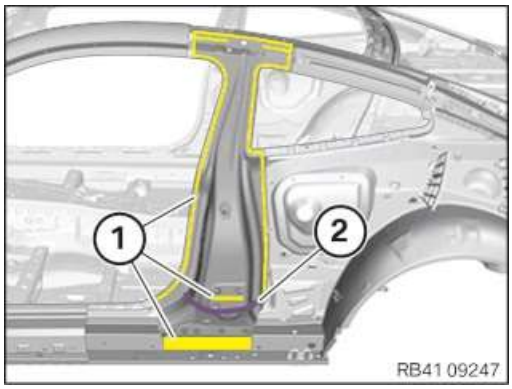
TECHNICAL INFORMATION

For more information see: 41 00 ... Releasing bonded connections

- Release the spot-welded adhesive joints in area (3).
- In addition, remove the section (4) of the side panel.
- Note: Original separating cuts (5) are not applicable while replacing the side panel.

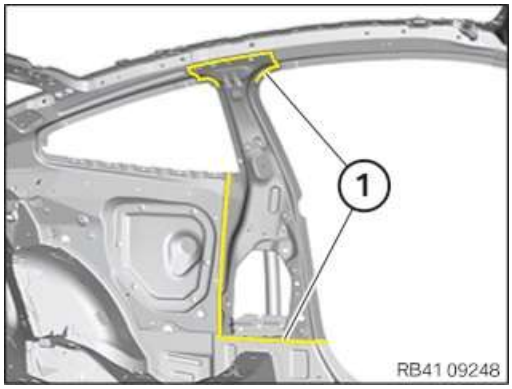


- Remove the outer cavity sealing (1).

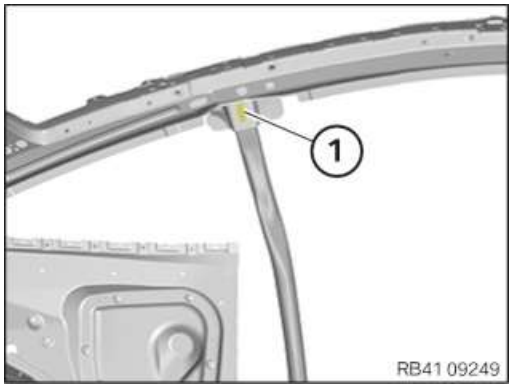


- Release welded connections in areas (1).
- Release the B-pillar reinforcement from the inner cavity sealing (2) and remove it.

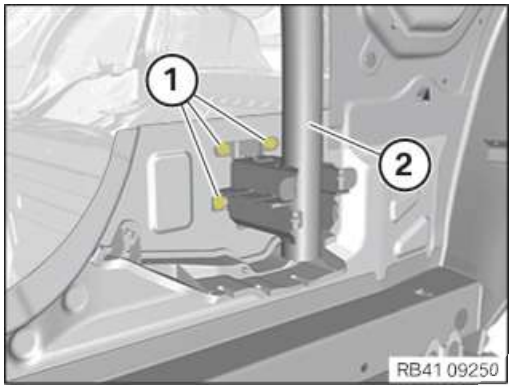
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- Release the welded connections in the areas (1) and remove the inner B-pillar.



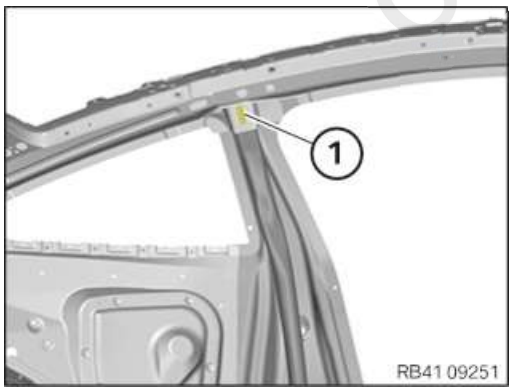
- Open welded connection (1).



- Release the welded connections in the areas (1) and remove the reinforcement tube (2).

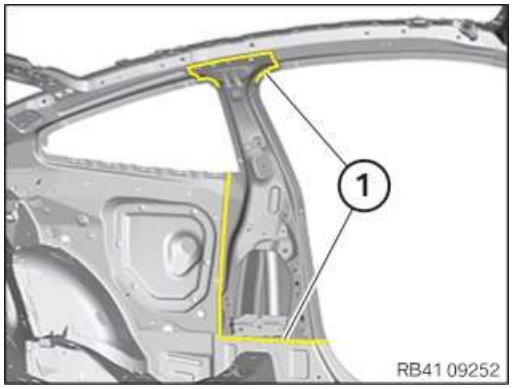
3 – Prepare new part

- Carry out the severance cuts on the new parts according to the severance cut on the vehicle.
- Remove unnecessary components from new part.

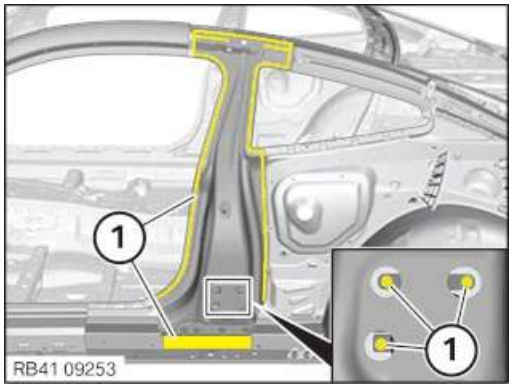


- Adjust new parts with an alignment bracket or a universal fixture and secure.
- Prepare area (1) for joining by welding.

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- Prepare areas (1) for joining by welding.



- Prepare areas (1) for joining by welding.

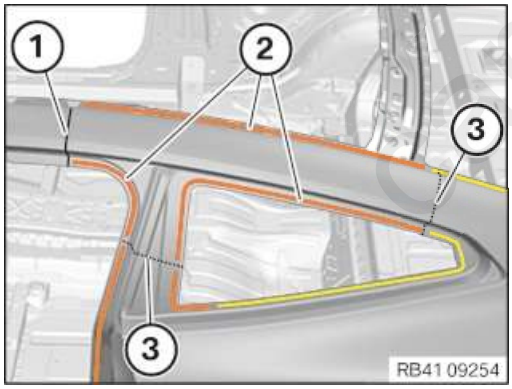
- Additional steps for the installation of the side panel:

  Mark and make a separating cut on the side panel of the new part in the area of the roof frame according to the separating cut on the vehicle.

TECHNICAL INFORMATION

For additional information see: 41 00 ... Weld in the reinforcement plates (sheet steel)

- Make a reinforcement plate for the separating cut on the roof frame.



- Adjust side panel new part.
- Prepare separating cut (1), the reinforcement plate and areas (2) for joining by welding.
- Note: Original separating cuts (3) are disregarded when replacing the side panel.

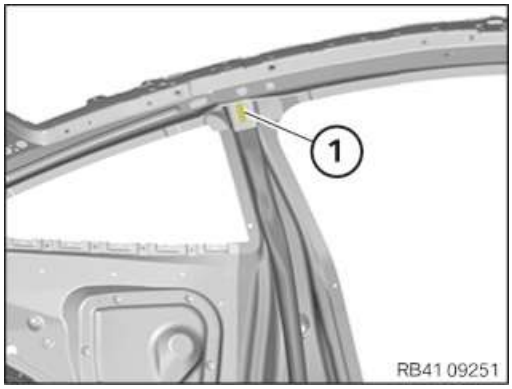
- Refer to the repair instructions “Replacing the rear side panel” for the next procedure of the new part preparation process of the side panel.

4 – Installing B-pillar reinforcement

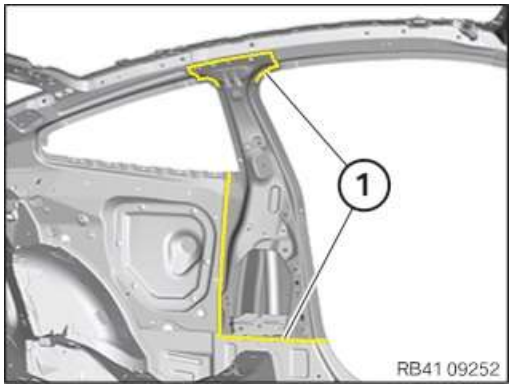
TECHNICAL INFORMATION

Use only approved spot-welding apparatus for repair.
For additional information see: 41 00 ... Workshop equipment

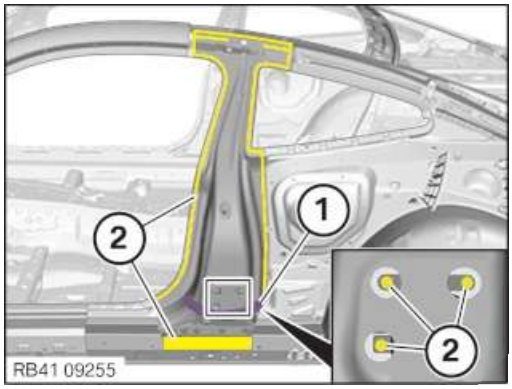
- Install and secure the new parts with an alignment bracket or a universal fixture.



- Weld the new part in the area (1).



- Weld new part in the areas (1).



TECHNICAL INFORMATION

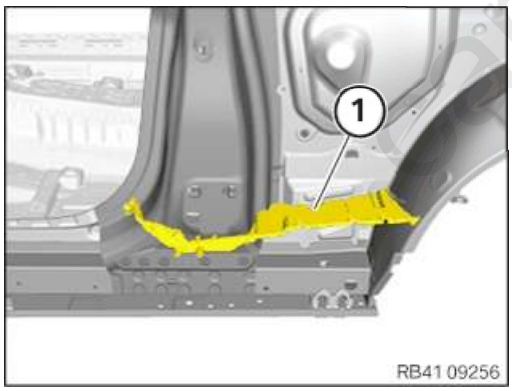
For more information see: 41 00 ... Installation of cavity sealing (expanded)

- Apply the sealant D1 to the cavity sealing (1).

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985

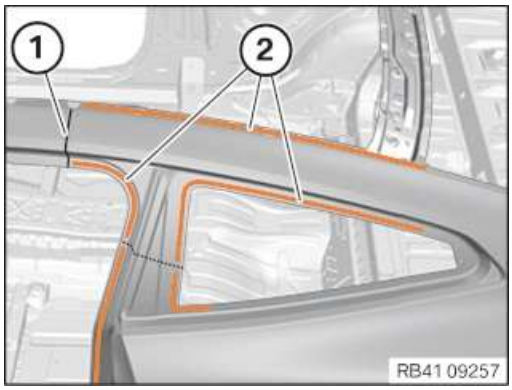
- Install the new part and weld in the areas (2).



TECHNICAL INFORMATION

For more information see: 41 00 ... Installation of a cavity sealing (not expanding)

- Apply sealant D1 onto the new cavity sealing (1). Install cavity sealing.



- Additional steps when installing the side panel:
- Weld separating cut (1), the reinforcement plate and the areas (2) as per new part preparation process.
- For further procedure for installation of the side panel, refer to the "Replacing the rear side panel" in repair instructions.

Additional Information

Links

General repair instructions	Used in step
41 00 ... Opening bonded connections	2
41 00 ... Spot-weld bonding steel components	3
41 00 ... Workshop equipment (BMW and MINI vehicles)	4
41 0 Repair techniques, repair stage 3	

Repair instructions	Used in step
41 00 ... Welding in reinforcement plate (sheet steel)	3
41 00 ... Installing cavity sealing (expanded)	4
41 00 ... Installing cavity sealing (not expanded)	4

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41 21 003 Replacing A-pillar with reinforcement on left

Prerequisite

- Vehicle is fixed on straightening bench.

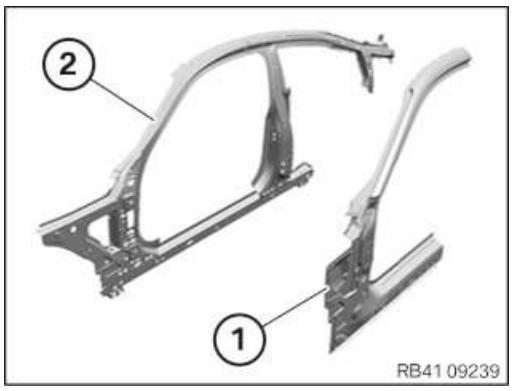
TECHNICAL INFORMATION

- Observe the procedure for repair stage 3.

For additional information see: 41 00 ... Repair method for repair stage 3

- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  A-pillar, outer(1)

  Side frame, centre(2)

  Shaped part A-pillar, bottom, outer

  Shaped part, A-pillar, bottom inner

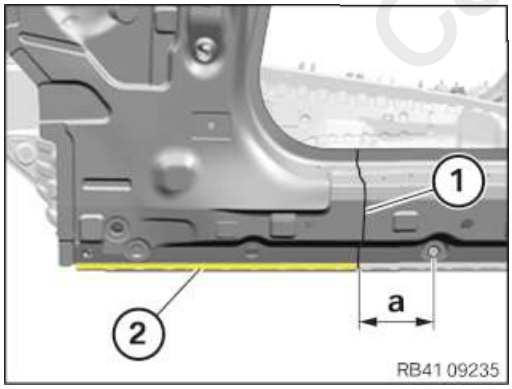
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

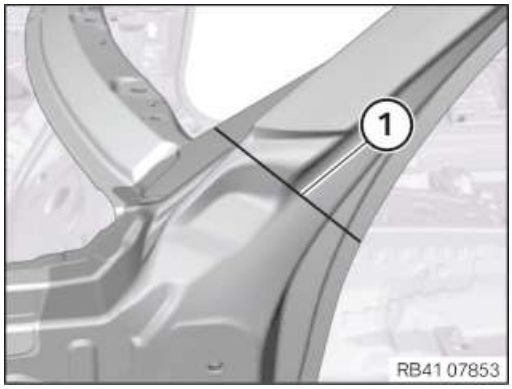
Material	Quantity
Coarse thread bolt	5
Sealing compound D2	1
Cavity sealing wax remover	

2 – Remove A-pillar reinforcement

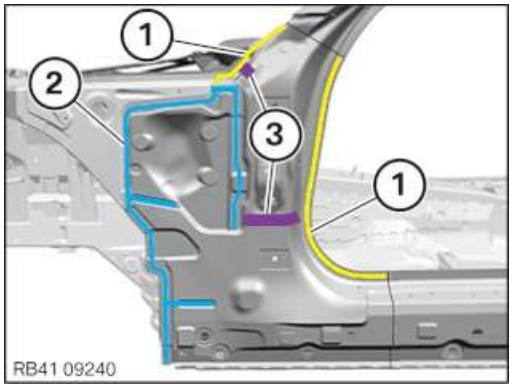


- Mark and make a separating cut (1) according to dimension a. Thereby disconnect only the outer panel. Dimension a = 140 mm from the centre of hole Ø 20 mm.
- Open welded connections in area (2).

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- Mark and cut the separating cut (1) as shown. Thereby disconnect only the outer panel.

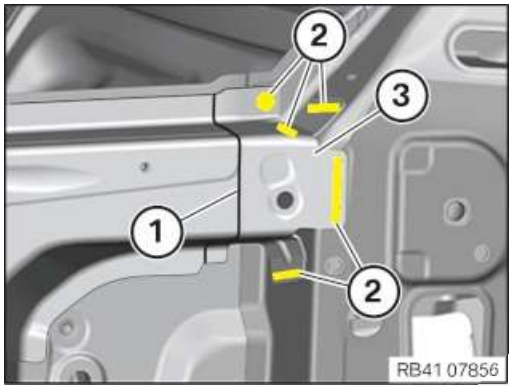


- Release welded connections in areas (1).

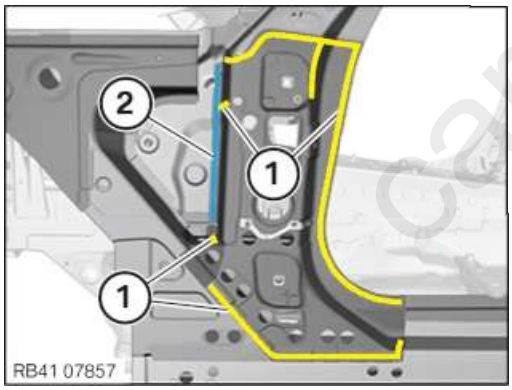
TECHNICAL INFORMATION

For more information see: 41 00 ... Releasing bonded connections

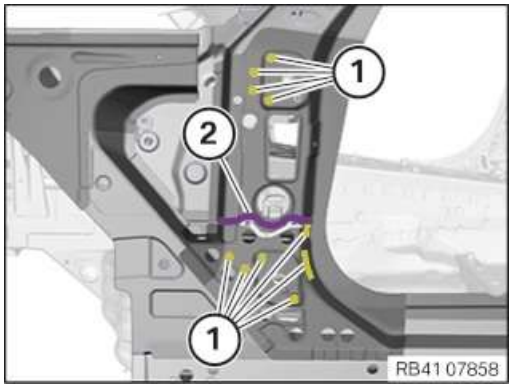
- Release the spot-welded adhesive joints in area (2).
- Release the outer section of the A-pillar from the cavity sealings (3) and remove it.



- Mark and make separating cut (1) as shown.
- Open the welded connections in areas (2) and remove the metal section (3).

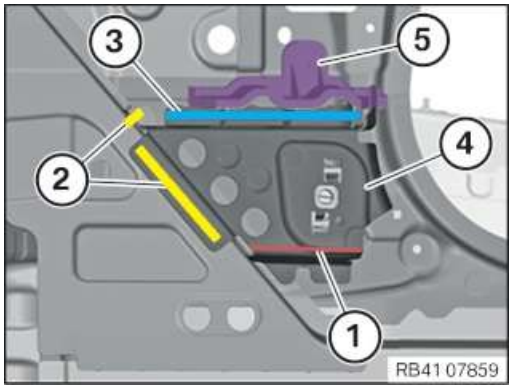


- Release welded connections in areas (1).
- Release the spot-welded adhesive joints in area (2).

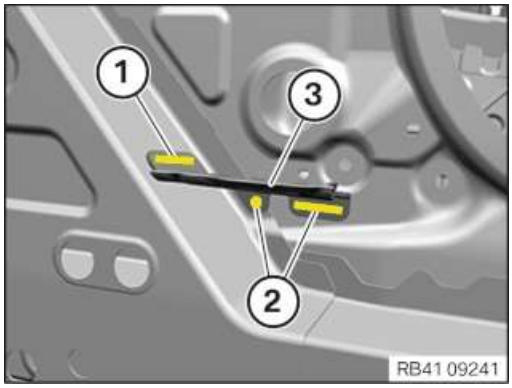


- Release welded connections in areas (1).
- Detach the reinforcement of the A-pillar from the cavity sealing (2) and remove.

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- Carry out a rough separating cut (1) as shown.
- Release welded connections in areas (2).
- Release the spot-welded adhesive joints in area (3).
- Remove hinge mount (4) together with cavity sealing (5).

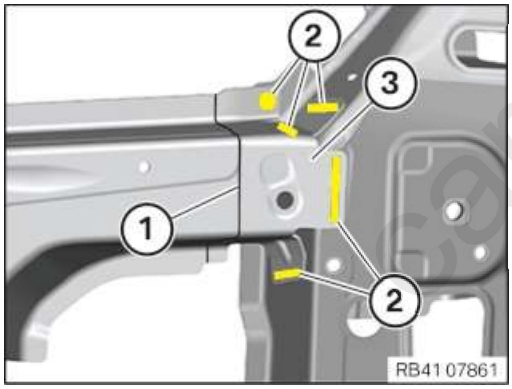


- Open welded connections in the areas (1) and (2).
- Remove the section (3) of the hinge mount.

3 – Prepare new part

TECHNICAL INFORMATION

For more information see: 41 00... Spot-weld bonding steel components

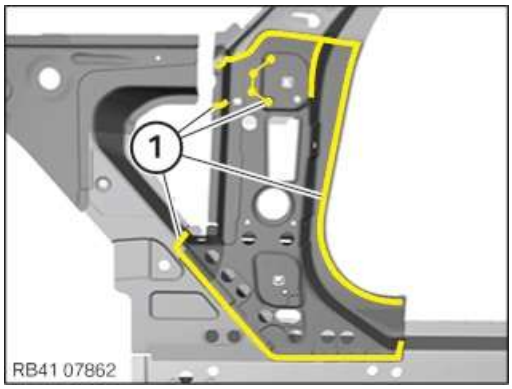


- Remove adhesive residue from joining surfaces of the vehicle.
- Remove sheet metal cutout (3) in such a way that it can be reused.
- Make severance cut (1) on the new part in accordance with severance cut on vehicle.

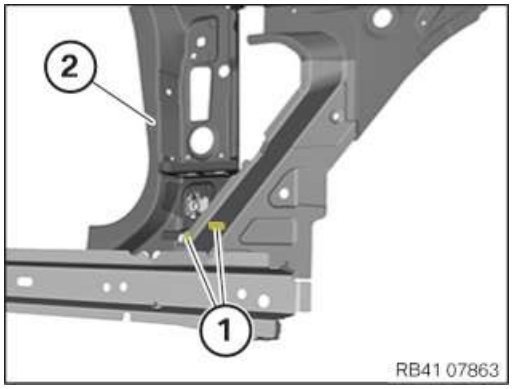
TECHNICAL INFORMATION

For additional information see: 41 00 ... Weld in the reinforcement plates (sheet steel)

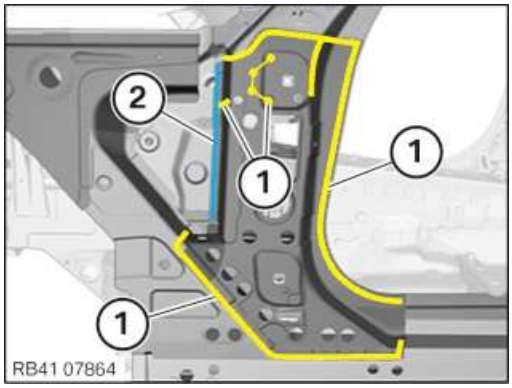
- Prepare a reinforcement plate for the separating cut.
- Open the welded connections in the areas (2) and remove the metal section (3).



- Release welded connections in areas (1).



- Release welded connections in areas (1) and remove the A-pillar reinforcement (2).

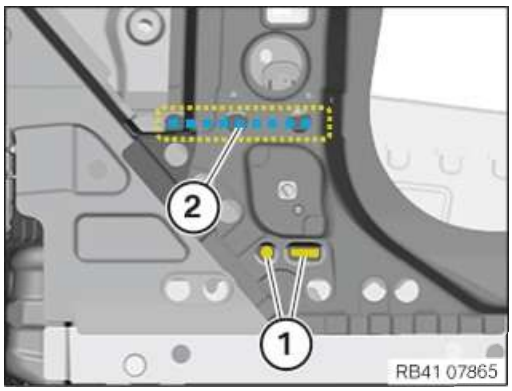


- Adjust the new part using an alignment bracket or a universal fixture and secure it.
- Prepare areas (1) and (2) for joining by welding.

TECHNICAL INFORMATION

For more information see: 41 00... Spot-weld bonding steel components

- In area (2), observe the procedure for the replacement of spot-welded adhesive joints for standard production.



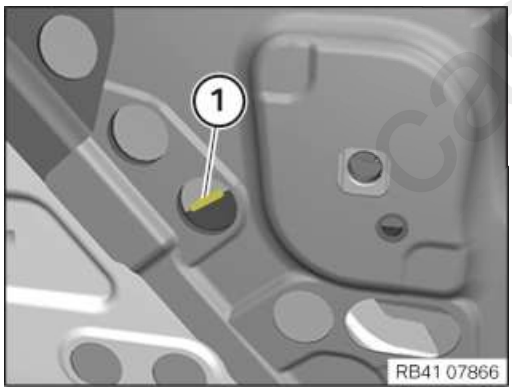
- Prepare areas (1) and (2) for joining by welding.

TECHNICAL INFORMATION

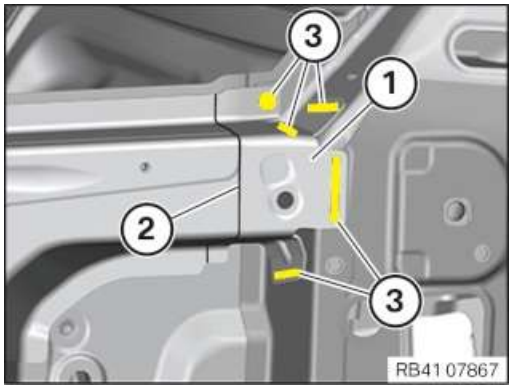
For more information see: 41 00... Spot-weld bonding steel components

- In area (2), observe the procedure for the replacement of spot-welded adhesive joints for standard production.

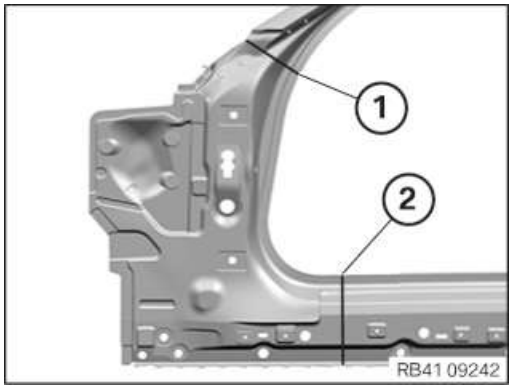
  Prepare additional metal active gas plug weldings from the inside in the area (2).



- In area (1), prepare a MAG weld seam with a length of approx. 20 mm.



- Adjust the section (1).
- Prepare a reinforcement plate for the separating cut (2).
- Prepare areas (3) for joining by welding.

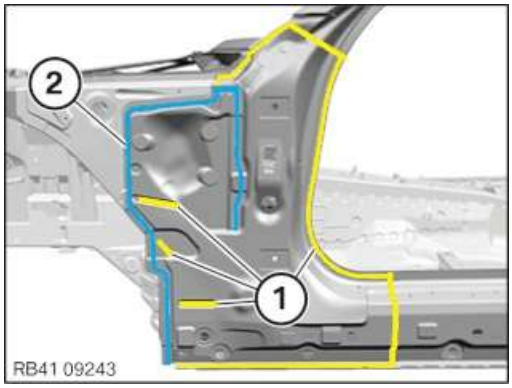


- Mark and carry out the separating cut (1) and (2) on the new part according to the separating cuts on the vehicle.

TECHNICAL INFORMATION

For additional information see: 41 00 ... Weld in the reinforcement plates (sheet steel)

- For severance cuts (1) and (2), prepare reinforcement plates.



- Adjust reinforcement plates and new part to fit.

TECHNICAL INFORMATION

For more information see: 41 00... Spot-weld bonding steel components

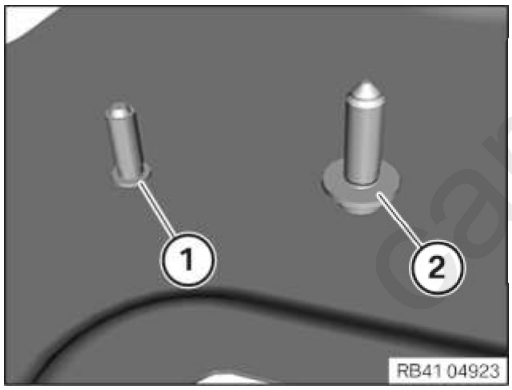
- Prepare the new part in areas (1) and (2) for joining by welding.

  In area (2), observe the procedure for replacing spot-welded adhesive joints for the standard production.

▸ Replacing the coarse thread bolt and threaded weld bolt, steel surface

NOTICE

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



- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

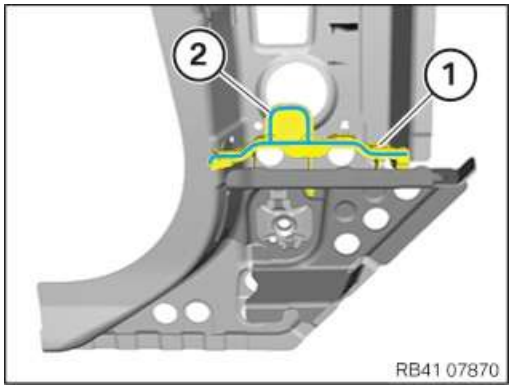
  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

4 – Install A-pillar reinforcement

TECHNICAL INFORMATION

Use only approved spot-welding apparatus for repair.
For additional information see: 41 00 ... Workshop equipment

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TECHNICAL INFORMATION

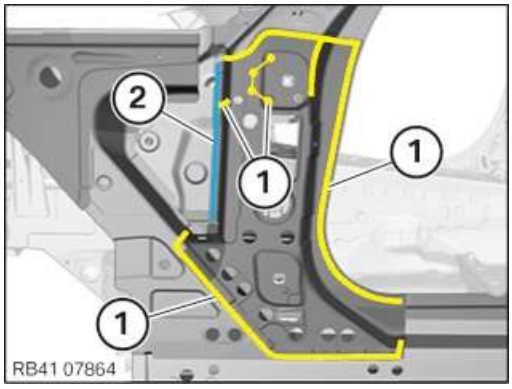
For more information see: 41 00 ... Installation of a cavity sealing (not expanding)

- Apply sealant D2 to the new cavity sealing (1).

Expendable materials

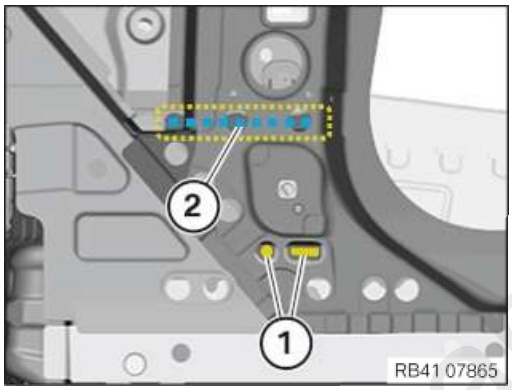
Sealant D2	290 ml	83425A547B9

- Insert the cavity sealing (1) in the new part.
- Apply sealant on the cavity sealing in area (2).

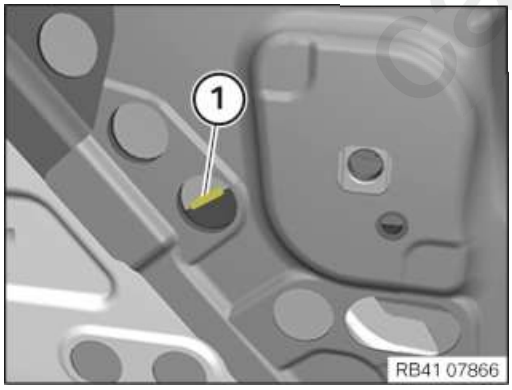


- Install the new part using an alignment bracket or a universal fixture and secure it.

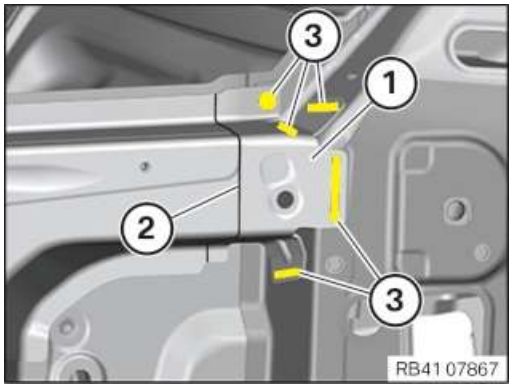
  Weld new part in areas (1) and (2) as per new part preparation processes.



- Weld new part in areas (1) and (2) as per new part preparation processes.

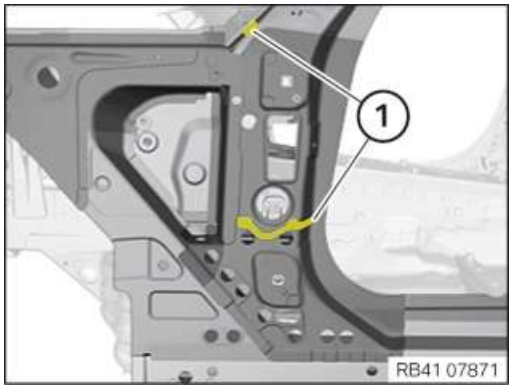


- MAG weld the new part in the area (1).

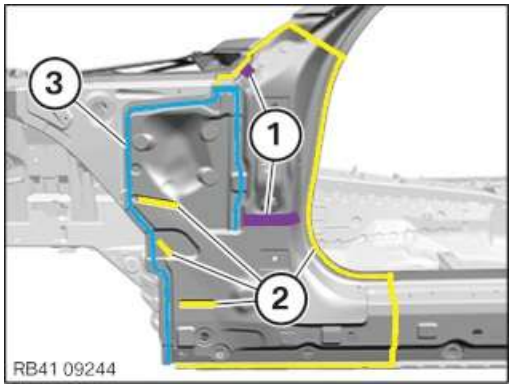


- Install the section (1) and the reinforcement plate.
- Weld separating cut (2), the reinforcement plate and the areas (3).

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- Apply sealant on the new cavity sealings (1).
- Install cavity sealings (1).



- Apply sealant to the cavity sealings (1).
- Install the new part and the reinforcement plates.
- Weld the new part and reinforcement plates in the areas (2) and (3) as per new part preparation process.

Additional Information

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Opening bonded connections	2
41 00 ... Spot-weld bonding steel components	3
41 00 ... Workshop equipment (BMW and MINI vehicles)	4
41 0 Repair techniques, repair stage 3	

Repair instructions	Used in step
41 00 ... Welding in reinforcement plate (sheet steel)	3
41 00 ... Installing cavity sealing (not expanded)	4

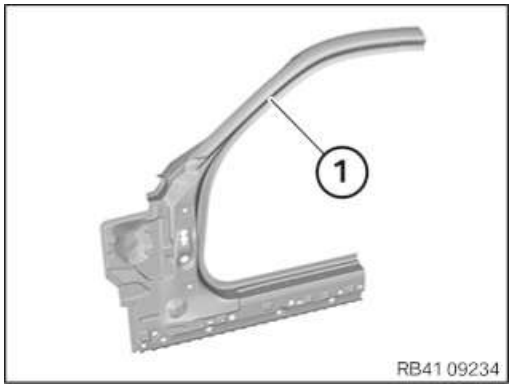
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41 21 013 Replacing left outer A-pillar

TECHNICAL INFORMATION

- Observe the procedure for repair stage 3.
For additional information see: 41 00 ... Repair method for repair stage 3
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  A-pillar, outer part(1)

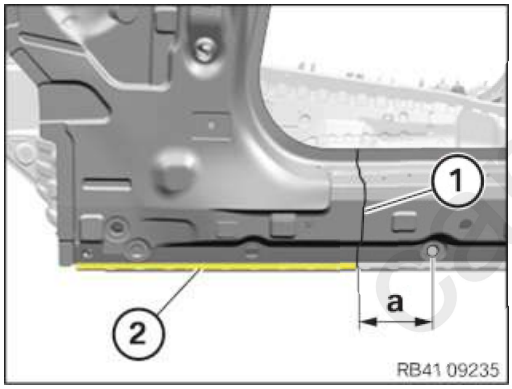
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

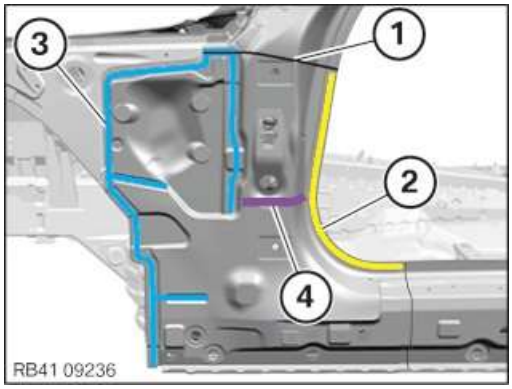
- Supply the following consumables:

Material	Quantity
Coarse thread bolt	5
Sealing compound D1	1

2 – Removing the outer section of the A-pillar



- Mark and make a separating cut (1) according to dimension a. Thereby disconnect only the outer panel. Dimension a = 140 mm from the centre of the hole with Ø 20 mm.
- Open welded connections in area (2).



- Mark the separating cut (1) as shown and carry out.
- Open welded connections in area (2).

TECHNICAL INFORMATION

For more information see: 41 00 ... Releasing bonded connections

- Release the spot-welded adhesive joints in area (3).
- Detach outer section of A-pillar from cavity sealing (4) and remove.

3 – Prepare new part

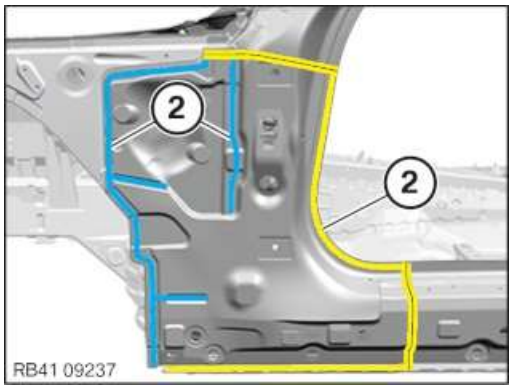
carfarm.com

- Mark severance cuts on new part in accordance with severance cuts on vehicle and cut.

TECHNICAL INFORMATION

For additional information see: 41 00 ... Weld in the reinforcement plates (sheet steel)

- Prepare reinforcement plates at severance cuts.
- Fit in new part.



TECHNICAL INFORMATION

For more information see: 41 00... Spot-weld bonding steel components

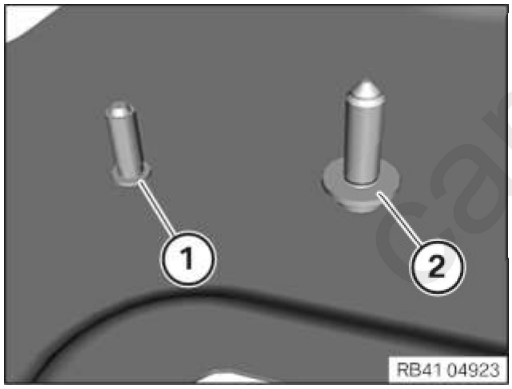
- Prepare the new part in areas (1) and (2) for joining by welding.

  In area (2), observe the procedure for replacing spot-welded adhesive joints for the standard production.

▸ Replacing the coarse thread bolt and threaded weld bolt, steel surface

NOTICE

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



- Refer to the component to be replaced or the mounted parts for the quantity and position.
- Renew the coarse thread bolt (1) and threaded weld bolt (2).

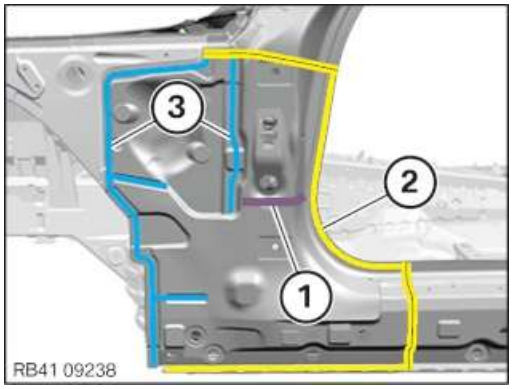
  Parts: Coarse thread bolt (1), threaded weld bolt (2)
- Weld the coarse thread bolt (1) and the threaded weld bolt (2) onto the new part.

4 – Install the outer section of the A-pillar

TECHNICAL INFORMATION

Use only approved spot-welding apparatus for repair.
For additional information see: 41 00 ... Workshop equipment

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TECHNICAL INFORMATION

For more information see: 41 00 ... Installation of cavity sealing (expanded)

- Apply sealant D1 to cavity sealing (1).

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985

- Install the new part and the reinforcement plates.
- Weld the new part and the reinforcement plates in the areas (2) and (3) according to the new part preparation process.

Additional Information

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Opening bonded connections	2
41 00 ... Spot-weld bonding steel components	3
41 00 ... Workshop equipment (BMW and MINI vehicles)	4
41 00 ... Repair techniques, repair stage 3	

Repair instructions	Used in step
41 00 ... Welding in reinforcement plate (sheet steel)	3
41 00 ... Installing cavity sealing (expanded)	4

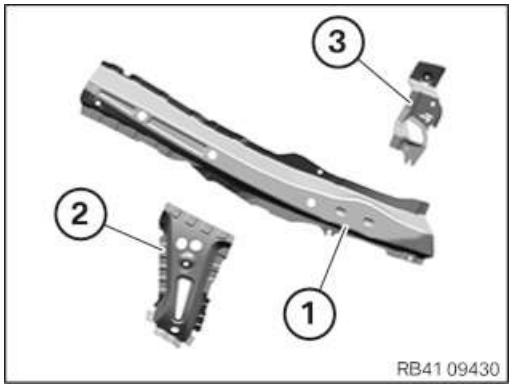
cardiagn.com

41 21 950 Replacing reinforcement for roof frame at rear left

TECHNICAL INFORMATION

- Observe the procedure for repair stage 3.
For additional information see: 41 00 ... Repair method for repair stage 3
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



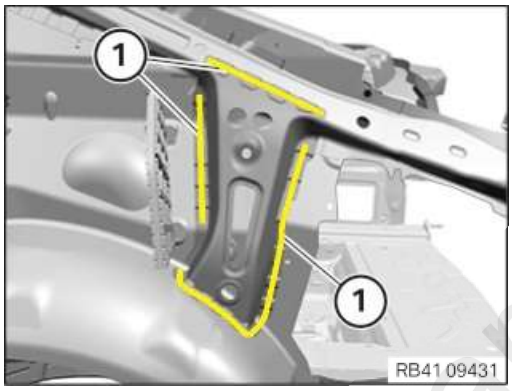
- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Reinforcement of roof frame (1)

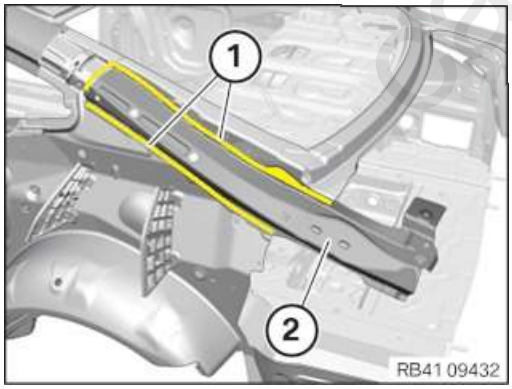
  C-pillar tensioning strap (2)

  tension spring mounting (3)

2 – Removing the rear roof frame reinforcement

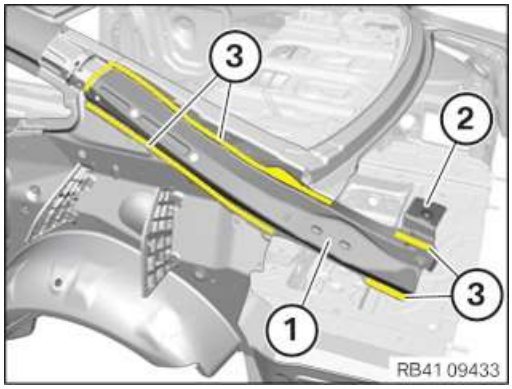


- Open the welded connections in the areas (1) and remove the C-pillar tensioning strap.

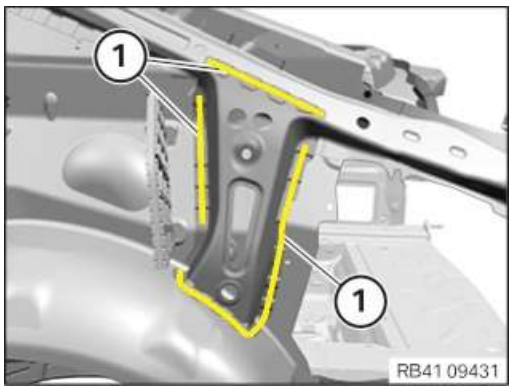


- Release welded connections in areas (1).
- Remove roof frame reinforcement (2).

3 – Prepare new part

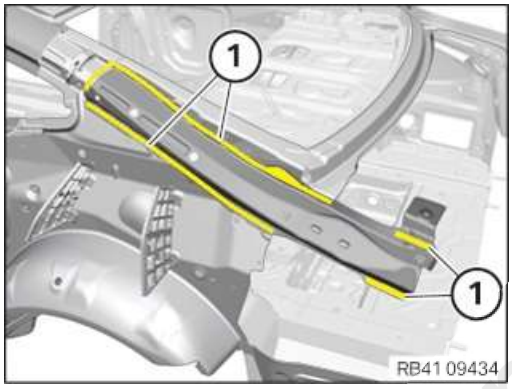


- Adjust the new parts (roof frame reinforcement (1) and tension spring mounting (2)) along with the tail panel and the side panel.
- Prepare new part in the areas (3) for joining through welding.

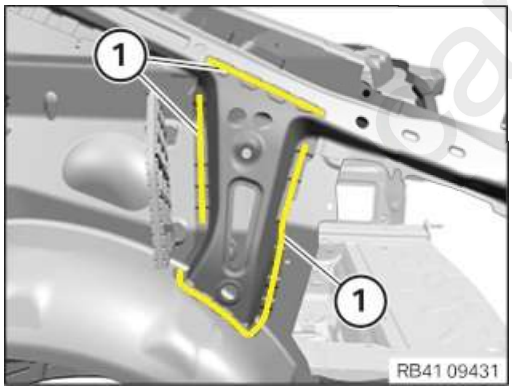


- Fit in the new part tension strap.
- Prepare new part in the areas (1) for joining through weld.

4 – Installing reinforcement at rear of roof frame



- Install the new parts and weld in the areas (1).



- Install the new part and weld in the areas (1).

Additional Information

Links

General repair instructions	Used in step
41 00 ... Repair techniques, repair stage 3	

Repair instructions	Used in step
41 00 ... Welding in reinforcement plate (sheet steel)	3

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41 ... 0 Notes on the repair technique used in the main group 41

Two different repair techniques are used in body repair.

These are welding and bonding/riveting.

If the repair instructions do not specify a repair technique, then welding must **always** be used.

The bonding/riveting repair technique is **always** described in detail in the repair instructions.

Quality standards must be met.

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41 ... 0 Notes on the repair technique used in the main group 41

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Quality standards must be met.

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41 31 000 Replace roof outer skin

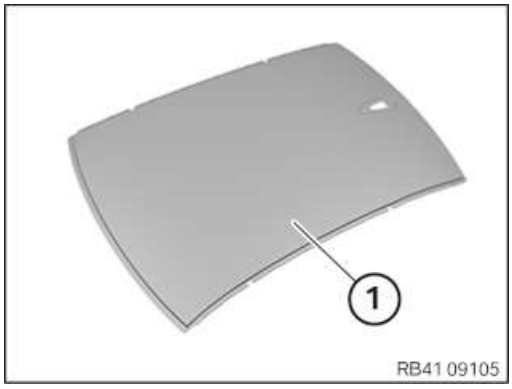
TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.

For additional information see: 41 00 ... Repair method for repair stage 2

- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Roof outer skin (1)

TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

Material	Quantity
Adhesive K5 (50 ml)	1
Adhesive K5 (195 ml)	1
Punch rivet N5	25
Cleaner R1	1
Cleaner R2	1
EMC screw	2
Sealing compound D1	1
Sealing compound D2	1

TECHNICAL INFORMATION

Store adhesive at room temperature.

Adhere to adhesive processing temperature of 15 - 28 °C without fail.

Before installation: Store the roof outer skin and the vehicle at room temperature (17°C to 35°C) for at least 12 hours.

- Tools also required:

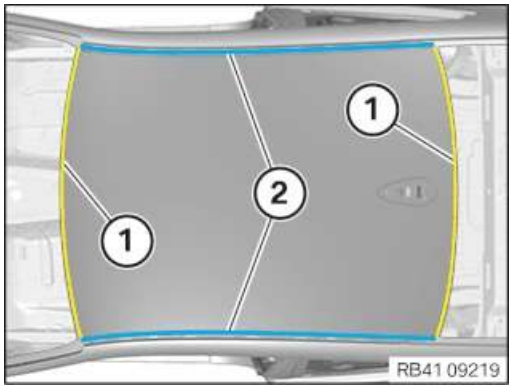
  Securing device, order number: 83 30 2 469 797

  See bottom Aftersales Assistance Portal (ASAP), workshop equipment service/technology - Start BMW

  Order online at: www.bmwgroup-wep.com

2 – Remove roof outer skin

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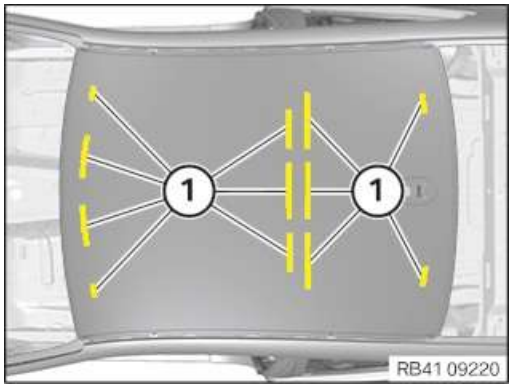


- Release welded connections in areas (1).

TECHNICAL INFORMATION

For more information see: 41 00 ... Releasing bonded connections

- Open spot-welded adhesive joints in areas (2).



- Release the bonded connections (sealant) in the areas (1).
- Take off roof outer skin.

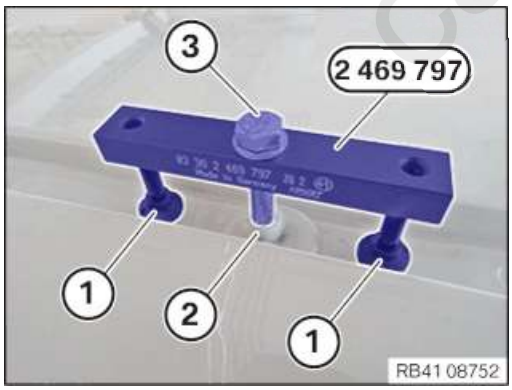
3 – Prepare new part

TECHNICAL INFORMATION

Adhesive technology in the area of the outer skin (not for structural adhesion):
The bonding surfaces of the new parts may not sharpened or ground.
For additional information see: 41 00 ... BMW bonding instructions

- Place roof outer skin on the vehicle and adjust.
- To adhere to the short processing time starting from the application of the adhesive, prepare the following fastening materials before the installation.

▸ **Mounting and adjusting the securing device for the outer roof panel**



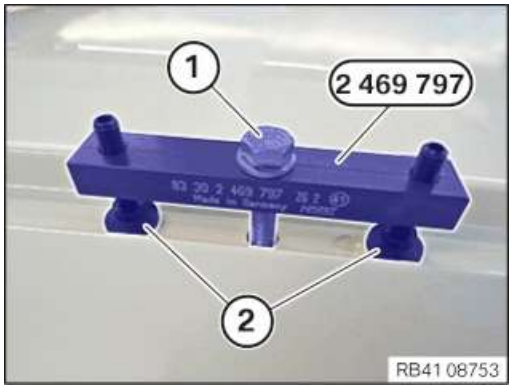
- **Variant with M7 rivet nut:**

  Pull out the hold-down device (1) before assembly by turning it until it reaches the same dimensions as shown.

  Position the securing device over the rivet nut (2) .

  M7 Join the screw (3) and tighten by hand until the outer roof panel rests on the roof frame.

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- **Variant with mounting hole for mounting the roof rails:**

  Pull out the hold-down device (2) before assembly by turning it until it reaches the same dimensions as shown.

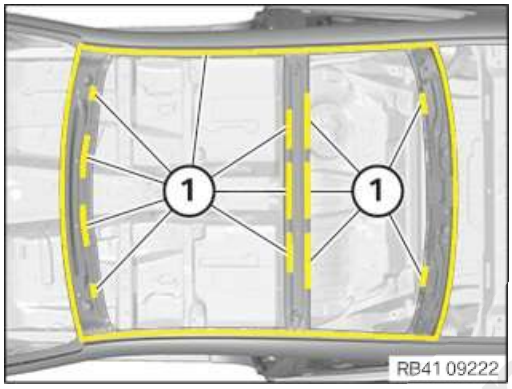
  Position the securing device over the mounting hole.

  Join the M7 screw connection (1) (screw, 2 washers and nut) and hand-tighten it until the roof outer skin rests on the roof frame.



- Fix the roof outer skin with the securing devices .
- Release securing devices and remove the roof outer skin.

4 – Installing the roof outer skin



- Pre-clean the bonding surfaces (1) on the vehicle and on the new part.

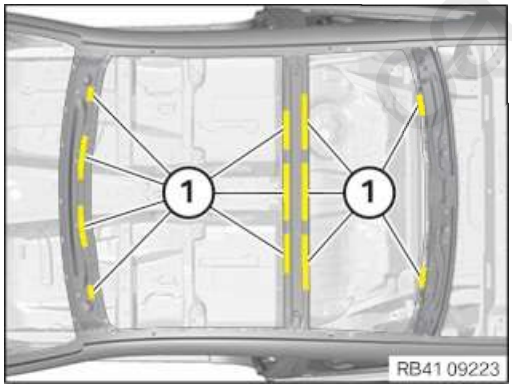
Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean the bonding surfaces (1) on the vehicle and new part.

Expendable materials

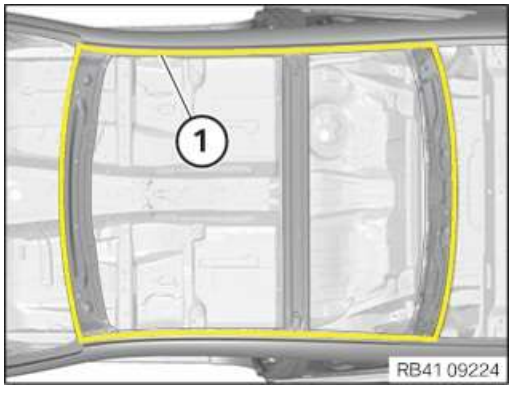
Cleaning agent R1	100 ml, Bottle	83192211217



- In the areas (1), apply sealant similar to the series.

Expendable materials

Sealant D2	290 ml	83425A547B9



- Apply adhesive on the bonding surface (1).

Adhesive

Body adhesive K5	50 ml	83192158654

Adhesive

Body adhesive K5	195 ml	83195A59935

- Place roof outer skin on the vehicle evenly in the centre with the help of an auxiliary person and adjust it.

erdiagn.com



- Fix the roof outer skin with the securing devices .

TECHNICAL INFORMATION

Clamping tools must remain on the vehicle for at least 1 hour.

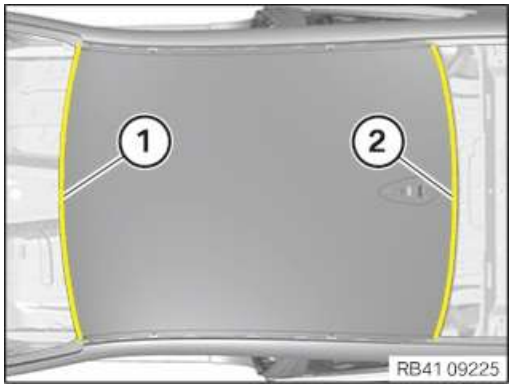
Do not move the vehicle during this period. Only then is it permitted to proceed with subsequent installation work.

Check whether the reference bead has hardened after 2 hours hardening time (15 - 38 °C).

After bonding, the vehicle must remain parked for at least 12 hours at room temperature (15 - 38 °C).

The vehicle is then ready for operation.

- Observe the hardening time of the adhesive.
- Remove the securing devices only after the adhesive has hardened.

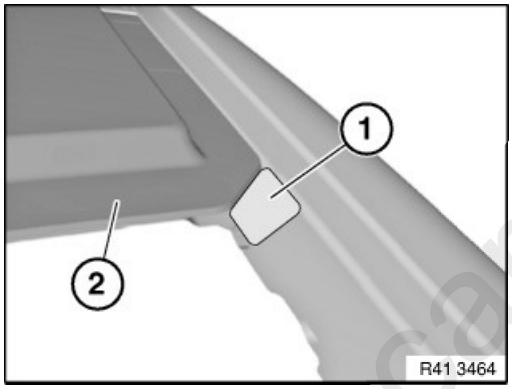


- Rivet the roof outer skin with punch rivets in the areas (1) and (2).

Area	Number
1	10
2	10

Expendable materials

Punch rivet N5 Ø 5 mm ; 5 mm long		83192158079



- Adjust the escaping adhesive in the area (1) on all the 4 corners of the roof outer skin (2) by spreading it.

  Do not leave any sharp edges as this may compromise the tightness of the subsequent windscreen and rear window bonding.
- Spread excess adhesive in roof trim strip channel. While doing so, the mounting surfaces of roof trim strip mounting elements may not be coated with adhesive.
- Remove excess adhesive. For that do not use any cleaning agent or solvent!

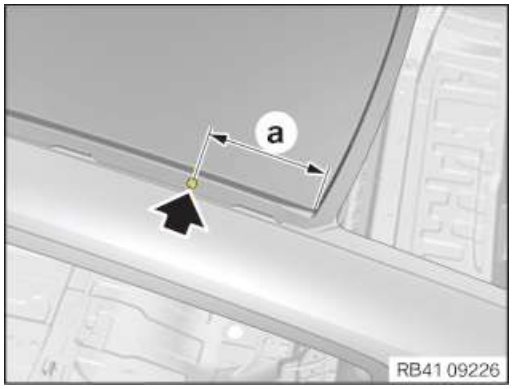
▸ Installing the EMC screw

- Drill a hole with a diameter of 4.2 mm after the adhesive has hardened completely .
- Screw in the EMC screw.
- Seal the EMC screw with sealant.

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985

carlon.com



NOTICE

Perform the operations on the left and right side.

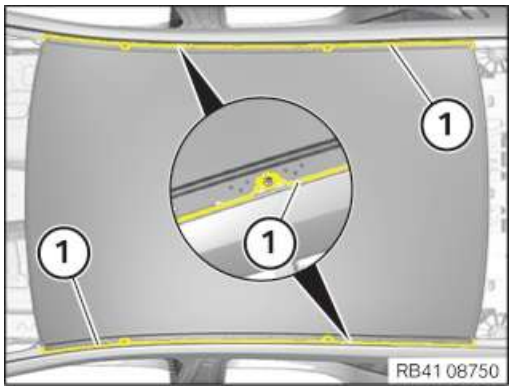
- After the adhesive has hardened, install an EMC screw (arrow) according to dimension a.

  Dimension a = 135 mm from the corner of the roof outer skin.

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639

▸ **Sealing the outer roof panel**



NOTICE

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

- Seal the outer roof panel on both roof frames with sealant(1), in line with series production.

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985

Additional Information

Overview of Special Tools

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Opening bonded connections	2
41 00 ... BMW/MINI bonding instructions	3
41 00 ... Repair techniques, repair stage 2	

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41 31 100 Replace roof outer skin with slide/tilt sunroof

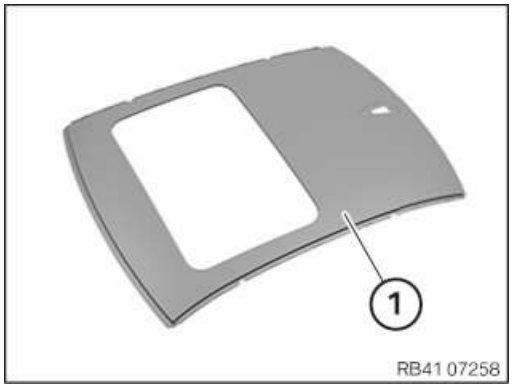
TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.

For additional information see: 41 00 ... Repair method for repair stage 2

- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Roof outer skin (1)

TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

Material	Quantity
Adhesive K5 (50 ml)	1
Adhesive K5 (195 ml)	2
Punch rivet N5	25
Cleaner R1	1
Cleaner R2	1
EMC screw	2
Sealing compound D1	1
Sealing compound D2	1

TECHNICAL INFORMATION

Store adhesive at room temperature.

Adhere to adhesive processing temperature of 15 - 28 °C without fail.

Before installation: Store the roof outer skin and the vehicle at room temperature (17°C to 35°C) for at least 12 hours.

- Tools also required:

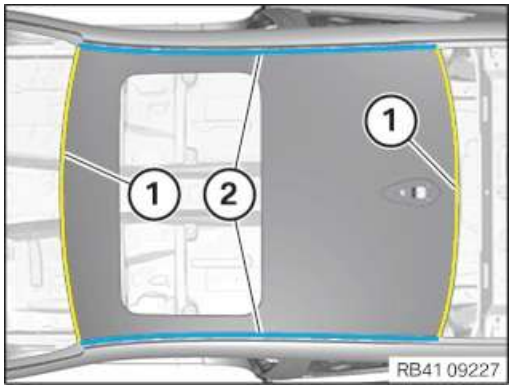
  Securing device, order number: 83 30 2 469 797

  See bottom Aftersales Assistance Portal (ASAP), workshop equipment service/technology - Start BMW

  Order online at: www.bmwgroup-wep.com

2 – Remove roof outer skin

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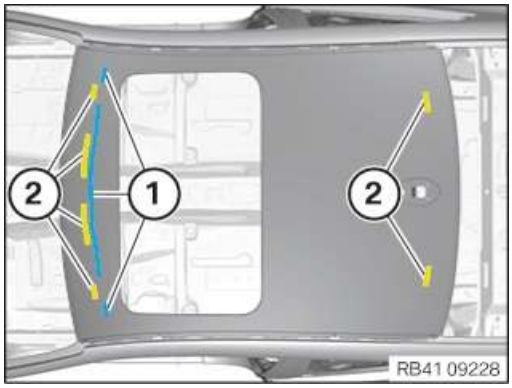


- Release welded connections in areas (1).

TECHNICAL INFORMATION

For more information see: 41 00 ... Releasing bonded connections

- Open spot-welded adhesive joints in areas (2).



- Release the bonded connections in the areas (1).
- Release the bonded connections (sealant) in the areas (2).
- Take off roof outer skin.

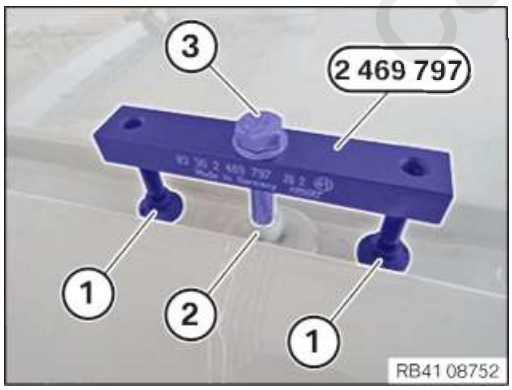
3 – Prepare new part

TECHNICAL INFORMATION

Adhesive technology in the area of the outer skin (not for structural adhesion):
The bonding surfaces of the new parts may not sharpened or ground.
For additional information see: 41 00 ... BMW bonding instructions

- Place roof outer skin on the vehicle and adjust.
- To adhere to the short processing time starting from the application of the adhesive, prepare the following fastening materials before the installation.

▸ **Mounting and adjusting the securing device for the outer roof panel**



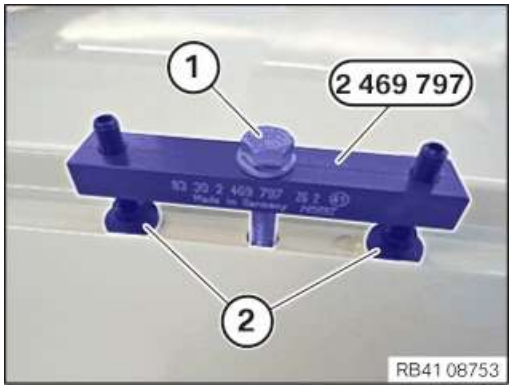
- **Variant with M7 rivet nut:**

  Pull out the hold-down device (1) before assembly by turning it until it reaches the same dimensions as shown.

  Position the securing device over the rivet nut (2) .

  M7 Join the screw (3) and tighten by hand until the outer roof panel rests on the roof frame.

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- **Variant with mounting hole for mounting the roof rails:**

  Pull out the hold-down device (2) before assembly by turning it until it reaches the same dimensions as shown.

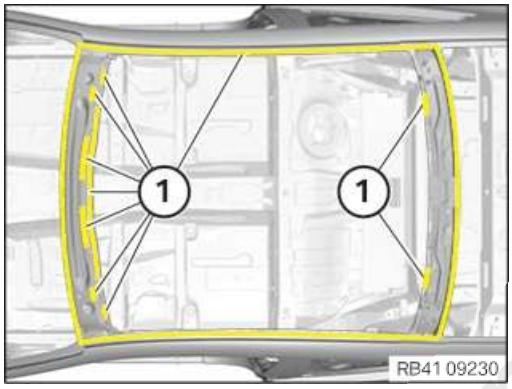
  Position the securing device over the mounting hole.

  Join the M7 screw connection (1) (screw, 2 washers and nut) and hand-tighten it until the roof outer skin rests on the roof frame.



- Fix the roof outer skin with the securing devices .
- Release securing devices and remove the roof outer skin.

4 – Installing the roof outer skin



- Pre-clean the bonding surfaces (1) on the vehicle and on the new part .

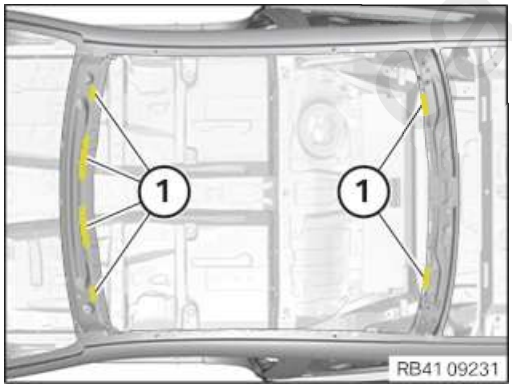
Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean bonding surfaces (1) on the vehicle and on the new part.

Expendable materials

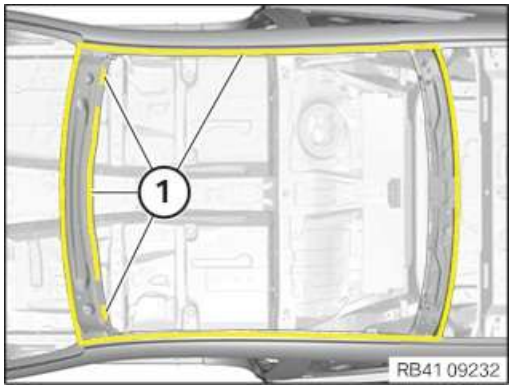
Cleaning agent R1	100 ml, Bottle	83192211217



- Apply sealant in areas (1) similarly to the series.

Expendable materials

Sealant D2	290 ml	83425A547B9



- Apply adhesive on the bonding surfaces (1).

Adhesive

Body adhesive K5	50 ml	83192158654

Adhesive

Body adhesive K5	195 ml	83195A59935

- Place roof outer skin on the vehicle evenly in the centre with the help of an auxiliary person and adjust it.

manualsdiagn.com



- Fix the roof outer skin with the securing devices .

TECHNICAL INFORMATION

Clamping tools must remain on the vehicle for at least 1 hour.

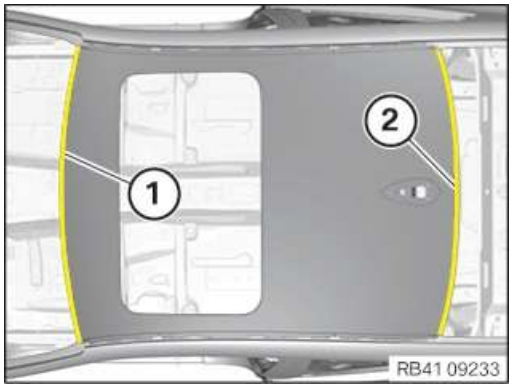
Do not move the vehicle during this period. Only then is it permitted to proceed with subsequent installation work.

Check whether the reference bead has hardened after 2 hours hardening time (15 - 38 °C).

After bonding, the vehicle must remain parked for at least 12 hours at room temperature (15 - 38 °C).

The vehicle is then ready for operation.

- Observe the hardening time of the adhesive.
- Remove the securing devices only after the adhesive has hardened.

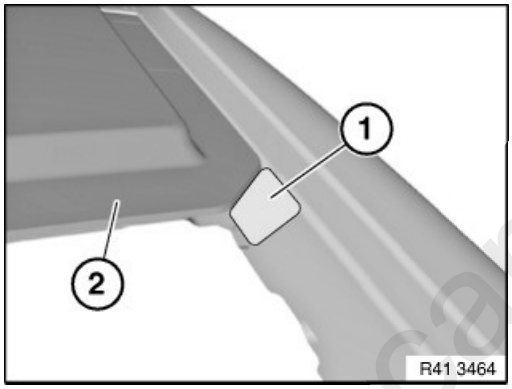


- In areas (1) and (2) rivet the roof outer skin using punch rivets.

Area	Number
1	10
2	10

Expendable materials

Punch rivet N5 Ø 5 mm ; 5 mm long		83192158079



- Adjust the escaping adhesive in the area (1) on all the 4 corners of the roof outer skin (2) by spreading it.

  Do not leave any sharp edges as this may compromise the tightness of the subsequent windscreen and rear window bonding.
- Spread excess adhesive in roof trim strip channel. While doing so, the mounting surfaces of roof trim strip mounting elements may not be coated with adhesive.
- Remove excess adhesive. For that do not use any cleaning agent or solvent!

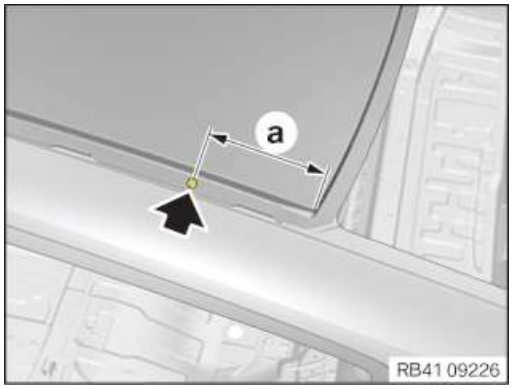
▸ Installing the EMC screw

- Drill a hole with a diameter of 4.2 mm after the adhesive has hardened completely .
- Screw in the EMC screw.
- Seal the EMC screw with sealant.

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985

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NOTICE

Perform the operations on the left and right side.

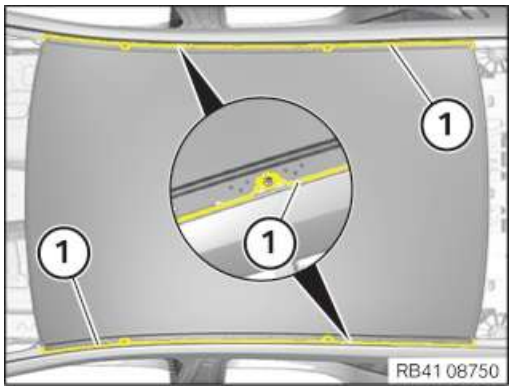
- After the adhesive has hardened, install an EMC screw (arrow) according to dimension (a).

  Dimension (a) = 138 mm from the corner of the roof outer skin.

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639

▸ **Sealing the outer roof panel**



NOTICE

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

- Seal the outer roof panel on both roof frames with sealant(1), in line with series production.

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985

Additional Information

Overview of Special Tools

Links

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... Opening bonded connections	2
41 00 ... BMW/MINI bonding instructions	3
41 00 ... Repair techniques, repair stage 2	

cardiagn.com

41 ... 0 Notes on the repair technique used in the main group 41

Two different repair techniques are used in body repair.

These are welding and bonding/riveting.

If the repair instructions do not specify a repair technique, then welding must **always** be used.

The bonding/riveting repair technique is **always** described in detail in the repair instructions.

Quality standards must be met.

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41 ... 0 Notes on the repair technique used in the main group 41

Two different repair techniques are used in body repair.

These are welding and bonding/riveting.

If the repair instructions do not specify a repair technique, then welding must **always** be used.

The bonding/riveting repair technique is **always** described in detail in the repair instructions.

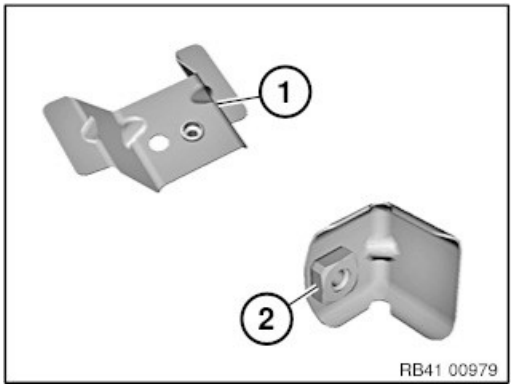
Quality standards must be met.

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41 33 040 Replacing front left or right side wall holder

Note:
Read contents of Body, General.
Side wall removed.
Transfer the systematic diagram onto the respective holder version.

General information:
Procedure Observe repair stage 2!



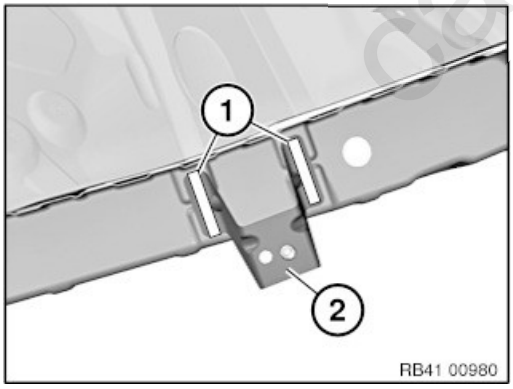
Following new body parts are required (refer to Electronic Parts Catalogue):

- (1) Holder, side wall, front (variant 1)
- (2) Holder, side wall, front (variant 2)

Following consumables are required:

Material	Quantity
Adhesive K5a	1
Blind rivets N3	2
Cleaning agent R1	1

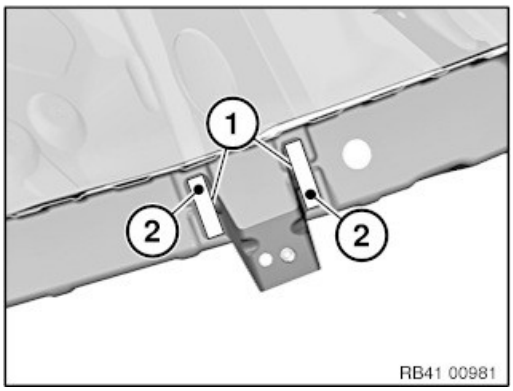
Removal of side wall holder (variant 1):



Release welded connections in areas (1) and remove holder (2).

Preparation of new part:

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Adjust new part in conjunction with side panel in front to fit.

In area of bonding surfaces (1), set 2 4.2 mm dia. bore holes (2) for blind rivetsN3.

Remove new part and deburr holes.

Important!

Do not grind bonding surfaces down or off.

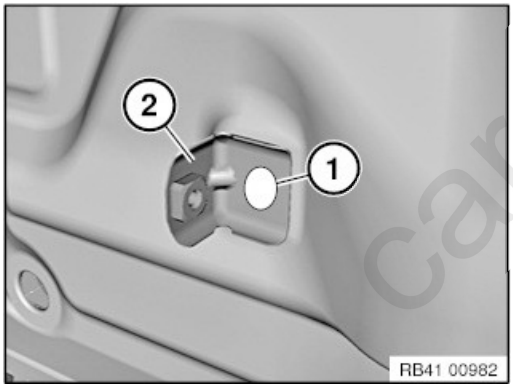
Installation of side wall holder:

Clean all bonding surfaces with cleaning agent R1.

Apply adhesive to bonding surfaces.

Install new part and rivet with blind rivets.

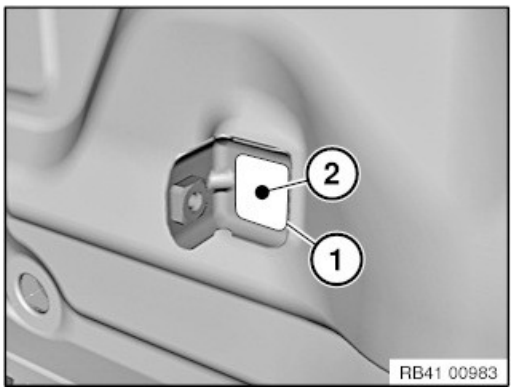
Removal of side wall holder (variant 2):



Release welded connection in area (1) and remove holder (2).

Preparation of new part:

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Fit in new part.

In area of adhesive surface (1), drill a 4.2 mm dia. bore hole (2) for blind rivet N3.

Remove new part and deburr holes.

Important!

Do not grind bonding surfaces down or off.

Installation of side wall holder:

Clean all bonding surfaces with cleaning agent R1.

Apply adhesive to bonding surface.

Install new part and rivet with blind rivet.

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41 ... 0 Notes on the repair technique used in the main group 41

Two different repair techniques are used in body repair.

These are welding and bonding/riveting.

If the repair instructions do not specify a repair technique, then welding must **always** be used.

The bonding/riveting repair technique is **always** described in detail in the repair instructions.

Quality standards must be met.

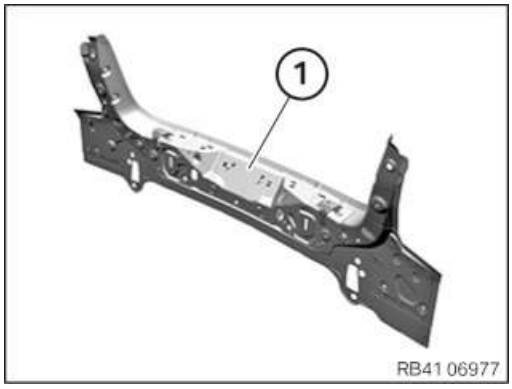
cardiagn.com

41 34 060 Replace tail panel outer section and inner section

TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.
For additional information see: 41 00 ... Repair method for repair stage 2
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):
Rear trim panel complete (1)

TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

Material	Quantity
Adhesive K5 (195 ml)	2
Blind rivet N3	45
Punch rivet N4	15
Punch rivet N5	15
Cleaner R1	1
Cleaner R2	1
EMC screw	6
Sealing compound D1	1
Cavity sealing wax remover	

2 – Removing the tail panel

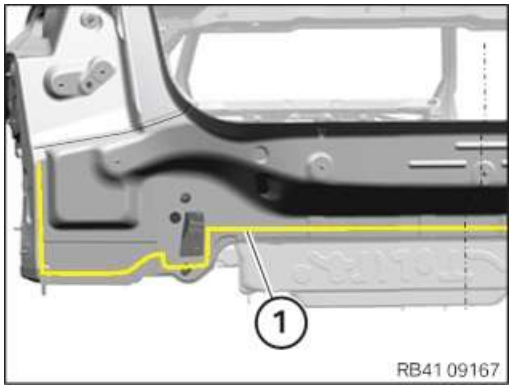
NOTICE

Perform the operations on the left and right side.

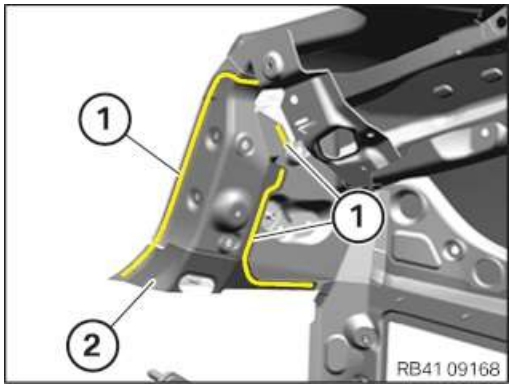


- Carry out a rough separating cut (1) as shown below the rear light mounting.
Fully cut through the tail panel.

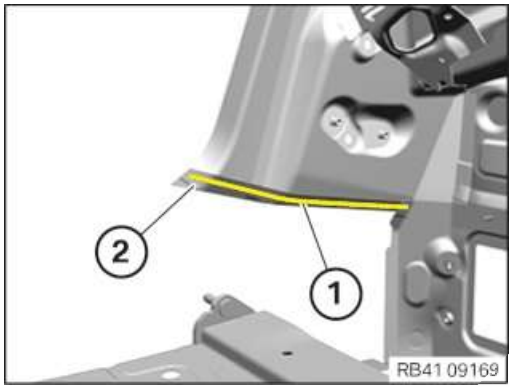
carofign.com



- Release the welded connections in the area (1) and remove the tail panel.



- Release the welded connections in the areas (1) and remove the section (2).



- Release the welded connections in the area (1) and remove the section (2).

3 – Preparing the new part

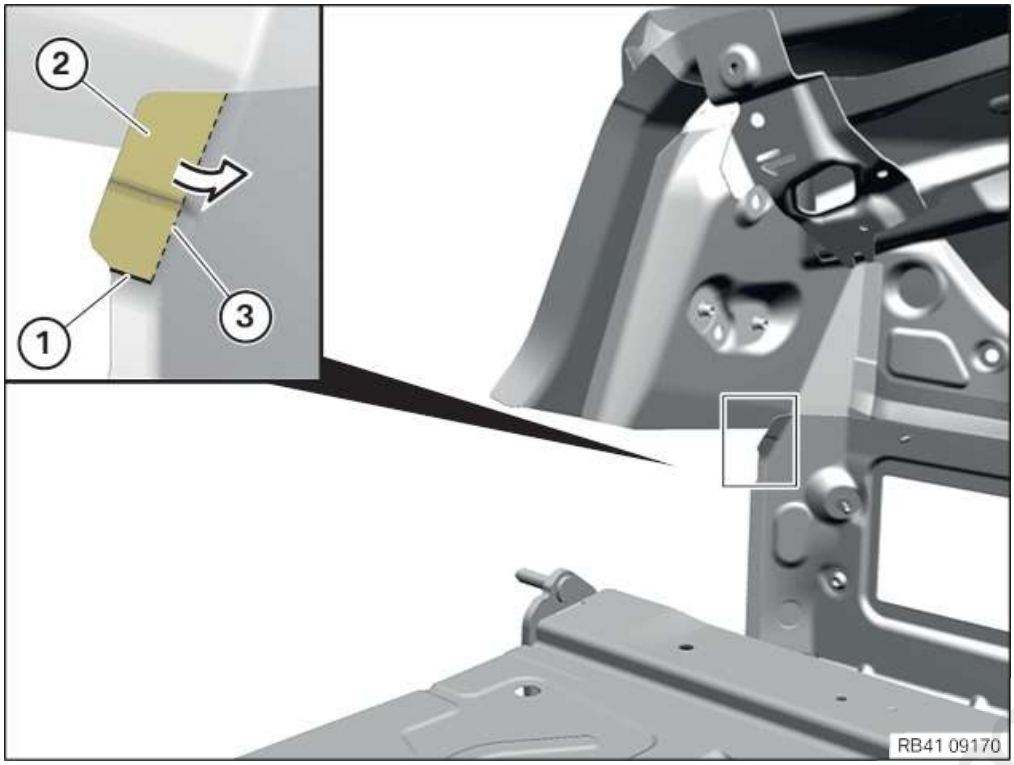
TECHNICAL INFORMATION

Adhesive technology in the area of the outer skin (not for structural adhesion):
The bonding surfaces of the new parts may not sharpened or ground.
For additional information see: 41 00 ... BMW bonding instructions

NOTICE

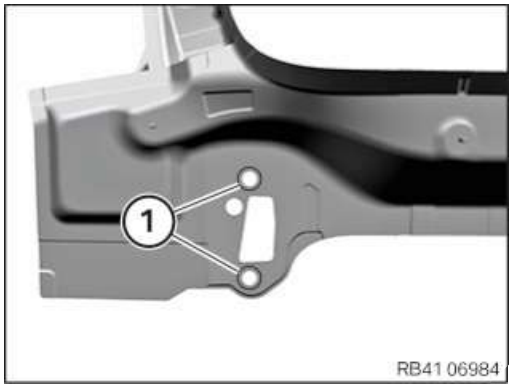
Perform the operations on the left and right side.

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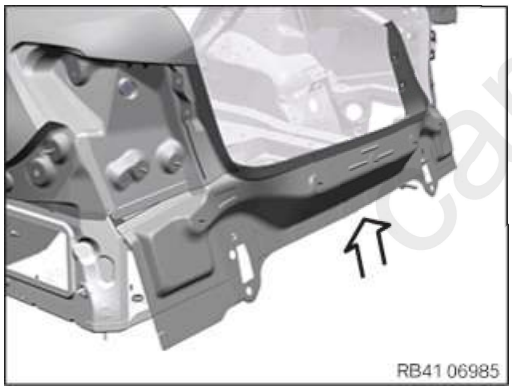


- Carry out a separating cut (1) as shown.
- Bend section (2) inwards in the direction of arrow at bend line (3).

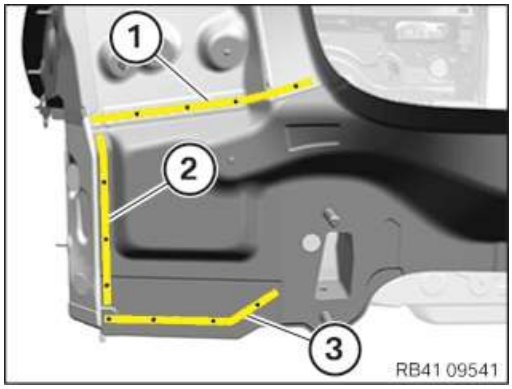
Note: Only bend back the metal section 2 after final assembly of the new part. Two blind rivets are fitted in the areas 2. Do not drill the bore holes for this until after final assembly of the new part and the sections have been bent back.



- If necessary, increase size of bore holes (1) by a maximum of 10 mm in diameter.



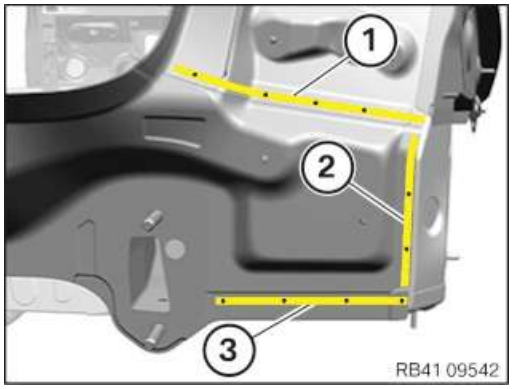
- Adjust rear trim panel in combination with tailgate and rear lamps and secure.



- Areas (1) to (3): Set diameter of bore holes to 4.2 mm for blind rivet.

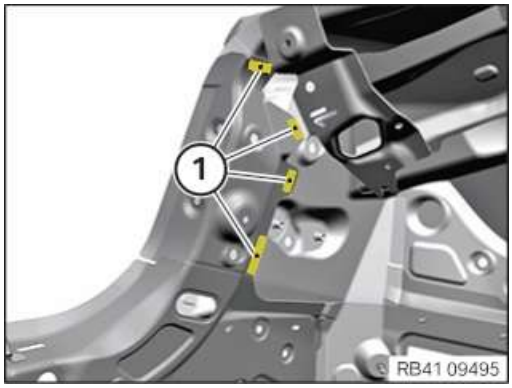
Area	Number
1	4
2	3
3	4

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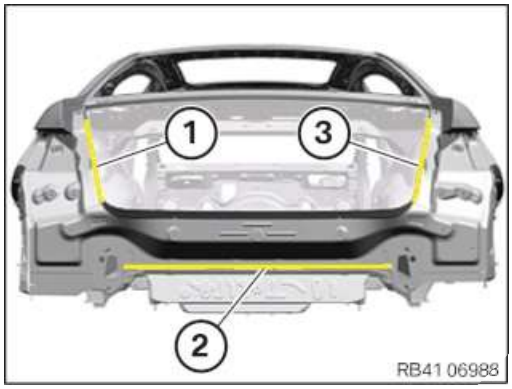


- Areas (1) to (3): Set diameter of bore holes to 4.2 mm for blind rivet.

Area	Number
1	4
2	2
3	4



- In the areas (1), make 4 bore holes of diameter 4.2 mm for blind rivets.



- Prepare areas (1) to (3) for joining using the bonded rivet method (punch rivets).
- Remove new parts and deburr bore holes.

4 – Installing the tail panel

NOTICE

Perform the operations on the left and right side.

- Clean bonding surfaces on vehicle and on new part with solvent cleaner R2.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean bonding surfaces on vehicle and on new part with cleaning agent R1.

Expendable materials

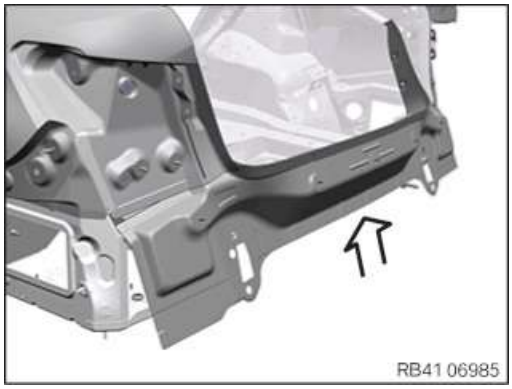
Cleaning agent R1	100 ml, Bottle	83192211217

- Apply adhesive K5 to bonding surfaces.

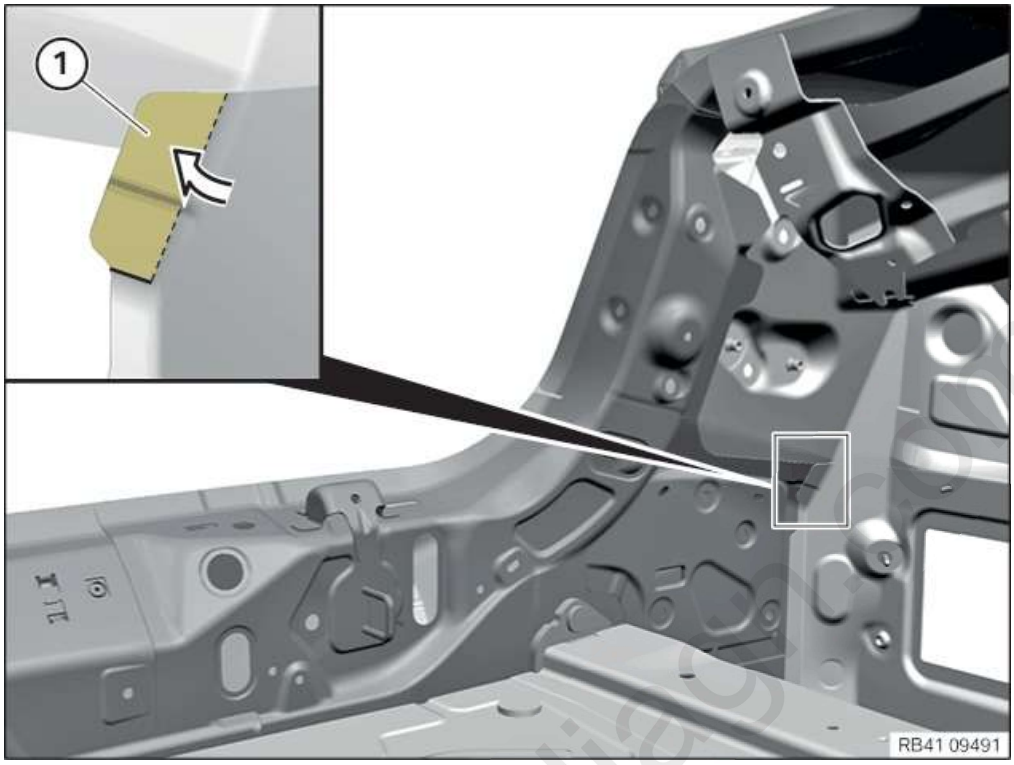
Adhesive

Body adhesive K5	195 ml	83195A59935

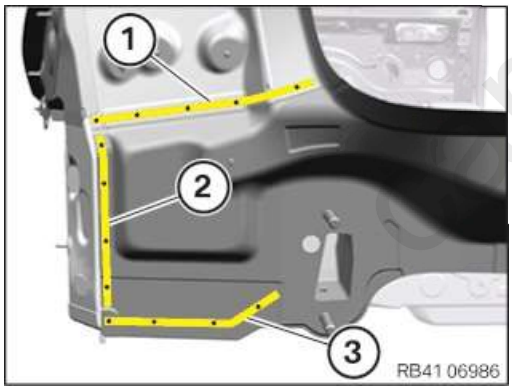
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- Install outer skin and inner section of the rear trim panel together as a combination.



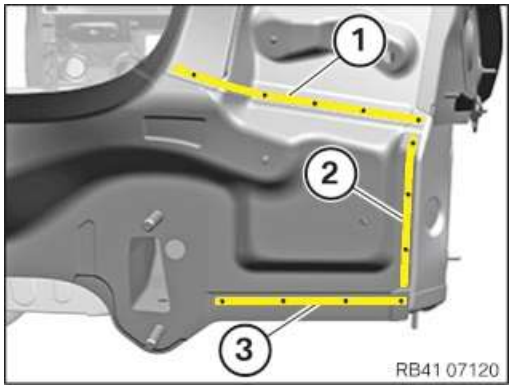
- Bend the sheet metal section (1) back.
- In area (1), drill 2 bore holes Ø 4.2 mm for blind rivet. For the exact position, see the steps below.



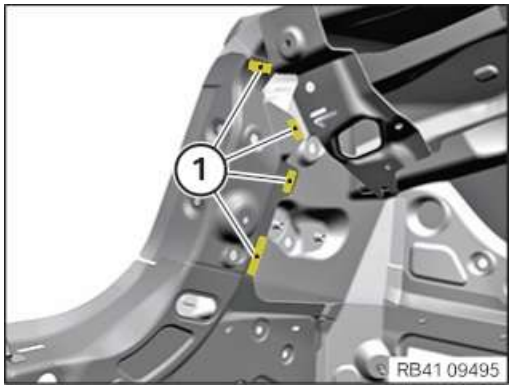
- Rivet the new part in the areas (1) to (3) with blind rivets N3.

Expendable materials

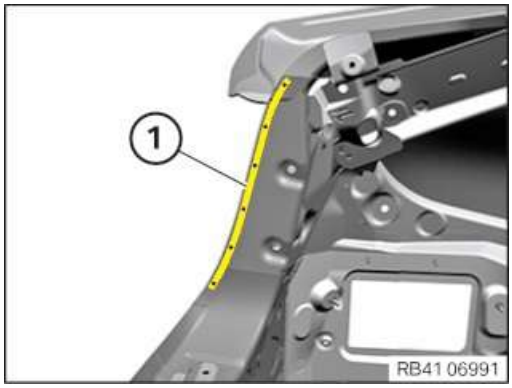
Blind rivet N3 Dia. 4 mm; clamping area 1-3 mm		83190301421



- Rivet the new part in the areas (1) to (3) with blind rivets N3.



- Rivet the new part in the areas (1) with blind rivets N3.



- In the area (1), install 6 x punch rivets N4.

Expendable materials

Punch rivet N4 Ø 3 mm ; 4 mm long		83192457307



- In area (1), use 10 punch rivets N5.
- Observe three-sheet connection:

  Observe seating direction of the punch rivets: Position the punch rivets from the inside to the outside.

Expendable materials

Punch rivet N5 Ø 5 mm ; 5 mm long		83192158079

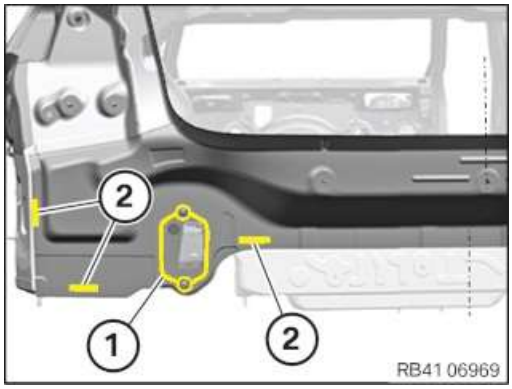
▸ Installing the EMC screw

- Drill a hole with a diameter of 4.2 mm after the adhesive has hardened completely .
- Screw in the EMC screw.
- Seal the EMC screw with sealant.

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985

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TECHNICAL INFORMATION

Prevent escaping adhesive from coming into contact with support for bumper panel. Do not use any cleaning agents containing solvents.

- Press in the rear trim panel in area (1) and remove the emerging adhesive.
- Before the adhesive hardens, install the support for the bumper panel.
- After the adhesive has hardened, install 3 EMC screws in the areas (2) shown.

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639

Additional Information

Links

Repair instructions (PRE)	Used in step
EMC screws, general information	4

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... BMW/MINI bonding instructions	3
41 00 ... Repair techniques, repair stage 2	

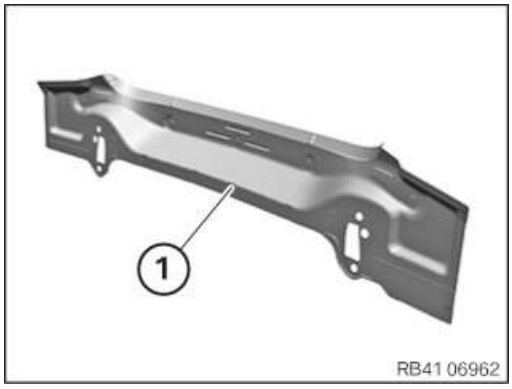
cardiagn.com

41 34 038 Replacing outer tail panel section

TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.
For additional information see: 41 00 ... Repair method for repair stage 2
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Rear trim panel(1)

TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

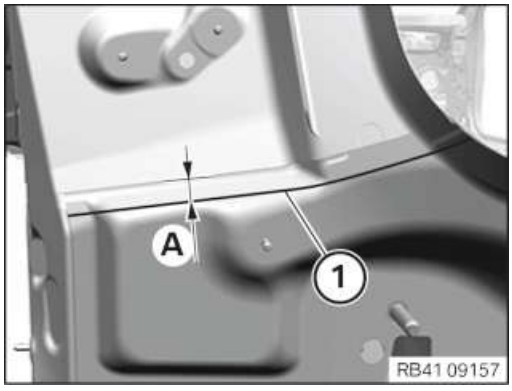
- Supply the following consumables:

Material	Quantity
Adhesive K5 (195 ml)	1
Blind rivet N3	40
Punch rivet N4	15
Punch rivet N5	10
Cleaner R1	1
Cleaner R2	1
EMC screw	6
Sealing compound D1	
Cavity sealing wax remover	

2 – Remove rear trim panel

NOTICE

Perform the operations on the left and right side.

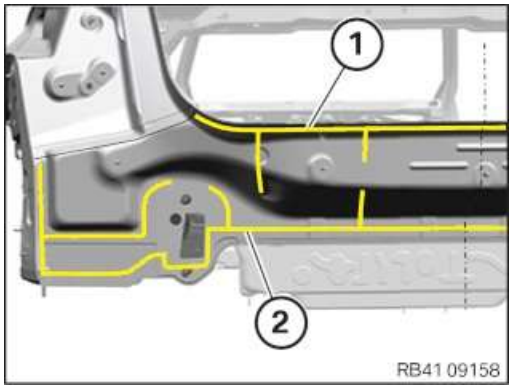


- Mark severance cut (1) in accordance with dimension and disconnect. Disconnect only the outer panel.

  Dimension a = approx. 23 mm below the component edge of the rear light fixture.

  Note: Install new part overlapping in area of severance cut.

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- Open welded connections in areas (1) and (2).

3 – Preparing the new part

RISK OF DAMAGE

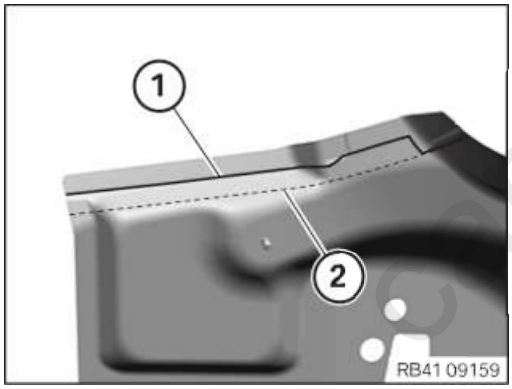
Damage to the spindle drive.

Moving the tailgate manually can damage the spindle drive.

- only move rear lid slowly by hand.

TECHNICAL INFORMATION

Adhesive technology in the area of the outer skin (not for structural adhesion):
The bonding surfaces of the new parts may not sharpened or ground.
For additional information see: 41 00 ... BMW bonding instructions

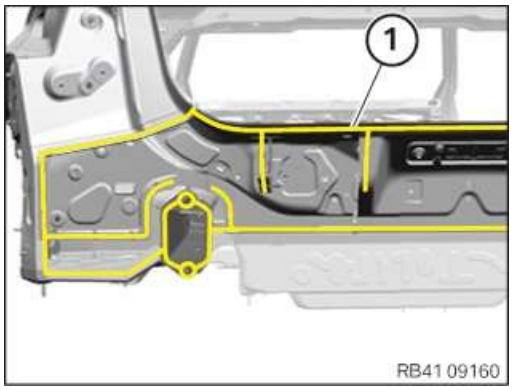


NOTICE

Perform the operations on the left and right side.

- Mark the separating cut (1) on the new part according to the separating cut on the vehicle + approx. 15 - 20 mm material allowance and cut.

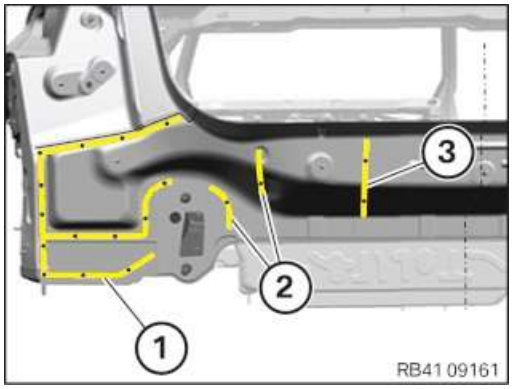
  (2) = Separating cut on the vehicle



NOTICE

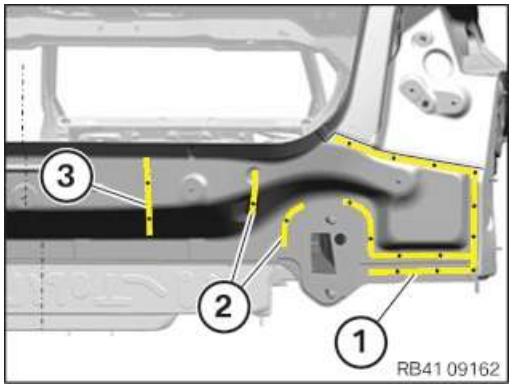
Perform the operations on the left and right side.

- Prepare areas (1) on the new part and on the body for joining using the bonded rivet method.



- Adjust rear trim panel in combination with tailgate and rear lamps and secure.
- Areas (1) to (3): Set bores dia. 4.2 mm for blind rivet.

Area	Number
1	14
2	2
3	2

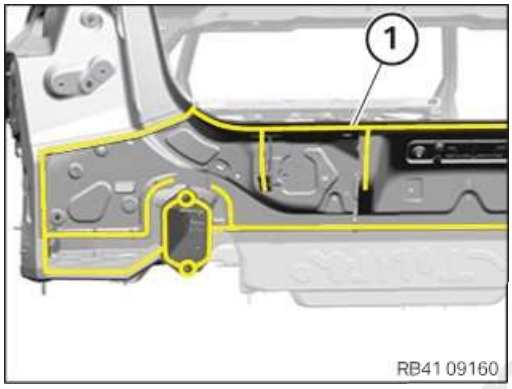


- Areas (1) to (3): Set bores dia. 4.2 mm for blind rivet.

Area	Number
1	13
2	2
3	2

- Remove new part and deburr holes.

4 – Install rear trim panel



NOTICE

Perform the operations on the left and right side.

- Clean bonding surfaces (1) on vehicle and on new part with solvent cleaner R2.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean bonding surfaces (1) on vehicle and on the new part with cleaning agent R1.

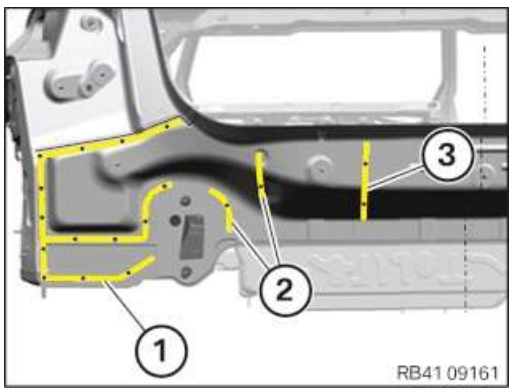
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

- Apply adhesive K5 to bonding surfaces (1).

Adhesive

Body adhesive K5	195 ml	83195A59935

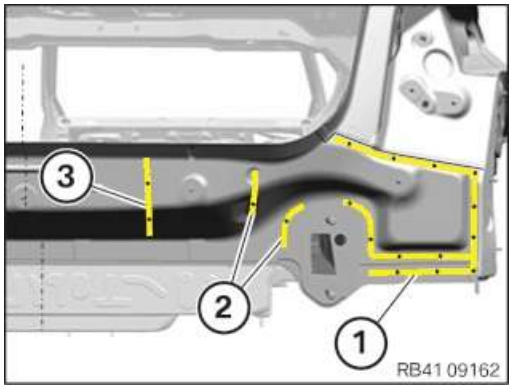


- Install the new part and rivet in areas (1) to (3) with blind rivets N3.

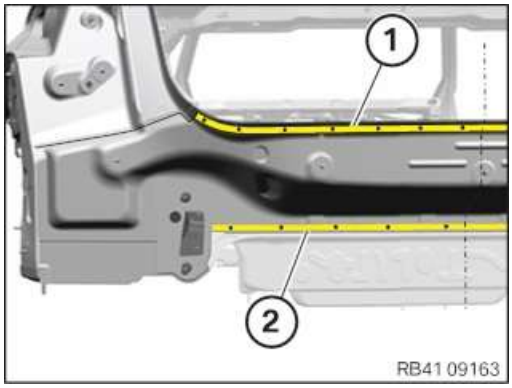
Expendable materials

Blind rivet N3 Dia. 4 mm; clamping area 1-3 mm		83190301421

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- Rivet the new part in areas (1) to (3) with blind rivets N3.



NOTICE

Perform the operations on the left and right side.

- Rivet the rear trim panel in areas (1) and (2) with punch rivets N4 and N5.

Area	Description	Number
1	N4	total of 14
2	N5	total of 10

Expendable materials

Punch rivet N4 Ø 3 mm ; 4 mm long		83192457307

Expendable materials

Punch rivet N5 Ø 5 mm ; 5 mm long		83192158079

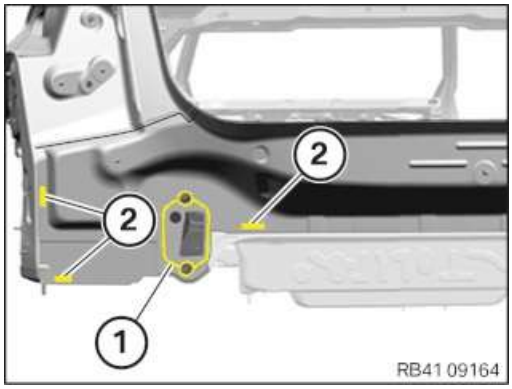
▸ **Installing the EMC screw**

- Drill a hole with a diameter of 4.2 mm after the adhesive has hardened completely .
- Screw in the EMC screw.
- Seal the EMC screw with sealant.

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985

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NOTICE

Perform the operations on the left and right side.

TECHNICAL INFORMATION

Prevent escaping adhesive from coming into contact with support for bumper panel. Do not use any cleaning agents containing solvents.

- Press in the rear trim panel in area (1) and remove the emerging adhesive.
- Attach the support for bumper panel.
- After the adhesive has hardened, install 3 EMC screws in the areas (2).

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639

Additional Information

Links

Repair instructions (PRE)	Used in step
EMC screws, general information	4

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
41 00 ... BMW/MINI bonding instructions	3
41 00 ... Repair techniques, repair stage 2	

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41 ... 0 Notes on the repair technique used in the main group 41

Two different repair techniques are used in body repair.

These are welding and bonding/riveting.

If the repair instructions do not specify a repair technique, then welding must **always** be used.

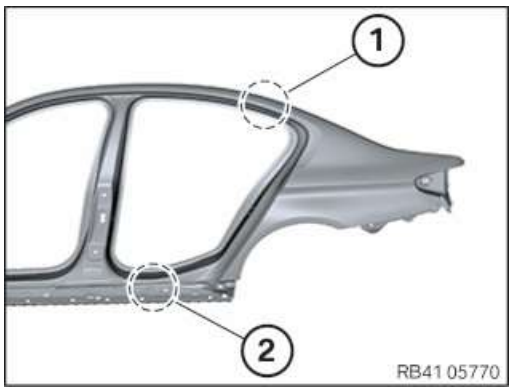
The bonding/riveting repair technique is **always** described in detail in the repair instructions.

Quality standards must be met.

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41 00 ... Reinforcement plate with stud bolt (bonded or welded)

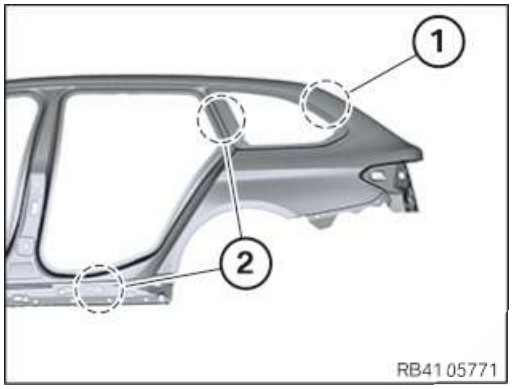
When replacing the rear side panel, reinforcement plates are bonded or welded on the separation points.



Applicable to Saloon, hatchback, Coupé.

Welding is done in area (1) (incl. water channel).

Bonding is done in area (2).

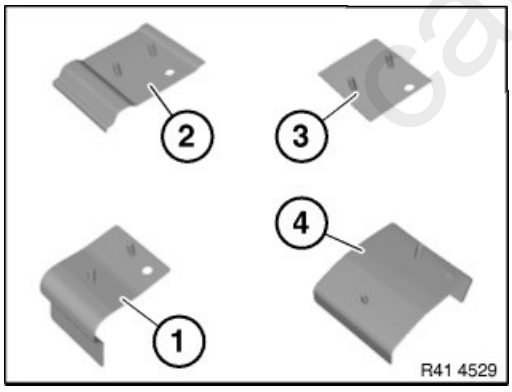


Applicable to Touring, X models, Gran Coupé, Gran Turismo.

Welding is done in area (1) (incl. water channel).

Bonding is done in areas (2).

Note:
The following graphics serve as general illustrations of reinforcement plate repair work. They apply to sectional repairs on the outer skin which are produced using the adhesive joining method.



Overview of the reinforcement plates (for sourcing reference, see Electronic Parts Catalogue):

(1) Reinforcement plate, sill

(2) Reinforcement plate, C-pillar

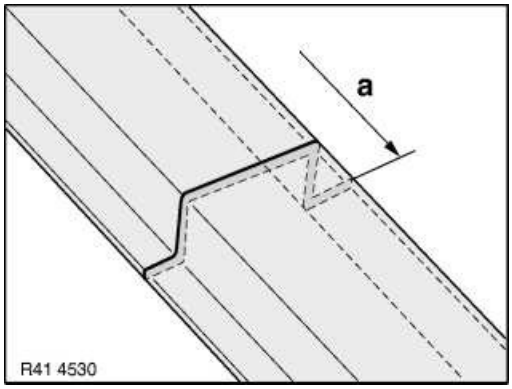
(3) Reinforcement plate, universal

(4) Reinforcement plate, C- or D-pillar

(5) Nuts (not shown)

- Plastic nut dia. 18 mm, part number 07 14 1 943 122
- Plastic nut ⌀ 22 mm, part number 07 14 7 169 847

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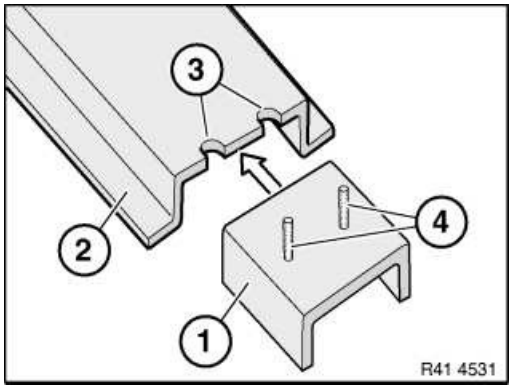


Mark side panel according to dimension a and detach it.

Preparation of the reinforcement plate (bonded or welded)

Some reinforcement plates are oversized.

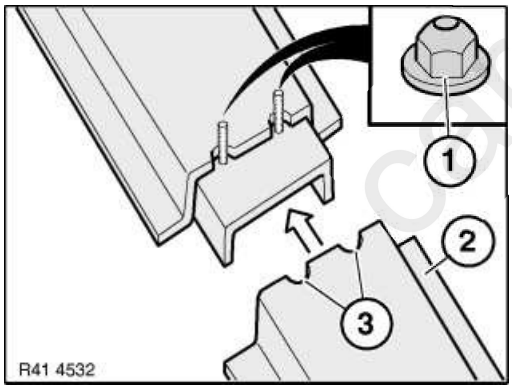
It may be necessary to rework the reinforcement plates at the edges or cut them to size until they rest against the outer skin free of tension.



Adjust reinforcement plate (1) to fit in component (2) on vehicle.

Make semicircular recesses (3) for the stud bolts (4).

Diameter of recesses approx. 10 - 12 mm.



Fix the reinforcement plate using plastic nuts (1).

Fit new part (2).

Make semi-circular recesses (3) in the new part.

Diameter of recesses approx. 10 - 12 mm.

Remove reinforcement plate.

Note:

Bonded reinforcement plates:

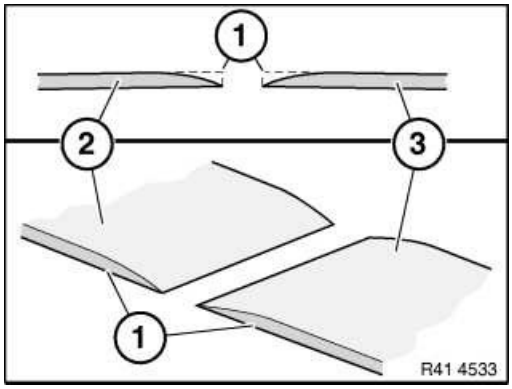
Width of joint between new part and component on vehicle approx. 5 - 8 mm (at least 30 mm flange width per side).

Welded reinforcement plates:

Width of joint between new part and component on vehicle approx. 2 - 3 mm.

Grind down to the metal in the area of the joint.

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Carry out the following step only if the reinforcement plates are bonded.

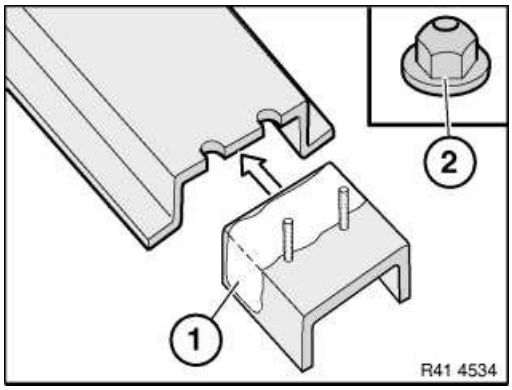
Chamfer cutting edges (1) on joint by grinding.

(2) Component on vehicle

(3) New part

If the cutting edges have not been sufficiently chamfered, there may be voids in the paintwork after painting.

Installing bonded reinforcement plate



Clean <u>all</u> bonding surfaces.

Apply the adhesive in area (1) on the reinforcement plate.

Apply more adhesive in the radii to avoid air pockets.

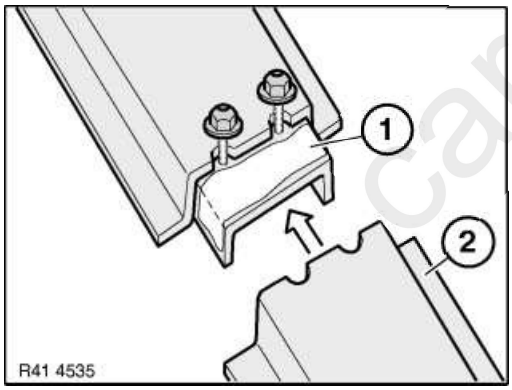
Apply additional adhesive to the outer skin around radii.

Slide the reinforcement plate carefully into the component on the vehicle and fix plastic nuts (2).

Screw on the nuts with only a few turns.

Attention!

When joining the reinforcement plate, make sure that there is sufficient adhesive on the bonding surfaces!



Apply the adhesive on bonding surface (1) of the reinforcement plate.

Apply more adhesive in the radii to avoid air pockets.

Apply additional adhesive to the outer skin around radii.

Fit new part (2).

Align new part to adjoining component and secure with gripping pliers.

First tighten the plastic nuts at the radii.

Only then tighten all the plastic nuts in the flat areas.

Tightening torque 41 14 1AZ.

Attention!

Check that the transition of the components is OK at the separation point. Corrections can only be made <u>before</u> the adhesive has hardened. Straightening at a later stage is not possible.

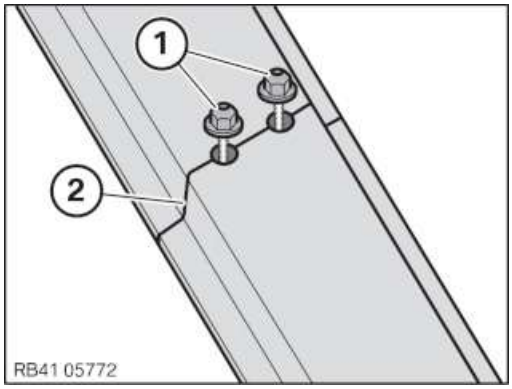
<u>After adhesive has hardened:</u>

Grind off stud bolts and surplus adhesive flush.

Paint area as specified in BMW Painting Handbook.

Installing welded reinforcement plate

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Attention!

Risk of damage!

Protect the adjacent components from heat and flying sparks.

Align new part to adjoining component and secure with gripping pliers.

First tighten the plastic nuts at the radii.

Only then tighten all the plastic nuts in the flat areas.

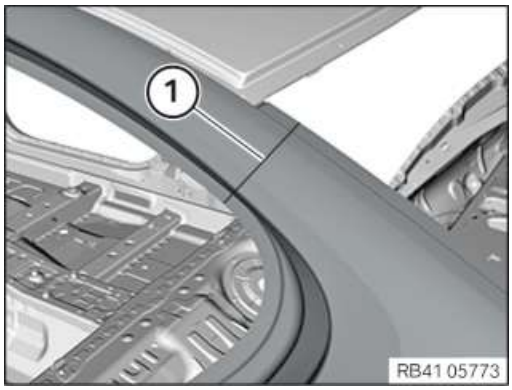
Tightening torque 41 14 1AZ.

Weld joint (2) between plastic nuts (1).

Release plastic nuts (1).

Grind down stud bolt until flush.

Weld joint (2) in the remaining areas.



Grind weld seam (1) until flush.

If necessary, straighten area (1) and level it with a multi-functional spatula.

Paint area as specified in BMW Painting Handbook.

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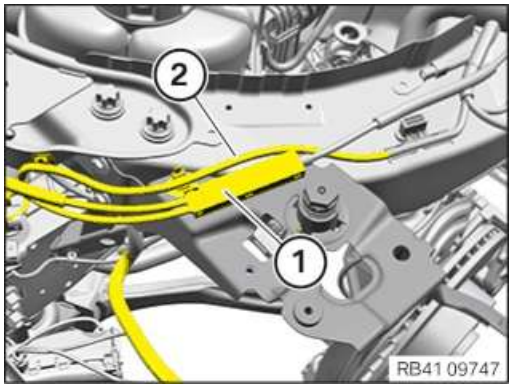
41 35 600 Replace a holder for the front side panel

Prerequisite

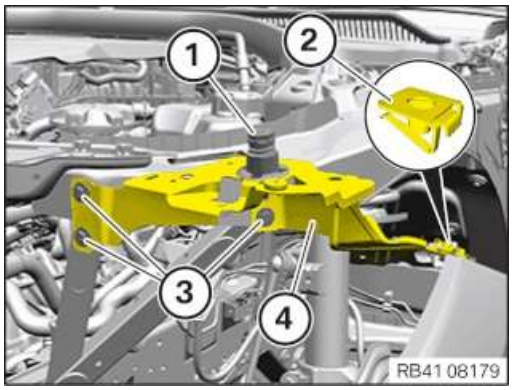
- Headlight is removed.

  Bumper panel is removed.

1 – Removing the front holder

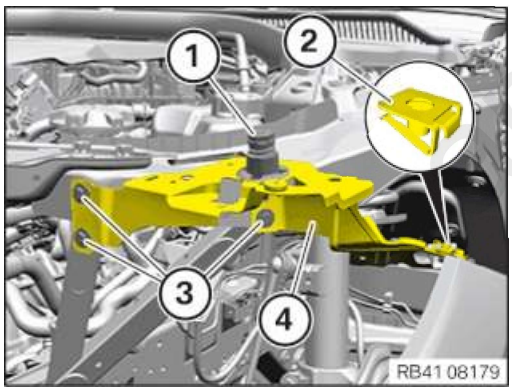


- Unclip the Bowden cable (1) and wiring harness (2) from the holder.



- Remove the adjustment buffer (1) and sheet metal nuts (2).
- Release screws(3) and remove holder (2).

2 – Installing the front holder

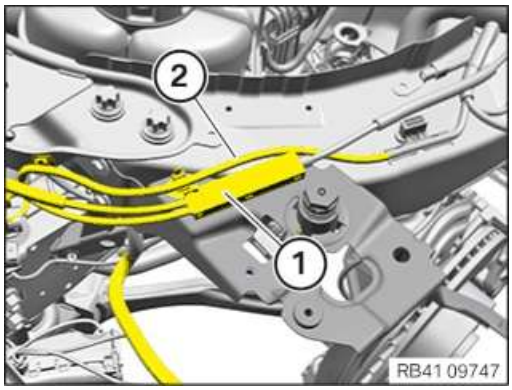


- Position holder (4) and tighten screws (3).

Front side panel holder to body

M6 screw		Tightening torque	8 Nm

- Secure adjustment plate (1) and sheet metal nuts (2) to holder (4).



- Clip the Bowden cable (1) and the wiring harness (2) into the holder.

Additional Information

Overview of Tightening Torques

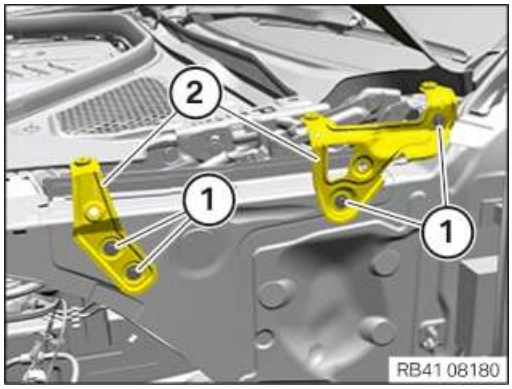
Front side panel holder to body Used in step 2

M6 screw		Tightening torque	8 Nm

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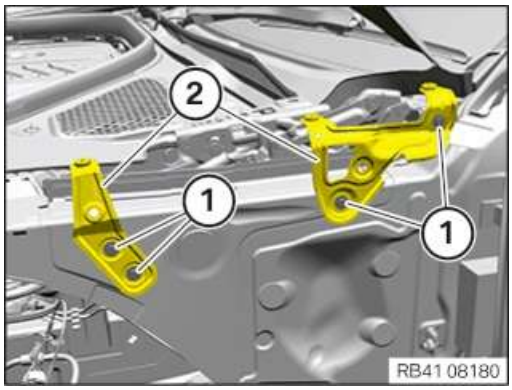
41 35 610 Replace three holders for the front side panel

1 – Removing the rear holder



- Loosen screws (1) and remove the holder (2).

2 – Installing the rear holder



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

Front side panel holder to body

M6 screw		Tightening torque	8 Nm

Additional Information

Overview of Tightening Torques

Front side panel holder to body Used in step 2

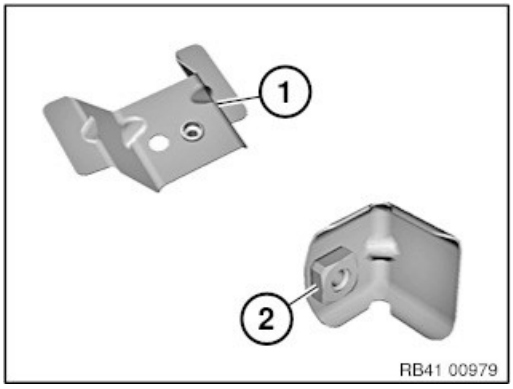
M6 screw		Tightening torque	8 Nm

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41 33 040 Replacing front left or right side wall holder

Note:
Read contents of Body, General.
Side wall removed.
Transfer the systematic diagram onto the respective holder version.

General information:
Procedure Observe repair stage 2!



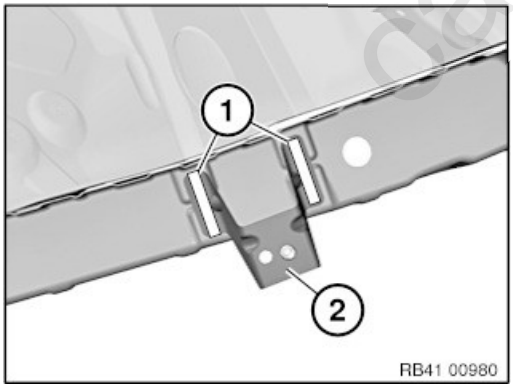
Following new body parts are required (refer to Electronic Parts Catalogue):

- (1) Holder, side wall, front (variant 1)
- (2) Holder, side wall, front (variant 2)

Following consumables are required:

Material	Quantity
Adhesive K5a	1
Blind rivets N3	2
Cleaning agent R1	1

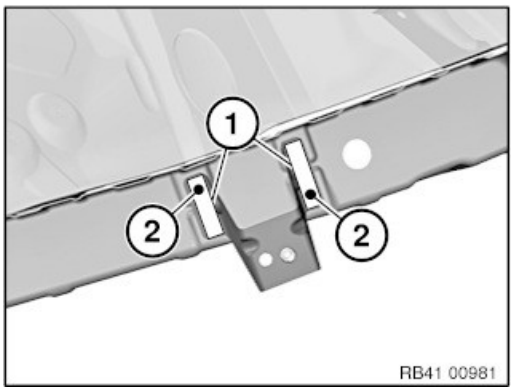
Removal of side wall holder (variant 1):



Release welded connections in areas (1) and remove holder (2).

Preparation of new part:

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Adjust new part in conjunction with side panel in front to fit.

In area of bonding surfaces (1), set 2 4.2 mm dia. bore holes (2) for blind rivetsN3.

Remove new part and deburr holes.

Important!

Do not grind bonding surfaces down or off.

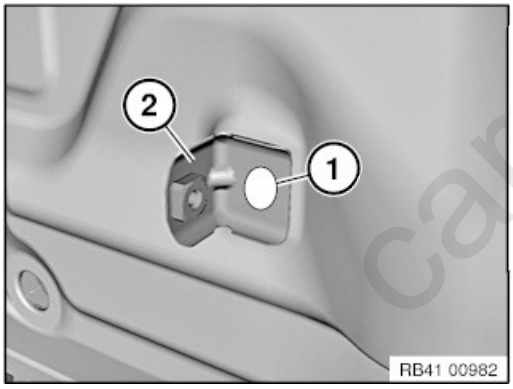
Installation of side wall holder:

Clean all bonding surfaces with cleaning agent R1.

Apply adhesive to bonding surfaces.

Install new part and rivet with blind rivets.

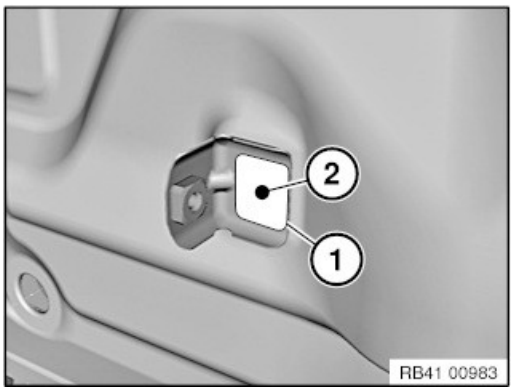
Removal of side wall holder (variant 2):



Release welded connection in area (1) and remove holder (2).

Preparation of new part:

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Fit in new part.

In area of adhesive surface (1), drill a 4.2 mm dia. bore hole (2) for blind rivet N3.

Remove new part and deburr holes.

Important!

Do not grind bonding surfaces down or off.

Installation of side wall holder:

Clean all bonding surfaces with cleaning agent R1.

Apply adhesive to bonding surface.

Install new part and rivet with blind rivet.

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41 35 050 Replacing left front side panel

WARNING

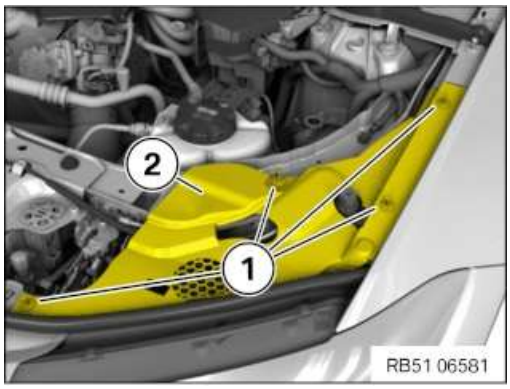
Vehicle may slip off the vehicle hoist if the vehicle hoist is handled incorrectly.

Danger! Life-threatening injuries!

- Observe safety information on raising the vehicle using a vehicle hoist.
- For additional information see: 00 ... Raise the vehicle using a vehicle lift.

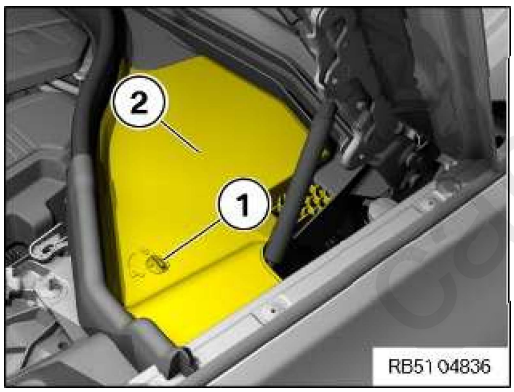
PRELIMINARY WORK

1 – Remove the cover in the engine compartment on top



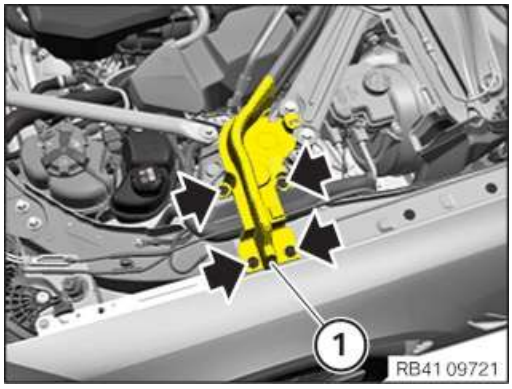
- Loosen the expanding rivet (1).
- Remove the cover in the engine compartment on top (2) partially.

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



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

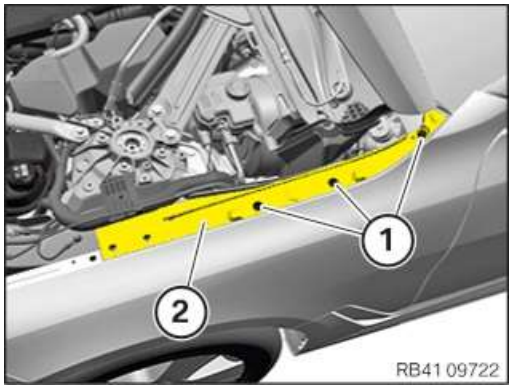
3 – Removing the bonnet seal on the left



- Release the expanding rivet (arrows) and remove the sealing (1).

4 – Removing the cover in the engine compartment on the top rear

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- Loosen the expanding rivet (1).
- Remove the cover in the engine compartment (2).

5 – Removing the wheel



TECHNICAL INFORMATION

A wheel lift is recommended for easier wheel removal and installation without exertion (see Retailer Equipment Catalogue).

- **In vehicles with M Carbon ceramic brake: The wheel lift must be used to remove the wheel.**

  This process is intended to prevent damage to the brake disc.



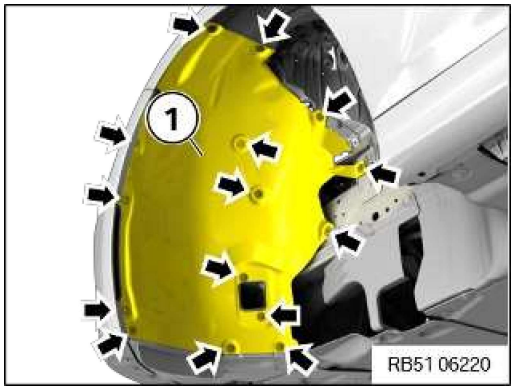
- If several wheels are removed at the same time: Use a piece of chalk to mark on each tyre the axle and side on which the corresponding wheel is fitted.
- Release the wheel bolts (arrows) crosswise and remove the wheel.
- To release and tighten wheel bolts with a security code: Use the correct adapter from the set of special tools .

6 – Removing the front section of the front wheel arch cover

NOTICE

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

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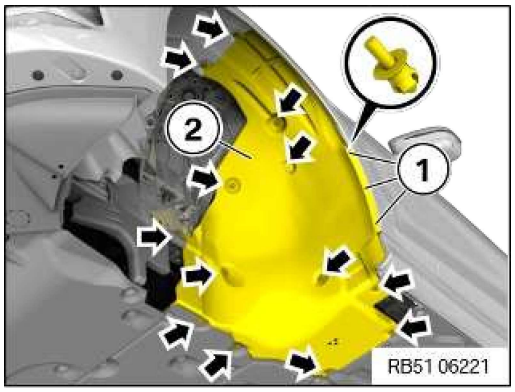


- Remove screws (arrows).
- Remove front section of the front wheel arch cover (1).

7 – Removing the rear section of the front wheel arch cover front

NOTICE

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

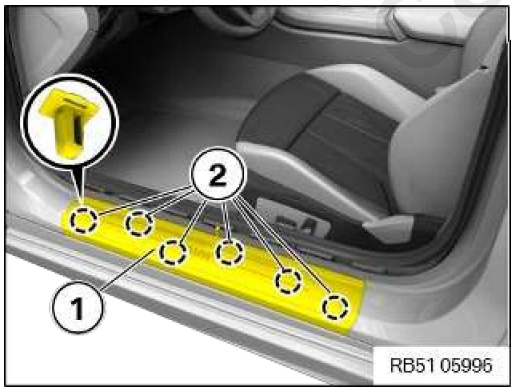


- Loosen the expanding rivet (1).
- Remove screws (arrows).
- Remove the rear section of the front wheel arch cover (2).

8 – Remove the front sill trim

NOTICE

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



RISK OF DAMAGE

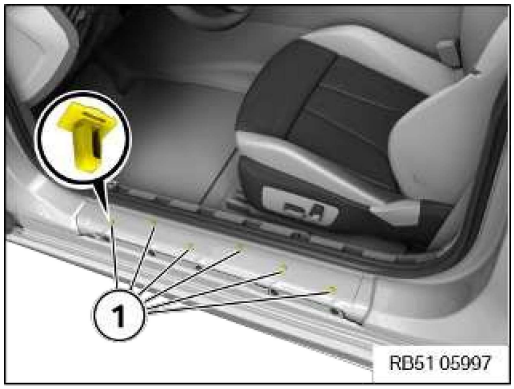
Bending of plastic parts.

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

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

- Release and remove the front sill trim (1) using special tool 0 496 569 (00 9 325) from clips (2).

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- Remove clips (1) if necessary and connect them on the front sill trim.

9 – Removing the side sill trim panel

RISK OF DAMAGE

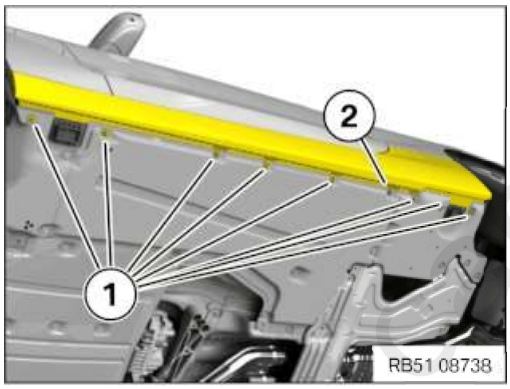
Mechanical effects.

Paint damage.

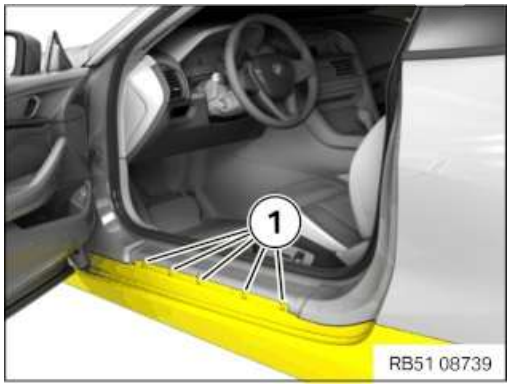
- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

NOTICE

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

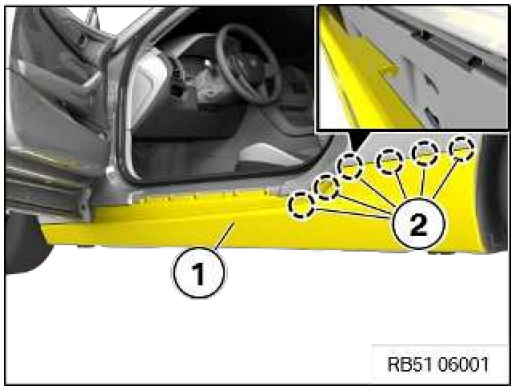


- Loosen screws (1).
- Release nut (2).

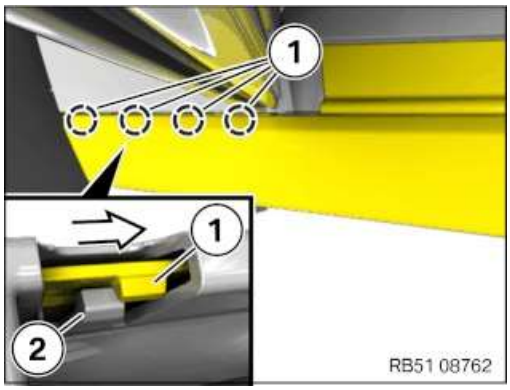


- Release the expanding rivet (1).

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- Release side sill trim panel (1) from latch mechanisms (2) using a suitable tool, starting from the rear.



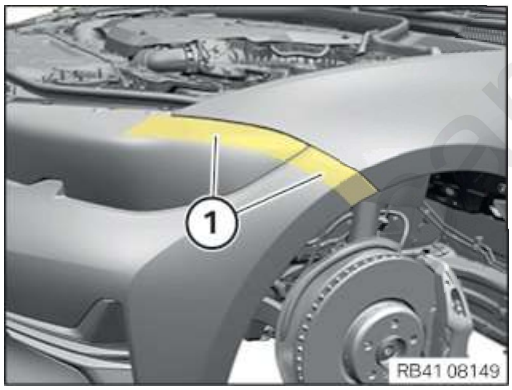
- Slide the side sill trim panel to the front in the direction of the arrow to release latch mechanisms (1) from supporting strip (2).
- Release the side sill trim panel with latch mechanisms (1) from supporting strip (2) and remove it with the help of another person.

MAIN WORK

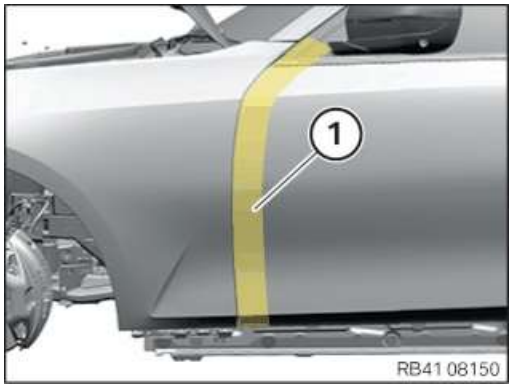
10 – Removing the front left side panel

NOTICE

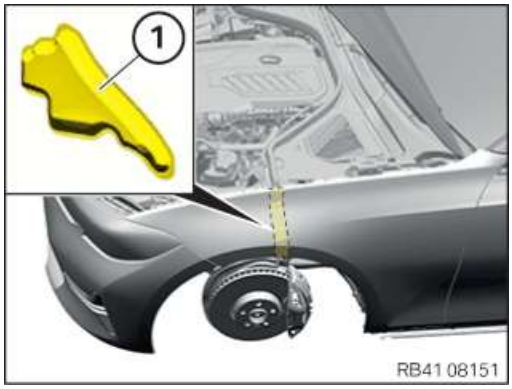
Schematic diagram is for example purposes. Some parts may differ in certain details.



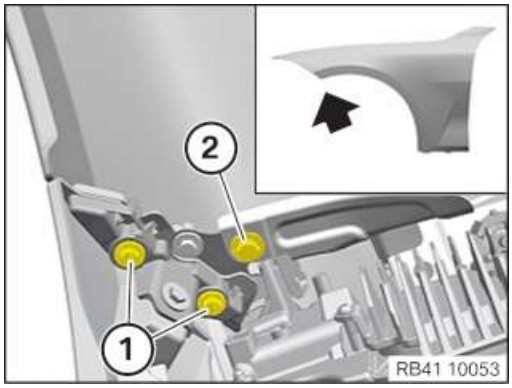
- Mask areas (1) with a plastic adhesive tape.



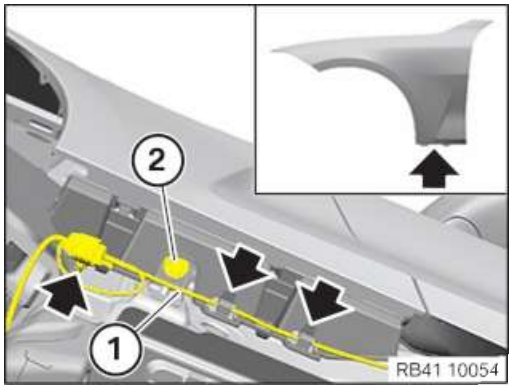
- Mask area (1) with a plastic adhesive tape.



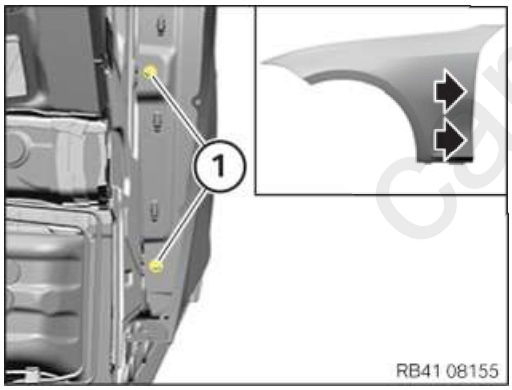
- Remove the sound insulation (1).



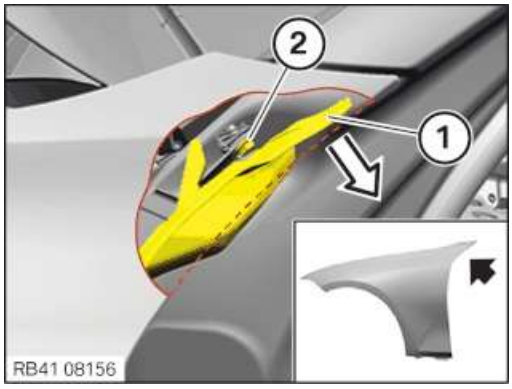
- Release screws (1) and (2).



- Release wiring harness (1) at attachment points (arrows).
- Release the screw (2).



- Loosen screws (1).



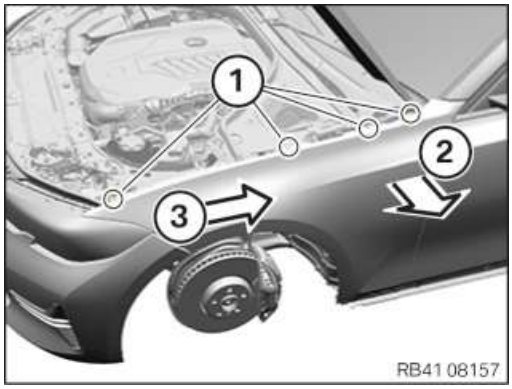
NOTICE

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

- Open the front door.

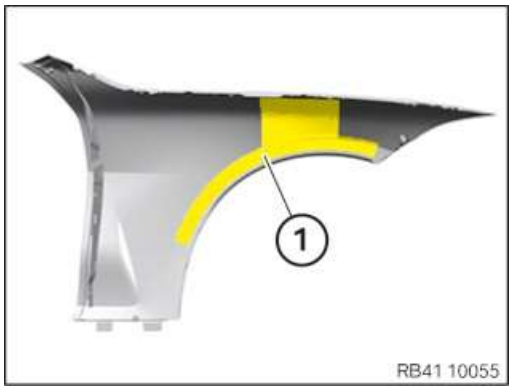
  Pull sealing (1) downwards a bit in direction of arrow.
- Loosen screw (2).
- Close front door.

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- Loosen screws (1).
- Loosen side panel in the sequence and direction shown with the aid of a second person.
- Pull side panel in the upper area of the A-pillar outwards (2).
- Pull side panel to the rear (3) and remove it.

11 – Preparing the new part

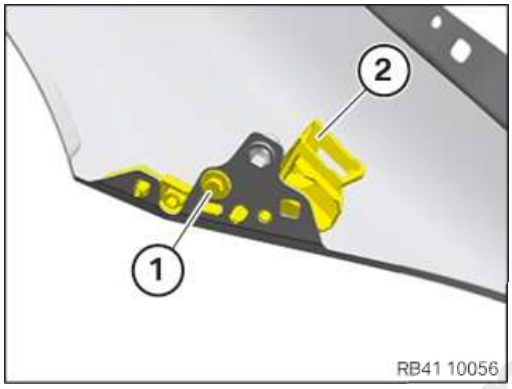


- Coat side panel before painting in area (1) with sealant.

Expendable materials

Sealant D1 (seam sealing)	310 ml	83422409985

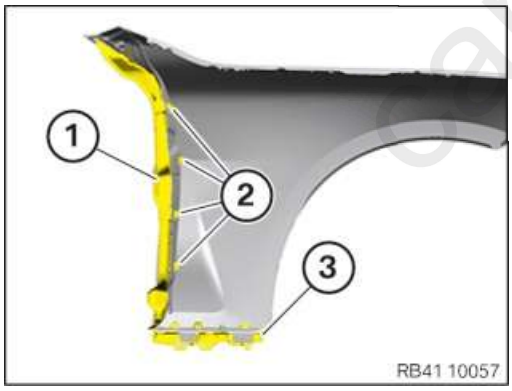
- Paint side panel.



- Release the screw (1) and remove the guide (2) from the side panel to be replaced.
- Check guide (2) for damage, renew if necessary.
- Fit guide (2) on the new part and tighten screw (1).

Guide to side panel

Screw	Tightening torque	3,0 Nm



- Release sealing (1) on the latch mechanisms (2) and remount it on the new part.
- Release retaining strip (3) from latch mechanisms and remove.

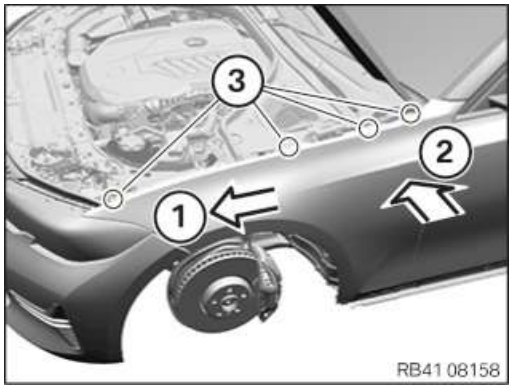
  Check retaining strip (3) for damage, renew if necessary.
- Fit retaining strip (3) on the new part and clip in at the latch mechanisms.

12 – Installing the left front side panel

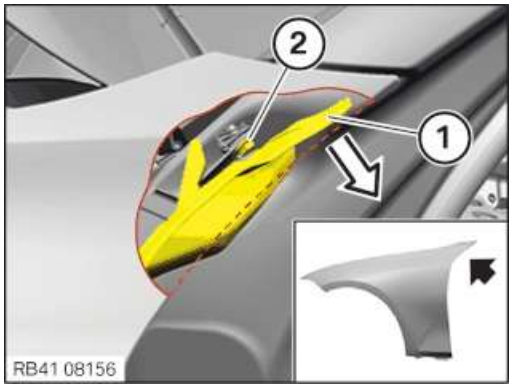
NOTICE

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

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- With the help of a second person, guide the side panel diagonally from the rear to the front to the vehicle.
- Position the side panel in the area of the headlight (1) and bring it to the system in the area of the A-pillar (2).
- Join the screws (1).

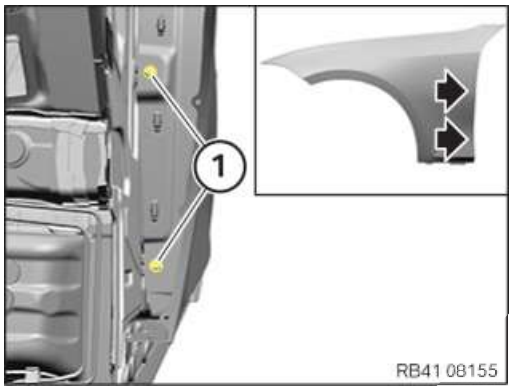


NOTICE

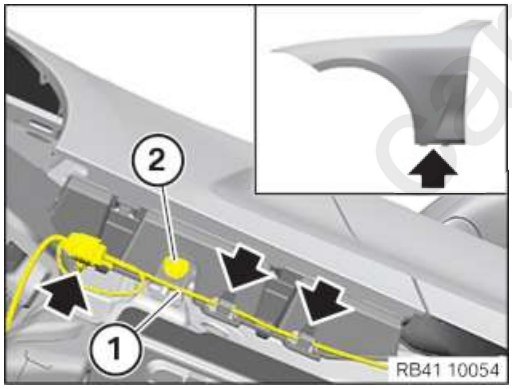
To provide a better overview: Schematic diagram with partially hidden components.

- Open the front door.

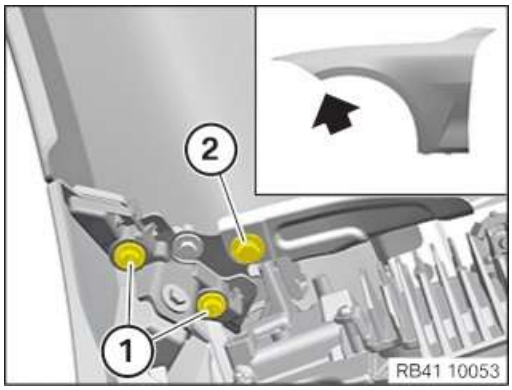
  Pull sealing (1) downwards a bit in direction of arrow.
- Join the screw (2).
- Close front door.



- Join the screws (1).



- Join the screw (2).
- Clip in wiring harness (1) at attachment points (arrows).



- Join the screw (2).
- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

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TECHNICAL INFORMATION

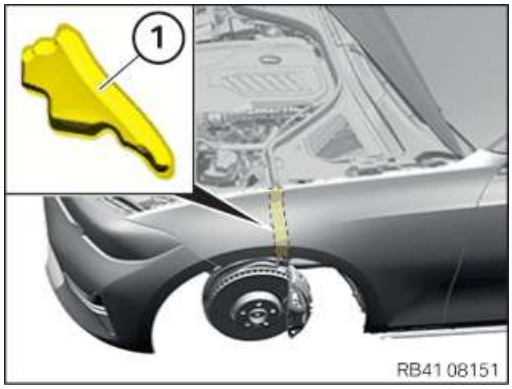
The gap dimensions form the basis for these repair instructions and must be observed without fail.

For more information see: 41 00 ... Gap dimensions for body

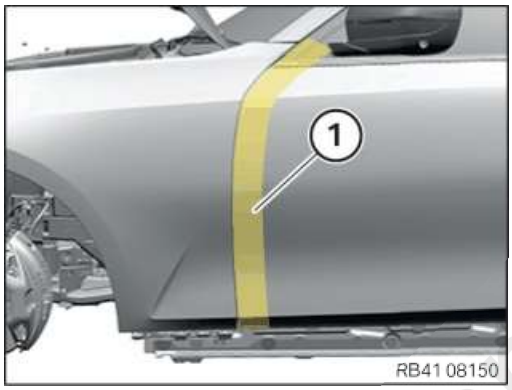
- Adjust gap dimensions.
- Tighten all screws of the side panel.

Front side panel to holder for front side panel

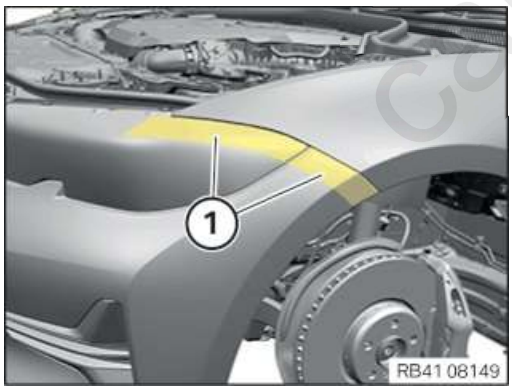
Screw M6		Tightening torque	8 Nm



- Install the sound insulation (1).



- Remove protective film (1).



- Remove the protective films (1).

POSTPROCESSES

13 – Installing the side sill trim panel

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RISK OF DAMAGE

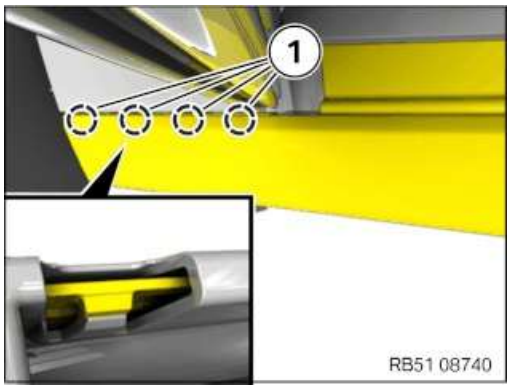
Mechanical effects.

Paint damage.

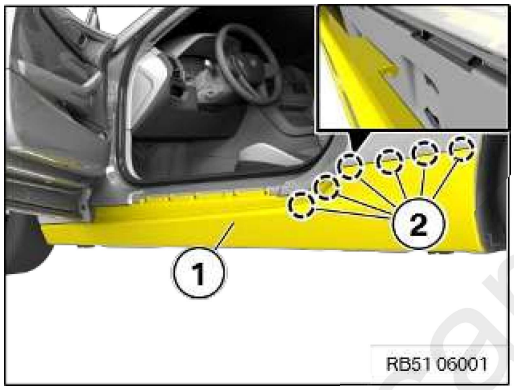
- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

NOTICE

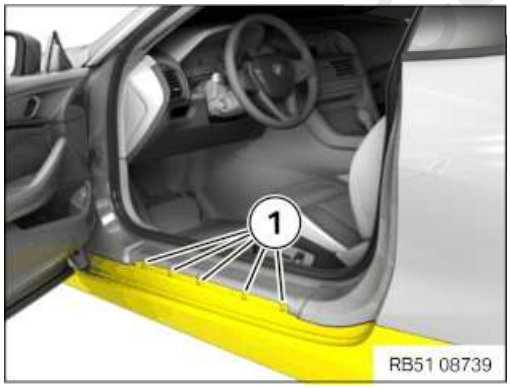
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the side sill trim panel.
- Clip in the front side sill trim panel at the latch mechanisms (1).

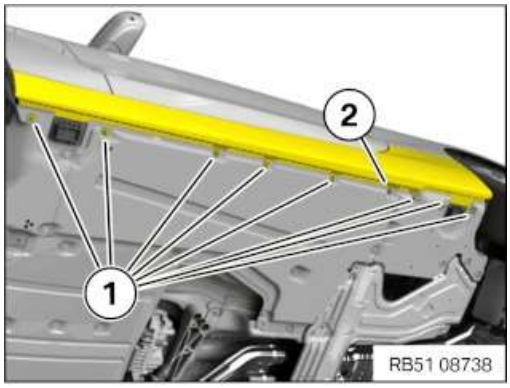


- Clip in the side sill trim panel (1) at the rear into the latch mechanisms (2).



- Secure expanding rivet (1).

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- Tighten the screws (1) and nuts (2).

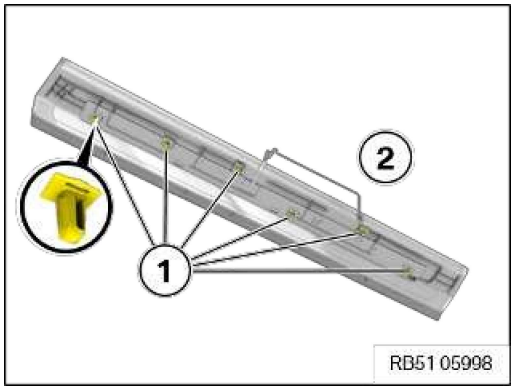
Underbody panelling, side

Hexagon screw		Tightening torque	2.6 Nm
Plastic nut		Tightening torque	2.6 Nm

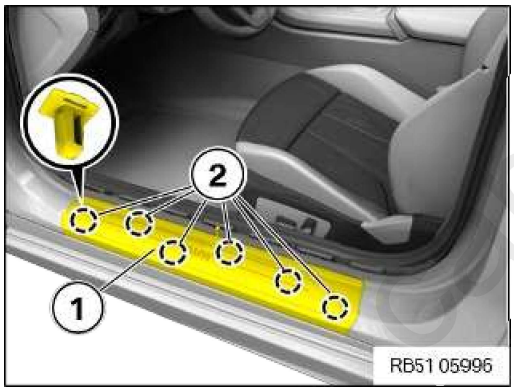
14 – Installing the front sill trim

NOTICE

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



- Check if clips (1) on the front sill trim (2) are missing or damaged and renew them if necessary.

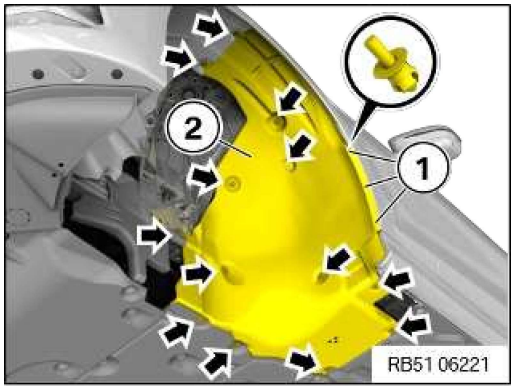


- Position the front sill trim (1) correctly.
- Clip in the front sill trim (1) with the clips (2).

15 – Install the rear section of the front wheel arch cover

NOTICE

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



- Install the rear section of the front wheel arch cover(2) .
- Tighten screws (arrows).

Wheel arch trim panel, front

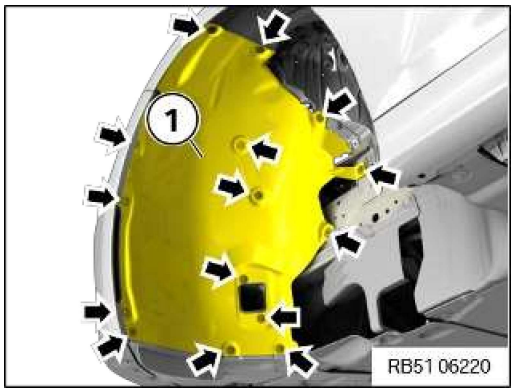
Thermoplastic hexagon screw		Tightening torque	2,6 Nm

- Secure expanding rivet (1).

16 – Install the front section of the front wheel arch cover

NOTICE

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



- Install the front section of the front wheel arch cover (1).
- Tighten screws (arrows).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

17 – Mounting the wheel



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.

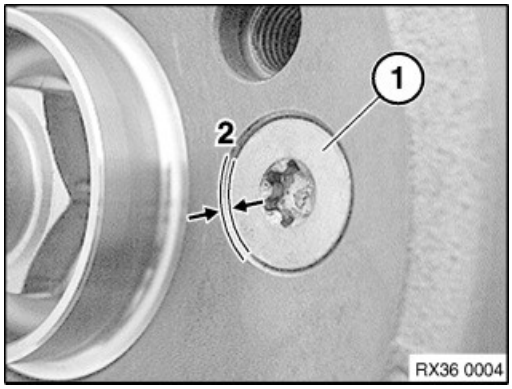
- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool 2 344 011.

  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).



- Check that the mounting bolt (1) for the brake disc is securely seated.

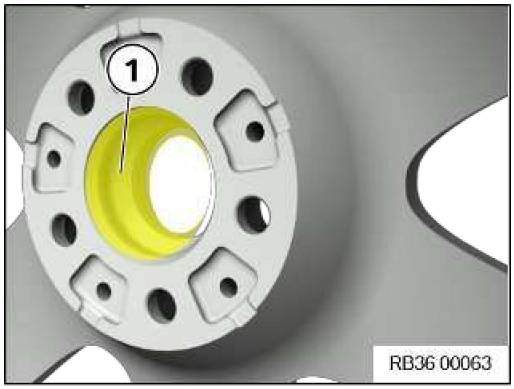
  The mounting bolt (1) for the brake disc **may not** protrude on the contact surface (2) between the brake disc and the wheel rim.

Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to rear wheel hub

M8	Renew screw.	Tightening torque	16 Nm



TECHNICAL INFORMATION

Wheel hubs and wheel centering on the models G80, G82 and G83 **must not** be greased.

- Thinly grease the wheel centring (1) in the wheel rim.

Expendable materials

Brake block paste * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	3 g, Bag	83192158851
	100 g, Tube	83192158852
	5 g, TU*	83230140233



TECHNICAL INFORMATION

Wheel hubs and wheel centering on the models G80, G82 and G83 **must not** be greased.

- Apply a thin layer of grease to the front and rear wheel hubs (1) to protect against corrosion.

Expendable materials

Brake block paste * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	3 g, Bag	83192158851
	100 g, Tube	83192158852
	5 g, TU*	83230140233

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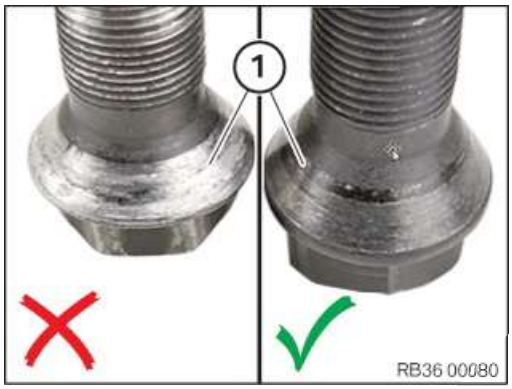


TECHNICAL INFORMATION

A wheel lift is recommended for easier wheel removal and installation without exertion (see Retailer Equipment Catalogue).

- **In vehicles with M Carbon ceramic brake: The wheel lift must be used to install the wheel.**

  This process is intended to prevent damage to the brake disc.



Check

- **Check wheel bolts for wear.**

Result

» Places (> 30%) of the bearing surfaces (1) of the taper on the screw head show a silver wear.

Measure

- Replace wheel bolts.

  Parts: Wheel bolts

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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.

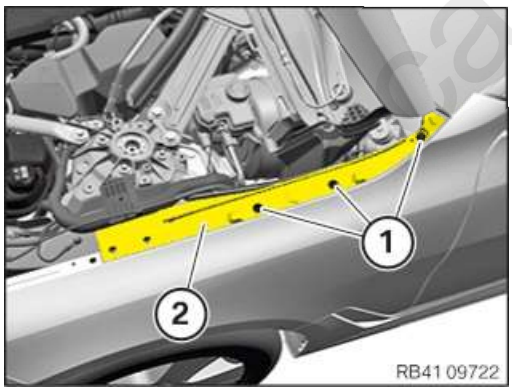
- Renew the corroded wheel bolts (arrows).

  Parts: Wheel bolts
- Clean the wheel bolts (arrows).
- Check the wheel bolts (arrows) and threads for damage, renew the wheel bolts (arrows) if necessary.
- Join and tighten the wheel bolts (arrows).

Wheel bolts

M14 / SW17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim.	Tightening torque	140 Nm
	Tighten wheel bolts to the prescribed tightening torque with a calibrated torque wrench in a crosswise sequence.	Check	140 Nm
	Check all the wheel bolts in the same order or retighten to the prescribed tightening torque again.		

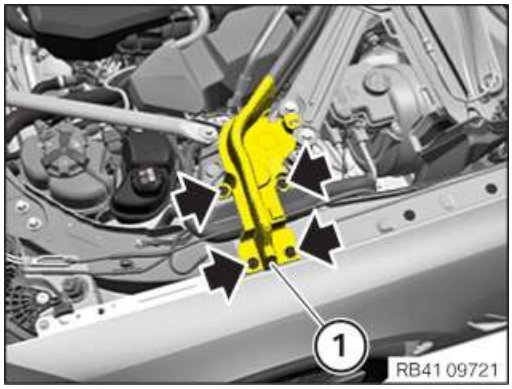
18 – Installing the cover in the engine compartment on the top right



- Install the cover in the engine compartment at the top (2) and fasten it with expanding rivet (1).

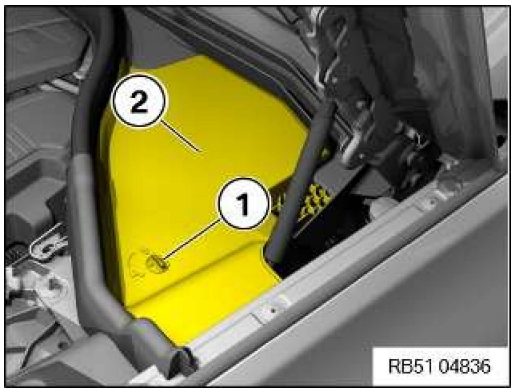
19 – Installing the left bonnet seal

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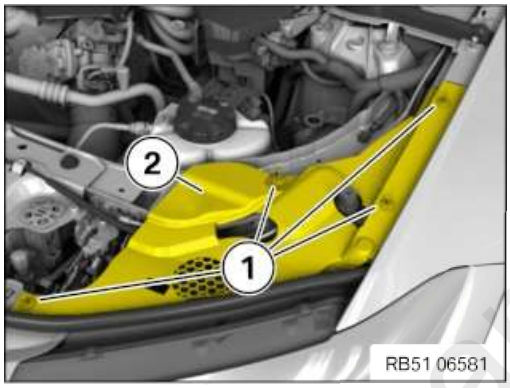
- Install the sealing (1) and secure with expanding rivet (arrows).

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



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

21 – Install the cover in the engine compartment on top



- Install the cover in the engine compartment on top (2).
- Secure expanding rivet (1).

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Additional Information

Overview of Tightening Torques

Guide to side panel			Used in step 11
Screw		Tightening torque	3,0 Nm

Front bumper panel to front side panel			Used in step 12
Torx screw 5x35		Tightening torque	3 Nm

Front side panel to holder for front side panel			Used in step 12
Screw M6		Tightening torque	8 Nm

Underbody panelling, side			Used in step 13
Hexagon screw		Tightening torque	2.6 Nm
Plastic nut		Tightening torque	2.6 Nm

Wheel arch trim panel, front — Used in step 1516

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Brake disc to front wheel hub — Used in step 17

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to rear wheel hub — Used in step 17

M8	Renew screw.	Tightening torque	16 Nm

Wheel bolts — Used in step 17

M14 / SW17	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

0 496 569 (00 9 325) Wedge



Common — Used in step 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)

2 344 011 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:

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0 495 221 (36 1 323) Wheel stud



Common	Used in step 5
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 5
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 5
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	

cardiagn.com

0 495 226 (36 1 328) Wheel stud



Common	Used in step 5
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 5
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 5
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 5
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 5
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

Repair instructions (PRE)	Used in step
Gap dimensions, body	12

Repair instructions	Used in step

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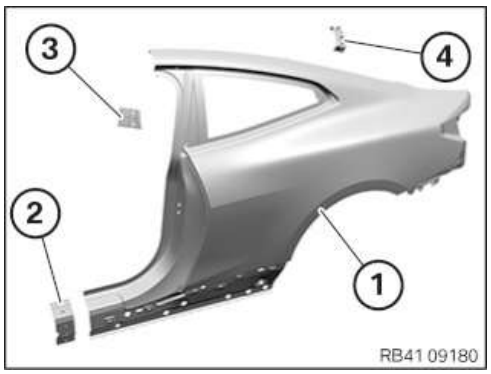
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41 35 101 Replacing rear left side panel

TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.
For additional information see: 41 00 ... Repair method for repair stage 2
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Rear side wall(1)

  Reinforcement plate, side sill(2)

  Reinforcement, B-pillar(3)

  Reinforcement plate, C-pillar(4)

  Plastic nut

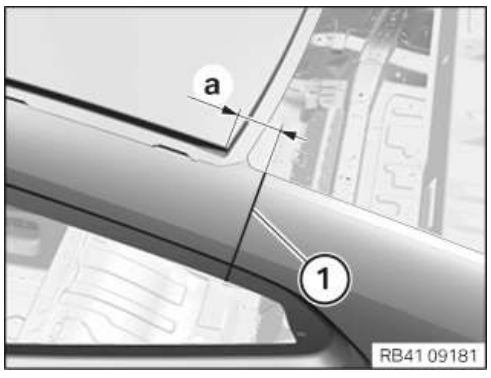
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

Material	Quantity
Adhesive K5 (195 ml)	1
Adhesive K5 (50 ml)	1
Blind rivet N3	20
Punch rivet N4	25
Punch rivet N5	25
EMC screw	3
Cleaner R1	1
Cleaner R2	1
Cavity sealing wax remover	1
Sealing compound D1	
Sealing compound D2	

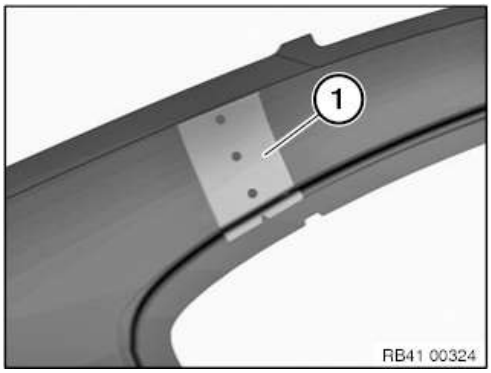
2 – Removing the rear left side panel



- Mark the separating cut (1) on the C-pillar as per the dimension and disconnect it. Disconnect only the outer panel.

  Dimension (a) = 55 mm (from the corner of the roof outer skin)
- Compare position of severance cut with reinforcement plate.

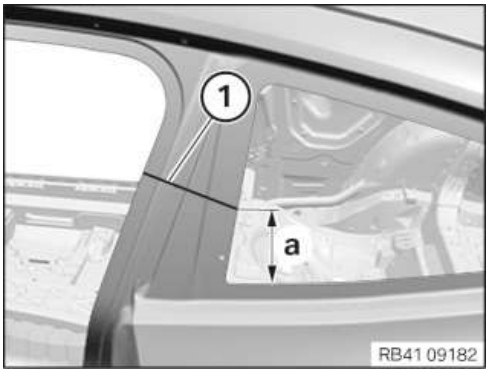
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TECHNICAL INFORMATION

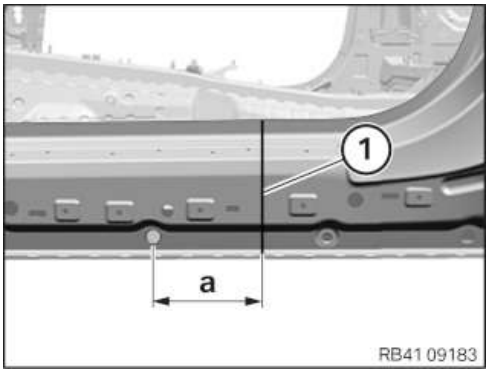
For more information see: 41 00 ... Determination of separating cut using a template

- Determine position of the severance cut in addition to the dimensions with the aid of a template (1).



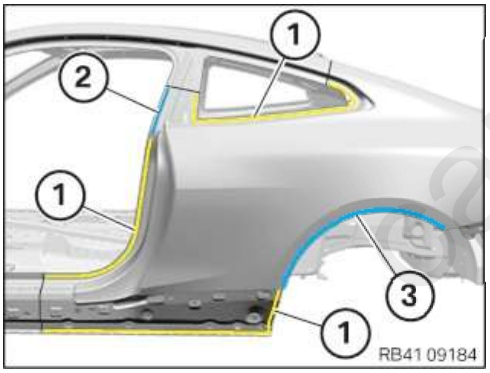
- Mark the separating cut (1) on the B-pillar as per the dimension and disconnect it. Disconnect only the outer panel.

  Dimension (a) = 100 mm
- Compare position of severance cut with reinforcement plate.



- Mark the separating cut (1) on the side sill according to dimension and disconnect it. Disconnect only the outer panel.

  Dimension (a) = 180 mm (from the centre of the hole of Ø 20 mm)
- Compare position of severance cut with reinforcement plate.



- Release welded connections in areas (1).

TECHNICAL INFORMATION

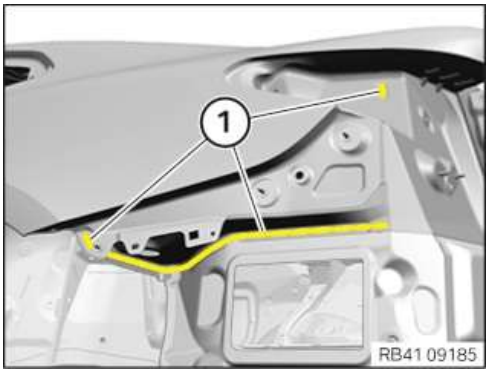
For more information see: 41 00 ... Releasing bonded connections

- Release the spot-welded adhesive joints in area (2).

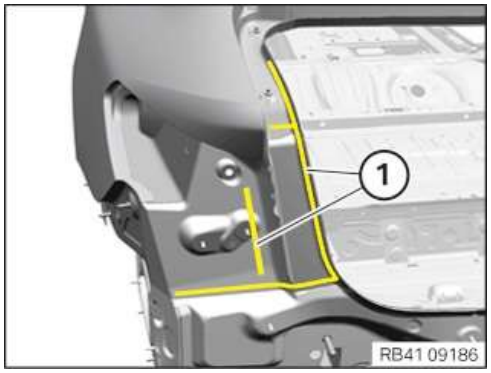
TECHNICAL INFORMATION

For more information see: 41 00 ... Releasing bonded folded joints

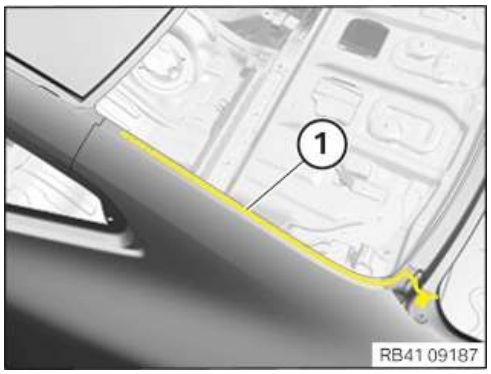
- Release folded bonded joints in area (3).



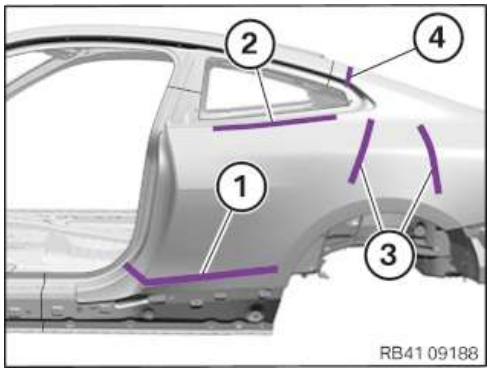
- Release welded connections in areas (1).



- Release welded connections in areas (1).



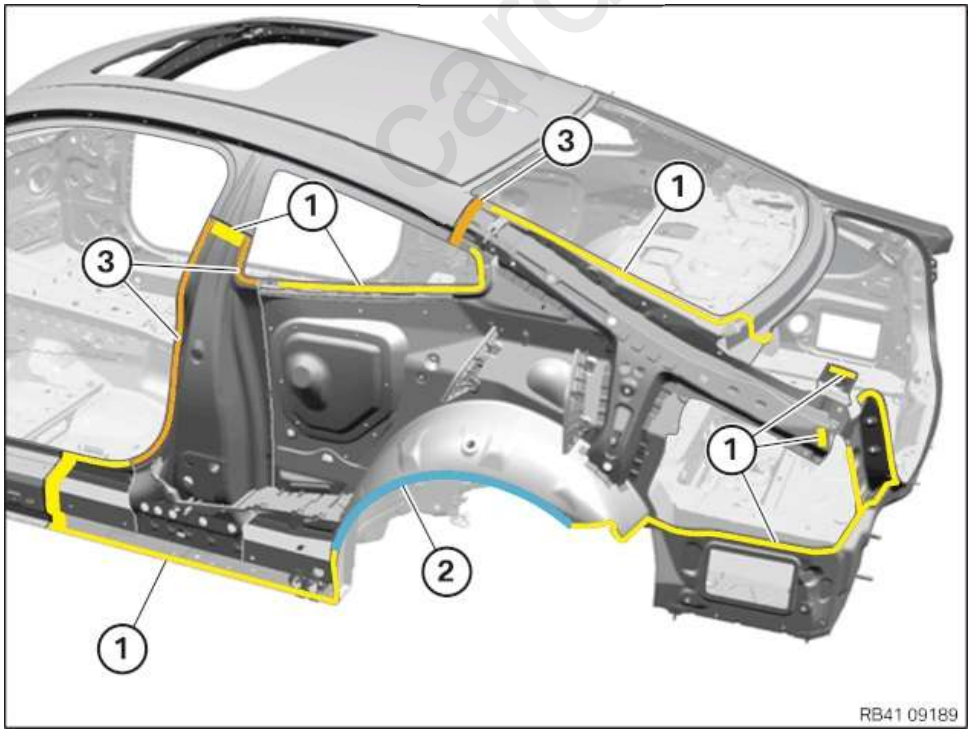
- Open welded connections in area (1).



- Release the side panel from the cavity sealings (1) to (4) and remove it.

3 – Preparing the new part

Joining method



1 Bonded rivet method

2 Adhesive bonding method (border)

3 Welding method

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TECHNICAL INFORMATION

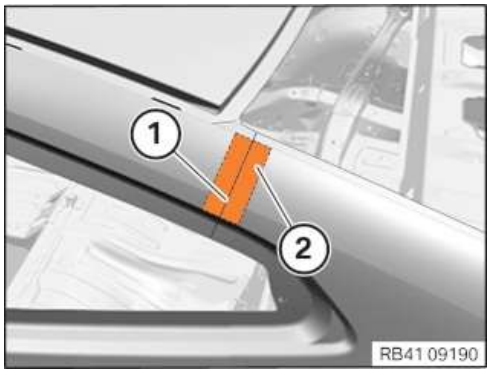
Adhesive technology in the area of the outer skin (not for structural adhesion):
The bonding surfaces of the new parts may not sharpened or ground.
For additional information see: 41 00 ... BMW bonding instructions

- Mark and make the separating cuts on the new part in accordance with the separating cuts on the vehicle.

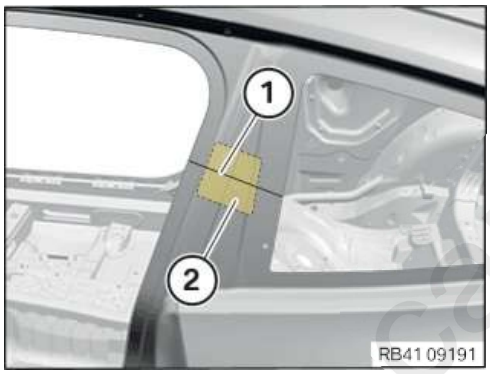
TECHNICAL INFORMATION

For additional information see: 41 00 ... Reinforcement plate with stud bolt (bonded or welded)

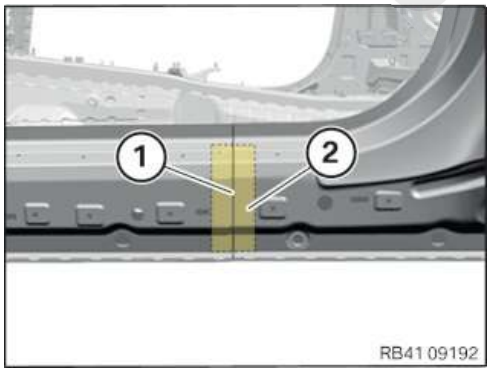
- Prepare the reinforcement plates at the separating cuts for the welded connection and the bonded connection.



- At the separating cut (1) of the C-pillar, adjust the reinforcement plate (2) together with the new part.
- Prepare the separating cut (1) and the reinforcement plate (2) for joining by welding.

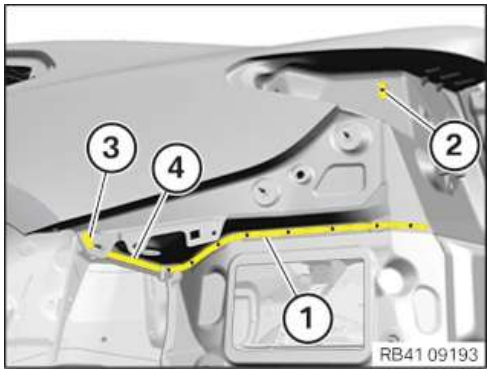


- Prepare the separating cut (1) and the reinforcement plate (2) for joining by adhesive technology.



- Prepare the separating cut (1) and the reinforcement plate (2) for joining by adhesive technology.

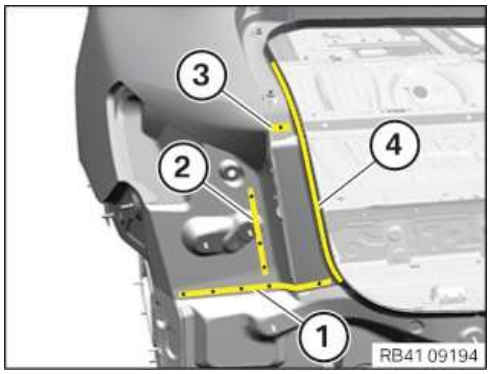
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- In the areas (1) and (2): Drill bore holes with ⌀ 4.2 mm for blind rivets.

Area	Number of bore holes
1	8
2	1

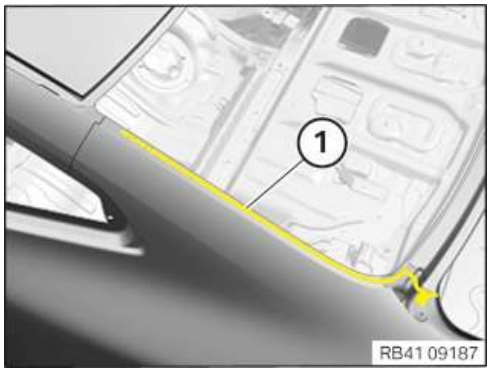
- In areas (3) and (4), prepare for joining using bonded rivet method (punch rivets).



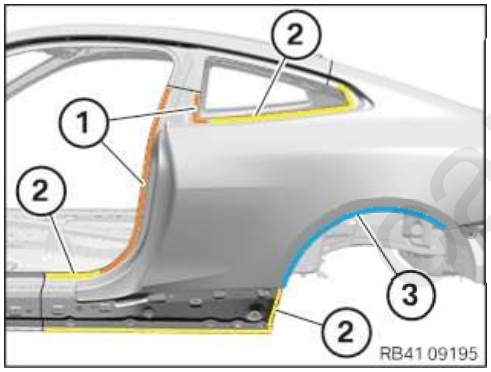
- In the areas (1) to (3): Drill bore holes with ⌀ 4.2 mm for blind rivets.

Area	Number of bore holes
1	5
2	3
3	1

- Prepare the area (4) for joining by means of bonded rivet method (punch rivets).

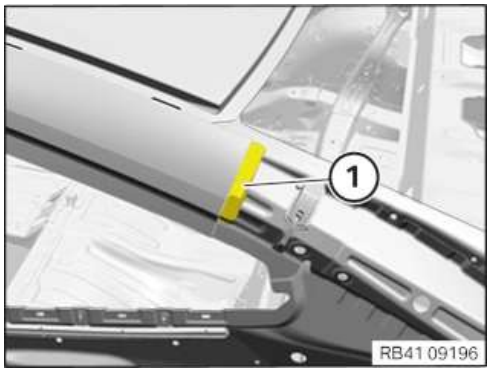


- Prepare the area (1) for joining by means of bonded rivet method (punch rivets).



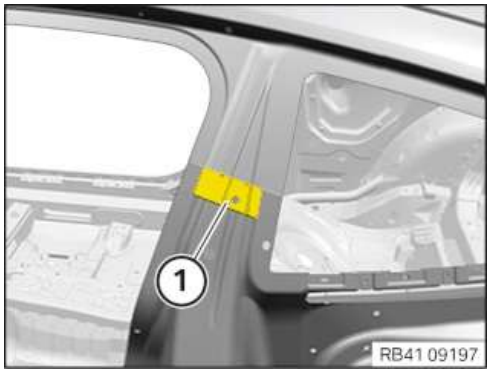
- Prepare areas (1) for joining by welding.
- Prepare the areas (2) for joining by means of bonded rivet method (punch rivets).
- Prepare the area (3) for applying adhesive technology (borders).
- Remove new part and deburr holes.

4 – Installing the rear left side panel



- Install the reinforcement plate (1) and attach by welding.

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- Pre-clean the bonding surfaces of the reinforcement plate (1) and the body.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean the bonding surfaces of the reinforcement plate (1) and the body.

Expendable materials

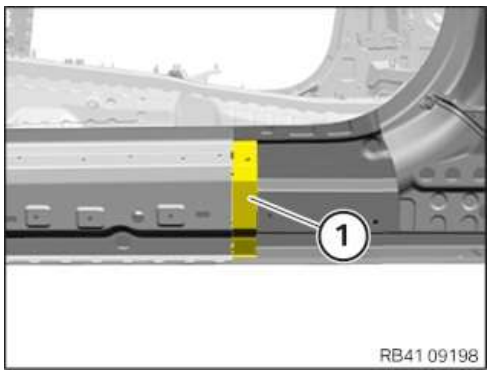
Cleaning agent R1	100 ml, Bottle	83192211217

- Apply adhesive on the reinforcement plate (1).

Adhesive

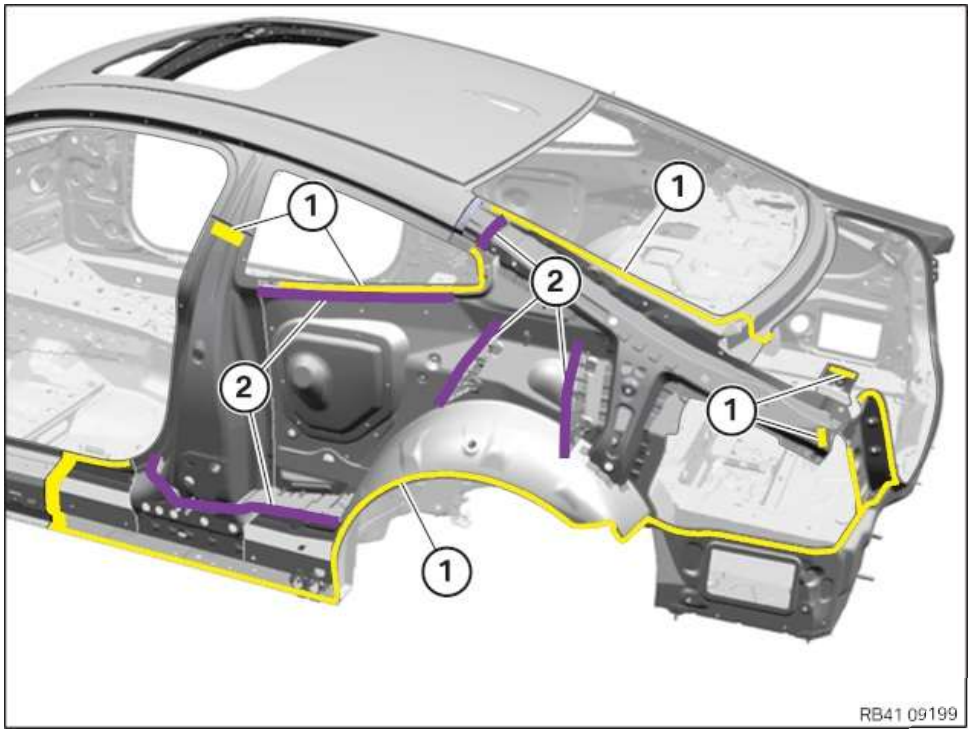
Body adhesive K5	195 ml	83195A59935

- Install the reinforcement plate (1).



- Pre-clean the bonding surfaces of reinforcement plate (1) and the body.
- Clean the bonding surfaces of the reinforcement plate (1) and the body.
- Apply adhesive on the reinforcement plate (1).
- Install the reinforcement plate (1).

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- Pre-clean the bonding surfaces (1) on the vehicle and on the new part.
- Clean the bonding surfaces (1) on the vehicle and on the new part.
- Apply adhesive on the bonding surfaces (1).

TECHNICAL INFORMATION

For more information see: 41 00 ... Installation of cavity sealing (expanded)

- Apply sealant to cavity sealings (2).

Expendable materials

Sealant D2	290 ml	83425A547B

- Install the side panel with the help of a second person.

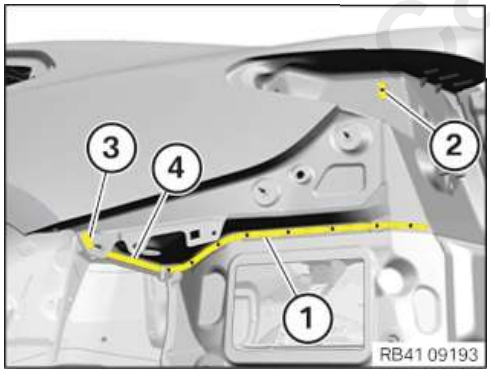
  During installation, ensure that sufficient adhesive has been applied to all bonding surfaces.
- Align the side wall in the areas of the separating cuts and secure it with locking pliers.
- Tighten the nuts of reinforcement plate with plastic nuts.

Expendable materials

Plastic nut	⌀18 mm	5116194312

Expendable materials

Plastic nut	⌀22 mm	0714716984



- Rivet the side panel in the areas (1) and (2) with blind rivets.

Expendable materials

Blind rivet N3 Dia. 4 mm; clamping area 1-3 mm		83190301421

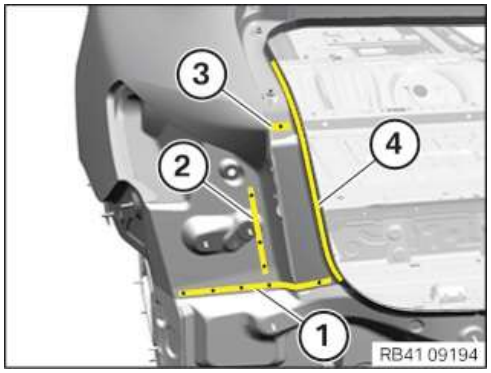
- Rivet the side panel in the areas (3) and (4) with punch rivets.

Area	Description	Number
3	N4	1
4	N4	2

Expendable materials

Punch rivet N4 Ø 3 mm ; 4 mm long		83192457307

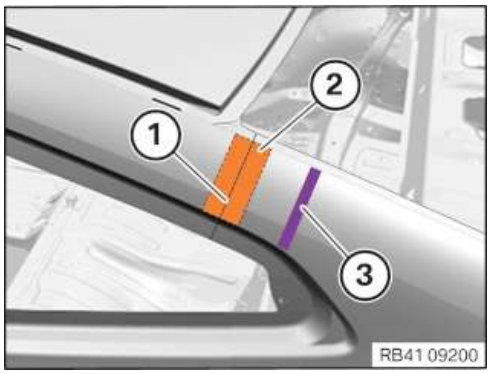
cardiagn.com



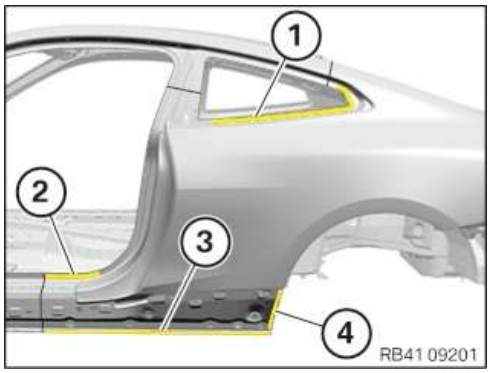
- Rivet side panel in the areas (1) to (3) with blind rivets N3.
- In the area (4), rivet the side panel with 8 x punch rivets.

Expendable materials

Punch rivet N5 Ø 5 mm ; 5 mm long		83192158079

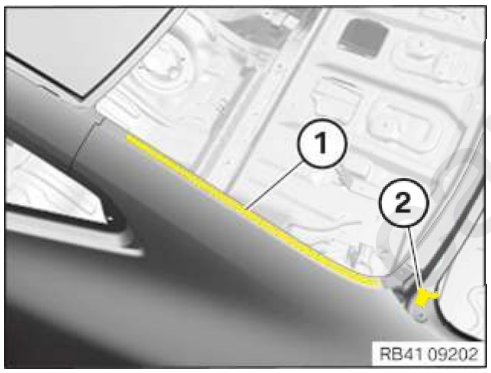


- Make a separating cut (1) and attach the reinforcement plate (2) by welding. Avoid very high heat input on to the adjoining cavity sealing (3).



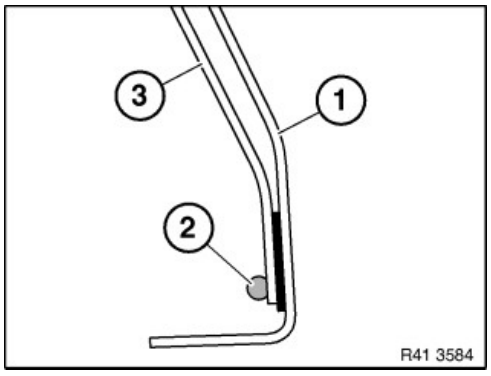
- Rivet the side panel in the areas (1) to (4) with punch rivets .

Area	Description	Number
1	N4	7
2	N5	3
3	N5	10
4	N4	3



- Rivet the side panel in the areas (1) and (2) with the punch rivets.

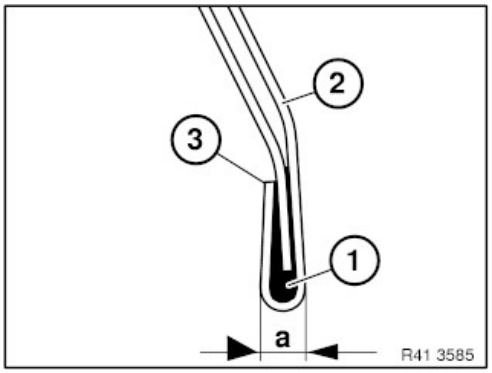
Area	Description	Number
1	N4	7
2	N4	3



- Also apply adhesive (2) to the outer wheel arch section (3).

  (1) = side panel wheel arch

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- Flange the edge of wheel arch (3) of the side panel flush to the outer wheel arch section.
- Do not create sharp edges when flanging because the flange edge may otherwise begin to tear.
- Fill flange edge fully with adhesive.

  Dimension (a) = 5 mm

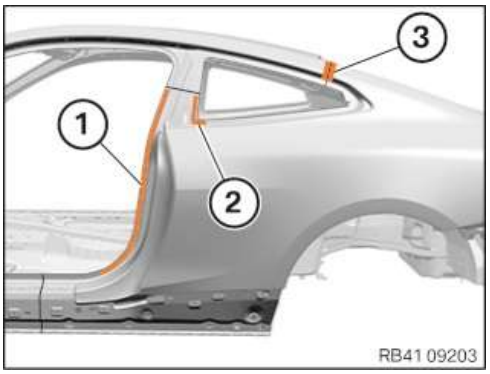
  (1) = adhesive

  (2) = rear side panel
- Seal the new part with sealant in a manner similar to the standard production.

  In area (3), seal with sealant according to the standard.

Expendable materials

Sealant D2	290 ml	83425A547B9



- Weld the welding ranges (1) to (3).

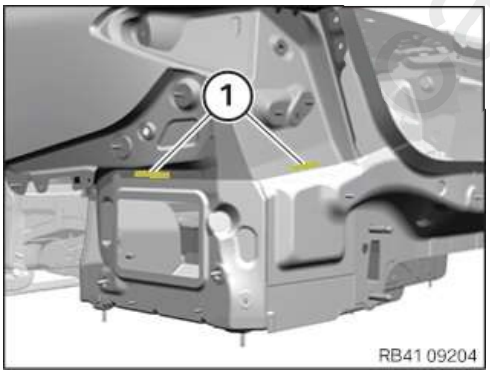
  Avoid excessive heat input at the adjacent adhesive areas.

▸ **Installing the EMC screw**

- Drill a hole with a diameter of 4.2 mm after the adhesive has hardened completely .
- Screw in the EMC screw.
- Seal the EMC screw with sealant.

Expendable materials

Sealant D2	290 ml	83425A547B9



- After the adhesive has hardened, install 2 EMC screws in the areas (1).

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639

Additional Information

Links

Repair instructions (PRE)	Used in step
EMC screws, general information	4

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1

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41 00 ... Opening bonded connections	2
41 05 800 Releasing bonded folded seam connections	2
41 00 ... BMW/MINI bonding instructions	3
41 00 ... Repair techniques, repair stage 2	

Repair instructions	**Used in step**
41 00 ... Separating cut determination with a template	2
41 00 ... Reinforcement plate with stud bolt (bonded or welded)	3
41 00 ... Installing cavity sealing (expanded)	4

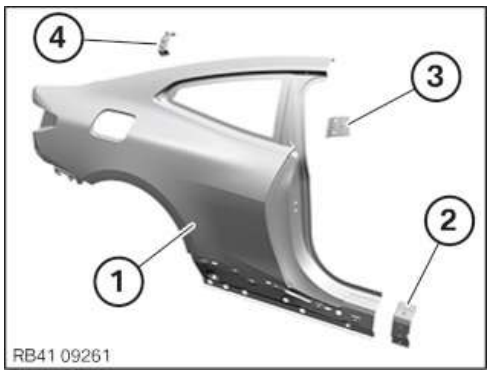
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41 35 111 Replacing rear right side panel

TECHNICAL INFORMATION

- Observe the procedure for repair stage 2.
For additional information see: 41 00 ... Repair method for repair stage 2
- For stripping and rebuilding operations, refer to the surrounding text in the AIR. See the flat rate unit number.

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Rear side wall(1)

  Reinforcement plate, side sill(2)

  Reinforcement, B-pillar(3)

  Reinforcement plate, C-pillar(4)

  Plastic nut

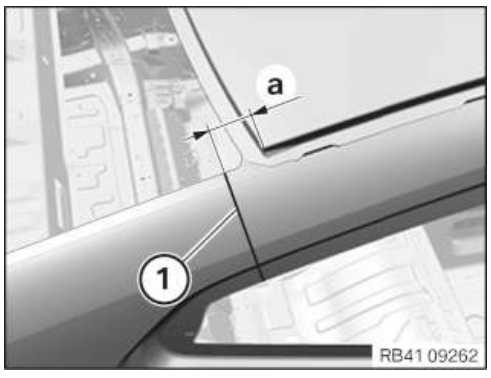
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

Material	Quantity
Adhesive K5 (195 ml)	1
Adhesive K5 (50 ml)	1
Blind rivet N3	20
Punch rivet N4	25
Punch rivet N5	25
EMC screw	3
Cleaner R1	1
Cleaner R2	1
Cavity sealing wax remover	1
Sealing compound D1	
Sealing compound D2	

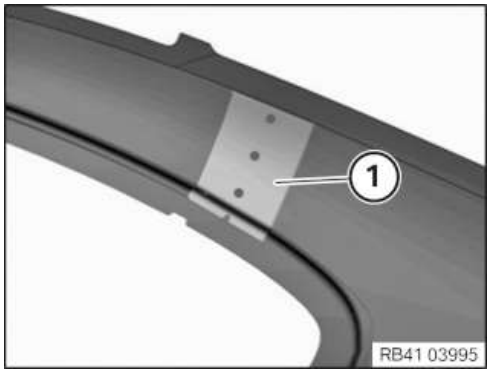
2 – Remove the right rear side panel



- Mark the separating cut (1) on the C-pillar as per the dimension and disconnect it. Disconnect only the outer panel.

  Dimension (a) = 55 mm (from the corner of the roof outer skin)
- Compare position of separating cut with reinforcement plate.

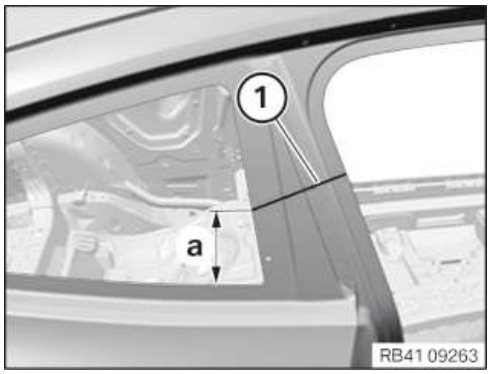
carmanuals.com



TECHNICAL INFORMATION

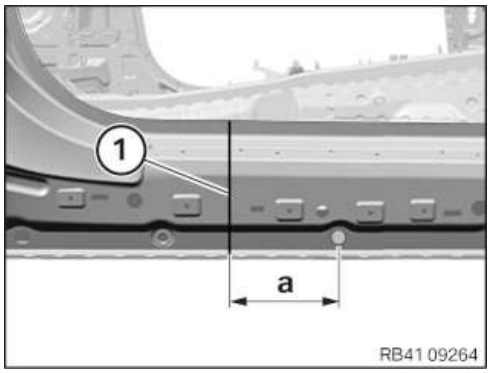
For more information see: 41 00 ... Determination of separating cut using a template

- Determine position of the separating cut in addition to the dimensions with the aid of a template (1).



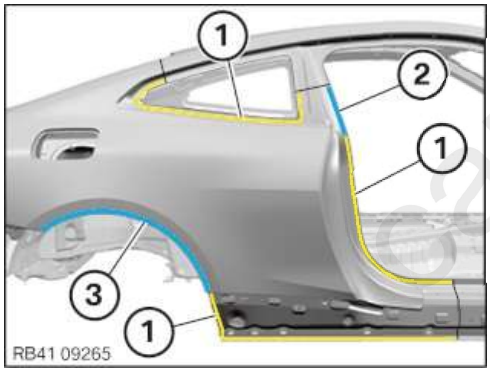
- Mark the separating cut (1) on the B-pillar as per the dimension and disconnect it. Disconnect only the outer panel.

  Dimension (a) = 100 mm
- Compare position of separating cut with reinforcement plate.



- Mark the separating cut (1) on the side sill according to dimension and disconnect it. Disconnect only the outer panel.

  Dimension (a) = 180 mm from the centre point of the hole with Ø 20 mm.
- Compare position of separating cut with reinforcement plate.



- Release welded connections in areas (1).

TECHNICAL INFORMATION

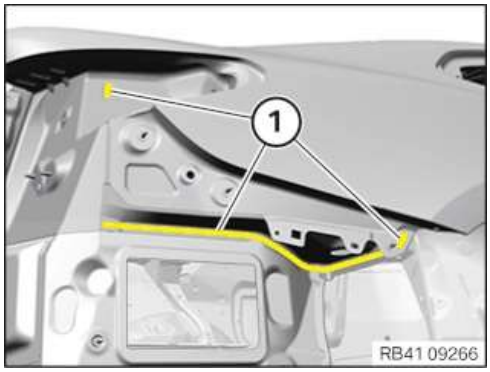
For more information see: 41 00 ... Releasing bonded connections

- Release the spot-welded adhesive joints in area (2).

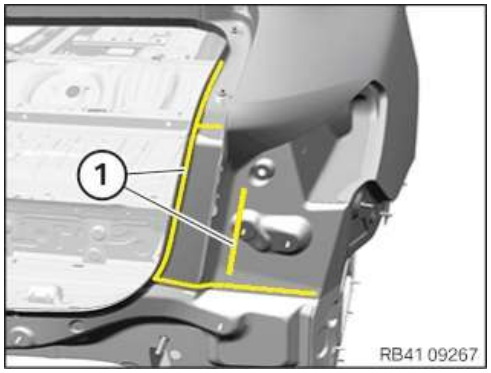
TECHNICAL INFORMATION

For more information see: 41 00 ... Releasing bonded folded joints

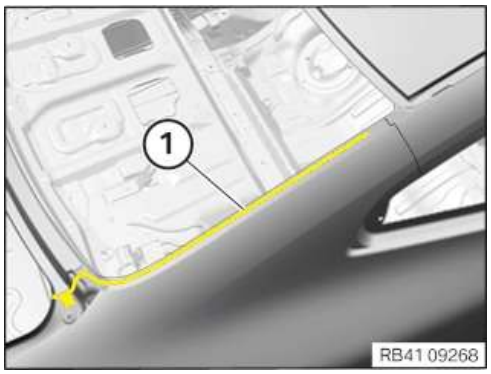
- Release folded bonded joints in area (3).



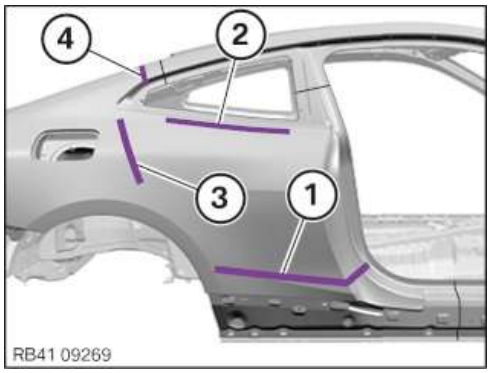
- Release welded connections in areas (1).



- Release welded connections in areas (1).



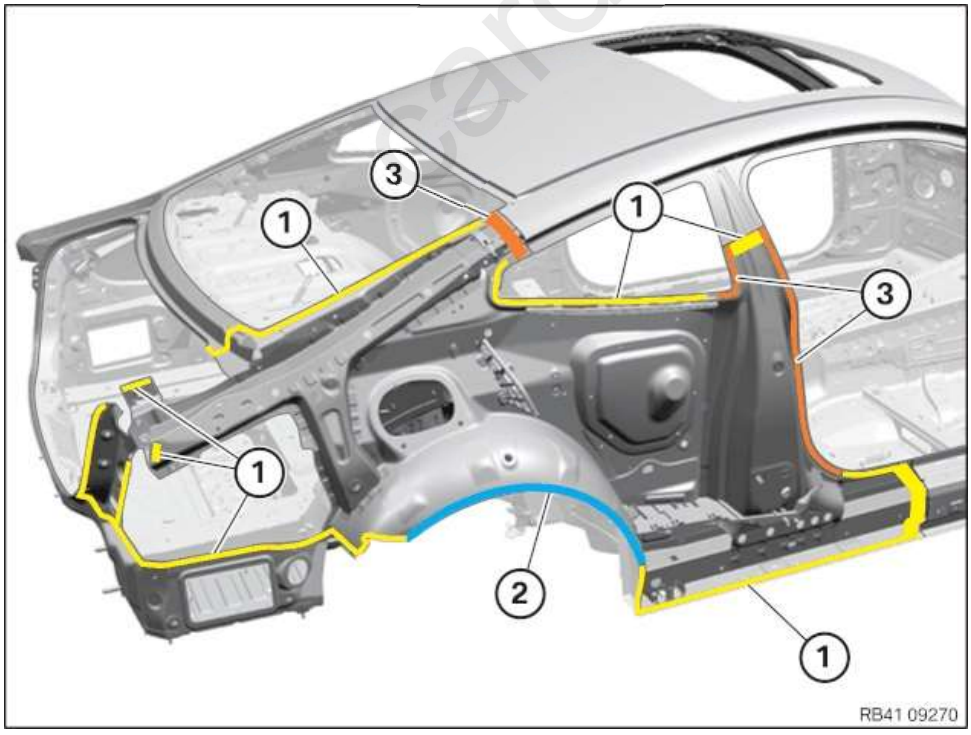
- Open welded connections in area (1).



- Release the side panel from the cavity sealings (1) to (4) and remove it.

3 – Preparing the new part

Joining method



1 Bonded rivet method

2 Adhesive bonding method (border)

3 Welding method

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TECHNICAL INFORMATION

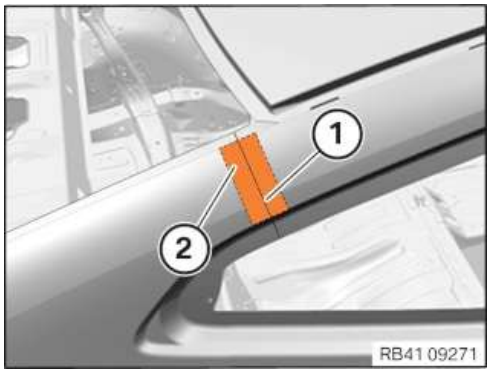
Adhesive technology in the area of the outer skin (not for structural adhesion):
The bonding surfaces of the new parts may not sharpened or ground.
For additional information see: 41 00 ... BMW bonding instructions

- Mark and make the separating cuts on the new part in accordance with the separating cuts on the vehicle.

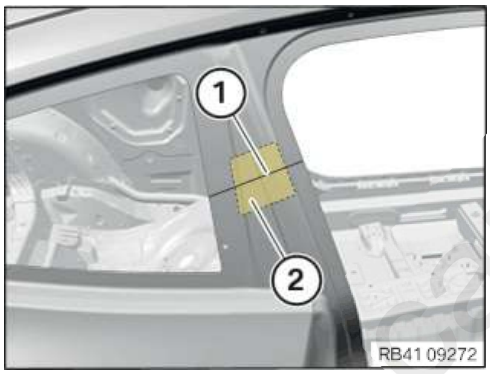
TECHNICAL INFORMATION

For additional information see: 41 00 ... Reinforcement plate with stud bolt (bonded or welded)

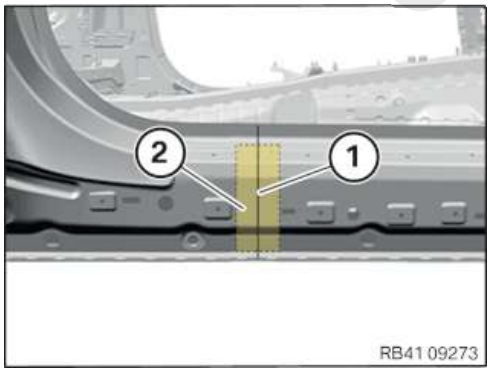
- Prepare the reinforcement plates at the separating cuts for the welded connection and the bonded connection.



- At the separating cut (1) of the C-pillar, adjust the reinforcement plate (2) together with the new part.
- Prepare the separating cut (1) and the reinforcement plate (2) for joining by welding.

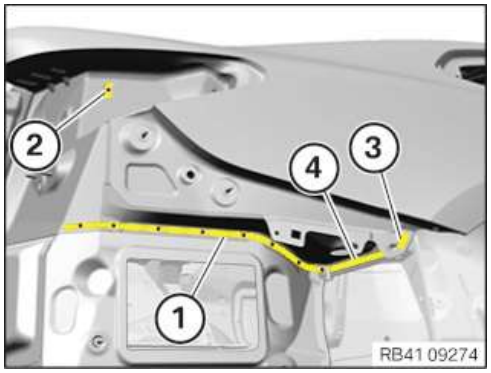


- Prepare the separating cut (1) and the reinforcement plate (2) for joining by adhesive technology.



- Prepare the separating cut (1) and the reinforcement plate (2) for joining by adhesive technology.

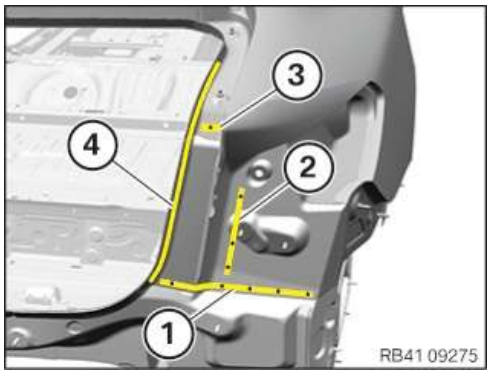
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- In the areas (1) and (2): Drill bore holes with ⌀ 4.2 mm for blind rivets.

Area	Number of bore holes
1	8
2	1

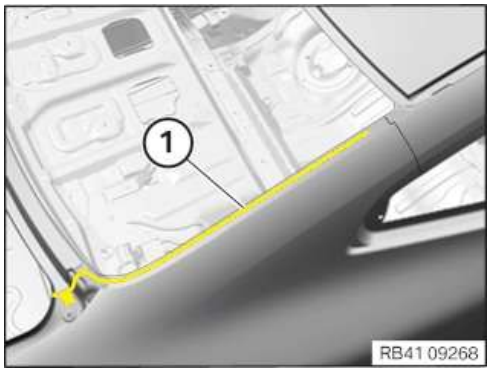
- In areas (3) and (4), prepare for joining using bonded rivet method (punch rivets).



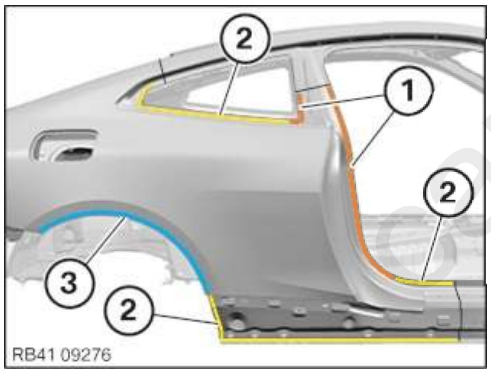
- In the areas (1) to (3): Drill bore holes with ⌀ 4.2 mm for blind rivets.

Area	Number of bore holes
1	5
2	3
3	1

- In area (4) prepare for joining using the bonded rivet method (punch rivets).

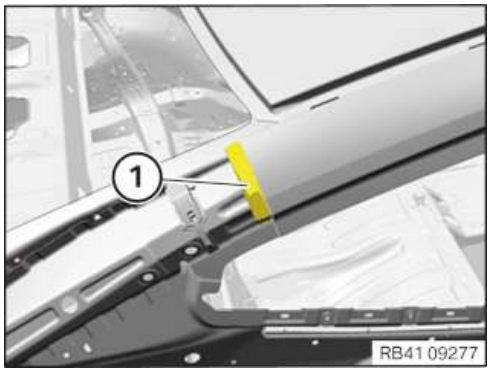


- Prepare the area (1) for joining by means of bonded rivet method (punch rivets).



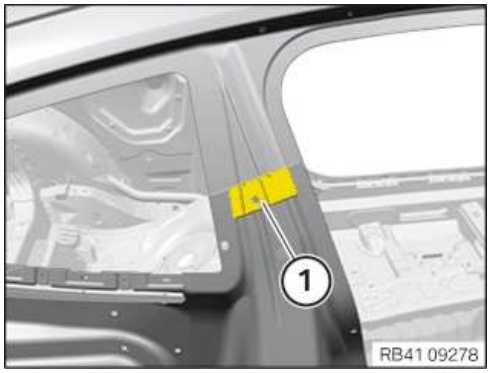
- Prepare areas (1) for joining by welding.
- Prepare the areas (2) for joining by means of bonded rivet method (punch rivets).
- Prepare the area (3) for applying adhesive technology (borders).
- Remove new part and deburr holes.

4 – Install the rear side panel on the right



- Install the reinforcement plate (1) and attach by welding.

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- Pre-clean the bonding surfaces of the reinforcement plate (1) and the body.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean the bonding surfaces on the reinforcement plate (1) and the body.

Expendable materials

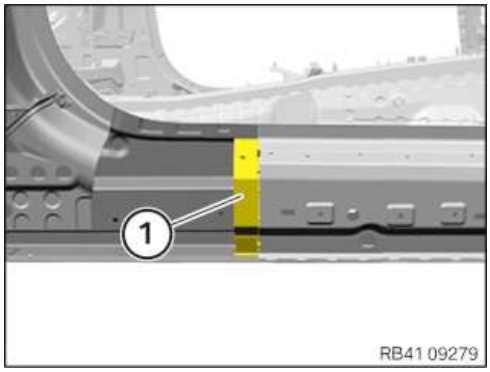
Cleaning agent R1	100 ml, Bottle	83192211217

- Apply adhesive on the reinforcement plate (1).

Adhesive

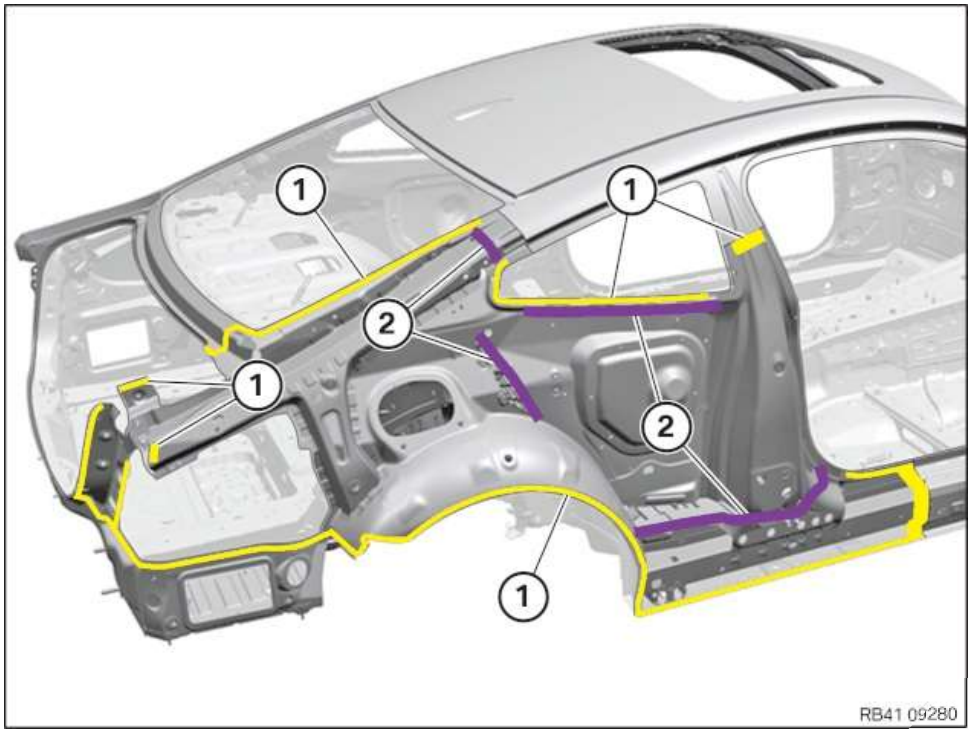
Body adhesive K5	195 ml	83195A59935

- Install the reinforcement plate (1).



- Pre-clean the bonding surfaces of the reinforcement plate (1) and the body using R2 solvent cleaner.
- Clean the bonding surfaces of the reinforcement plate (1) and the body with solvent cleaner R1.
- Apply adhesive on the reinforcement plate (1).
- Install the reinforcement plate (1).

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- Clean bonding surfaces (1) on vehicle and on new part with solvent cleaner R2.
- Clean bonding surfaces (1) on vehicle and on the new part with cleaning agent R1.
- Apply adhesive on the bonding surfaces (1).

TECHNICAL INFORMATION

For more information see: 41 00 ... Installation of cavity sealing (expanded)

- Apply sealant to cavity sealings (2).

Expendable materials

Sealant D2	290 ml	83425A547B

- Install the side panel with the help of a second person.

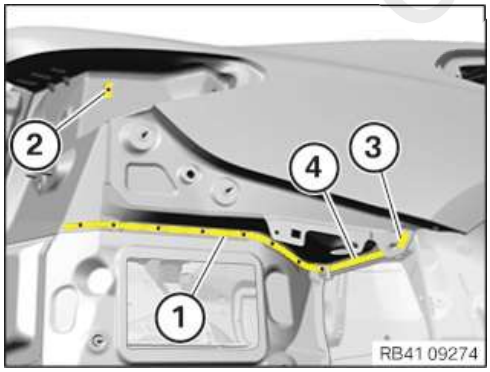
  During installation, ensure that sufficient adhesive has been applied to all bonding surfaces.
- Align the side wall in the areas of the separating cuts and secure it with locking pliers.
- Tighten the nuts of reinforcement plate with plastic nuts.

Expendable materials

Plastic nut	⌀18 mm	5116194312

Expendable materials

Plastic nut	⌀22 mm	0714716984



- Rivet the side panel in the areas (1) and (2) with blind rivets.

Expendable materials

Blind rivet N3 Dia. 4 mm; clamping area 1-3 mm		83190301421

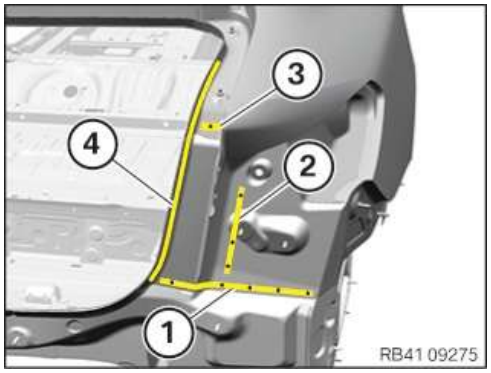
- Rivet the side panel in the areas (3) and (4) with punch rivets.

Area	Description	Number
3	N4	1
4	N4	2

Expendable materials

Punch rivet N4 Ø 3 mm ; 4 mm long		83192457307

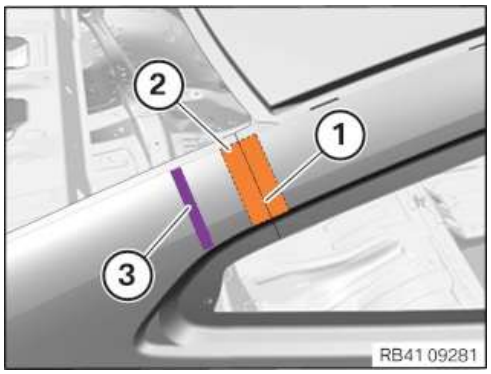
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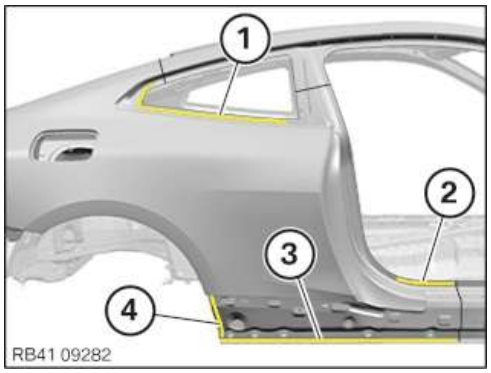
- Rivet side panel in the areas (1) to (3) with blind rivets N3.
- In the area (4), rivet the side panel with 8 x punch rivets.

Expendable materials

Punch rivet N5 Ø 5 mm ; 5 mm long		83192158079

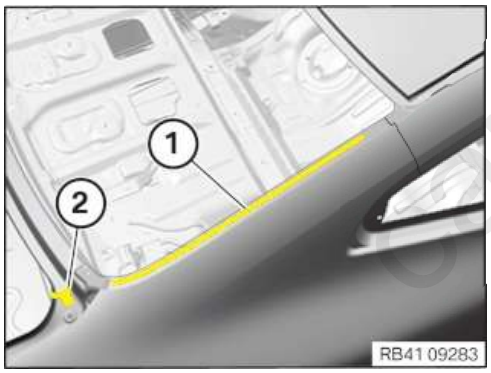


- Make a separating cut (1) and attach the reinforcement plate (2) by welding. Avoid very high heat input on to the adjoining cavity sealing (3).



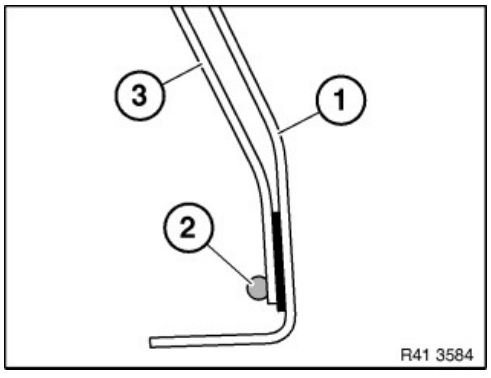
- Rivet the side panel in the areas (1) to (4) with punch rivets.

Area	Description	Number
1	N4	7
2	N5	3
3	N5	10
4	N4	3



- Rivet the side panel in the areas (1) and (2) with punch rivets.

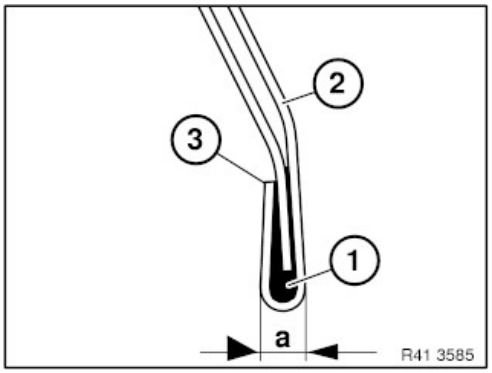
Area	Description	Number
1	N4	7
2	N4	3



- Also apply adhesive (2) to outer wheel arch section (3).

  (1) = side panel wheel arch

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- Flange the edge of wheel arch (3) of the side panel flush to the outer wheel arch section.
- Do not create sharp edges when flanging because the flange edge may otherwise begin to tear.
- Fill flange edge fully with adhesive.

  Dimension (a) = 5 mm

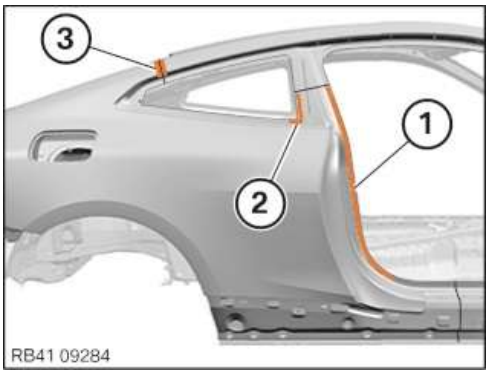
  (1) = adhesive

  (2) = rear side panel
- Seal the new part with sealant in a manner similar to the standard production.

  Seal the area (3) with sealant according to the standard.

Expendable materials

Sealant D2	290 ml	83425A547B9



- Weld the welding ranges (1) to (3).

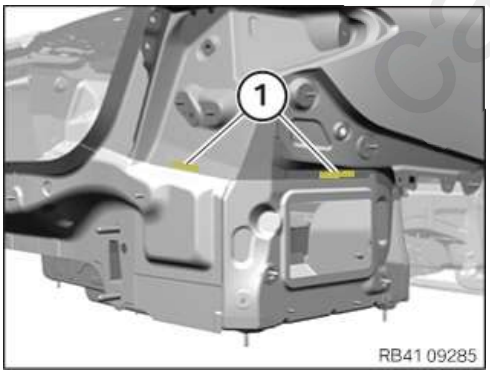
  Avoid excessive heat input at the adjacent adhesive areas.

▸ **Installing the EMC screw**

- Drill a hole with a diameter of 4.2 mm after the adhesive has hardened completely .
- Screw in the EMC screw.
- Seal the EMC screw with sealant.

Expendable materials

Sealant D2	290 ml	83425A547B9



- After the adhesive has hardened, install 2 EMC screws in the areas (1).

Expendable materials

Screw EMC screw, SF Plus, M5x15		83190301639

Additional Information

Links

Repair instructions (PRE)	Used in step
EMC screws, general information	4

General repair instructions	Used in step
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1

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41 00 ... Opening bonded connections	2
41 05 800 Releasing bonded folded seam connections	2
41 00 ... BMW/MINI bonding instructions	3
41 00 ... Repair techniques, repair stage 2	

Repair instructions	**Used in step**
41 00 ... Separating cut determination with a template	2
41 00 ... Reinforcement plate with stud bolt (bonded or welded)	3
41 00 ... Installing cavity sealing (expanded)	4

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41 51 004 Adjusting front left or right door

1 – Adjust front door

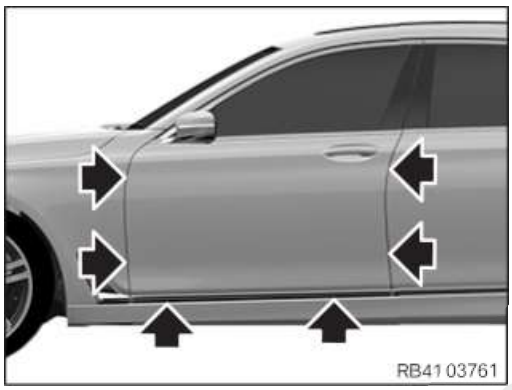
TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body



- Open the front door.
- Slacken screws (1) until the front door can be moved.
- Adjust front door at height (Z).
- Adjust front door at width (Y).

Check



- Check gap dimension between front door and the adjacent body components.

Result

» Gap dimensions do not correspond to the specifications.

Measure

- Adjust the front door.



- Tighten the screws (1).

Front door to door hinge

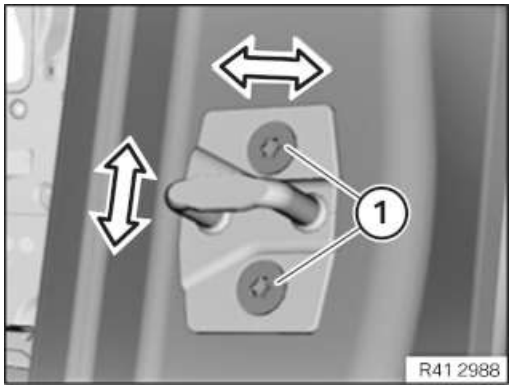
Screw		Tightening torque	19 Nm

▸ **Adjust lock striker**

Prerequisite

The screws on lock striker are loosened so far that the lock striker can still be moved.

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TECHNICAL INFORMATION

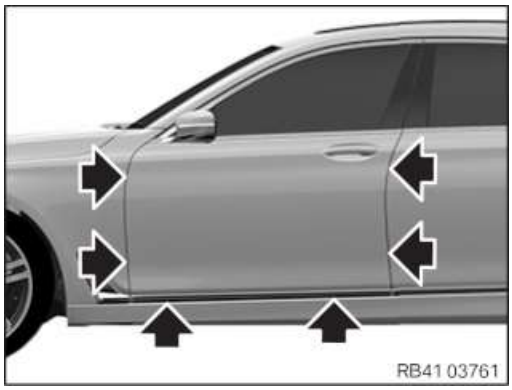
The gap dimensions form the basis for these repair instructions and must be observed without fail.

For more information see: 41 00 ... Gap dimensions for body

- Adjust the lock striker's height such that the door lock does not bump or rub against anything.
- Move lock striker sideways in order to adjust the gap dimensions between door and rear side panel.
- Tighten the screws (1).

Lock striker

Screw		Tightening torque	21 Nm



Check

- Check gap dimension between front door and the adjacent body components.

Result

» Gap dimensions do not correspond to the specifications.

Measure

- Adjust the front door.

Additional Information

Overview of Tightening Torques

Front door to door hinge — Used in step 1

Screw		Tightening torque	19 Nm

Lock striker — Used in step 1

Screw		Tightening torque	21 Nm

Links

Repair instructions (PRE)	Used in step
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1

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Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1

Repair instructions	**Used in step**
41 00 ... Gap dimensions, body	1

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41 51 ... Notes on replacing the door



Important!

For production reasons the side impact beam is only screwed loosely.

Tighten screws of side impact beam.



Remount all components on the new door.

If necessary, replace damaged components.

The procedure is described in the repair instructions of the components.

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41 51 080 Removing and installing left or right front door

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

NOTICE

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

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

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

RISK OF DAMAGE

Damage to 48-V battery

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

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

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TECHNICAL INFORMATION

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



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

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

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

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

desired state

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

Result

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

Measure

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

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

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

Result

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

Measure

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

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

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



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



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads

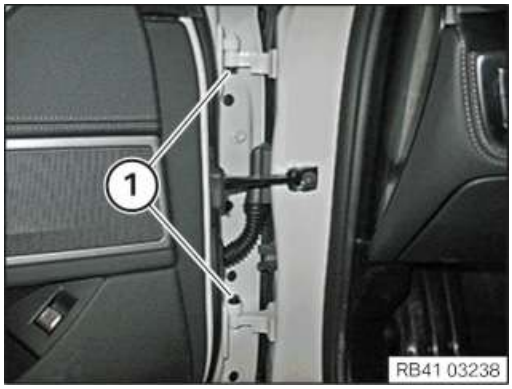


- See additional information.

MAIN WORK

3 – Removing the front door

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- Open door.
- Loosen screws (1) between both hinge elements at top and bottom.



- Pull up the lock (1) and disconnect the plug connection.

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

- Secure door against closing.
- Loosen screw (2) at door stop.
- Detach door in upward direction and set down on a suitable surface.

4 – Installing the front door



RISK OF DAMAGE

Mechanical effects.

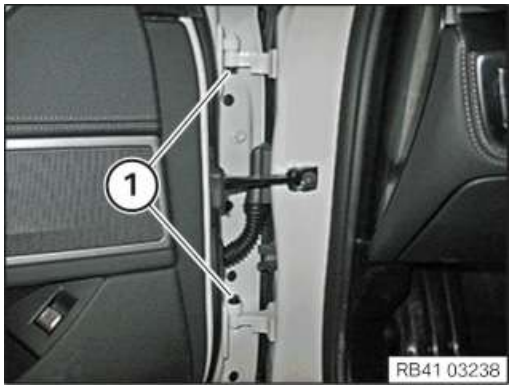
Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

- Attach door from above.
- Secure door against closing.
- Connect connector and press lock (1) down.
- Tighten screw (2) at door stop.

Door stop to pillar

Screw		Tightening torque	28 Nm



- Tighten screws (1) between both hinge elements at top and bottom.

Screw connection, hinge parts

Screw		Tightening torque	27 Nm

POSTPROCESSES

5 – Connecting all battery earth leads



- See additional information.

6 – Activating the 48 V electrical system

Prerequisite

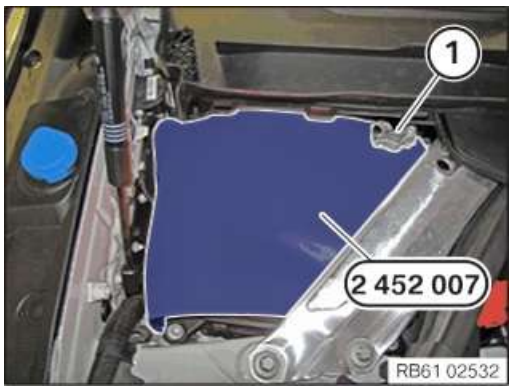
Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

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

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



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

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

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



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



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

  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

Door stop to pillar — Used in step 4

Screw		Tightening torque	28 Nm

Screw connection, hinge parts — Used in step 4

Screw		Tightening torque	27 Nm

Negative battery cable to 48-V battery — Used in step 6

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	16

Repair instructions	Used in step

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

61 20 900 Disconnecting and connecting battery earth lead	25
61 20 900 Disconnecting and connecting battery earth lead	25
61 20 900 Disconnecting and connecting battery earth lead	25

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This documentation refers to special tools that were not yet available when going to press.

41 51 101 Replace front left or right door

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

NOTICE

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

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

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

RISK OF DAMAGE

Damage to 48-V battery

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

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

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TECHNICAL INFORMATION

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



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

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

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

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

desired state

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

Result

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

Measure

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

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

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

Result

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

Measure

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

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

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



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



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove front door trim panel

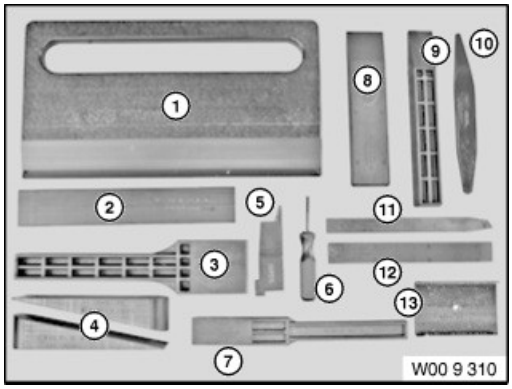
RISK OF DAMAGE

Damage of high-quality surfaces.

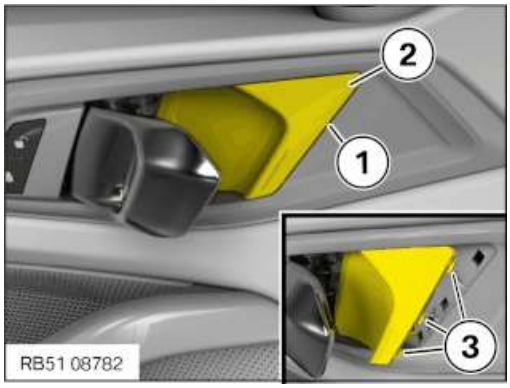
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

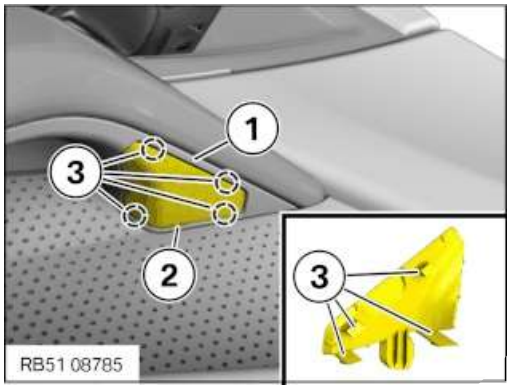
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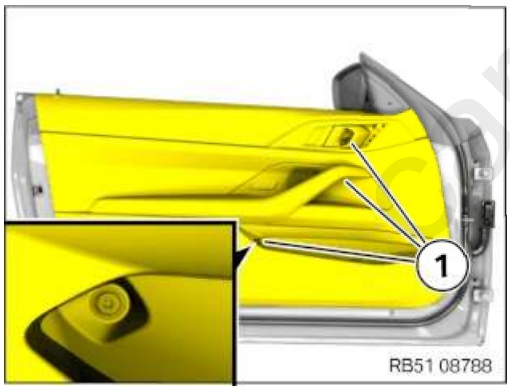
- Have the set of special tools 0 493 752 (00 9 329) ready.



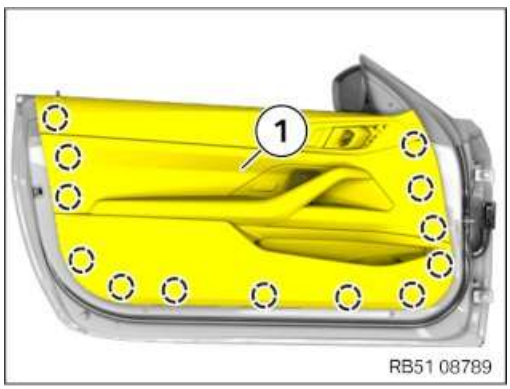
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



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

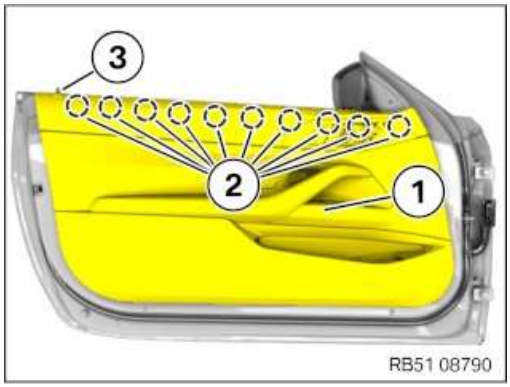


- Loosen screws (1).

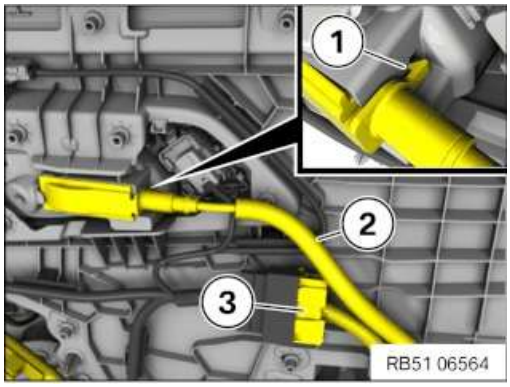


- Unclip the door trim panel (1) with the suitable special tool at the marked places.

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



NOTICE

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

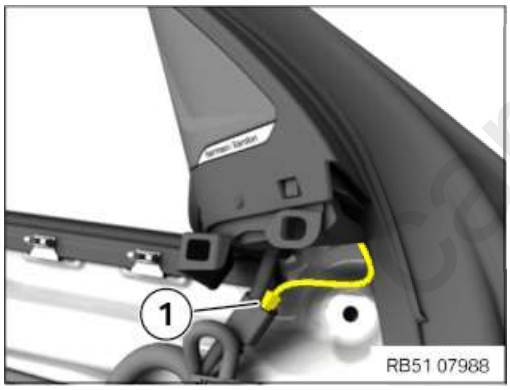
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

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

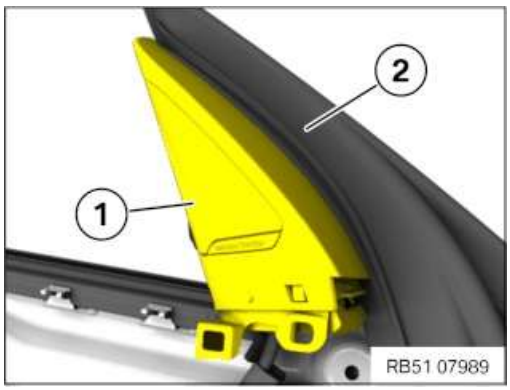
4 – Removing mirror triangle

NOTICE

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



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

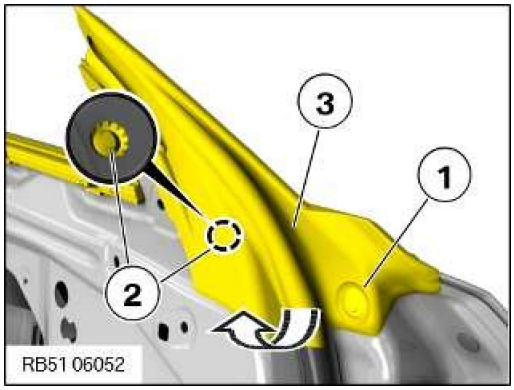


- Feed out the mirror triangle (1) from the inner window recess finisher strip (2) .

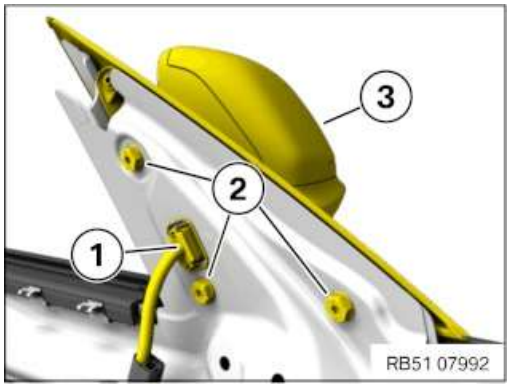
5 – Remove exterior mirror

NOTICE

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



- Unclip clip (1) with suitable tool.
- Unclip clip (2).
- Partially release the inner window recess finisher strip at the front (3) in the direction of arrow.



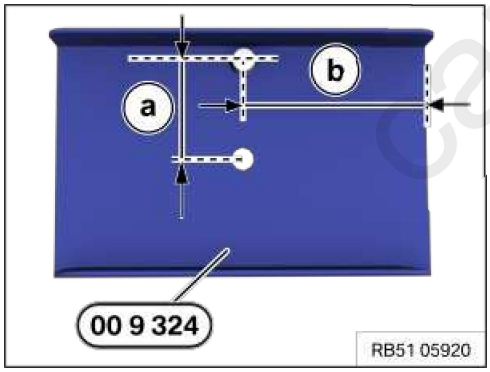
- Unlock plug connection (1) and disconnect.
- Release screws (2) and remove the exterior mirror of the front door (3) .

6 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.

▸ **Preparing the special tool**



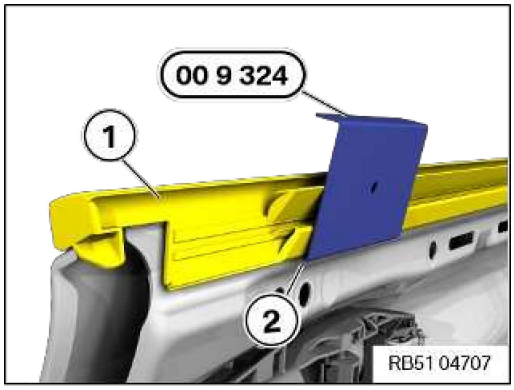
- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

  Dimension (b) = 50 mm from the outer edge of the special tool

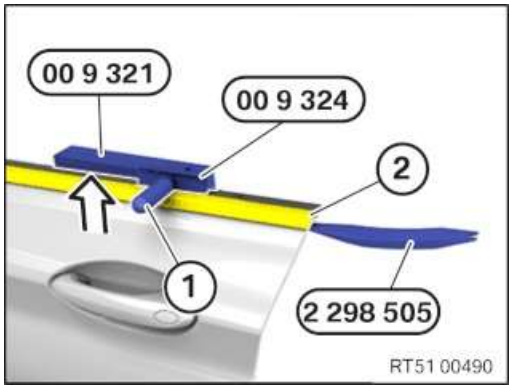


NOTICE

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

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

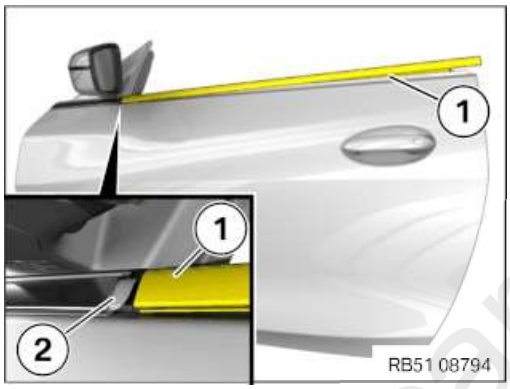
- Protect working area.
- Handle tools and components carefully.

- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.



- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

7 – Remove the weather strip (front) on the front door

RISK OF DAMAGE

Mechanical effects.

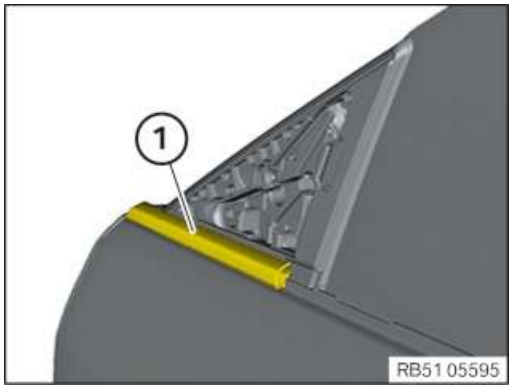
Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

NOTICE

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

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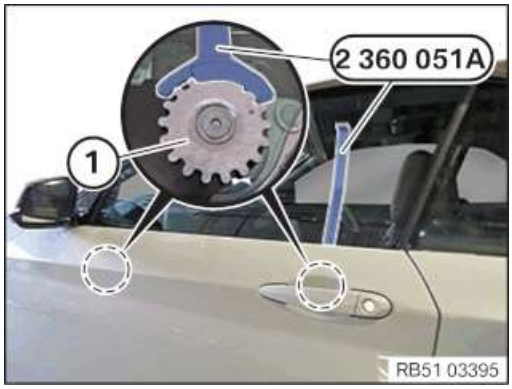


- Carefully release the weather strip (1) from the door with a suitable plastic wedge beginning from the rear to the top.

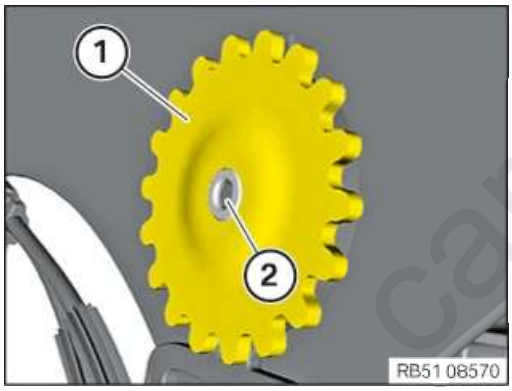
8 – Release door window at front

NOTICE

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

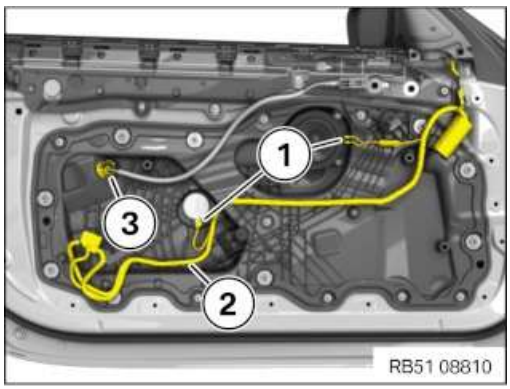


- Undo multi-tooth nuts (1) on side window glass with special tool **A**. (Observe next operation.)



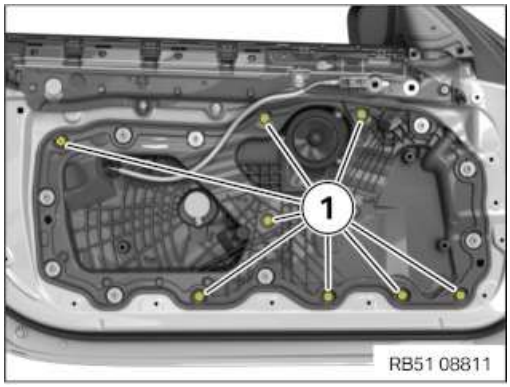
- Only undo the multi-tooth nut (1) to the extent it is flush with the socket (2).
- Lower front door window glass half way.

9 – Removing the module carrier from the front door

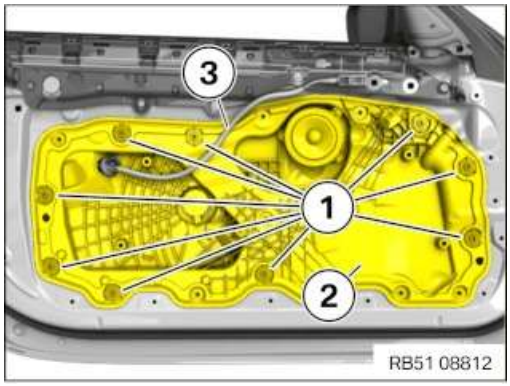


- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .

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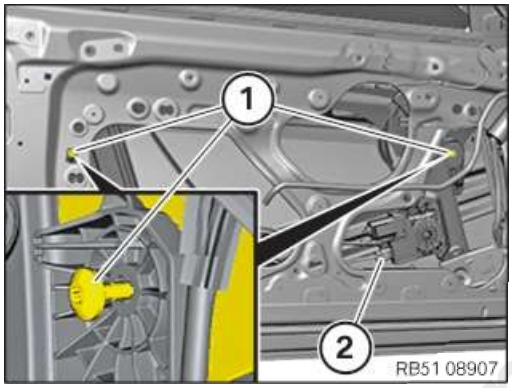
- Loosen screws (1).



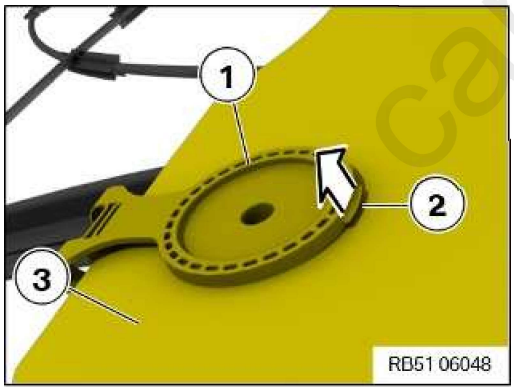
- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

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

10 – Removing front door window glass



- Open the front door window glass so that the screws (1) are accessible.
- Unlock plug connection (2) and disconnect.
- Unscrew the screws (1) so far until the disassembly of the front door window glass is possible.

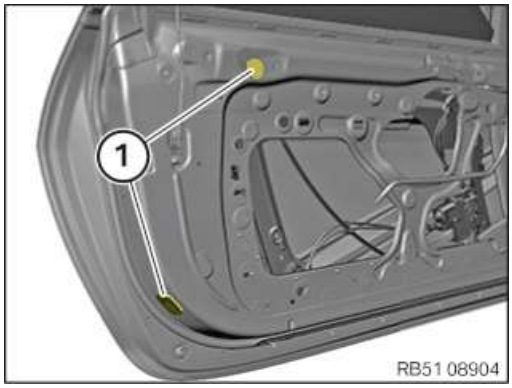


NOTICE

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

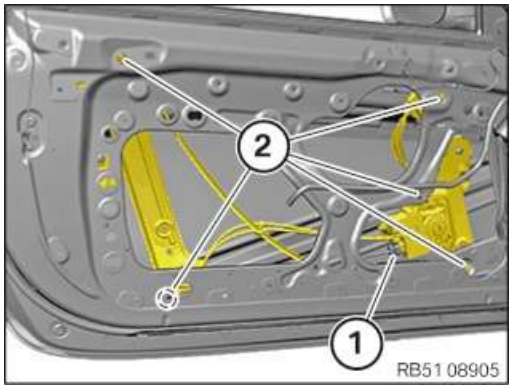
- Lift holder (1) on the tab (2) in the direction of arrow.
- Feed out the front door window glass (3) from the door upwards.

11 – Removing front door power window regulator



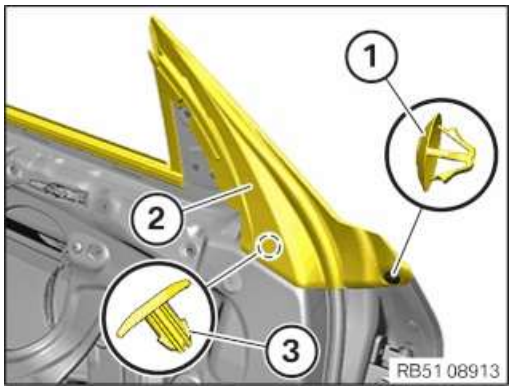
- Remove plug (1).

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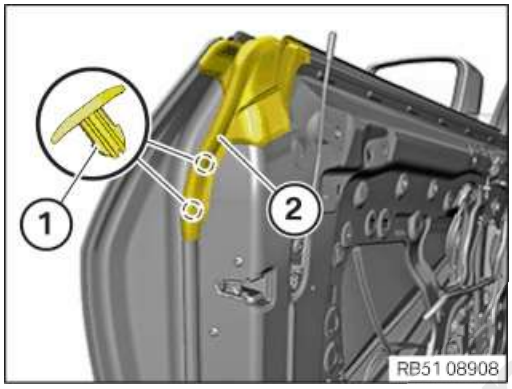


- Unlock plug connection (1) and disconnect.
- Release nuts (2).
- Feed the power window regulator out of the door and remove.

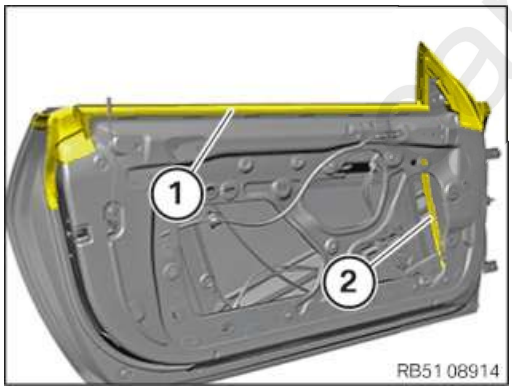
12 – Remove rubber window seal



- Release the clip (1).
- Release the rubber window seal (2) at the clip (3).

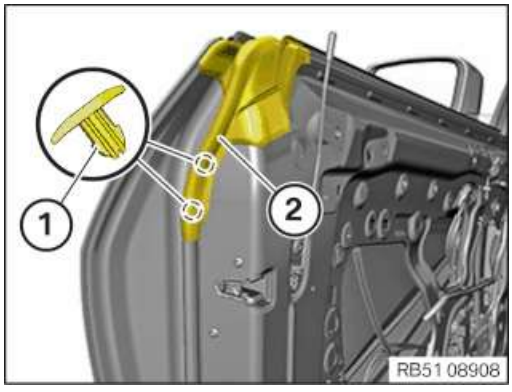


- Release the rubber window seal (2) at the clips (1).

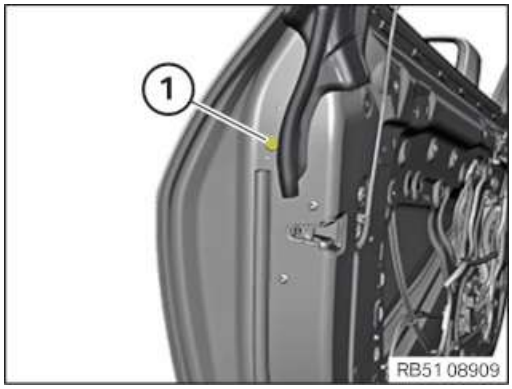


- Feed the rubber window seal (1) out of the window guide rail (2).
- Carefully feed the rubber window seal (1) out of the door upwards and remove.

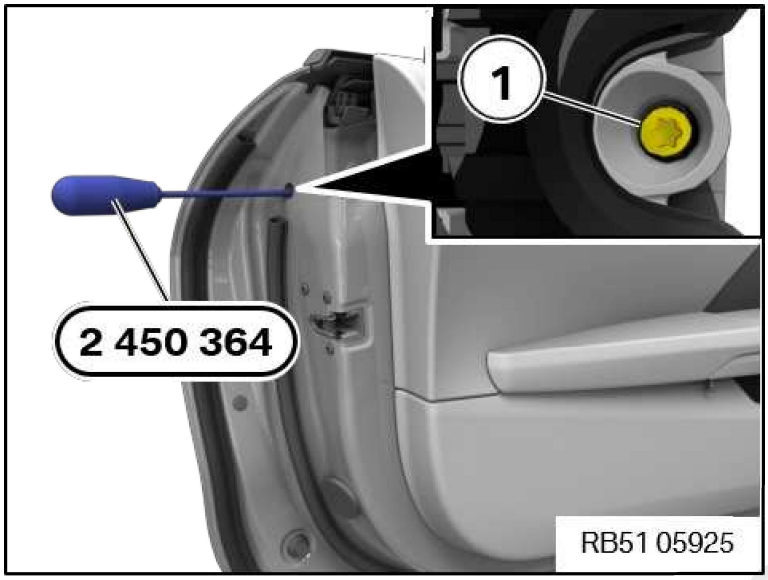
13 – Remove the outside door handle



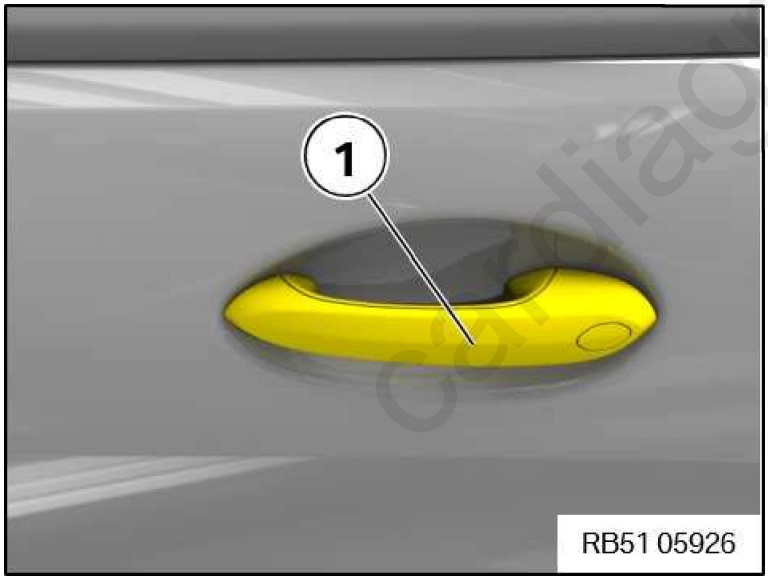
- Release the seal (2) at the clips (1) and move is slightly to the side.



- Remove the seal plug (1).

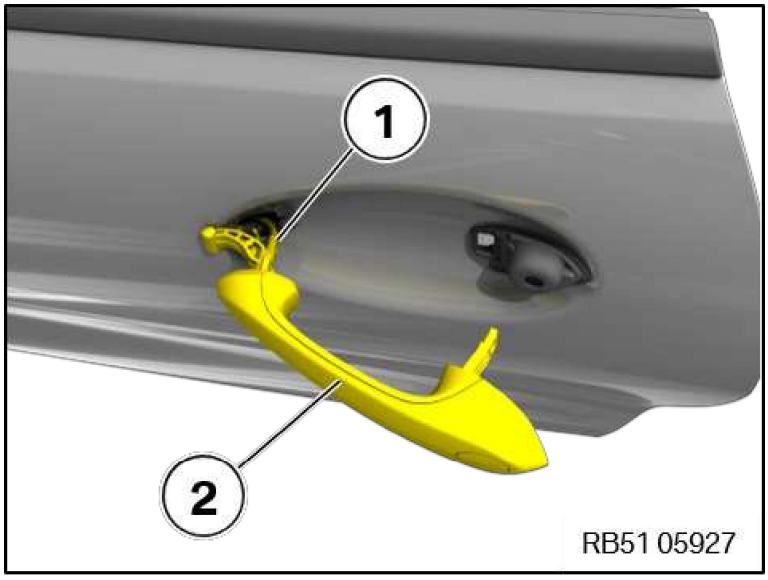


- Release the clamping bolt (1) from the outside door handle support with the special tool 2 450 364.



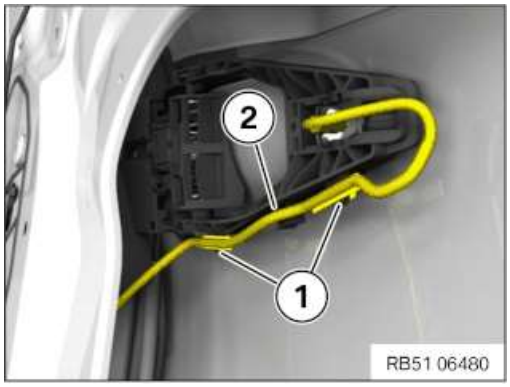
- Pull the rear outside door handle (1) to the outside and remove it in the process.
- Pivot the outside door handle (1) further towards the outside and in this process, remove it at the front.

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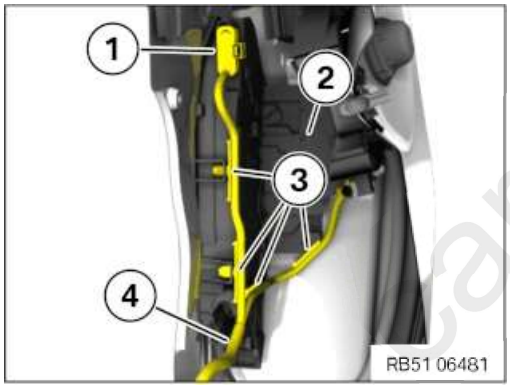


- Unlock and disconnect plug connections (1).
- Remove the outside door handle (2).

14 – Removing the outside door handle support



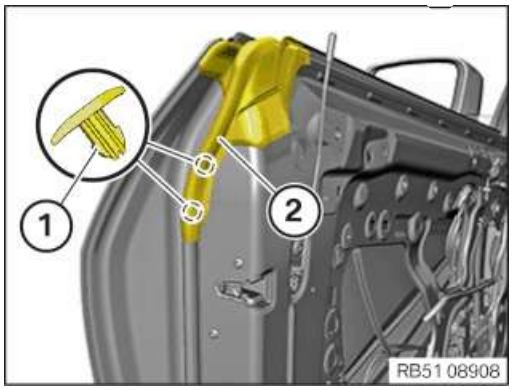
- Unclip clips (1) and place wiring harness (2) aside.



NOTICE

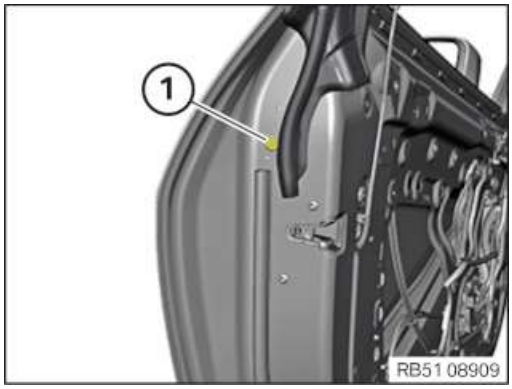
To provide a better overview: Schematic diagram with partially hidden components.

- Unlock and disconnect the plug connection (1)on the door lock (2).
- Unclip clips (3).
- Remove the wiring harness (4) and put to one side.

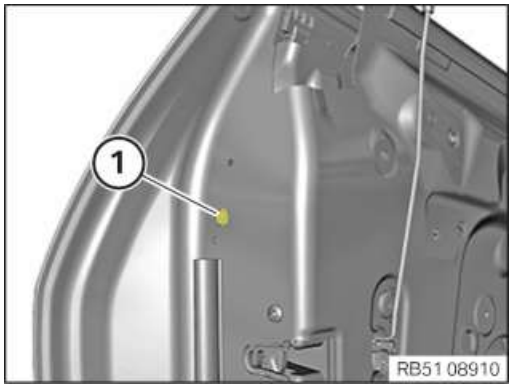


- Release the seal (2) at the clips (1) and move is slightly to the side.

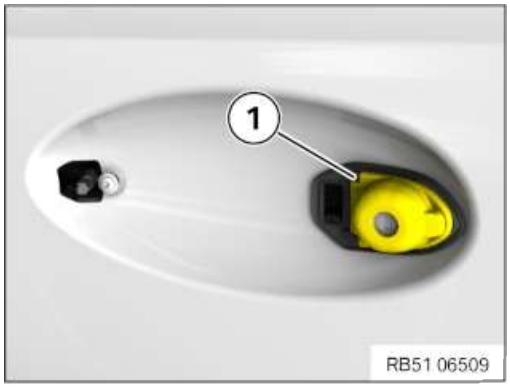
carmagn.com



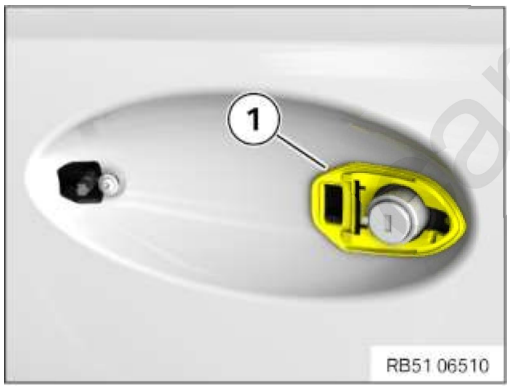
- Remove the seal plug (1).



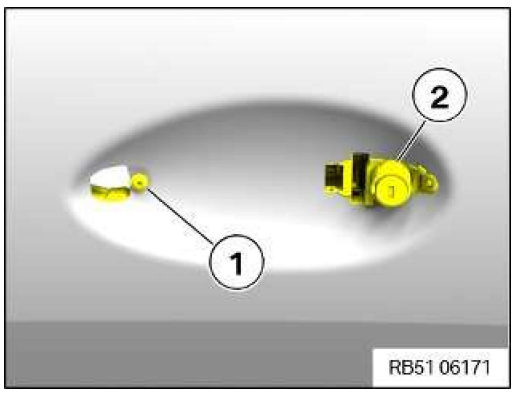
- Loosen screw (1).



- Remove the cover (1).

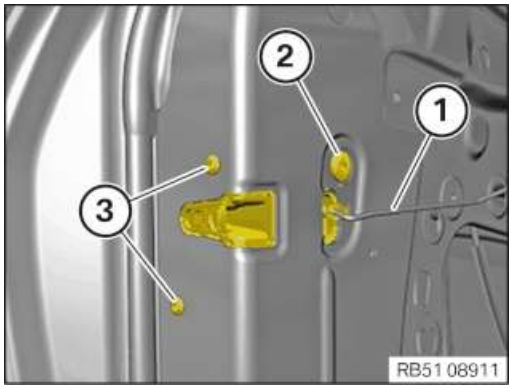


- Remove seal (1) for the outside door handle.

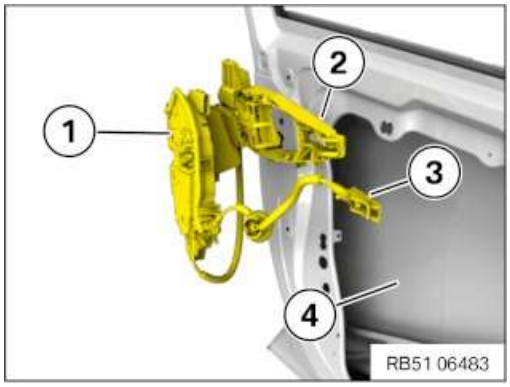


- Loosen screw (1).
- Slide the outside door handle support (2) forward and thread out to the inside.

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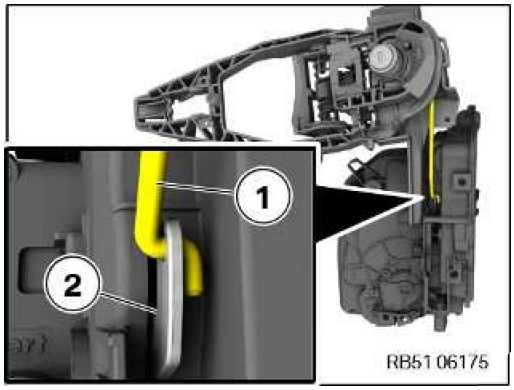


- Unclip locking rod (1).
- Release the screws (2) and (3).

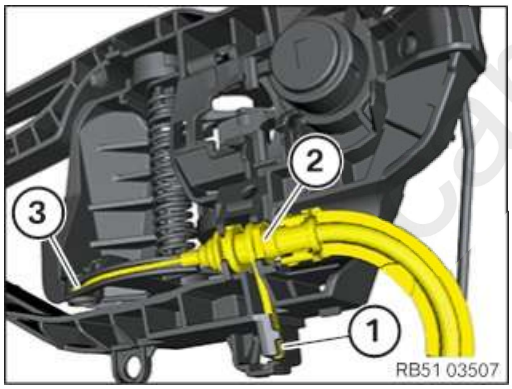


- Feed out the door lock (1) along with the outside door handle support (2) and the Bowden cable for inner door handle (3) from the door(4) .

  Make sure that the seal of door lock (1) is not damaged.

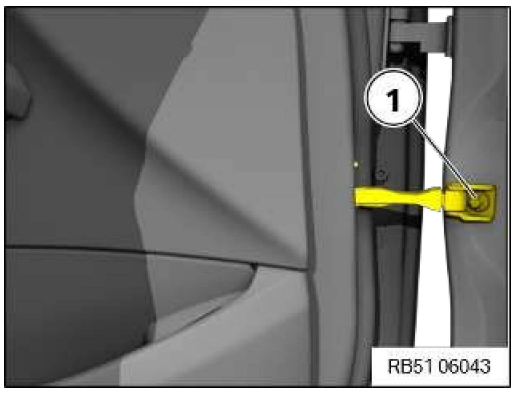


- Detach the linkage (1) from the door lock (2).



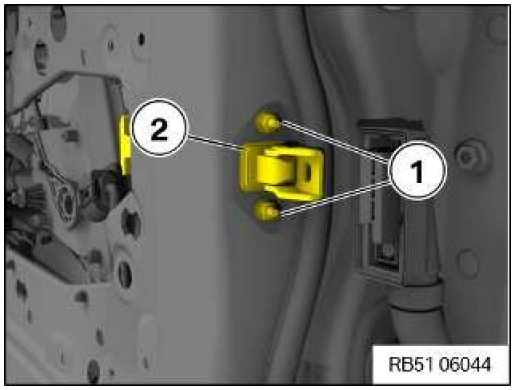
- Lift tab (1) over the latch mechanisms and turn upwards.
- Detach the Bowden cable (2) for the outside door handle.
- Detach the Bowden cable nipple (3).

15 – Remove the door brake of the front door

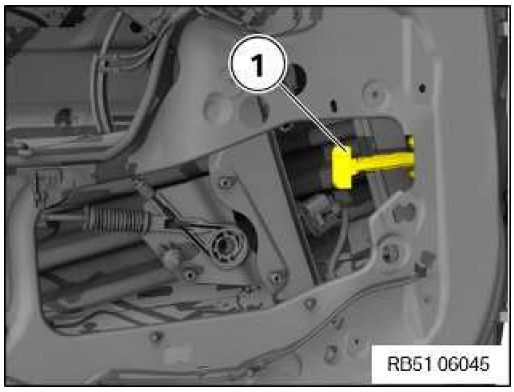


- Loosen screw (1).

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- Loosen nuts (1).
- Loosen cover (2).



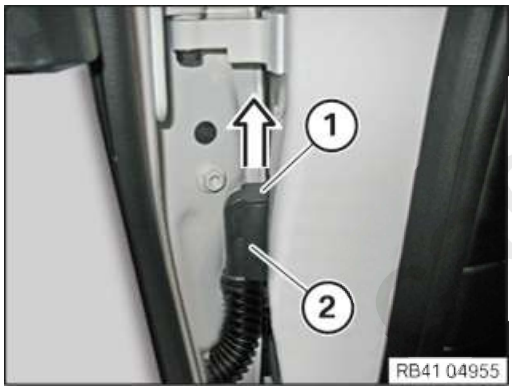
- Remove the door brake of front door (1) through the aperture in the door.

MAIN WORK

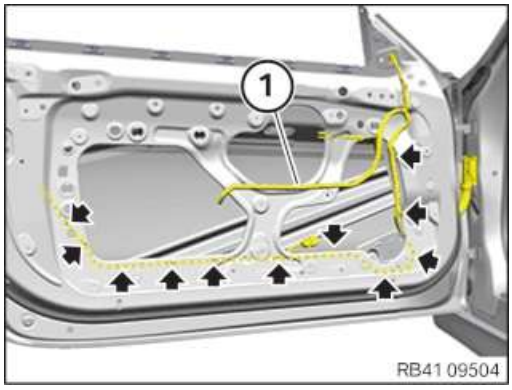
16 – Replacing the front door

Prerequisite

New part is painted.

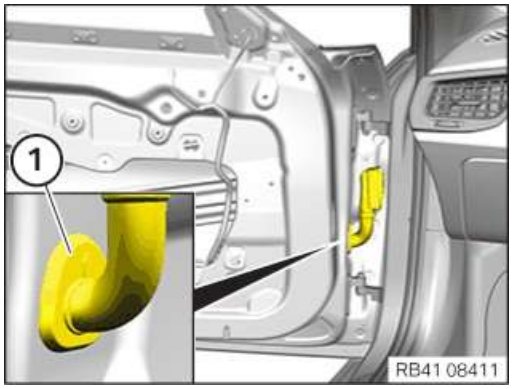


- Pull the lock (1) to the top and disconnect the plug connection (2).

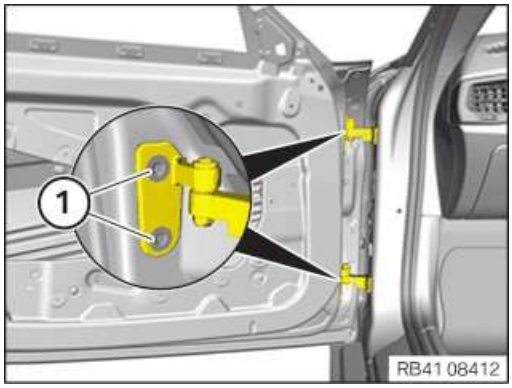


- Unclip the wiring harness (1) at the marked positions (arrows).

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- Loosen grommet (1).
- Feed the wiring harness out of the door.



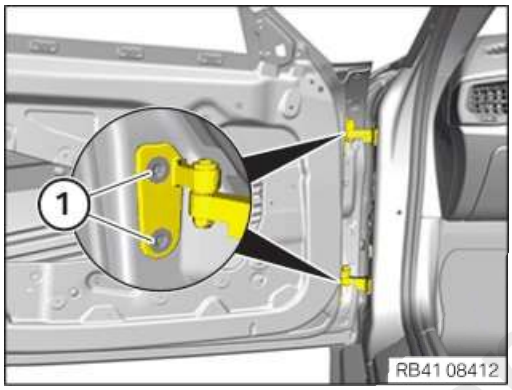
RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

- Secure front door against falling.
- Unscrew the bolts (1) and remove the front door.

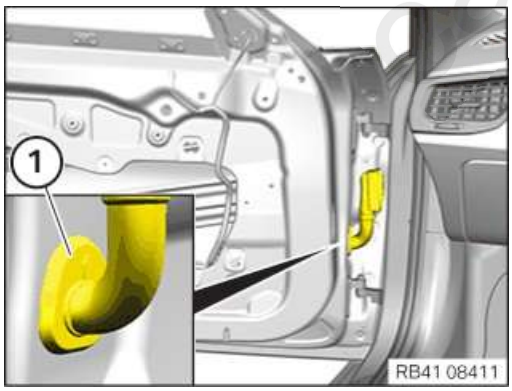


- Secure front door against falling.
- Position the front door on the door hinges.
- Tighten the screws (1).

Door hinge to door

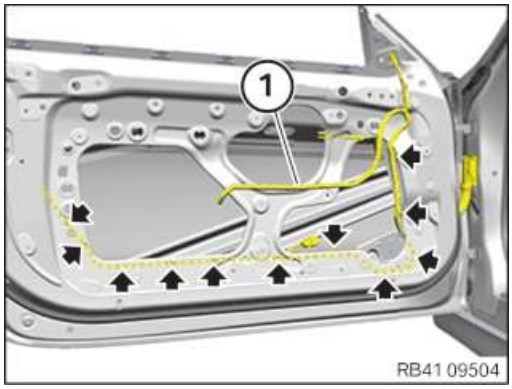
Countersunk screw with Torx M8		Tightening torque	19 Nm

- Carefully close the front door.
- Check the front door for bodywork contact, reposition the front door as necessary.



- Guide wiring harness into front door.
- Mount grommet (1) and check for correct fit.

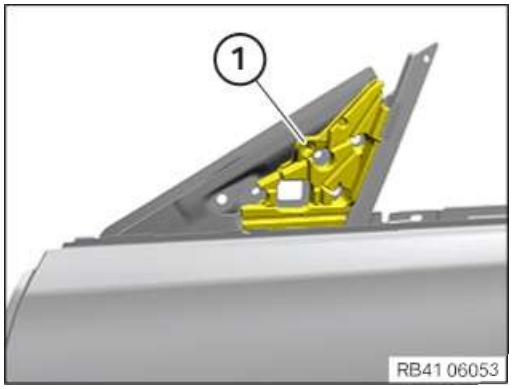
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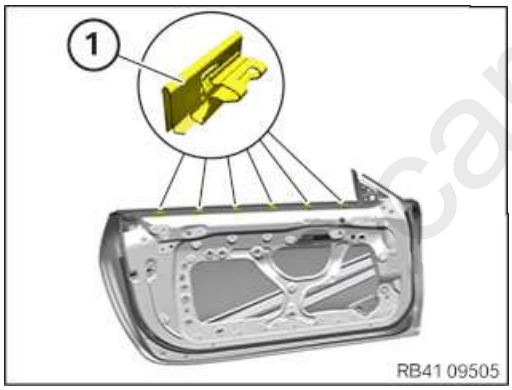
- Clip in the wiring harness (1) at the marked positions (arrows).



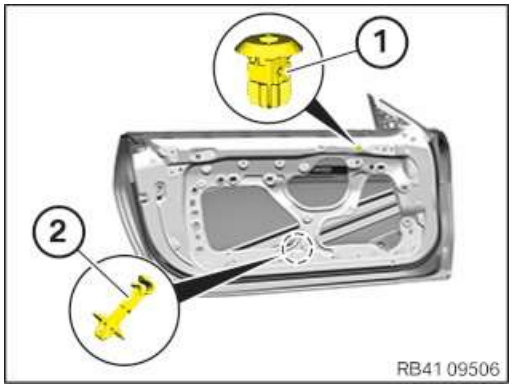
- Connect the plug connection (1) and push the lock (2) down.



- Remount the sealing (1).

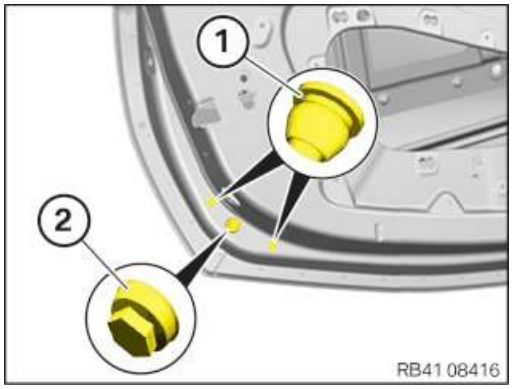


- Remount the clamps (1).

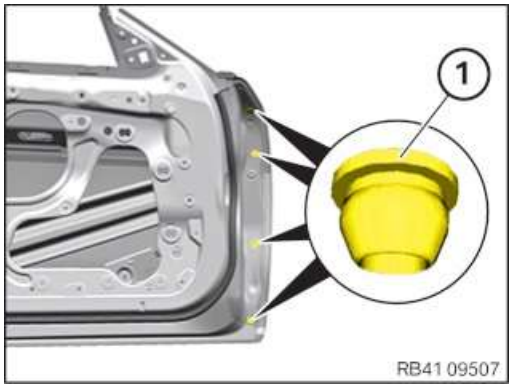


- Remount the expansion nut (1).
- Remount holding clip (2).

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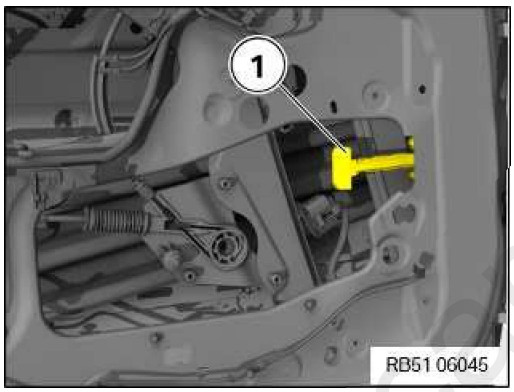
- Remount the seal plug (1).
- Remount the protective cap (2).



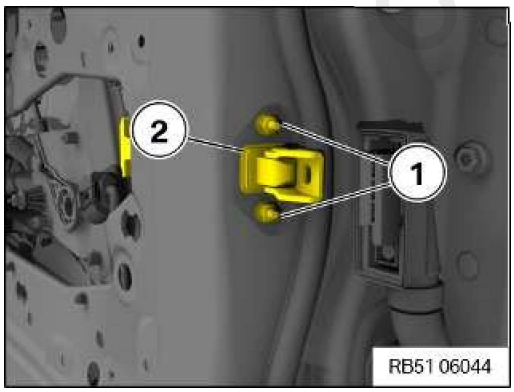
- Remount the seal plug (1).

POSTPROCESSES

17 – Installing the door brake of the front door



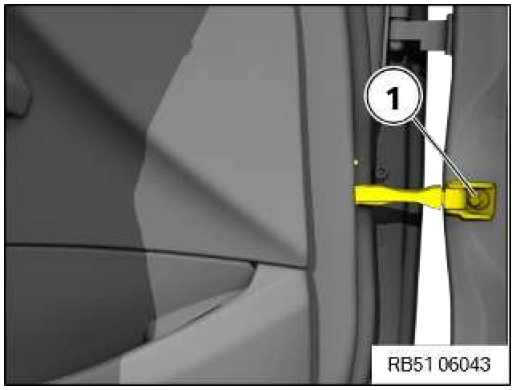
- Install the door brake of front door (1) through the aperture in the door.



- Install the cover (2).
- Tighten nuts (1).

Door retainer to door

Hexagon nut		Tightening torque	8 Nm



- Tighten down screw (1).

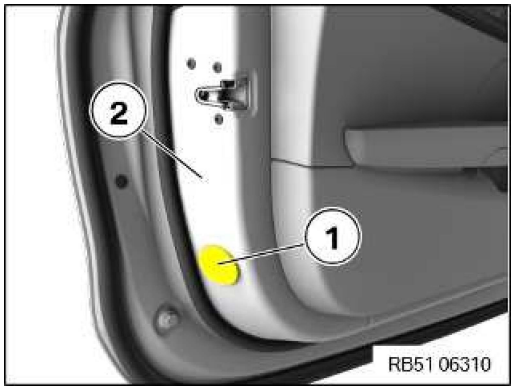
Door stop to pillar

Screw		Tightening torque	28 Nm

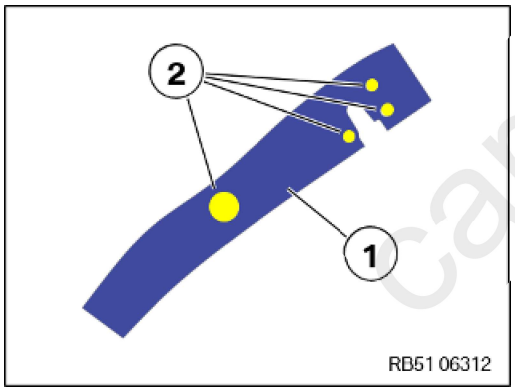
18 – Installing the seal

TECHNICAL INFORMATION

The repair instructions of bonded seals form the basis for these repair instructions and must be observed without fail.
For more information see: 54 10 ... Repair instructions for bonded seals



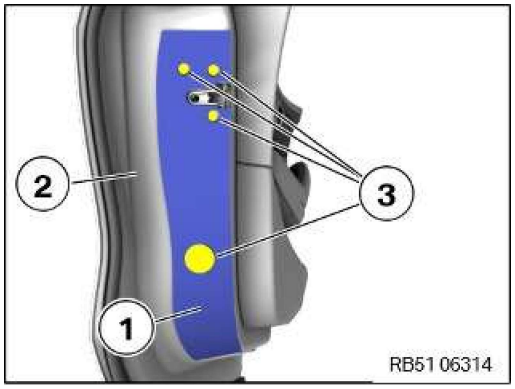
- Remove the plugs (1) on the front door (2).



NOTICE

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

- Clean the bonding surfaces on the inner door panel with adhesive remover (sourcing reference: BMW Group Parts).
- If necessary, cut out the pre-punched sections (2) for screws and openings form the template (1).

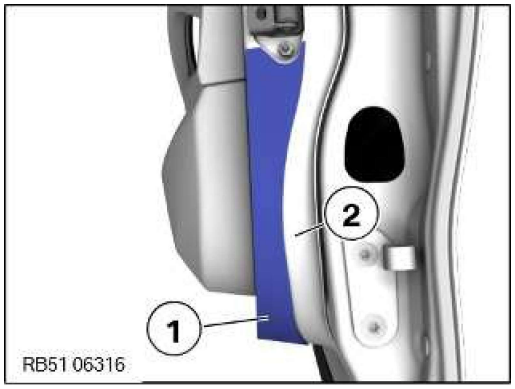


- Prior to bonding, align the template (1) on the inner door panel (2).

  The edge of template (1) and the bending radius of inner door panel (2) must run parallel.

  The marks/punch-outs (3) of the template (1) must match up with the respective bore hole of the inner door panel (2).

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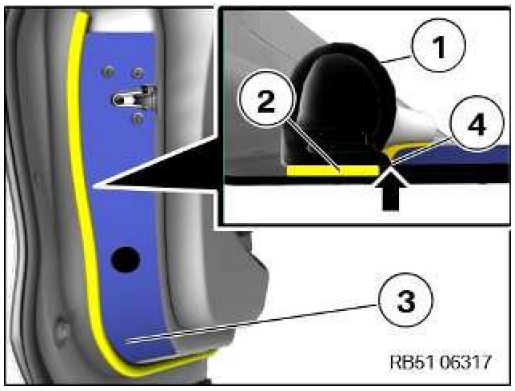


NOTICE

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

- Clean the bonding surfaces on the inner door panel with adhesive remover (sourcing reference: BMW Group Parts).
- Prior to bonding, align the template (1) on the inner door panel (2).

  The edge of template (1) and the bending radius of inner door panel (2) must run parallel.



- Position the seal (1) along the template (3).

  The seal (1) must rest against the mark (4) (arrow) of the template (3).
- **Bond the sealing** (1) **as follows:**

  Gradually pull off the protective film (2).

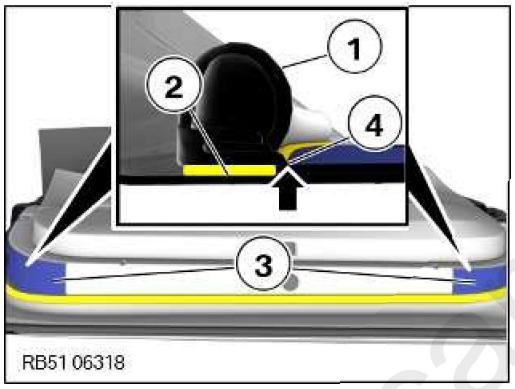
  Align the seal (1) accordingly on the template (3) and gently press it down.

  Check and if necessary correct the position of the seal (1).

  Do not overstretch or compress the seal (1) when positioning it.

  Press the seal (1) perpendicular to the bonding surface.

  Affix the seal (1) with firm thumb pressure.
- Slightly lift up the inner window recess finisher strip at the rear by hand and guide in the seal (1).



- Position the seal (1) along the template (3).

  The seal (1) must rest against the mark (4) (arrow) of the template (3).
- **Bond the sealing** (1) **as follows:**

  Gradually pull off the protective film (2).

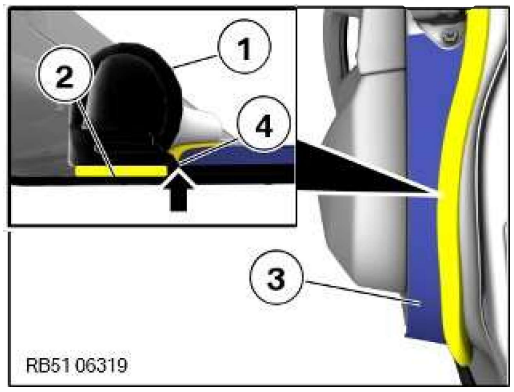
  Align the seal (1) accordingly on the templates (3) and gently press it down.

  Check and if necessary correct the position of the seal (1).

  Do not overstretch or compress the seal (1) when positioning it.

  Always apply pressure perpendicular to the bonding surface to affix the seal (1).

  Affix the seal (1) with firm thumb pressure.



- Position the seal (1) along the template (3).

  The seal (1) must rest against the mark (4) (arrow) of the template (3).
- **Bond the sealing** (1) **as follows:**

  Gradually pull off the protective film (2).

  Align the seal (1) accordingly on the template (3) and gently press it down.

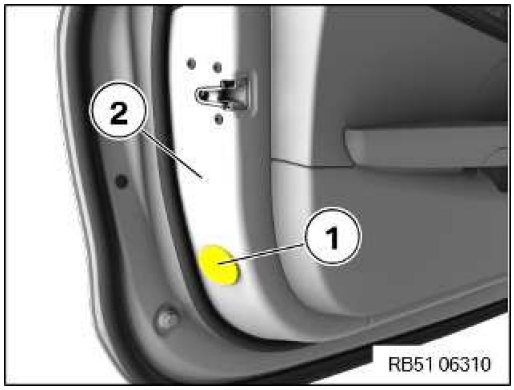
  Check and if necessary correct the position of the seal (1).

  Do not overstretch or compress the seal (1) when positioning it.

  Always apply pressure perpendicular to the bonding surface to affix the seal (1).

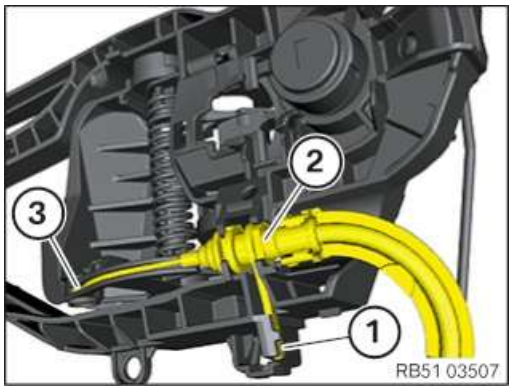
  Affix the seal (1) with firm thumb pressure.
- Slightly lift up the inner window recess finisher strip at the front by hand and guide in the seal (1).

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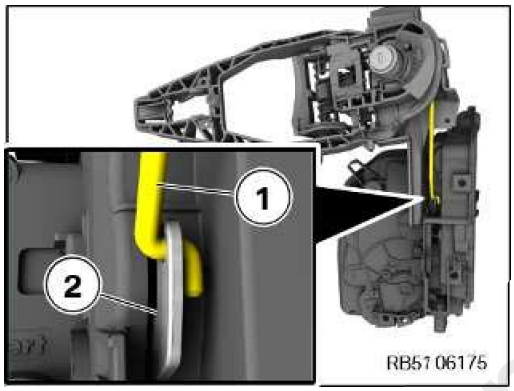


- Install the plug (1) at the front door (2).

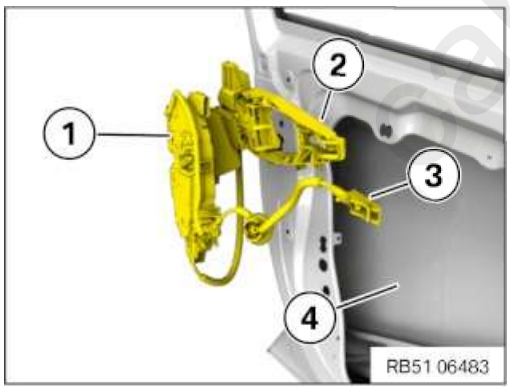
19 – Installing the outer door handle support



- Hook the Bowden cable nipple (3) of the Bowden cable (2).
- Hook the new Bowden cable (2).
- Twist and engage the tab (1).

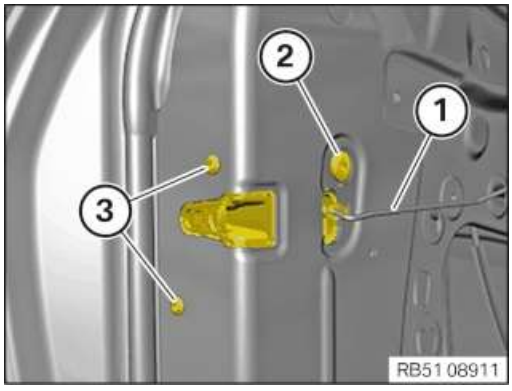


- Attach the linkage (1) in the door lock (2).



- Feed in the door lock (1) along with the outside door handle support (2) and the Bowden cable (3) for the inner door handle into the door (4).

  Make sure that the seal of door lock (1) is not damaged.



- Screw in screws (2) and (3) a few turns.
- Tighten the screws (3).

Door lock to door

Screw		Tightening torque	8,8 Nm

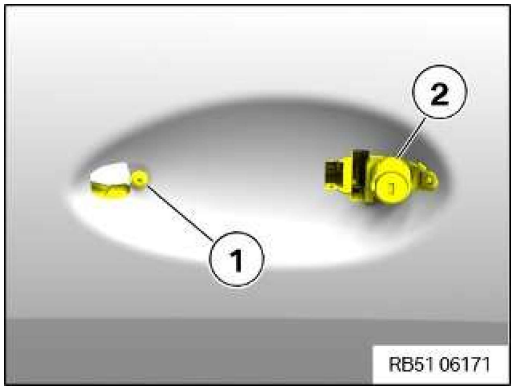
- Tighten down screw (2).

Door lock to door

Screw		Tightening torque	8,8 Nm

- Clip in locking rod (1).

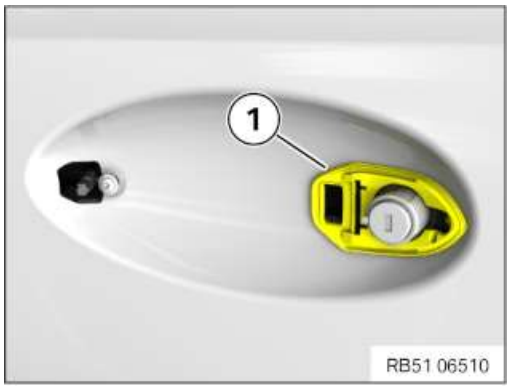
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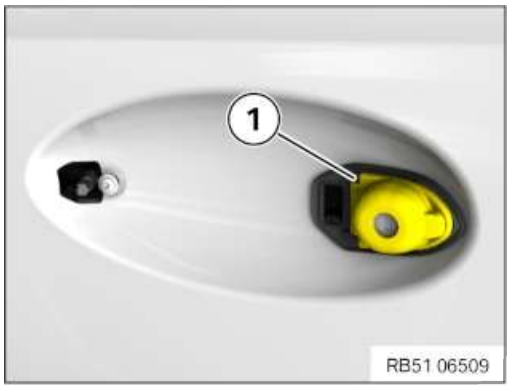
- Feed in outside door handle support (2) and position correctly.
- Tighten down screw (1).

Outside door handle support to door

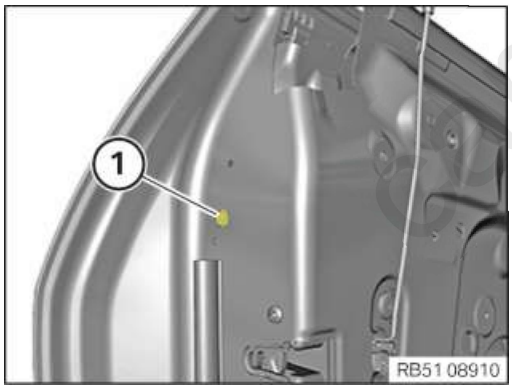
Screw		Tightening torque	2,6 Nm



- Install seal (1) for the outside door handle.



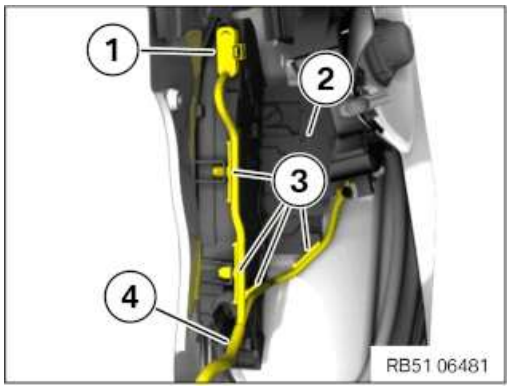
- Install the cover (1) .



- Tighten down screw (1).

Attachment bell to outside door handle support

Screw		Tightening torque	3 Nm

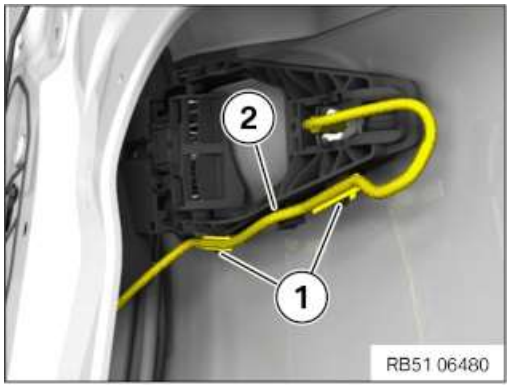


NOTICE

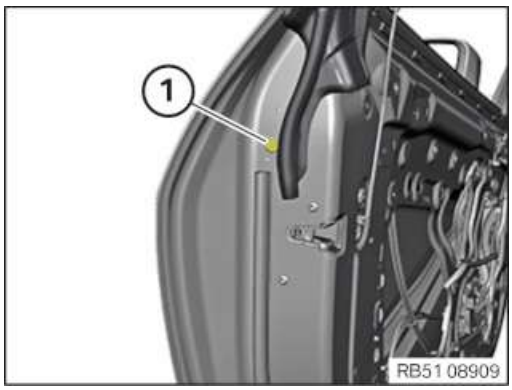
To provide a better overview: Schematic diagram with partially hidden components.

- Insert the wiring harness (4).
- Connect connector (1) at the door lock (2) and lock.
- Clip in clips (3).

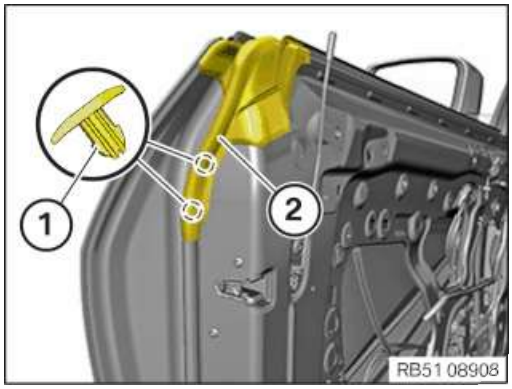
carldiagn.com



- Route the wiring harness (2) correctly.
- Clip in clips (1).

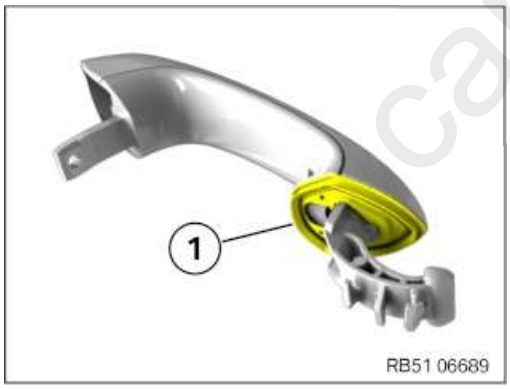


- Install seal plug (1).

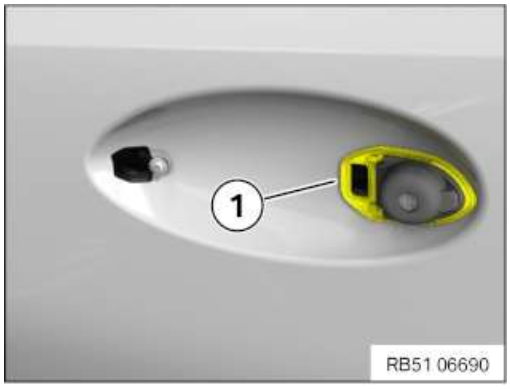


- Secure the seal (2) with the clips (1).

20 – Installing the outside door handle

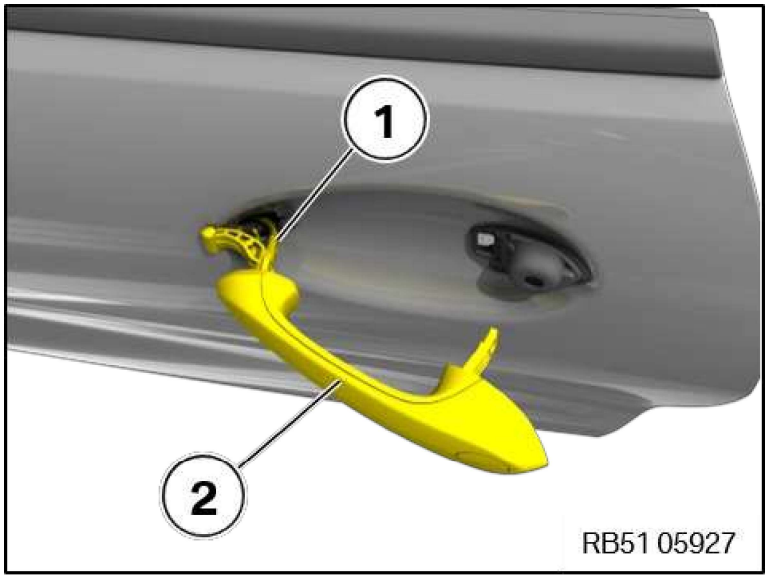


- Check the seal (1) for damage and renew if necessary.

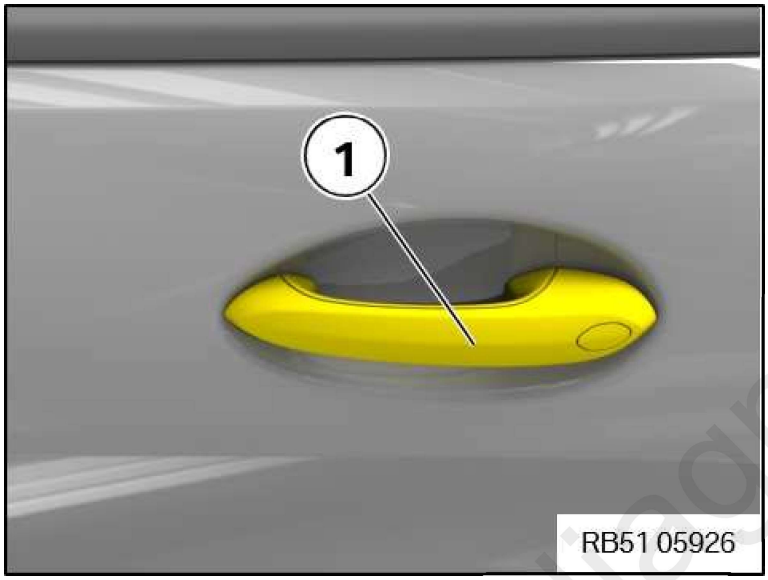


- Check the seal (1) for damage and renew if necessary.

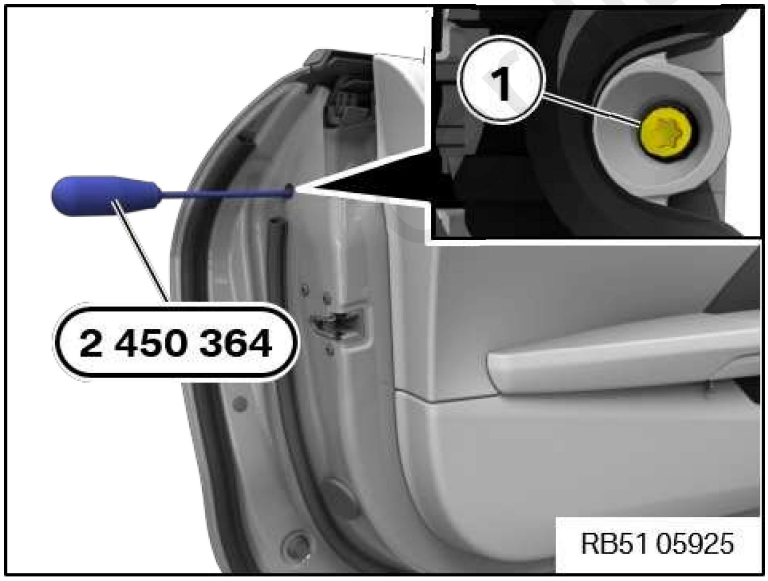
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- Insert the front outside door handle (2).
- Connect connectors (1) and lock.



- Insert the rear outside door handle (1).



NOTICE

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

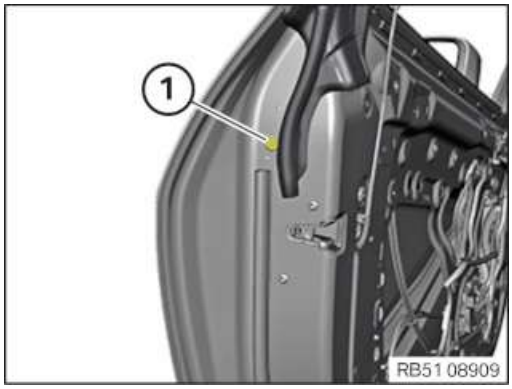
- Tighten the clamping bolt (1) on the outside door handle support with the special tool 2 450 364.

Clamping bolt for door handle

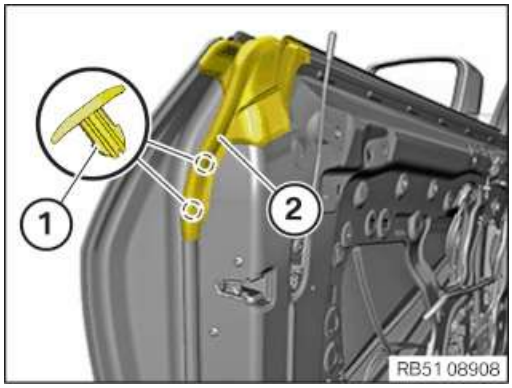
Screw		Tightening torque	2 Nm

Outer door handle to door

Clamping bolt		Tightening torque	3 Nm



- Install seal plug (1).

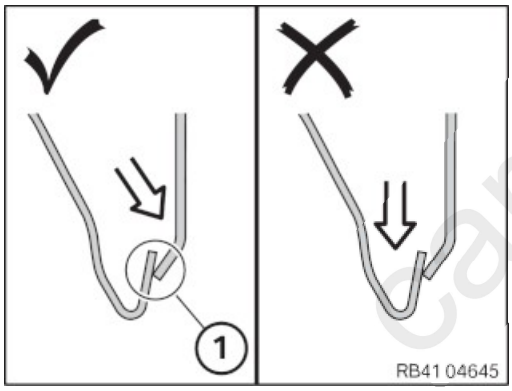


- Fasten the seal (2) with the clips (1).

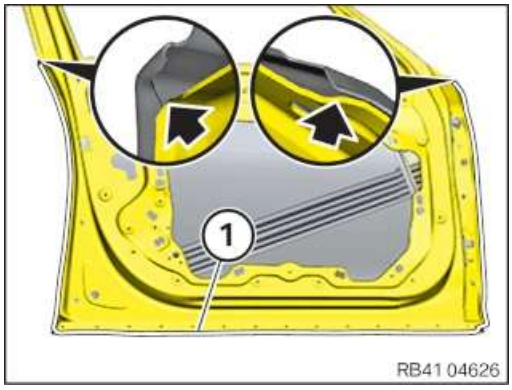
21 – Preserving the front door

NOTICE

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

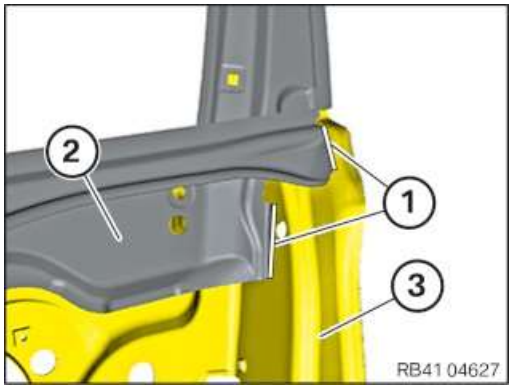


- The inner door panel is welded with the door outer skin in the area (1).
  The weld seam must be protected against corrosion by cavity preservation.



- Preserve the inner door panel in the area of the weld seam (1).
- Apply cavity preservation up to the two marked ends.
  Remove any cavity preservation which emerges.

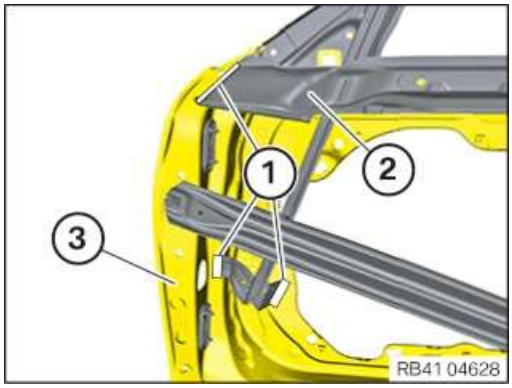
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NOTICE

To provide a better overview: Shown without door outer skin.

- Preserve the weld seams (1) all round between the reinforcement (2) and inner door panel (3).

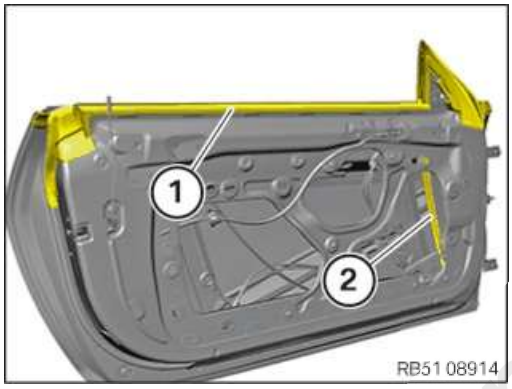


NOTICE

To provide a better overview: Shown without door outer skin.

- Preserve the weld seams (1) all round between the reinforcement (2) and inner door panel (3).

22 – Install the rubber window seal

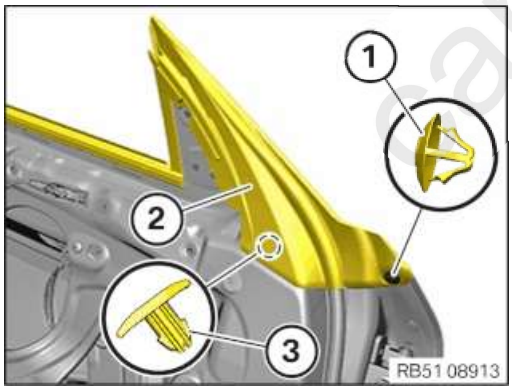


- Coat the rubber window seal (1) with lubricant approved for use.

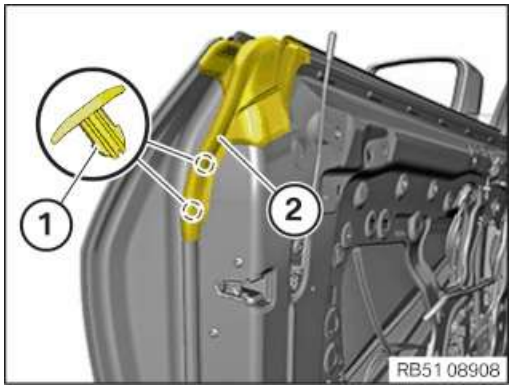
Expendable materials

Fitting aid (Circo Light; lubricant)	250 ml, Bottle	83192405829

- Correctly position the rubber window seal (1) on the door and install.
- Correctly install the rubber window seal (1) in the window guide rail (2).



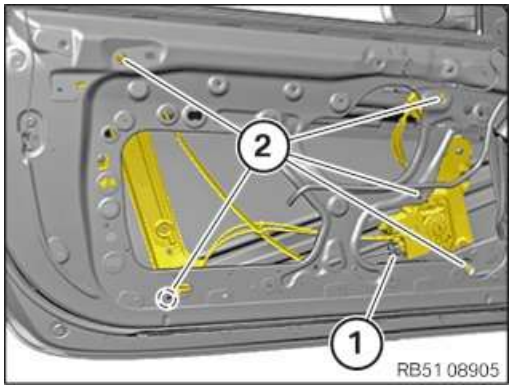
- Feed in the rubber window seal (2) correctly.
- Fasten the rubber window seal (2) to the clip (3).
- Mount the clip (1).



- Feed the in rubber window seal (2) correctly.
- Fasten the rubber window seal (2) to the clips (1).

23 – Installing front door power window regulator

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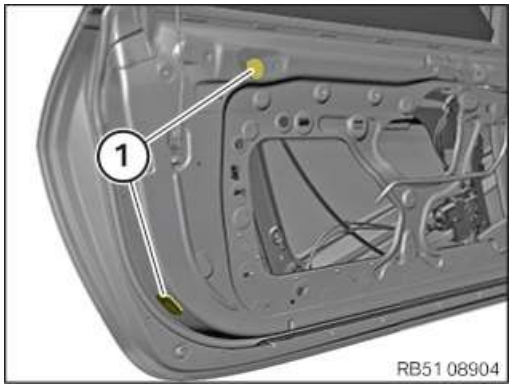


- Guide the power window regulator into door and position it correctly.
- Tighten nuts (2).

Power window regulator to inner door panel

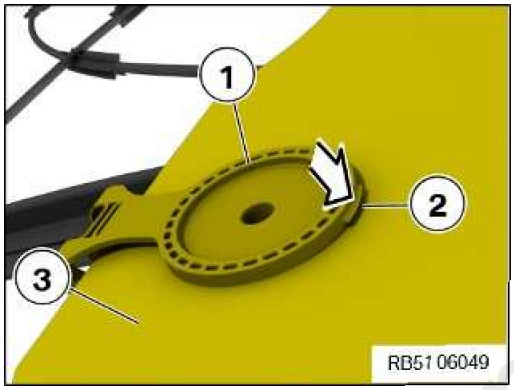
M6			9,5 Nm

- Connect connectors (1) and lock.



- Install the plug (1).

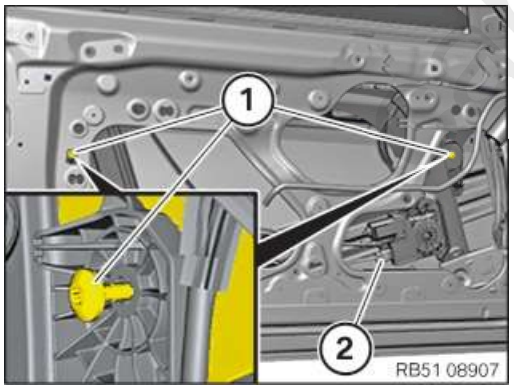
24 – Installing front door window glass



NOTICE

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

- Insert door window glass front (3) from the top.
- Press holder (1) on the tab (2) in direction of arrow and lock.



- Screw in the screws (1) and tighten them.

  In this process, counter support the multi-tooth nuts of the electric window.

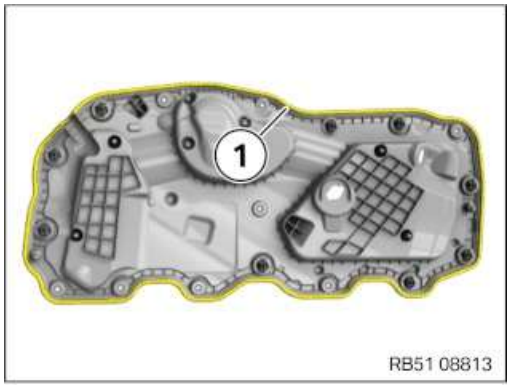
Door window glass to power window regulator

Screw		Tightening torque	0.25 Nm

- Connect connectors (2) and lock.

25 – Installing the module carrier on the front door

Check



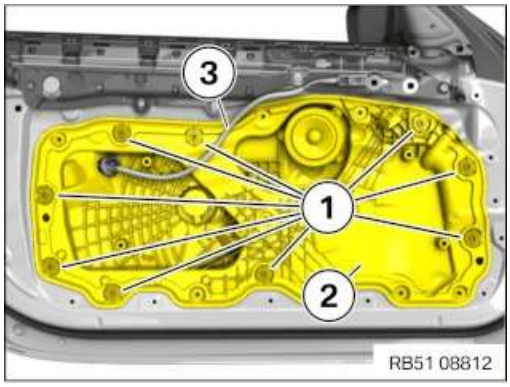
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

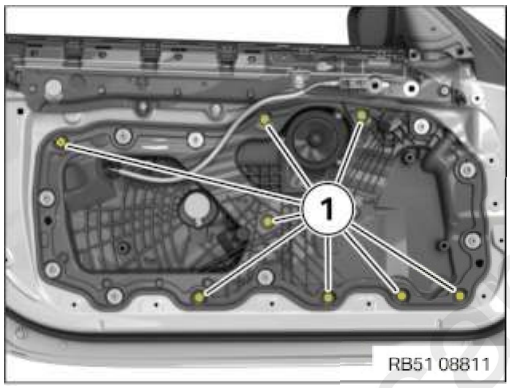
Measure

- Renew the module carrier on the front door.



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

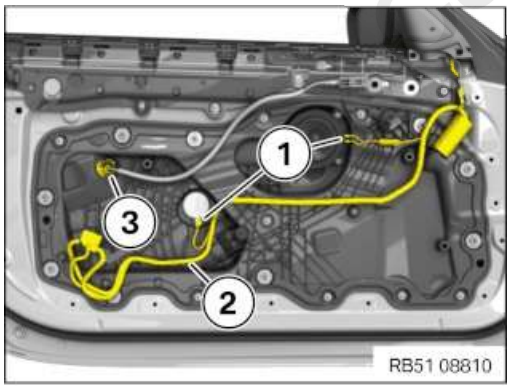
  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

Module carrier to the front door

Oval-head screwM6	Tightening torque	9 Nm



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

26 – Install the weather strip (front) on the front door

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RISK OF DAMAGE

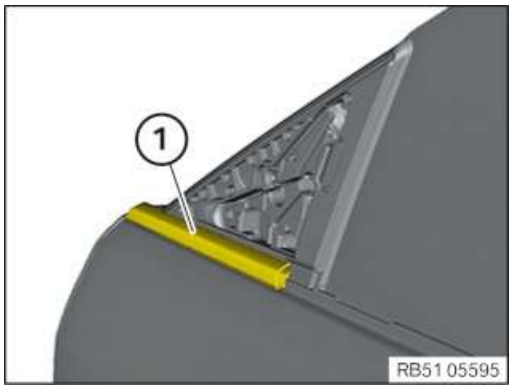
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

NOTICE

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

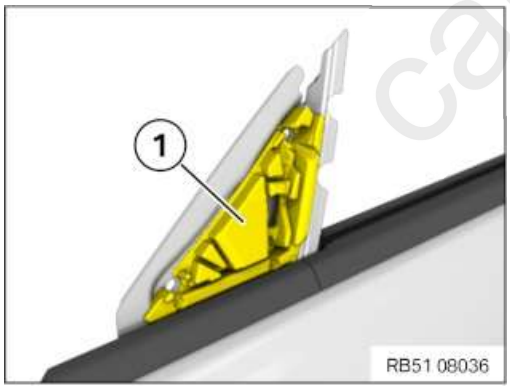


- Coat the weather strip (1) with a suitable lubricant prior to installation.
- Position the weather strip (1) correctly and press down along its entire length.

27 – Fit exterior mirror

NOTICE

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



Check

- Check the sealing (1) for the mirror triangle for damage and position it correctly.

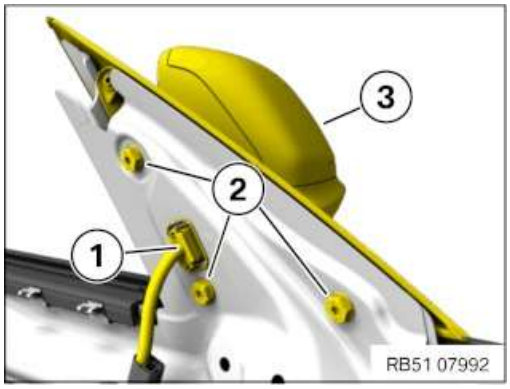
Result

» The mirror triangle sealing is damaged.

Measure

- Renew the sealing for the mirror triangle.

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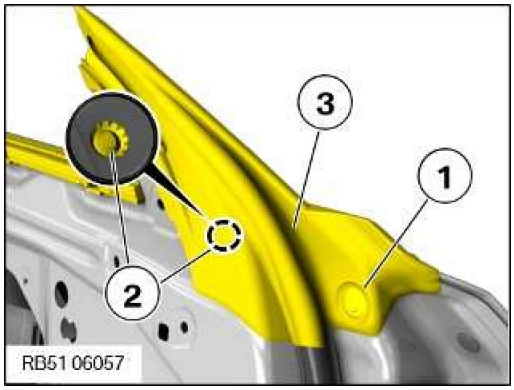


- Position the exterior mirror (3) on the door and tighten the screws (2).

Exterior mirror to door

Screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.



- Position the inner window recess finisher strip at the front (3).
- Clip in clip (1).
- Clip in clip (2).

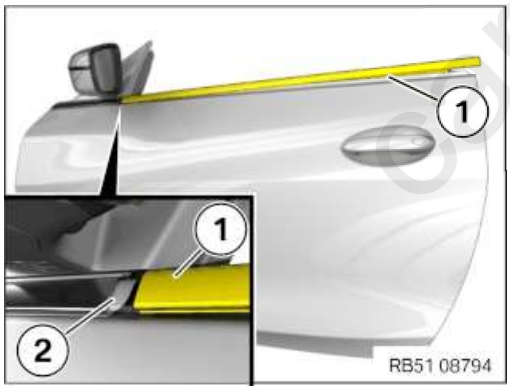
28 – Install outer weather strip

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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



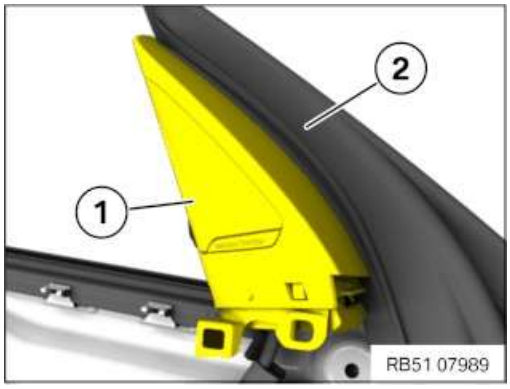
- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

29 – Installing mirror triangle

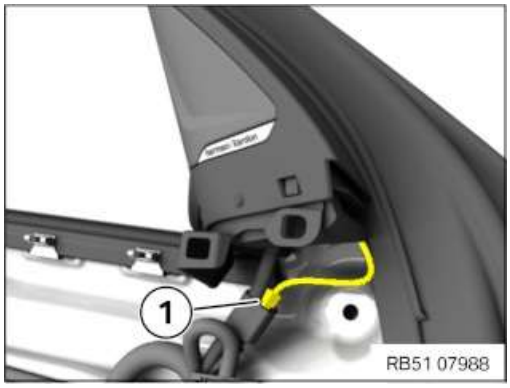
NOTICE

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

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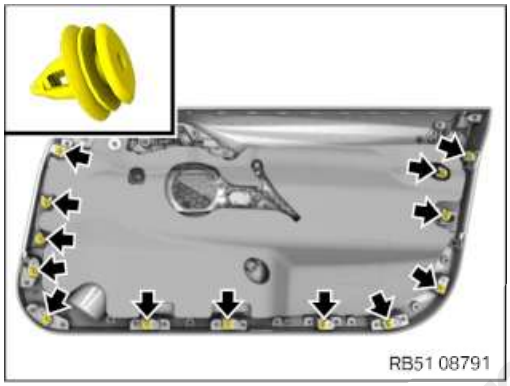


- Insert the mirror triangle (1) into the inner window recess finisher strip (2) and position it correctly.

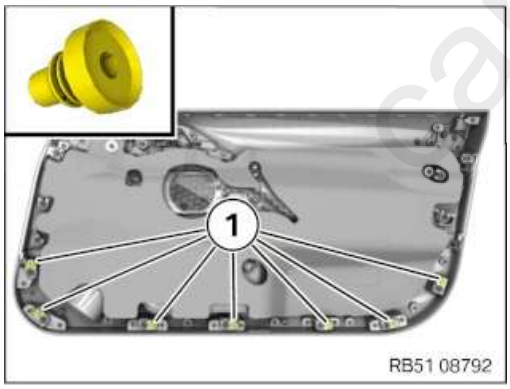


- **For equipment specification with tweeter.**
- Connect connectors (1) and lock.

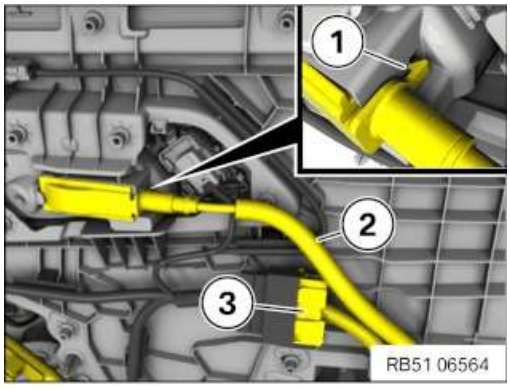
30 – Install front door trim panel



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



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

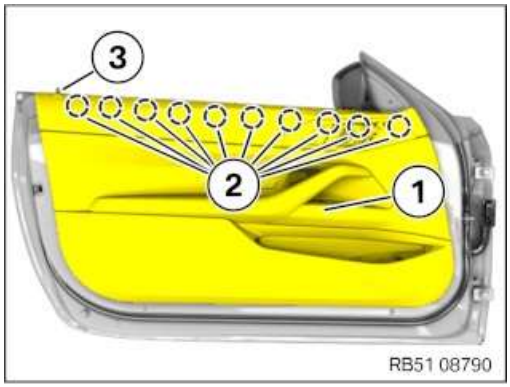


NOTICE

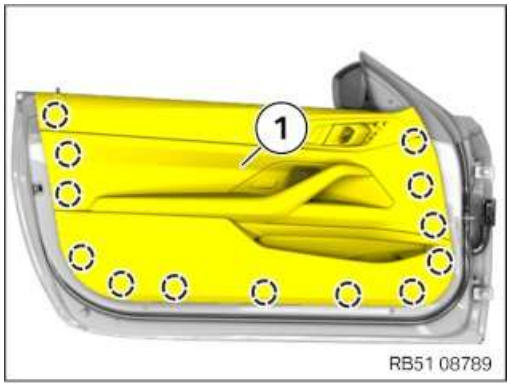
Schematic diagram is for example purposes. Some parts may differ in certain details.

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

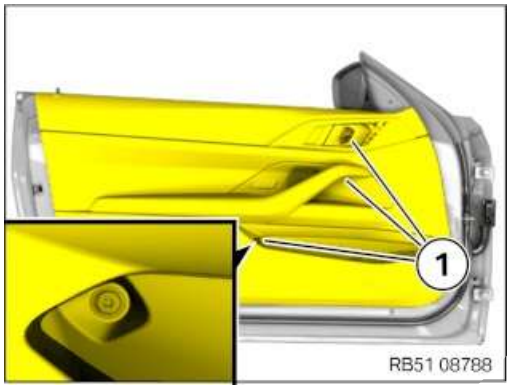
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- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



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

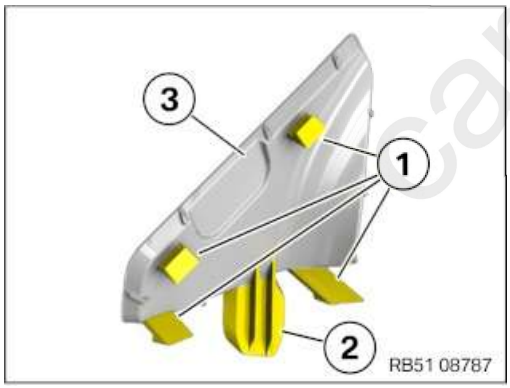


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



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

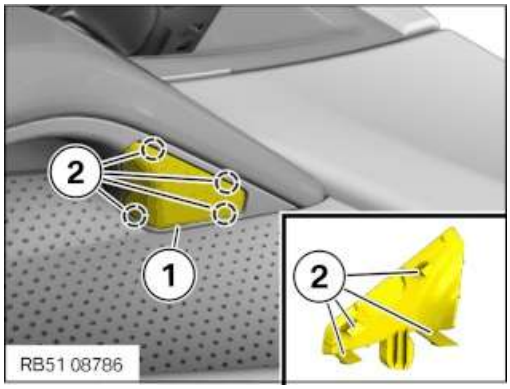
Result

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

Measure

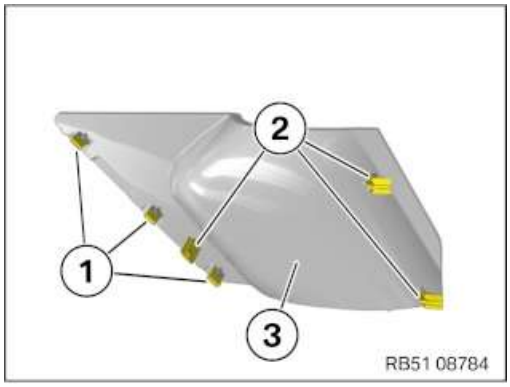
- Replace the cover (3).

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

Check



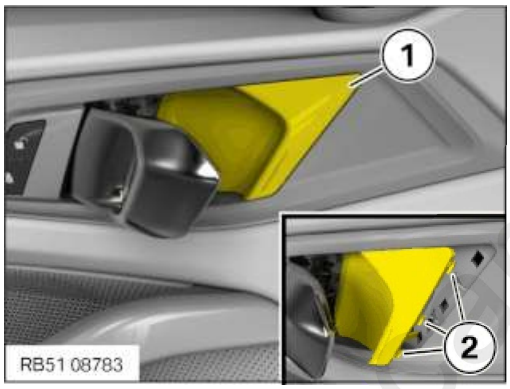
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

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

Measure

- Replace door handle cover (3).



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

31 – Connecting all battery earth leads



- See additional information.

32 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

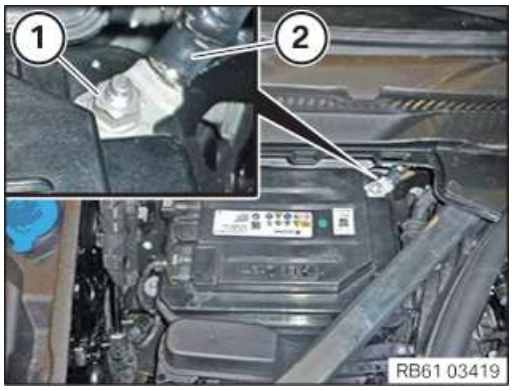
Damage to 48-V battery

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

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



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



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

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



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



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

  The activation takes place automatically.

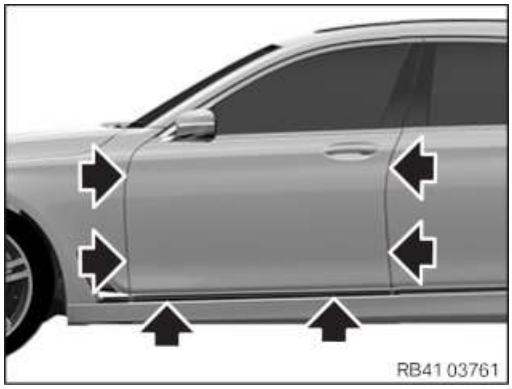
TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body



- Open the front door.
- Slacken screws (1) until the front door can be moved.
- Adjust front door at height (Z).
- Adjust front door at width (Y).

Check



- Check gap dimension between front door and the adjacent body components.

Result

» Gap dimensions do not correspond to the specifications.

Measure

- Adjust the front door.



- Tighten the screws (1).

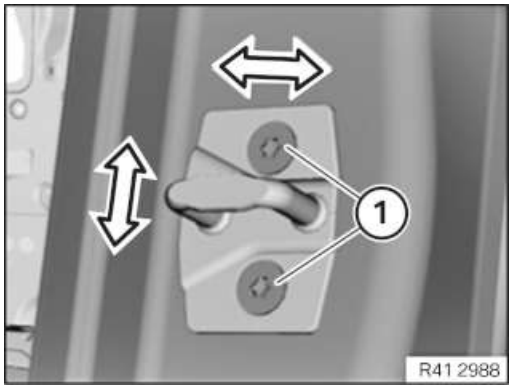
Front door to door hinge

Screw		Tightening torque	19 Nm

▸ **Adjust lock striker**

Prerequisite

The screws on lock striker are loosened so far that the lock striker can still be moved.



TECHNICAL INFORMATION

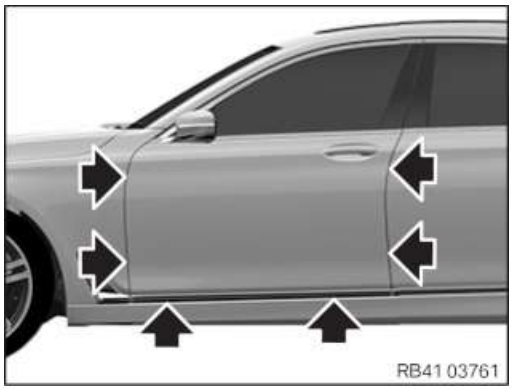
The gap dimensions form the basis for these repair instructions and must be observed without fail.

For more information see: 41 00 ... Gap dimensions for body

- Adjust the lock striker's height such that the door lock does not bump or rub against anything.
- Move lock striker sideways in order to adjust the gap dimensions between door and rear side panel.
- Tighten the screws (1).

Lock striker

Screw		Tightening torque	21 Nm



Check

- Check gap dimension between front door and the adjacent body components.

Result

» Gap dimensions do not correspond to the specifications.

Measure

- Adjust the front door.

34 – Adjusting door window glass

Prerequisite

Vehicle is supported on all wheels at ground level.

Front door has been correctly fitted.

Battery charger is connected (during adjustment work, the complete operability of the power window regulator is only guaranteed with external voltage supply).

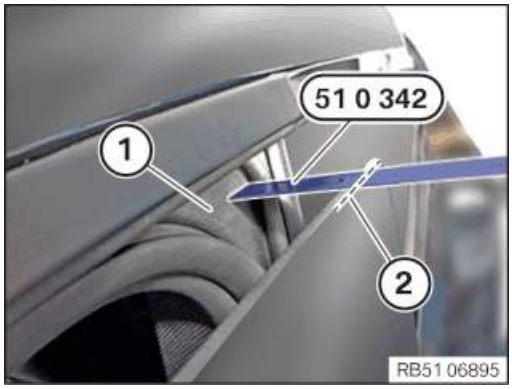
NOTICE

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



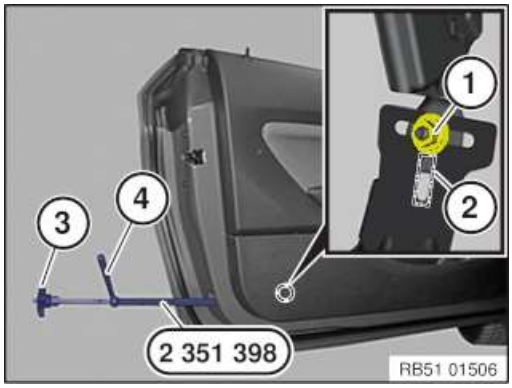
- Open door; move door window glass into uppermost position, if necessary.
- Insert special tool with the special tool in the rotary striker of the door lock and lock the rotary striker manually (door window glass moves fully upwards).
- Carefully close the door until the special tool lies on the striker (defined opening angle for the measurement).

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- Do not exert any force on the door or door window glass during measurement.
- Abut special tool to the seal (1) and the door window glass (2).
- Determine dimension for preload between the seal (1) and outer edge of door window glass (2).

  Nominal dimension = 55 ± 1 mm



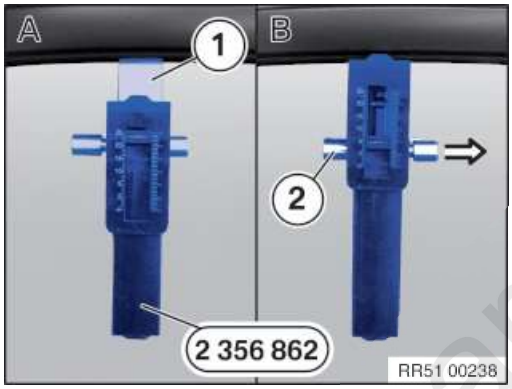
- Open door and remove sealing cap from door frame.
- Feed in special tool into the door and position at the nut (1) and the guide (2).
- Slacken nut (1) with knob (3).
- Turning the lever (4) to set the preload.

  Nominal dimension = 55 ± 1 mm
- Tighten nut (1).

Power window regulator to inner door panel

M6		9,5 Nm

- Check setting, repeat process if necessary.
- Remove special tool and fit the seal plug.
- Remove the special tool from the rotary striker of the door lock.



- Connect the special tool 2 356 862 to the holder (5 mm)(1) on the door window glass when it is locked (A).

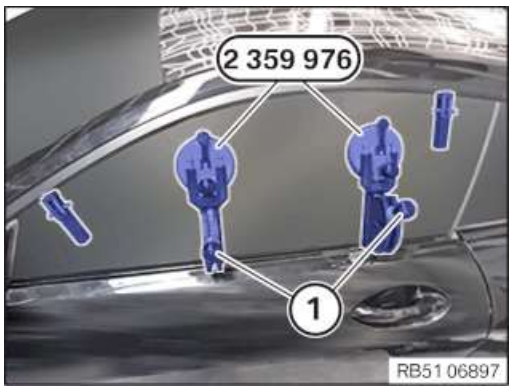
  Close the door and release the lock (2) (B).



- Open door.
- Place special tool 2 356 862 as shown on the door window glass.

  Approx. displaced by 40 mm inwards in each case.
- Close door.
- Measure retraction depth.

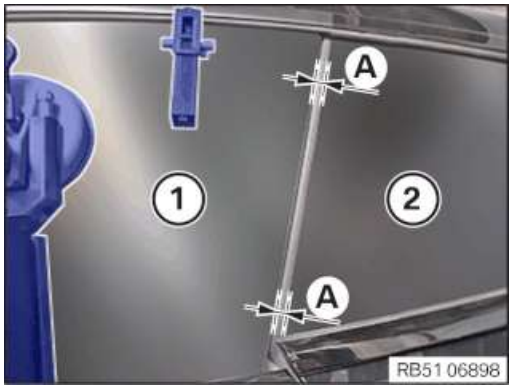
  Nominal dimension: 5.5 ± 1 mm



- Attach special tool 2 359 976 on the door window glass so that the multi-tooth screws of the door window glass are still accessible.
- Release adjustment lever (1) by twisting.
- Set the retraction depth of the side window glass by moving the adjustment lever (1).

  Nominal dimension: 5.5 ± 1 mm
- Tighten adjustment lever (1).

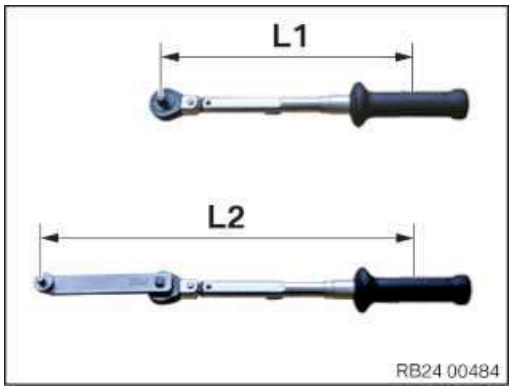
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- Adjust door window panel (1) parallel to the rear side window (2).

  Dimension (A) = 8.0 ± 1 mm

▸ **Tighten the front door window glass**



TECHNICAL INFORMATION

While using the special tool, that extends the lever arm of the torque wrench, the setpoint torque deviates from the torque to be set.

NOTICE

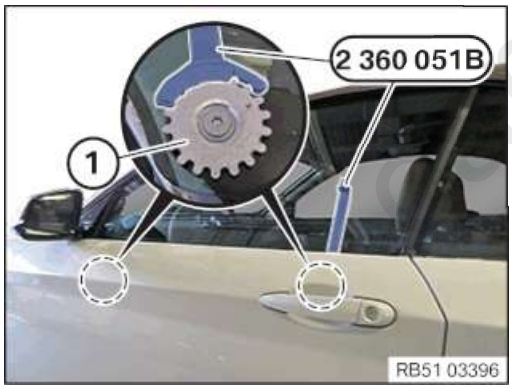
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten multi-point nuts (1) on the door window glass in the front using special tool **B** and a torque wrench.

Toothed nut of side window

Toothed nut		Tightening torque	11 Nm

Additional Information

Overview of Tightening Torques

Door hinge to door — Used in step 16

Countersunk screw with Torx M8		Tightening torque	19 Nm

Door retainer to door — Used in step 17

Hexagon nut		Tightening torque	8 Nm

Door stop to pillar			Used in step 17
Screw		Tightening torque	28 Nm

Door lock to door			Used in step 19
Screw		Tightening torque	8,8 Nm

Outside door handle support to door			Used in step 19
Screw		Tightening torque	2,6 Nm

Attachment bell to outside door handle support			Used in step 19
Screw		Tightening torque	3 Nm

Clamping bolt for door handle			Used in step 20
Screw		Tightening torque	2 Nm

Outer door handle to door			Used in step 20
Clamping bolt		Tightening torque	3 Nm

Power window regulator to inner door panel			Used in step 2334
M6			9,5 Nm

Door window glass to power window regulator			Used in step 24
Screw		Tightening torque	0.25 Nm

Module carrier to the front door			Used in step 25
Oval-head screwM6		Tightening torque	9 Nm

Exterior mirror to door			Used in step 27
Screw		Tightening torque	8 Nm

Door trim panel			Used in step 30
Oval-head screw		Tightening torque	3 Nm

Negative battery cable to 48-V battery			Used in step 32
Nut M8		Tightening torque	19 Nm

Front door to door hinge			Used in step 33
Screw		Tightening torque	19 Nm

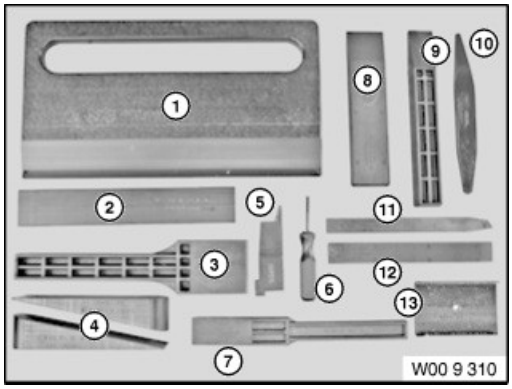
Lock striker			Used in step 33
Screw		Tightening torque	21 Nm

Toothed nut of side window			Used in step 34
Toothed nut		Tightening torque	11 Nm

Overview of Special Tools

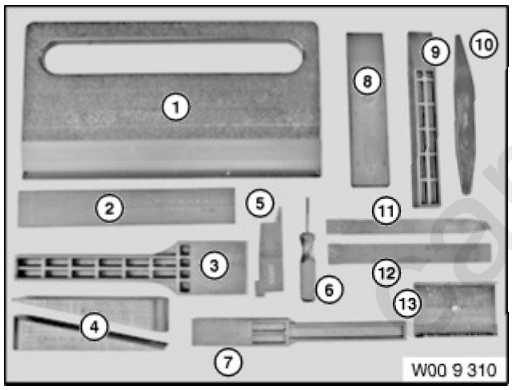
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0 493 752 (00 9 329) Case



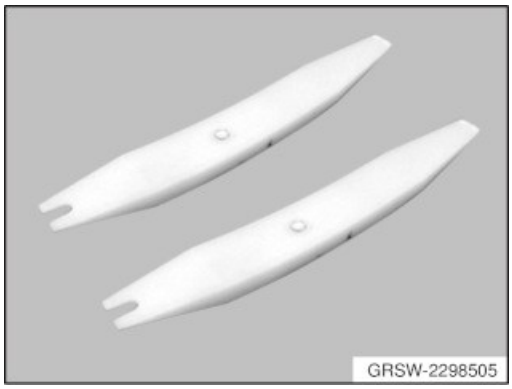
Common	Used in step 3
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 495 484 (00 9 324) Panel wedge



Common	Used in step 6
Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

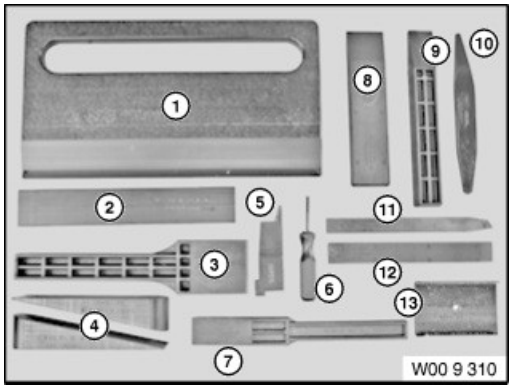
2 298 505 Wedge



Common	Used in step 6
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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0 490 538 (00 9 321) Folding stick



Common	Used in step 6
Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 450 364 Torx



Common	Used in step 1320
Usage	for releasing the outside door handles
Included in the tool or work	
Storage location	A5
Replaced by	
In connection with	
SI-Number	01 22 16 (440)

2 356 862 Device



Common	Used in step 34
Usage	Device for measuring the side window retraction depth. Also valid for: BMW i Aftersales Basic. This tool set replaces the tool 2304553
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 29 13 (998)

2 359 976 Siphon



Common	Used in step 34
Usage	For fixing and adjusting frameless side/door window glass. Also valid for: BMW i Aftersales Basic
Included in the tool or work	
Storage location	A73
Replaced by	
In connection with	
SI-Number	01 27 14 (129)

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 231
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61 20 900 Disconnecting and connecting battery earth lead 231
61 20 900 Disconnecting and connecting battery earth lead 231
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 231
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61 20 900 Disconnecting and connecting battery earth lead 231
61 20 900 Disconnecting and connecting battery earth lead 231
41 00 ... Gap dimensions, body 33

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41 51 ... Notes on replacing the door



Important!

For production reasons the side impact beam is only screwed loosely.

Tighten screws of side impact beam.



Remount all components on the new door.

If necessary, replace damaged components.

The procedure is described in the repair instructions of the components.

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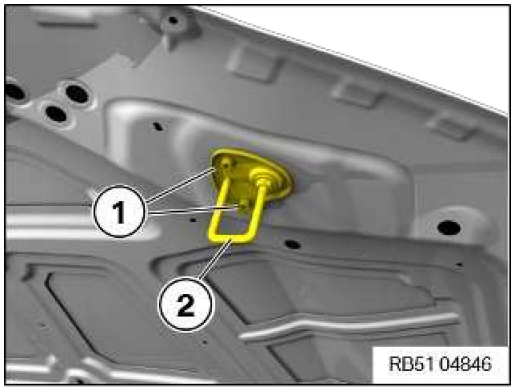
41 61 014 Adjusting bonnet

NOTICE

Perform the operations on the left and right side.

PRELIMINARY WORK

1 – Removing the bonnet striker



- Loosen the screws (1) and remove the striker (2).

MAIN WORK

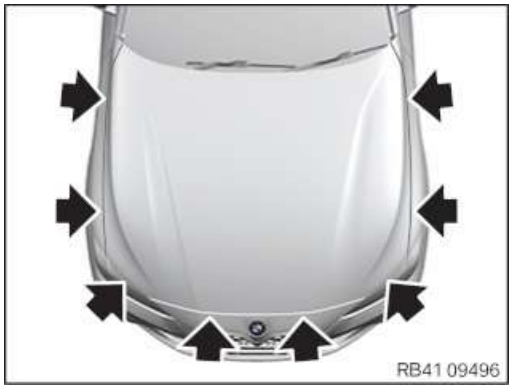
2 – Adjusting bonnet

TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body

Check

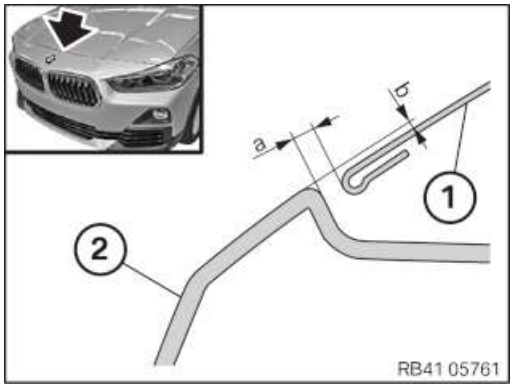
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- Check gap dimensions sides between bonnet and adjoining components.

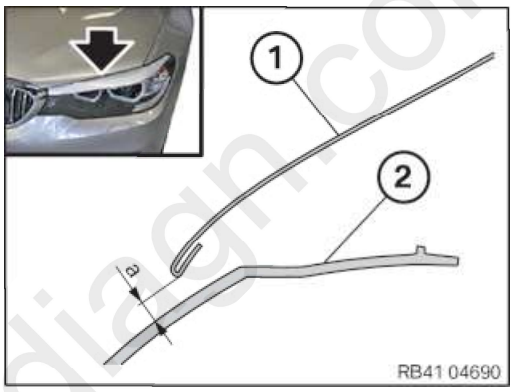
Gap dimension bonnet to bumper panel

1 bonnet; 2 bumper panel	
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



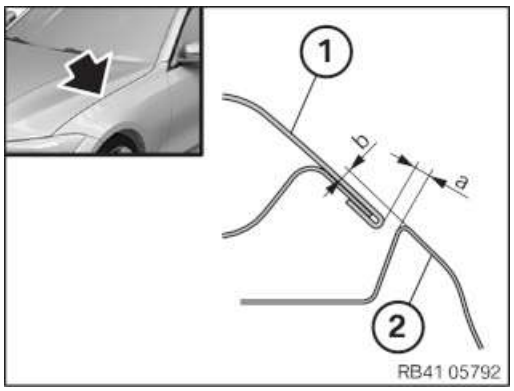
Gap dimension bonnet to headlight

1 bonnet; 2 headlight	
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to front side panel

1 bonnet; 2 front side panel	
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



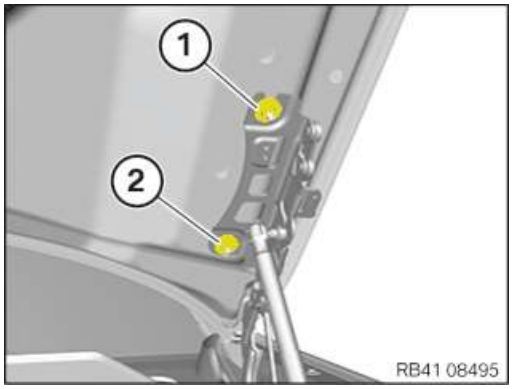
Result

» Gap dimensions do not correspond to the specifications.

Measure

- Adjust bonnet at the bonnet hinge.

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- Loosen nuts (1) and (2) until the bonnet can be pushed.
- Move the bonnet in longitudinal and sidewise direction until the bonnet reaches the predefined gap dimension.
- Tighten nuts (1) and (2).

Bonnet to hinge

Nut M8		Tightening torque	19 Nm

POSTPROCESSES

3 – Adjusting the striker on the bonnet

Check

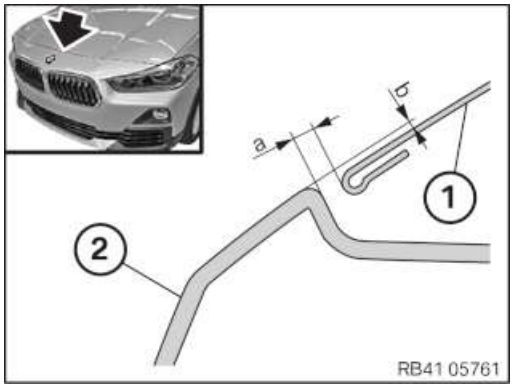
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- Check gap dimensions between bonnet and the adjoining components.

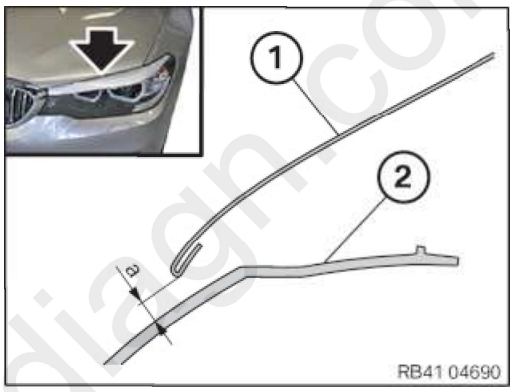
Gap dimension bonnet to bumper panel

1 bonnet; 2 bumper panel	
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



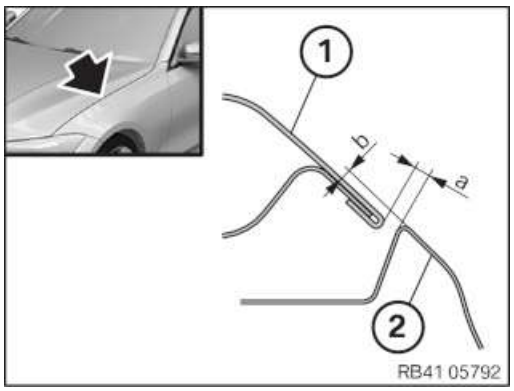
Gap dimension bonnet to headlight

1 bonnet; 2 headlight	
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to front side panel

1 bonnet; 2 front side panel	
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



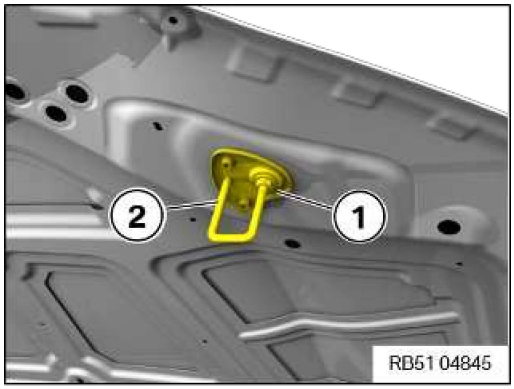
Result

» Gap dimensions do not correspond to the specifications.

Measure

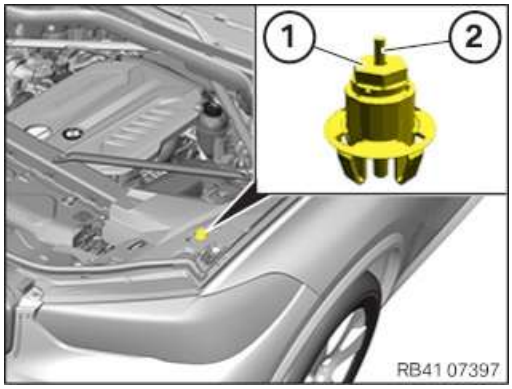
- Adjust the striker.

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- Adjust striker (2) by turning nut (1).

▸ **Adjusting the stop pads of the bonnet**



NOTICE

Perform the operations on the left and right side.

- Screw in stop pads (1) fully until the pin (2) can be pulled out.
  Pull out the pin (2) by approximately 5 mm.
- Slowly close bonnet. Pin (2) is pressed into stop pad (1) .
- Raise bonnet.
- Unscrew stop pad (1) until the stop pad is flush with the upper edge of pin (2).

Additional Information

Overview of Tightening Torques

Bonnet to hinge — Used in step 2

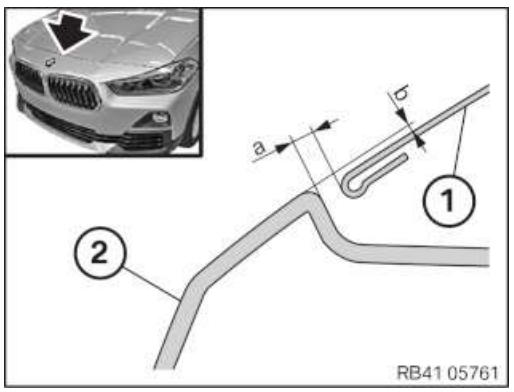
Nut M8		Tightening torque	19 Nm

Overview Technical Data

Gap dimension bonnet to bumper panel — Used in step 23

1 bonnet; 2 bumper panel

a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm

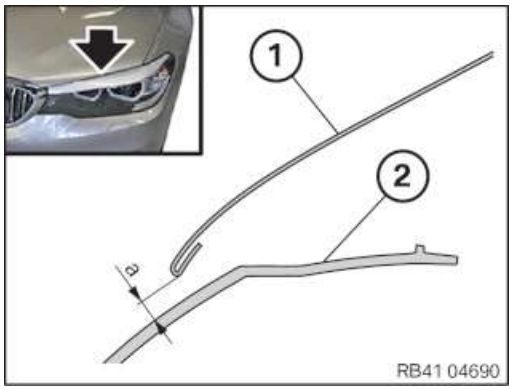


Gap dimension bonnet to headlight — Used in step 23

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1 bonnet; 2 headlight

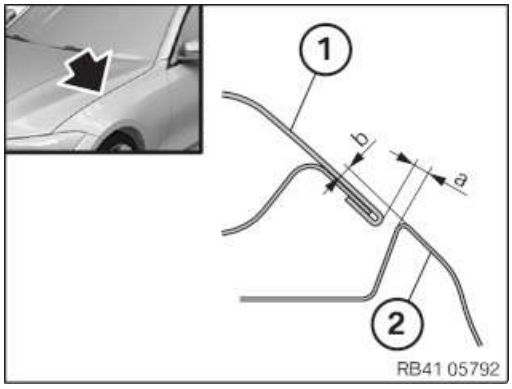
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to front side panel Used in step 23

1 bonnet; 2 front side panel

a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



Links

Repair instructions (PRE)	Used in step
Gap dimensions, body	
Gap dimensions, body	2

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41 61 000 Removing and installing engine compartment lid

Prerequisite

- Vehicle does not have active pedestrian protection.

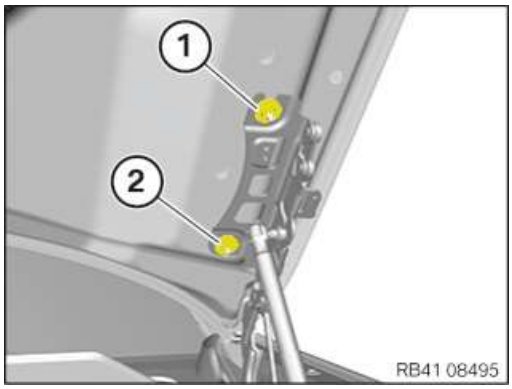
1 – Removing the bonnet

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.



NOTICE

Perform the operations on the left and right side.

- Release nut (1).
- Support the bonnet.
- Release nut (2).
- Remove the bonnet carefully.

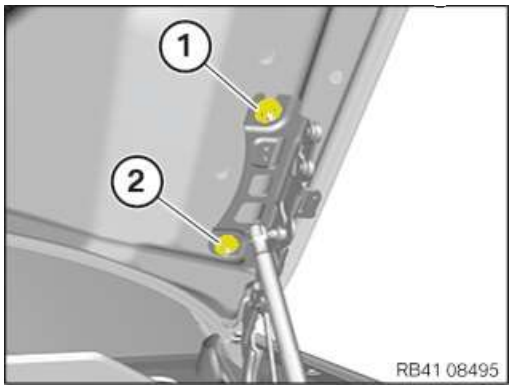
2 – Install bonnet

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.



NOTICE

Perform the operations on the left and right side.

- Fit the bonnet and position it on the hinge.
- Support the bonnet.
- Tighten nuts (1) and (2).

Bonnet to hinge

Nut M8		Tightening torque	19 Nm

Additional Information

Overview of Tightening Torques

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Bonnet to hinge Used in step 2

Nut M8		Tightening torque	19 Nm

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41 61 010 Removing and installing engine compartment lid

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

PRELIMINARY WORK

1 – Disconnecting all battery earth leads



- See additional information.

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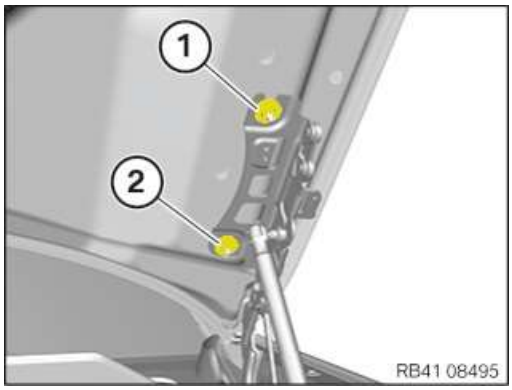
2 – Removing the bonnet

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.



NOTICE

Perform the operations on the left and right side.

- Release nut (1).
- Support the bonnet.
- Release nut (2).
- Remove the bonnet carefully.

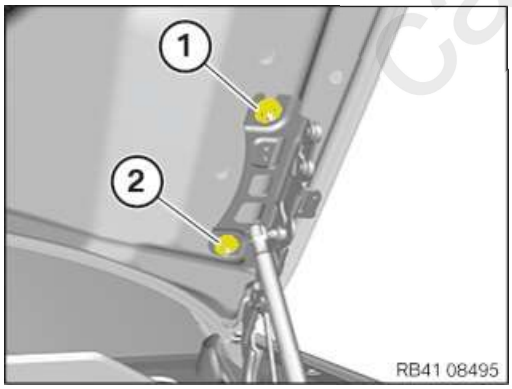
3 – Install bonnet

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.



NOTICE

Perform the operations on the left and right side.

- Fit the bonnet and position it on the hinge.
- Support the bonnet.
- Tighten nuts (1) and (2).

Bonnet to hinge

Nut M8		Tightening torque	19 Nm

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4 – Connecting all battery earth leads



- See additional information.

Additional Information

Overview of Tightening Torques

Bonnet to hinge			Used in step 3
Nut M8		Tightening torque	19 Nm

Links

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

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
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61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14

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41 61 060 Removing and installing/replacing the bonnet hinge, left

Prerequisite

- Vehicle does not have active pedestrian protection.

PRELIMINARY WORK

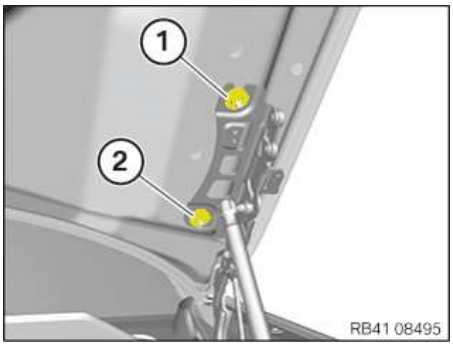
1 – Removing the bonnet

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

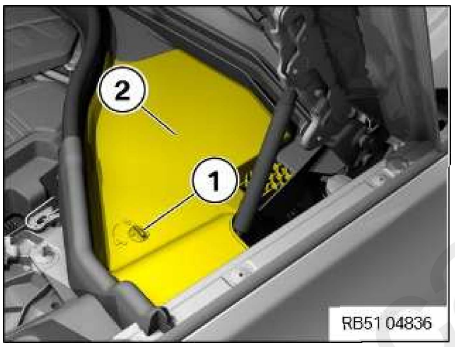


NOTICE

Perform the operations on the left and right side.

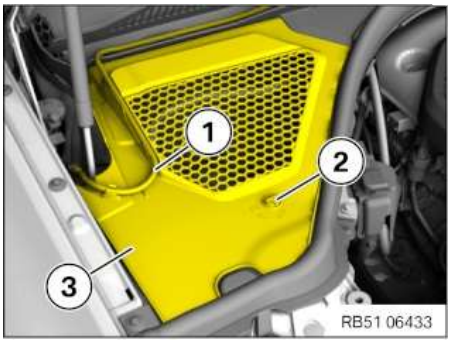
- Release nut (1).
- Support the bonnet.
- Release nut (2).
- Remove the bonnet carefully.

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



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

3 – Remove the cover of the rear right engine compartment



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

4 – Removing the wiper arm on the left and right

NOTICE

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

▸ **Remove the wiper arm**

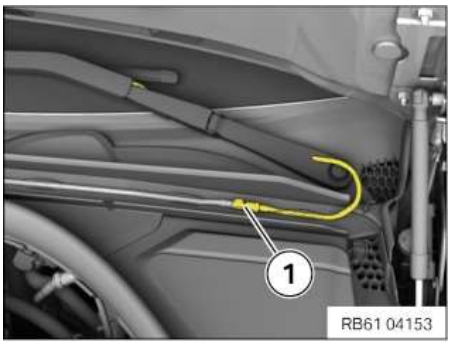
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RISK OF DAMAGE

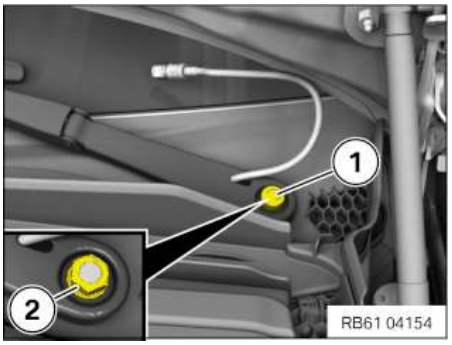
Damage to wiper console.

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

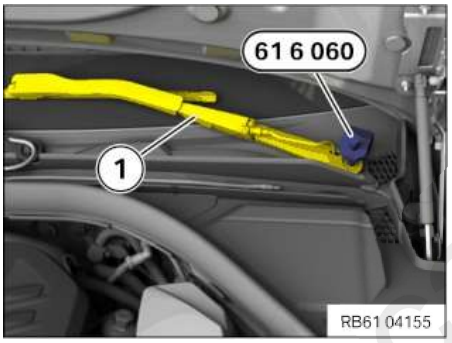
- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.



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

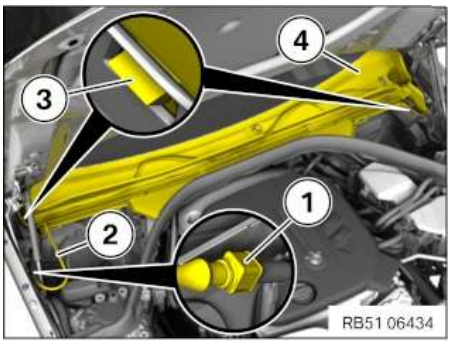


- Remove the protective cap (1).
- Loosen nut (2).



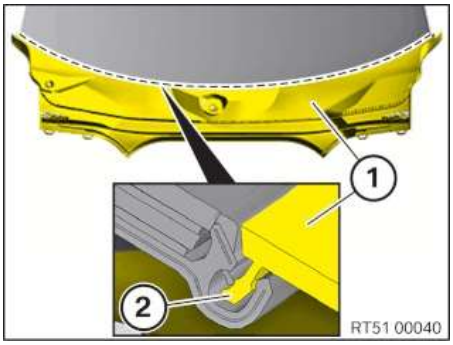
- Pull off the wiper arm (1) using special tool .

5 – Remove cowl panel cover



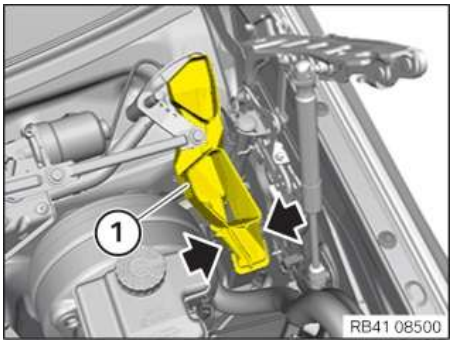
- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).

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

6 – Remove the left water drain channel



NOTICE

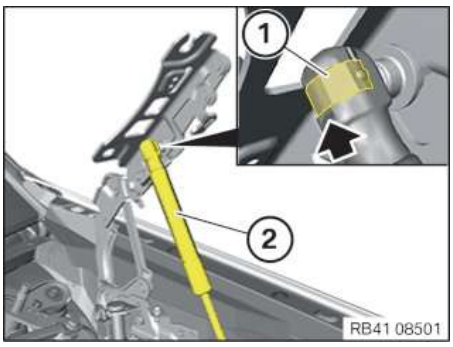
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Unlock the tabs (arrows) and remove the water drain channel (1).

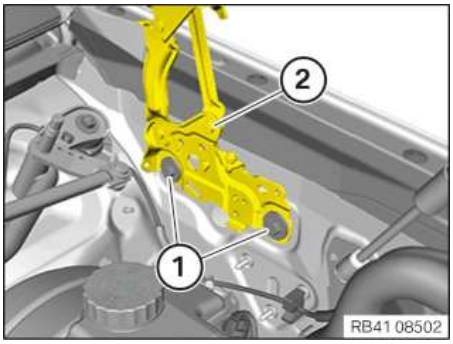
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MAIN WORK

7 – Remove left engine compartment lid hinge

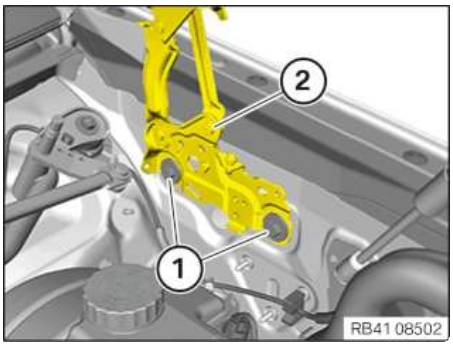


- Position the screwdriver at the recess (arrow).
- Slightly raise the clamp (1) with the screwdriver and detach the gas pressure spring (2).



- Release the screws (1) and remove the bonnet hinge (2).

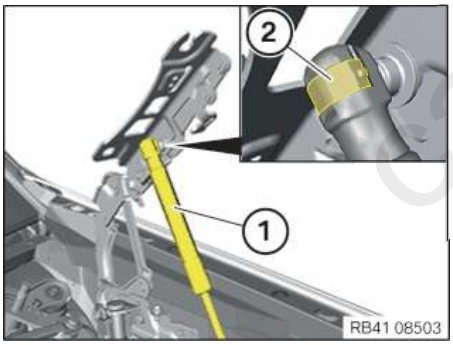
8 – Installing the engine compartment lid hinge, left



- Position the engine compartment lid hinge (2).
- Tighten the screws (1).

Engine compartment lid hinge to body

Screw		Tightening torque	28 Nm

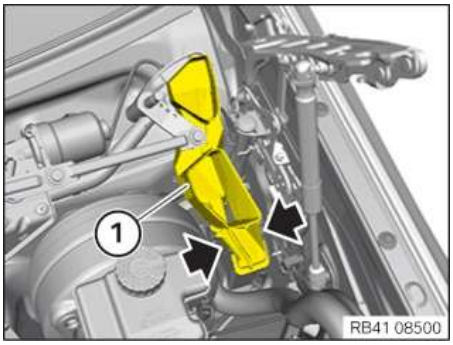


- Position the gas pressure spring (1) on the ball head and press on.
  Pay attention that the clamps (2) engage correctly.

POSTPROCESSES

9 – Install the water drain channel on the left

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NOTICE

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

- Install the water drain channel (1) and engage at the tabs (arrows).

10 – Installing cowl panel cover

RISK OF DAMAGE

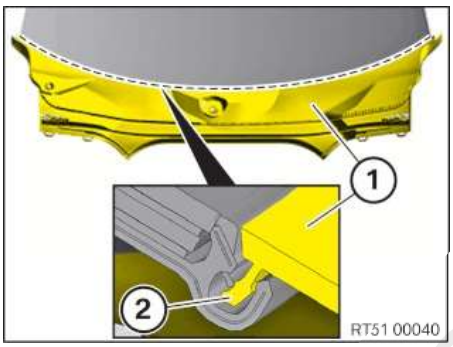
Damage caused by water ingress into the vehicle.

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

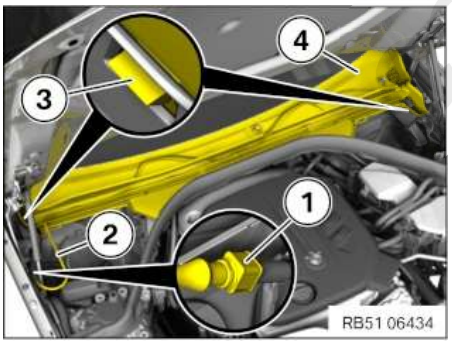
- Ensure correct installation of the components.
- Only use undamaged components.

TECHNICAL INFORMATION

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



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



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

11 – Install left and right wiper arm

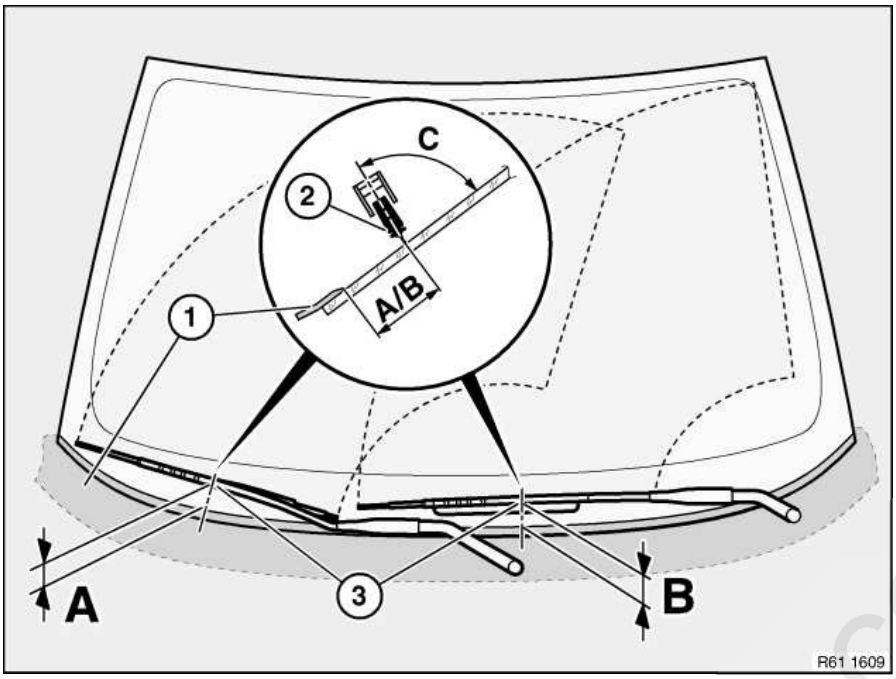
NOTICE

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

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

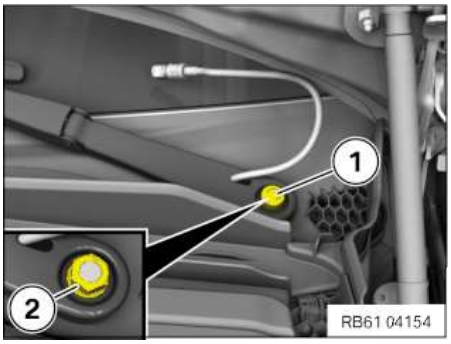
The wiper system must be in zero position.
After installing the cowl panel cover and before fitting the wiper arm:
Activate the wiper system once to ensure that it has the correct installation position.



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

Distance from window pane edge to wiper blade

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

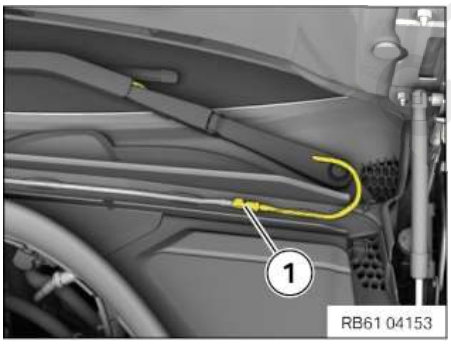


- Tighten nut (2).

Windscreen wiper arm

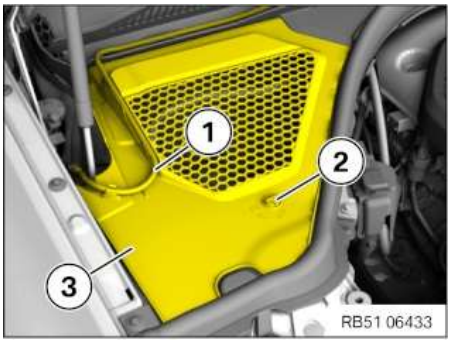
Combination hexagon nut		Tightening torque	35 Nm

- Connect the protective cap (1).



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

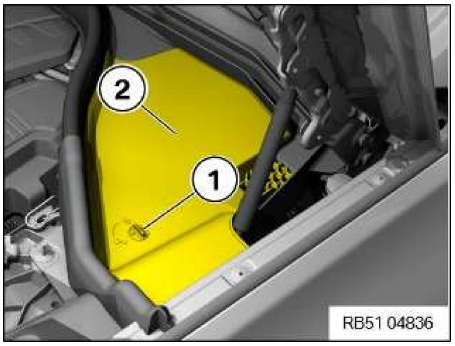
12 – Install the rear right engine compartment cover



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

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

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

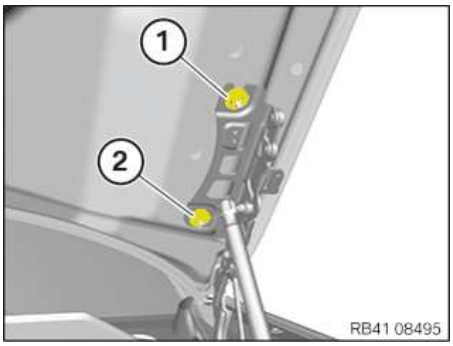
14 – Install bonnet

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.



NOTICE

Perform the operations on the left and right side.

- Fit the bonnet and position it on the hinge.
- Support the bonnet.
- Tighten nuts (1) and (2).

Bonnet to hinge

Nut M8	Tightening torque	19 Nm

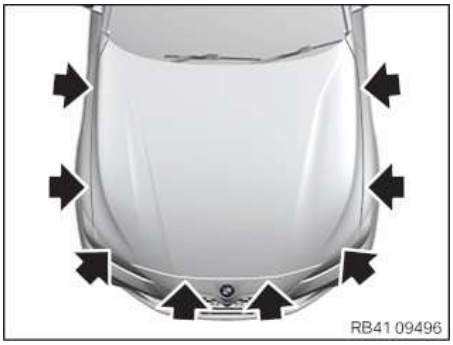
15 – Checking the gap dimension of the bonnet

TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body

Check

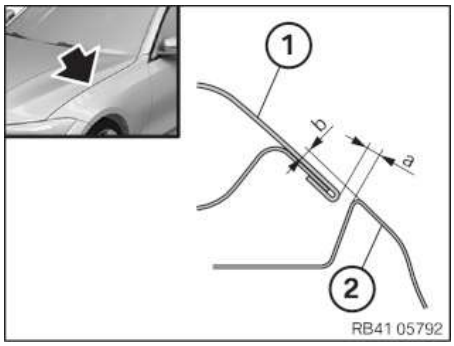
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- Check the gap dimensions between the bonnet and the adjacent components.

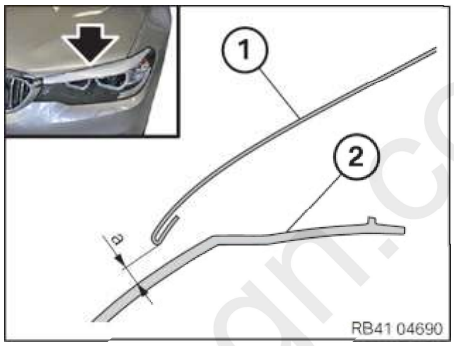
Gap dimension bonnet to front side panel

1 bonnet; 2 front side panel	
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



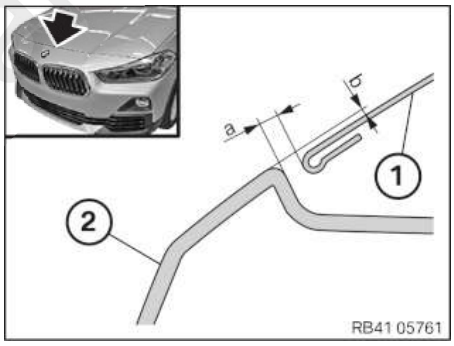
Gap dimension bonnet to headlight

1 bonnet; 2 headlight	
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to bumper panel

1 bonnet; 2 bumper panel	
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



desired state

- Gap dimension does not correspond to the secondary document 41 00 ... gap dimension body.

Result

» Gap dimension does not correspond to the secondary document 41 00 ... gap dimension body.

Measure

- Adjust bonnet.

Additional Information

Overview of Tightening Torques

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Engine compartment lid hinge to body Used in step 8

Screw		Tightening torque	28 Nm

Windscreen wiper arm Used in step 11

Combination hexagon nut		Tightening torque	35 Nm

Bonnet to hinge Used in step 14

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Overview Technical Data

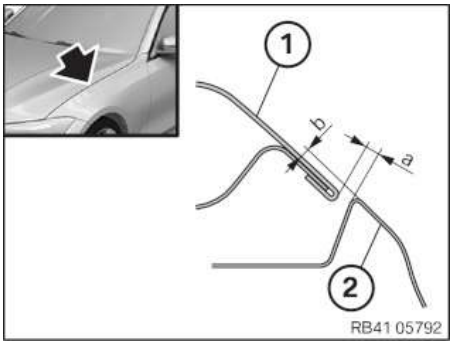
Distance from window pane edge to wiper blade Used in step 11

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

Gap dimension bonnet to front side panel Used in step 15

1 bonnet; 2 front side panel

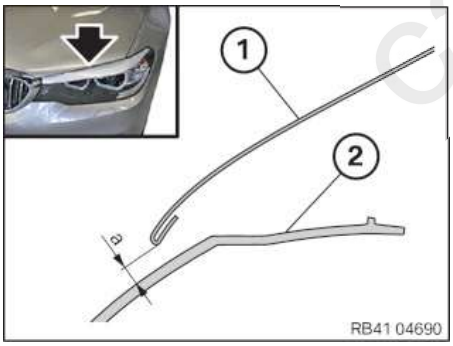
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



Gap dimension bonnet to headlight Used in step 15

1 bonnet; 2 headlight

a	5,3 (3,5 - 7,1) mm

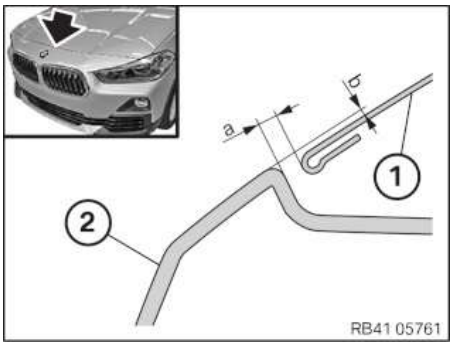


Gap dimension bonnet to bumper panel Used in step 15

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1 bonnet; 2 bumper panel

a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



Links

Repair instructions (PRE)	Used in step
Gap dimensions, body	15
Gap dimensions, body	15

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41 61 071 Removing and installing/replacing the bonnet hinge, left

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

PRELIMINARY WORK

1 – Disconnecting all battery earth leads



- See additional information.

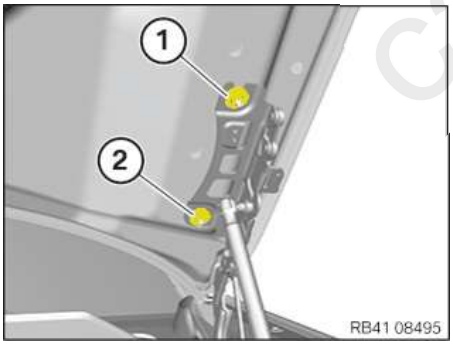
2 – Removing the bonnet

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

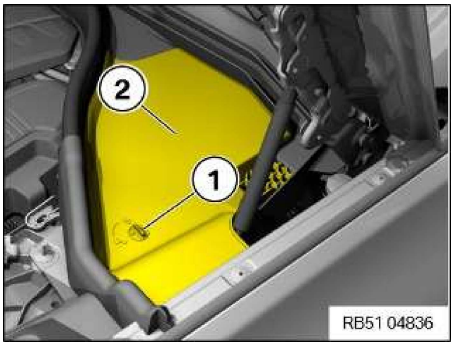


NOTICE

Perform the operations on the left and right side.

- Release nut (1).
- Support the bonnet.
- Release nut (2).
- Remove the bonnet carefully.

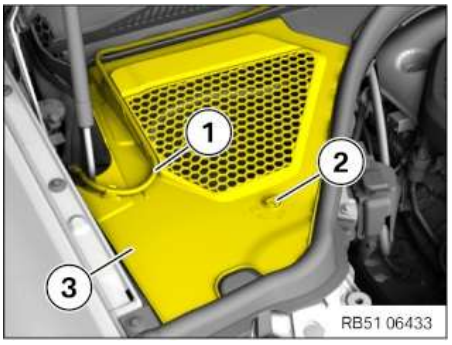
3 – Remove the cover of the engine compartment at the rear left



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

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4 – Remove the cover of the rear right engine compartment



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

5 – Removing the wiper arm on the left and right

NOTICE

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

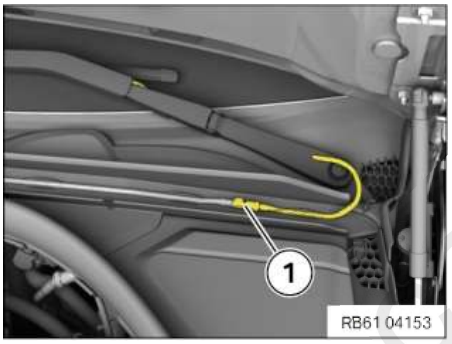
▶ **Remove the wiper arm**

RISK OF DAMAGE

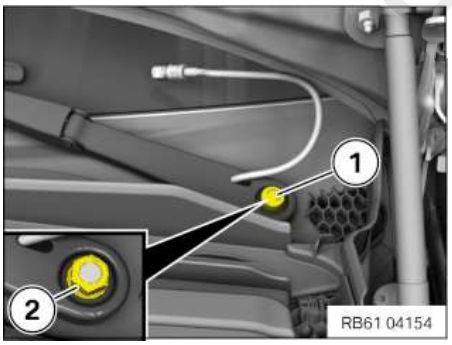
Damage to wiper console.

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

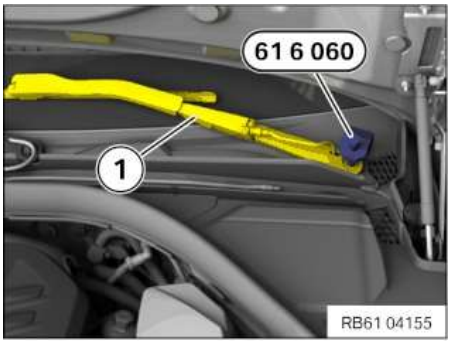
- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.



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



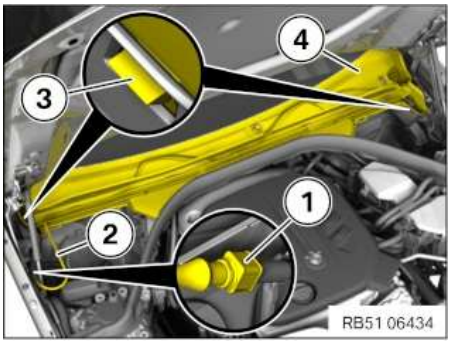
- Remove the protective cap (1).
- Loosen nut (2).



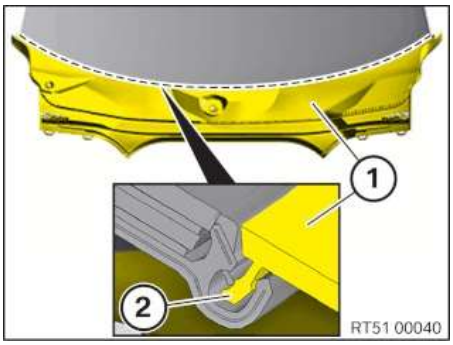
- Pull off the wiper arm (1) using special tool .

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6 – Remove cowl panel cover

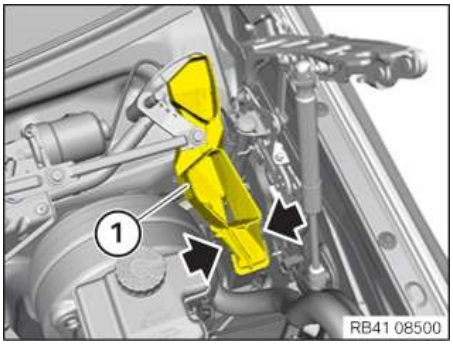


- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).



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

7 – Remove the left water drain channel



NOTICE

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

- Unlock the tabs (arrows) and remove the water drain channel (1).

8 – Remove the actuator on the left bonnet hinge

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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



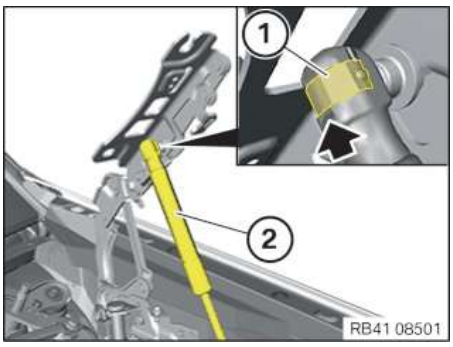
NOTICE

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

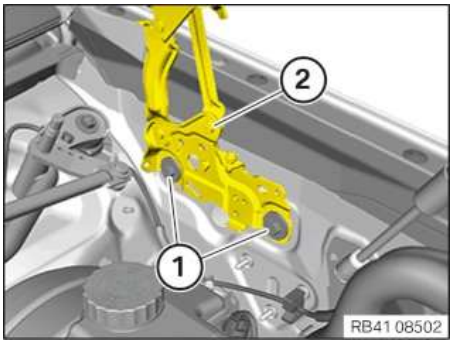
- Loosen screw (1).
- Unlock plug connection (2) and disconnect.
- Slightly pull the actuator (3) forwards in direction of arrow and remove it.

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9 – Remove left engine compartment lid hinge

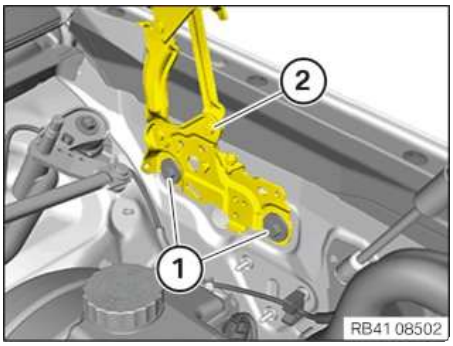


- Position the screwdriver at the recess (arrow).
- Slightly raise the clamp (1) with the screwdriver and detach the gas pressure spring (2).



- Release the screws (1) and remove the bonnet hinge (2).

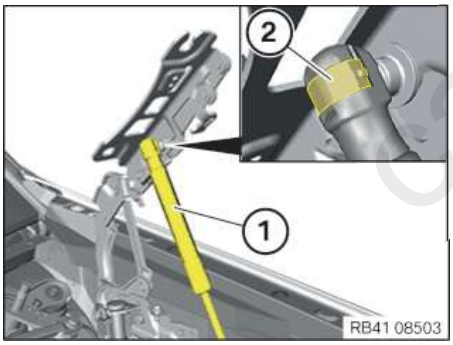
10 – Installing the engine compartment lid hinge, left



- Position the engine compartment lid hinge (2).
- Tighten the screws (1).

Engine compartment lid hinge to body

Screw		Tightening torque	28 Nm



- Position the gas pressure spring (1) on the ball head and press on.
  Pay attention that the clamps (2) engage correctly.

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11 – Install the actuator on the left bonnet hinge



NOTICE

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

- Insert the actuator (1) into the guide pin (2) and push towards the rear up to the limit position in direction of arrow.
- Renew the screw (3).

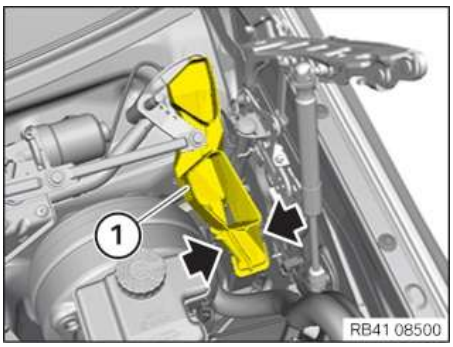
  Parts: Screw
- Tighten down screw (3).

Actuator to engine compartment lid hinge

M6x12	Renew screw.	8 Nm

- Connect connectors (4) and lock.

12 – Install the water drain channel on the left



NOTICE

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

- Install the water drain channel (1) and engage at the tabs (arrows).

13 – Installing cowl panel cover

RISK OF DAMAGE

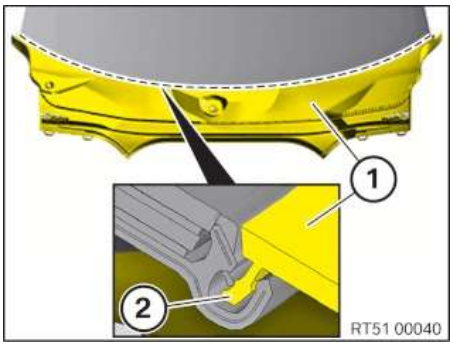
Damage caused by water ingress into the vehicle.

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

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

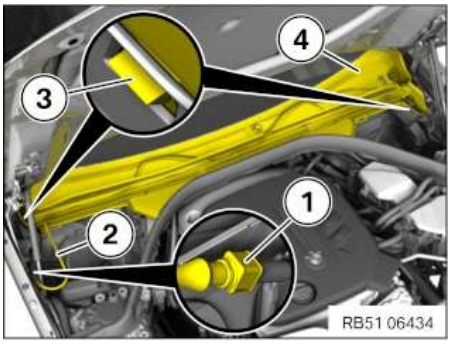
TECHNICAL INFORMATION

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



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

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

14 – Install left and right wiper arm

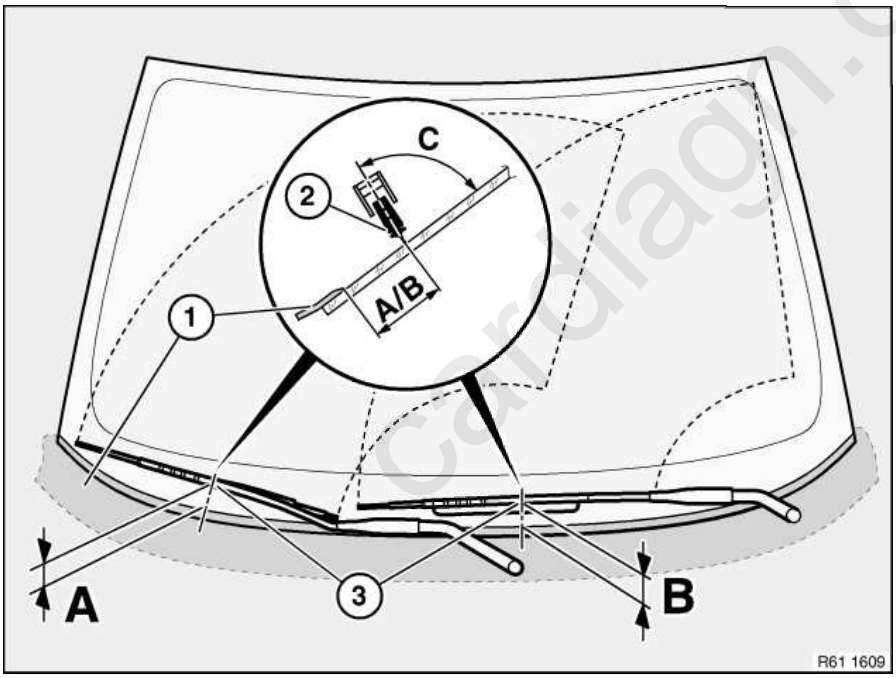
NOTICE

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

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

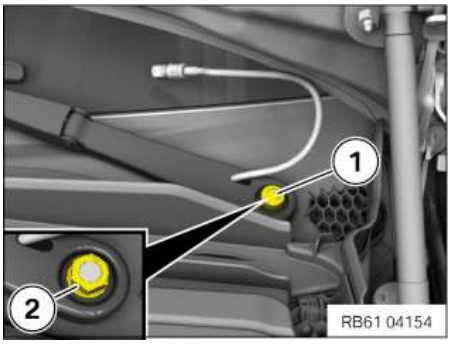
The wiper system must be in zero position.
After installing the cowl panel cover and before fitting the wiper arm:
Activate the wiper system once to ensure that it has the correct installation position.



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

Distance from window pane edge to wiper blade

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



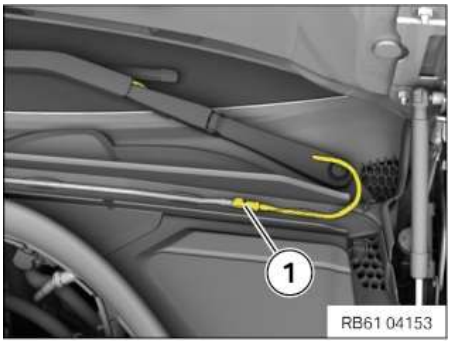
- Tighten nut (2).

Windscreen wiper arm

Combination hexagon nut		Tightening torque	35 Nm

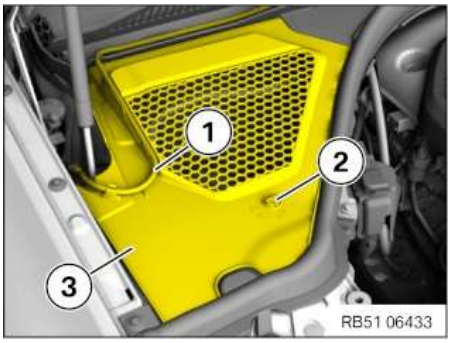
- Connect the protective cap (1).

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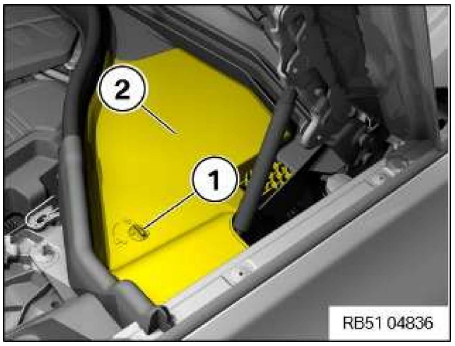
- Feed washer fluid hose (1) into the cowl panel guide and connect at the separation point.

15 – Install the rear right engine compartment cover



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

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



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

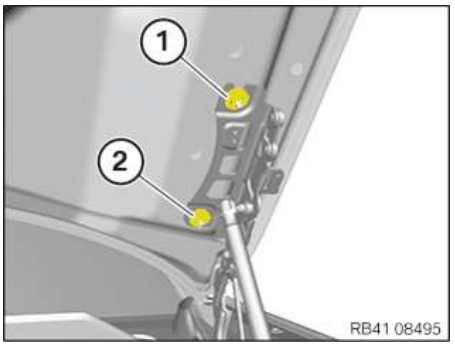
17 – Install bonnet

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.



NOTICE

Perform the operations on the left and right side.

- Fit the bonnet and position it on the hinge.
- Support the bonnet.
- Tighten nuts (1) and (2).

Bonnet to hinge

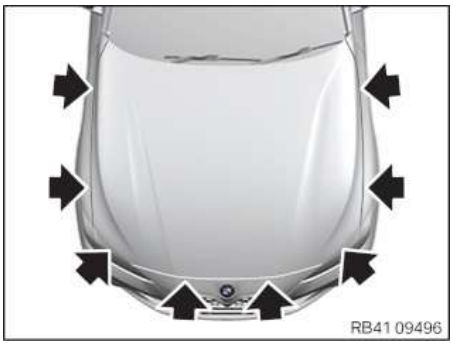
Nut M8		Tightening torque	19 Nm

18 – Checking the gap dimension of the bonnet

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TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body

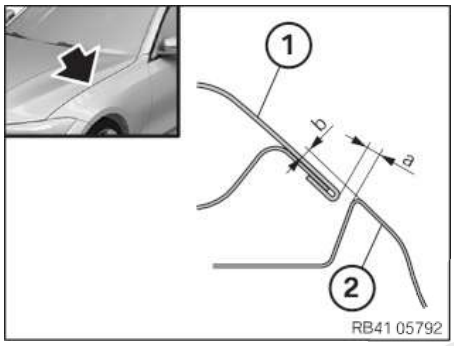


Check

- Check the gap dimensions between the bonnet and the adjacent components.

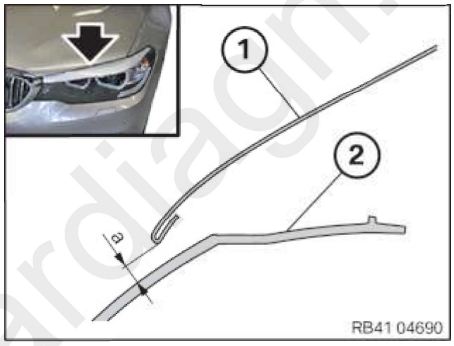
Gap dimension bonnet to front side panel

1 bonnet; 2 front side panel	
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



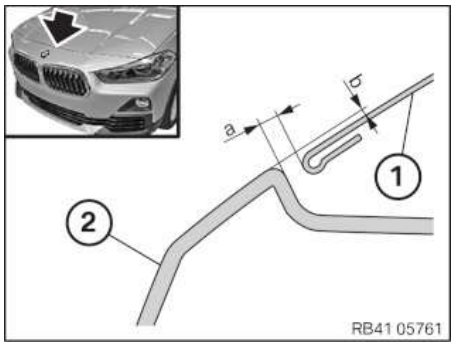
Gap dimension bonnet to headlight

1 bonnet; 2 headlight	
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to bumper panel

1 bonnet; 2 bumper panel	
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



desired state

- Gap dimension does not correspond to the secondary document 41 00 ... gap dimension body.

Result

» Gap dimension does not correspond to the secondary document 41 00 ... gap dimension body.

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Measure

- Adjust bonnet.

19 – Connecting all battery earth leads



- See additional information.

Additional Information

Overview of Tightening Torques

Engine compartment lid hinge to body			Used in step 10
Screw		Tightening torque	28 Nm

Actuator to engine compartment lid hinge			Used in step 11
M6x12	Renew screw.		8 Nm

Windscreen wiper arm			Used in step 14
Combination hexagon nut		Tightening torque	35 Nm

Bonnet to hinge			Used in step 17
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Overview Technical Data

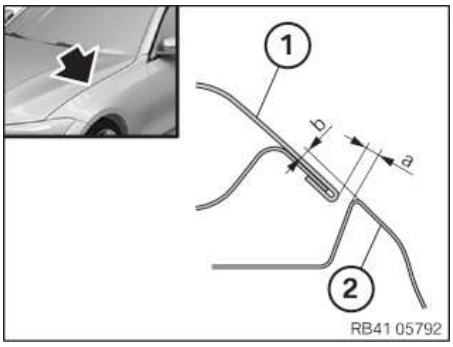
Distance from window pane edge to wiper blade	Used in step 14
Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

Gap dimension bonnet to front side panel	Used in step 18

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1 bonnet; 2 front side panel

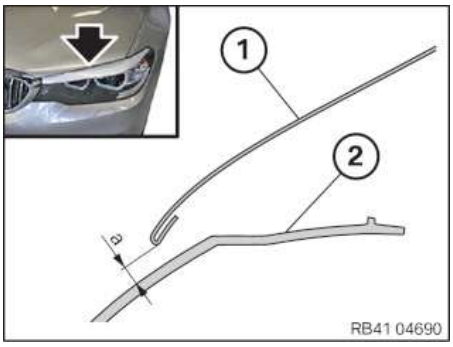
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



Gap dimension bonnet to headlight Used in step 18

1 bonnet; 2 headlight

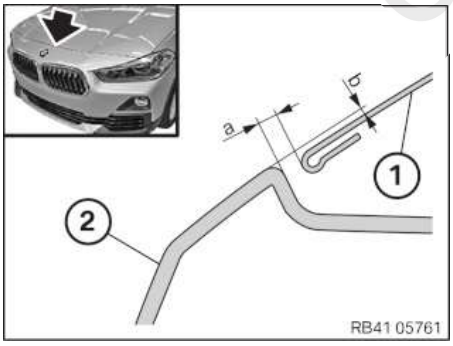
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to bumper panel Used in step 18

1 bonnet; 2 bumper panel

a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



Links

Repair instructions (PRE)	Used in step
Gap dimensions, body	18
Gap dimensions, body	18

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	8

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Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	119
61 20 900 Disconnecting and connecting battery earth lead	119
61 20 900 Disconnecting and connecting battery earth lead	119
61 20 900 Disconnecting and connecting battery earth lead	119
61 20 900 Disconnecting and connecting battery earth lead	119
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	119
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	119
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	119
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61 20 900 Disconnecting and connecting battery earth lead	119
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	119
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	119
61 20 900 Disconnecting and connecting battery earth lead	119
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	119
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	119
61 20 900 Disconnecting and connecting battery earth lead

41 61 062 Removing and installing/replacing the bonnet hinge, right

Prerequisite

- Vehicle does not have active pedestrian protection.

PRELIMINARY WORK

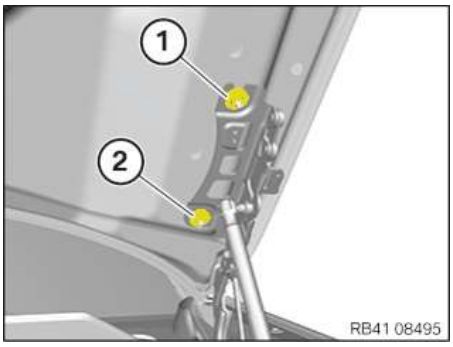
1 – Removing the bonnet

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

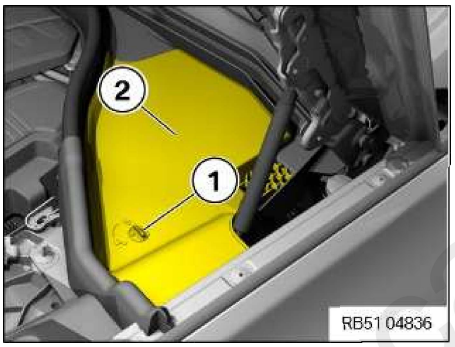


NOTICE

Perform the operations on the left and right side.

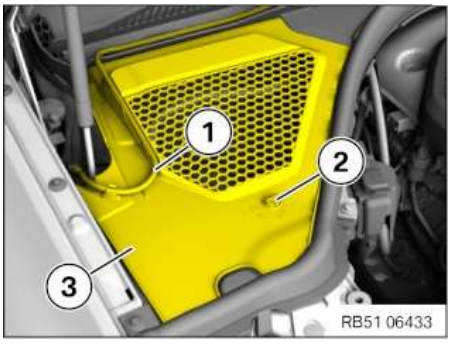
- Release nut (1).
- Support the bonnet.
- Release nut (2).
- Remove the bonnet carefully.

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



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

3 – Remove the cover of the rear right engine compartment



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

4 – Removing the wiper arm on the left and right

NOTICE

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

▸ **Remove the wiper arm**

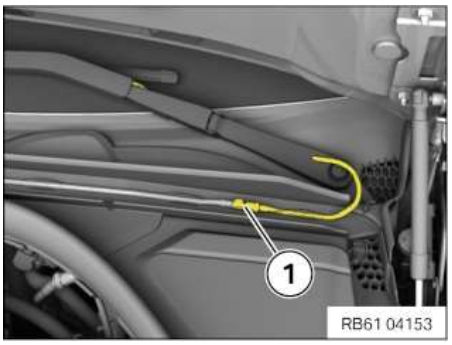
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RISK OF DAMAGE

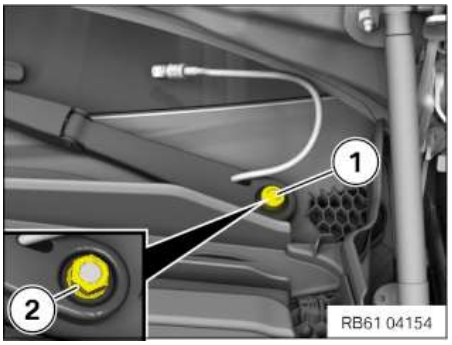
Damage to wiper console.

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

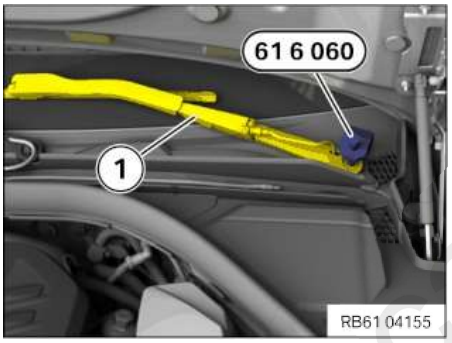
- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.



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

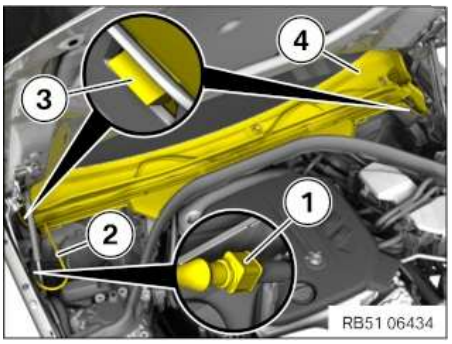


- Remove the protective cap (1).
- Loosen nut (2).



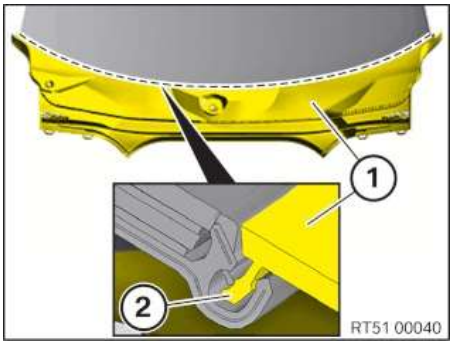
- Pull off the wiper arm (1) using special tool .

5 – Remove cowl panel cover



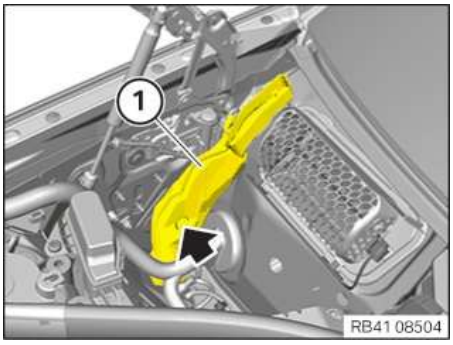
- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).

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

6 – Remove the right water drain channel



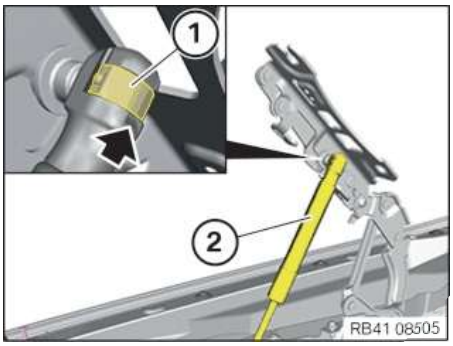
NOTICE

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

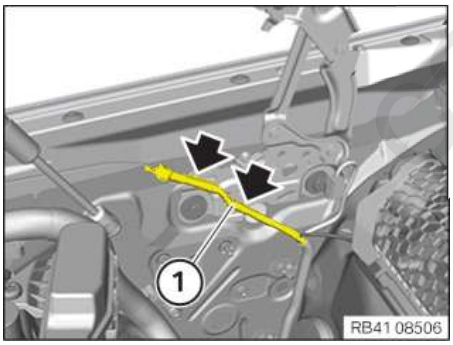
- Unclip the water drain channel (1) at the attachment point (arrow) and remove.

MAIN WORK

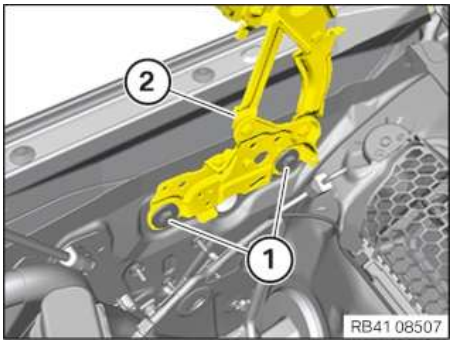
7 – Removing the engine compartment lid hinge, right



- Position the screwdriver at the recess (arrow).
- Slightly raise the clamp (1) with the screwdriver and detach the gas pressure spring (2).



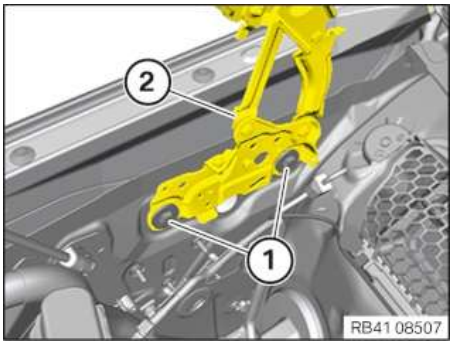
- Unclip hose pipe (1) from hinge (arrows) and set it aside.



- Release screws (1) and remove bonnet hinge (2).

8 – Installing the engine compartment lid hinge, right

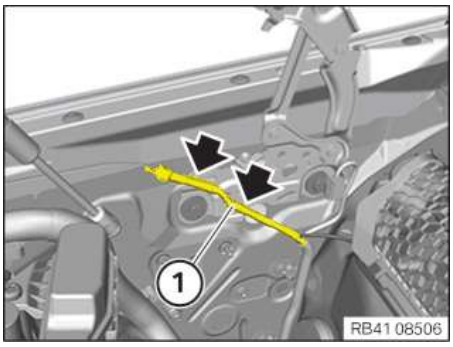
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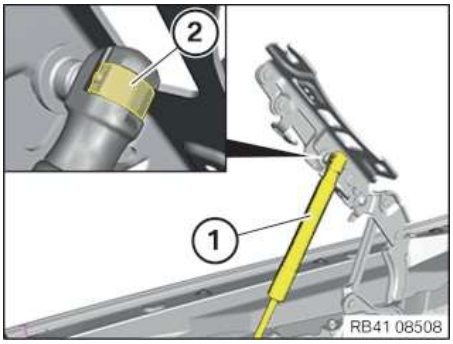
- Position bonnet hinge (2).
- Tighten the screws (1).

Engine compartment lid hinge to body

Screw		Tighten torque	28 Nm



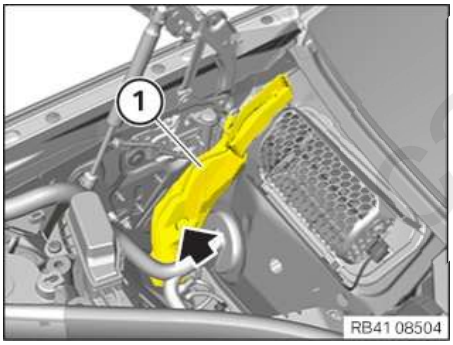
- Clip hose pipe (1) in at the attachment points (arrows) on the hinge.



- Position the gas pressure spring (1) on the ball head and press on.
  Pay attention to the clamps (2) engage correctly.

POSTPROCESSES

9 – Install the right water drain channel



NOTICE

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

- Install water drain channel (1) and clip it in at the attachment point (arrow).

10 – Installing cowl panel cover

RISK OF DAMAGE

Damage caused by water ingress into the vehicle.

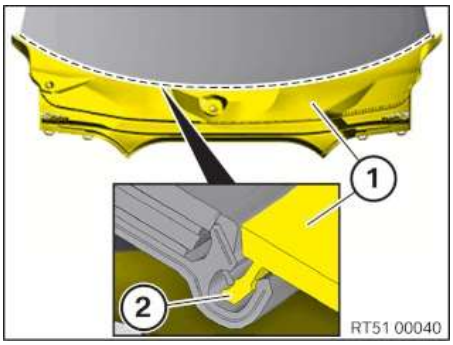
Water ingress into the vehicle may result in damage to components, malfunctions and corrosion.

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

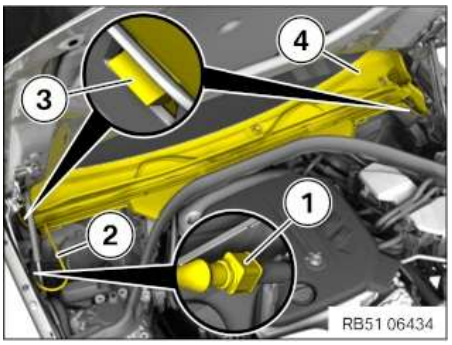
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TECHNICAL INFORMATION

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



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



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

11 – Install left and right wiper arm

NOTICE

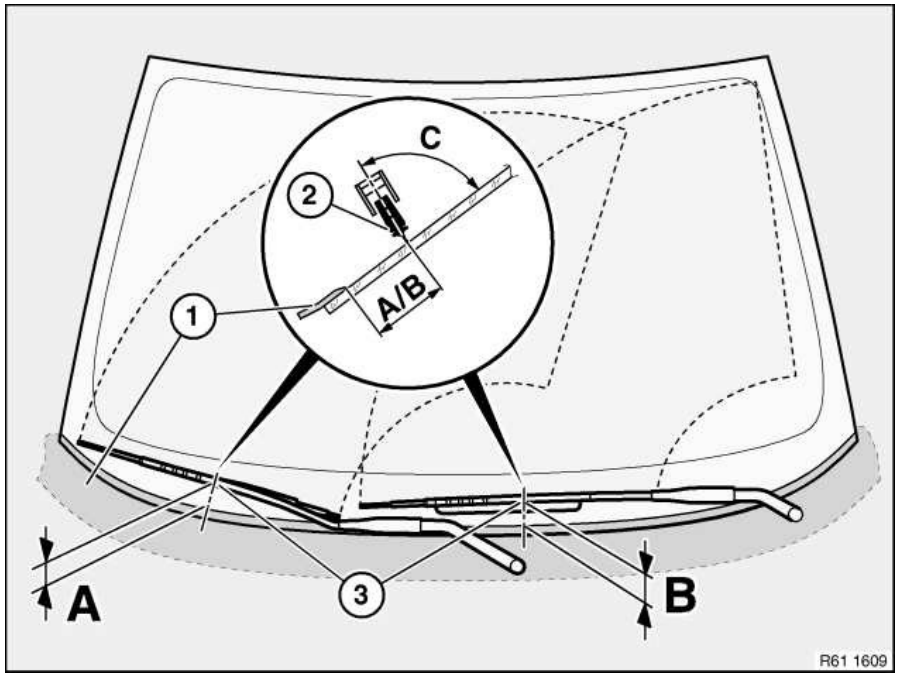
Description is for left component only. Procedure on the right side is identical.

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

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

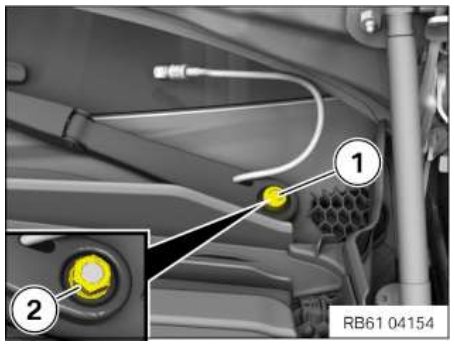
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- Connect the wiper arm (3).
- Correctly position the wiper arm (2) in relation to the window edge (1).

Distance from window pane edge to wiper blade

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

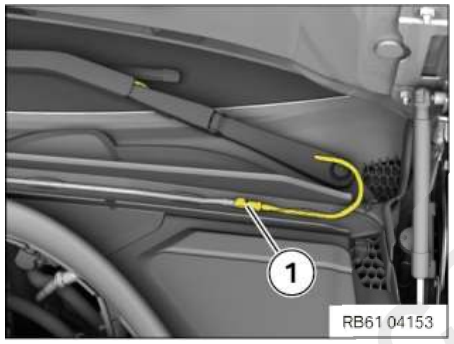


- Tighten nut (2).

Windscreen wiper arm

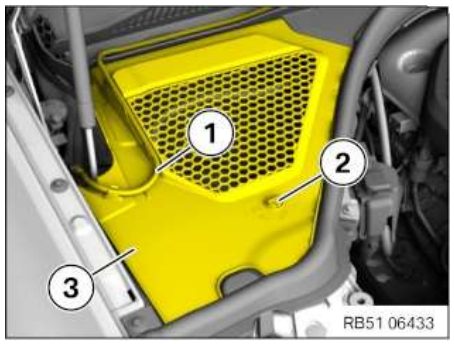
Combination hexagon nut		Tightening torque	35 Nm

- Connect the protective cap (1).



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

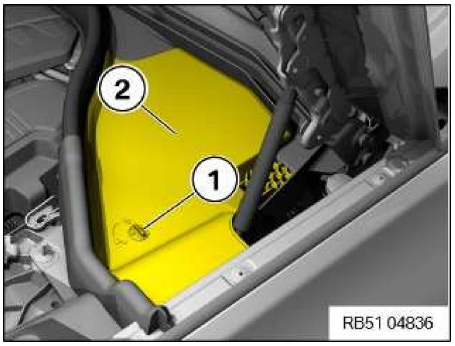
12 – Install the rear right engine compartment cover



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

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

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

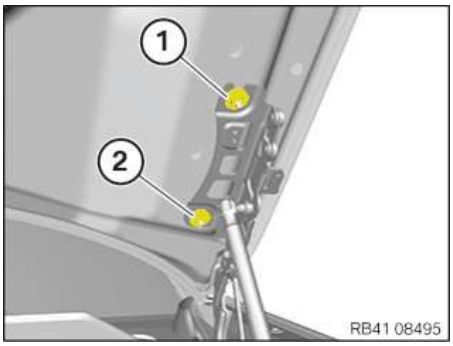
14 – Install bonnet

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.



NOTICE

Perform the operations on the left and right side.

- Fit the bonnet and position it on the hinge.
- Support the bonnet.
- Tighten nuts (1) and (2).

Bonnet to hinge

Nut M8	Tightening torque	19 Nm

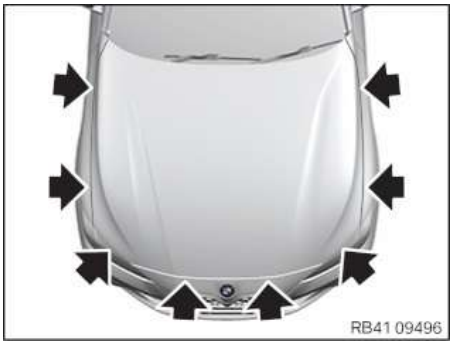
15 – Checking the gap dimension of the bonnet

TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body

Check

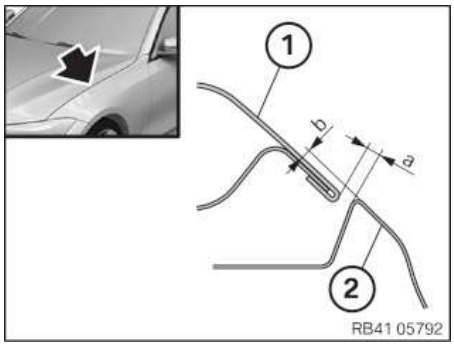
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- Check the gap dimensions between the bonnet and the adjacent components.

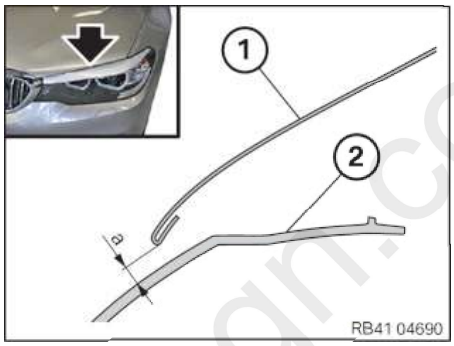
Gap dimension bonnet to front side panel

1 bonnet; 2 front side panel	
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



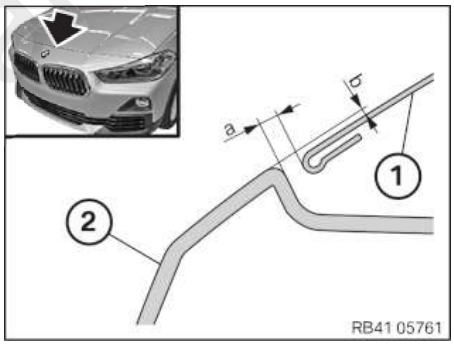
Gap dimension bonnet to headlight

1 bonnet; 2 headlight	
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to bumper panel

1 bonnet; 2 bumper panel	
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



desired state

- Gap dimension does not correspond to the secondary document 41 00 ... gap dimension body.

Result

» Gap dimension does not correspond to the secondary document 41 00 ... gap dimension body.

Measure

- Adjust bonnet.

Additional Information

Overview of Tightening Torques

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Engine compartment lid hinge to body Used in step 8

Screw		Tightening torque	28 Nm

Windscreen wiper arm Used in step 11

Combination hexagon nut		Tightening torque	35 Nm

Bonnet to hinge Used in step 14

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Overview Technical Data

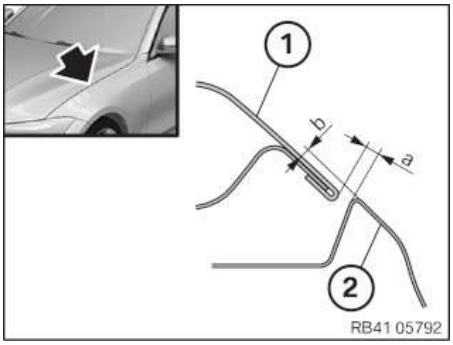
Distance from window pane edge to wiper blade Used in step 11

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

Gap dimension bonnet to front side panel Used in step 15

1 bonnet; 2 front side panel

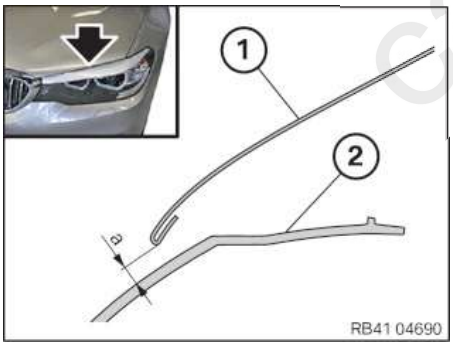
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



Gap dimension bonnet to headlight Used in step 15

1 bonnet; 2 headlight

a	5,3 (3,5 - 7,1) mm

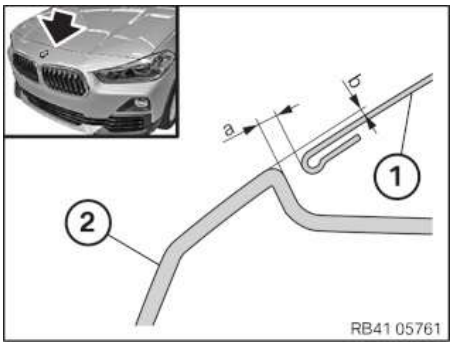


Gap dimension bonnet to bumper panel Used in step 15

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1 bonnet; 2 bumper panel

a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



Links

Repair instructions (PRE)	Used in step
Gap dimensions, body	15
Gap dimensions, body	15

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41 61 072 Removing and installing/replacing the bonnet hinge, right

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

PRELIMINARY WORK

1 – Disconnecting all battery earth leads



- See additional information.

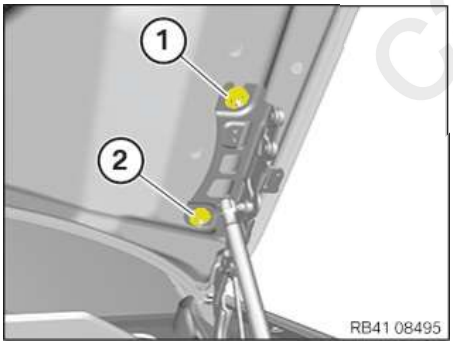
2 – Removing the bonnet

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

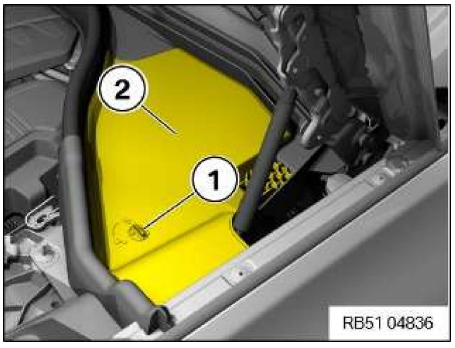


NOTICE

Perform the operations on the left and right side.

- Release nut (1).
- Support the bonnet.
- Release nut (2).
- Remove the bonnet carefully.

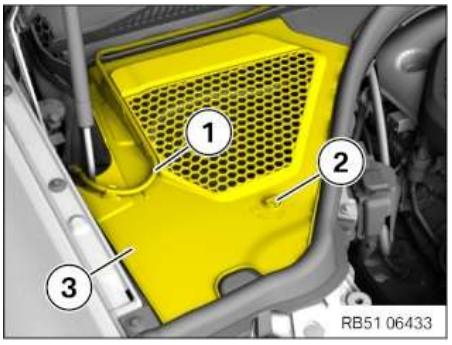
3 – Remove the cover of the engine compartment at the rear left



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

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4 – Remove the cover of the rear right engine compartment



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

5 – Removing the wiper arm on the left and right

NOTICE

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

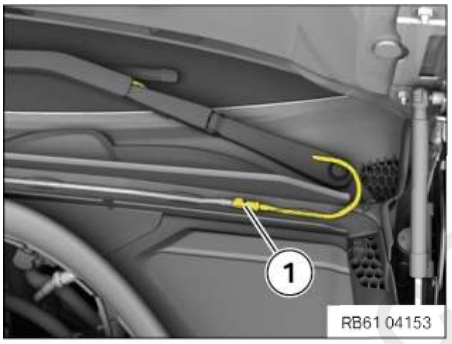
▶ **Remove the wiper arm**

RISK OF DAMAGE

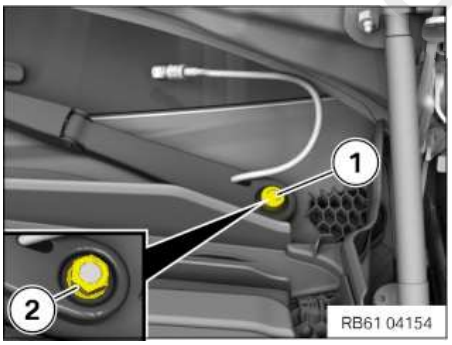
Damage to wiper console.

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

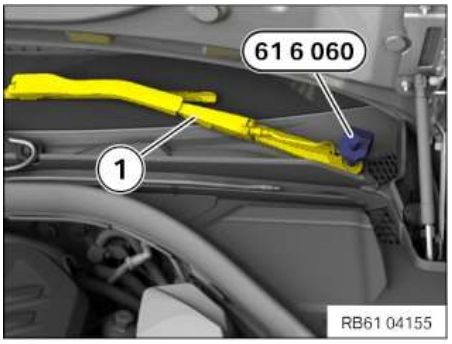
- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.



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



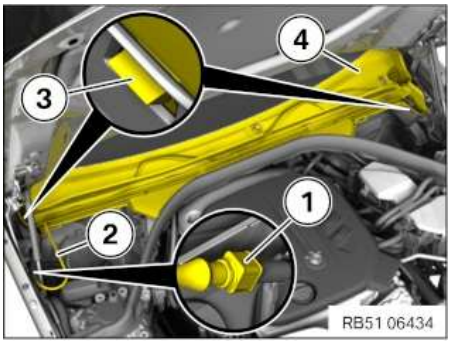
- Remove the protective cap (1).
- Loosen nut (2).



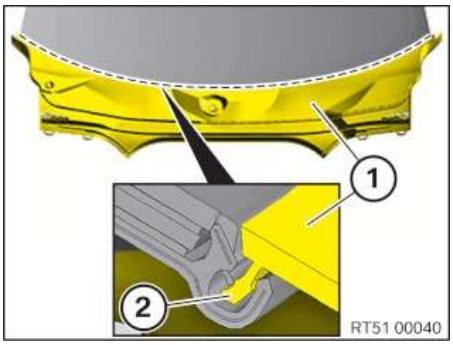
- Pull off the wiper arm (1) using special tool .

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6 – Remove cowl panel cover

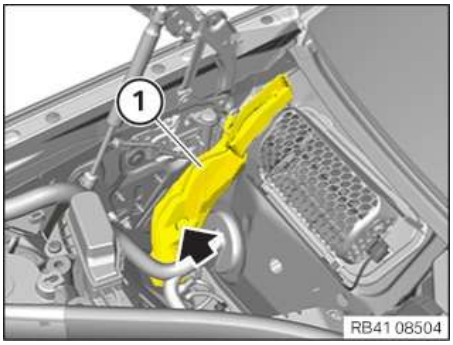


- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).



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

7 – Remove the right water drain channel



NOTICE

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

- Unclip the water drain channel (1) at the attachment point (arrow) and remove.

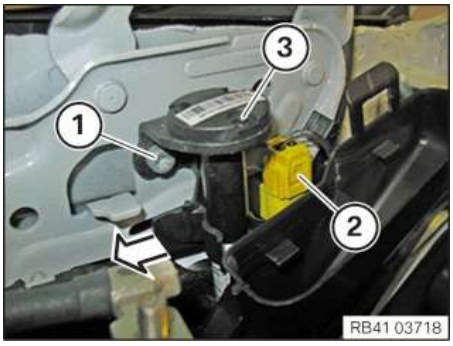
8 – Removing the actuator from the bonnet hinge on the right

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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



NOTICE

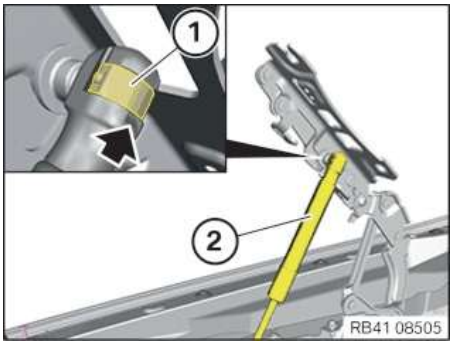
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Loosen screw (1).
- Unlock plug connection (2) and disconnect.
- Slightly pull the actuator (3) forwards in direction of arrow and remove it.

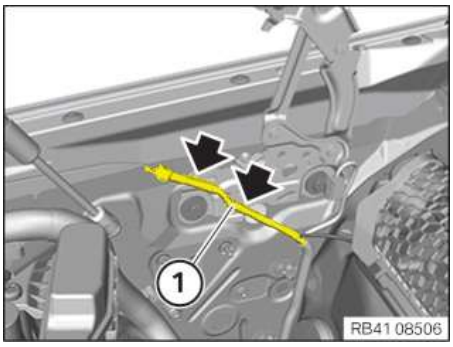
MAIN WORK

9 – Removing the engine compartment lid hinge, right

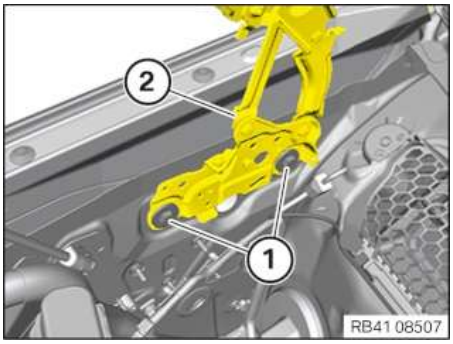
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- Position the screwdriver at the recess (arrow).
- Slightly raise the clamp (1) with the screwdriver and detach the gas pressure spring (2).

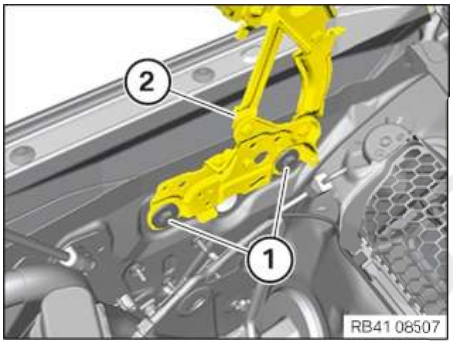


- Unclip hose pipe (1) from hinge (arrows) and set it aside.



- Release screws (1) and remove bonnet hinge (2).

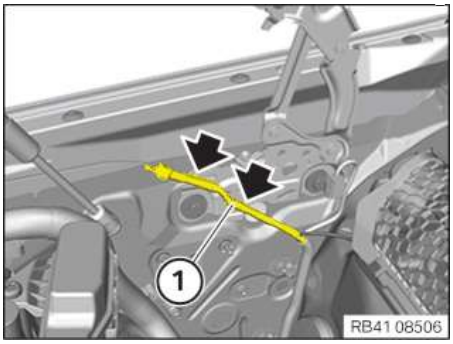
10 – Installing the engine compartment lid hinge, right



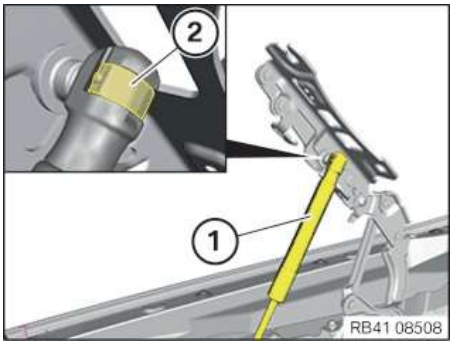
- Position bonnet hinge (2).
- Tighten the screws (1).

Engine compartment lid hinge to body

Screw		Tightening torque	28 Nm



- Clip hose pipe (1) in at the attachment points (arrows) on the hinge.

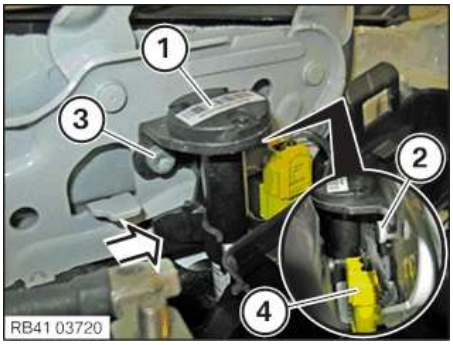


- Position the gas pressure spring (1) on the ball head and press on.

  Pay attention to the clamps (2) engage correctly.

POSTPROCESSES

11 – Installing the actuator on the right bonnet hinge



NOTICE

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

- Insert the actuator (1) into the guide pin (2) and push towards the rear up to the limit position in direction of arrow.
- Renew the screw (3).

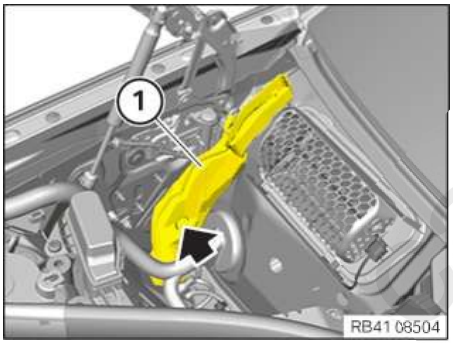
  Parts: Screw
- Tighten down screw (3).

Actuator to engine compartment lid hinge

M6x12	Renew screw.	8 Nm

- Connect connectors (4) and lock.

12 – Install the right water drain channel



NOTICE

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

- Install water drain channel (1) and clip it in at the attachment point (arrow).

13 – Installing cowl panel cover

RISK OF DAMAGE

Damage caused by water ingress into the vehicle.

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

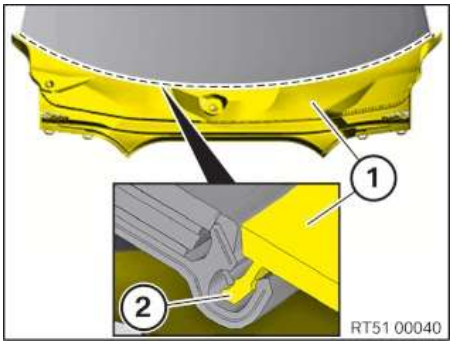
- Ensure correct installation of the components.
- Only use undamaged components.

TECHNICAL INFORMATION

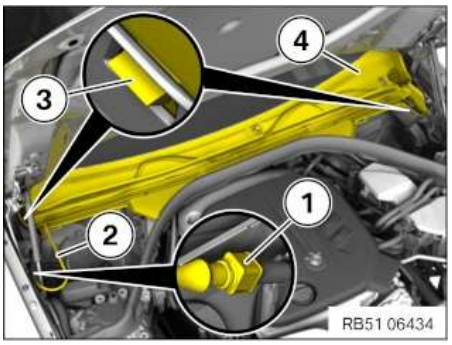
Before installing the cowl panel cover it is **mandatory** to check that the 48 V line is routed correctly and fitted tightly.

An incorrectly laid or attached 48 V line can be damaged by the wiper kinematics.

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



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

14 – Install left and right wiper arm

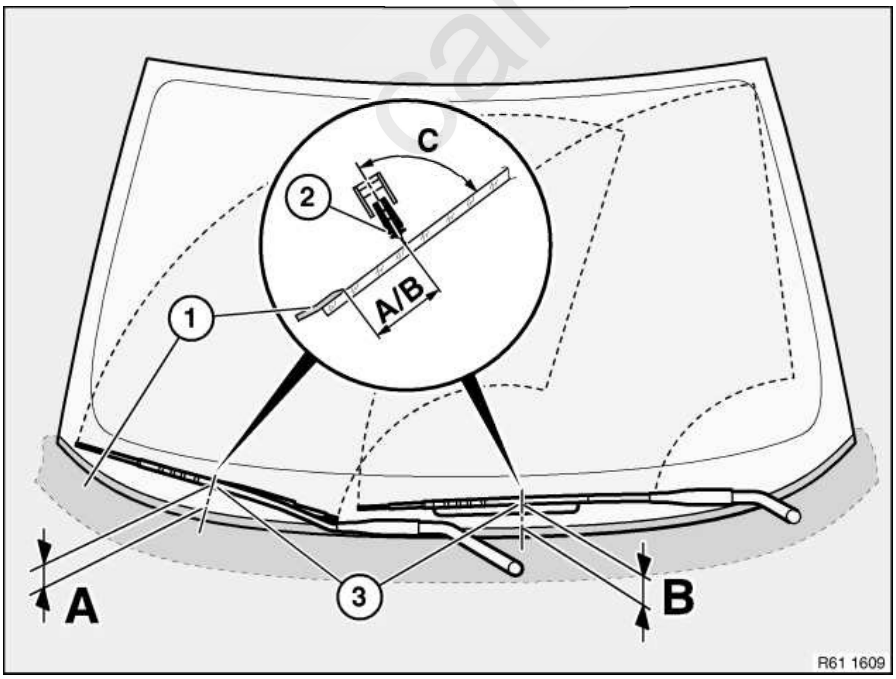
NOTICE

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

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

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

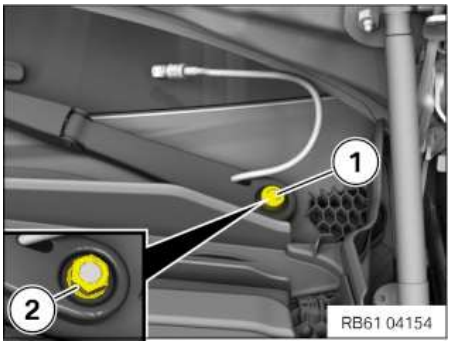


- Connect the wiper arm (3).
- Correctly position the wiper arm (2) in relation to the window edge (1).

Distance from window pane edge to wiper blade

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

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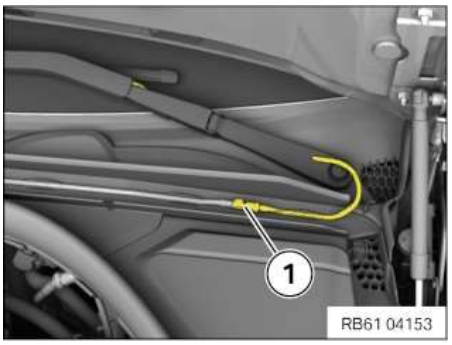


- Tighten nut (2).

Windscreen wiper arm

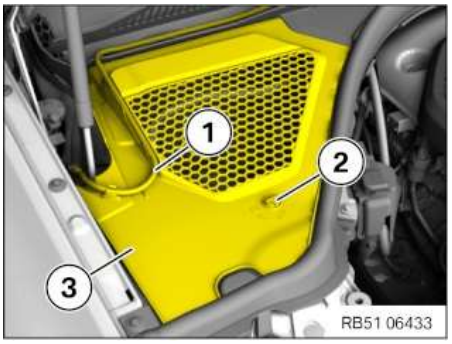
Combination hexagon nut		Tightening torque	35 Nm

- Connect the protective cap (1).



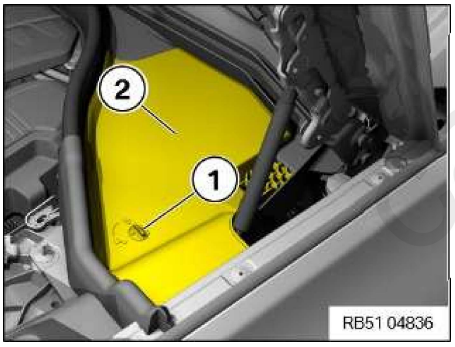
- Feed washer fluid hose (1) into the cowl panel guide and connect at the separation point.

15 – Install the rear right engine compartment cover



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

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



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

17 – Install bonnet

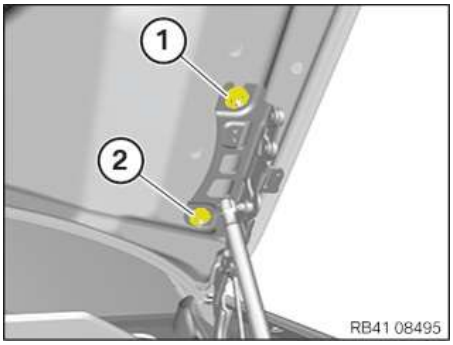
RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

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NOTICE

Perform the operations on the left and right side.

- Fit the bonnet and position it on the hinge.
- Support the bonnet.
- Tighten nuts (1) and (2).

Bonnet to hinge

Nut M8		Tightening torque	19 Nm

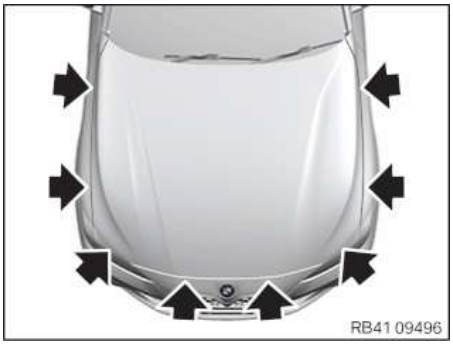
18 – Checking the gap dimension of the bonnet

TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body

Check

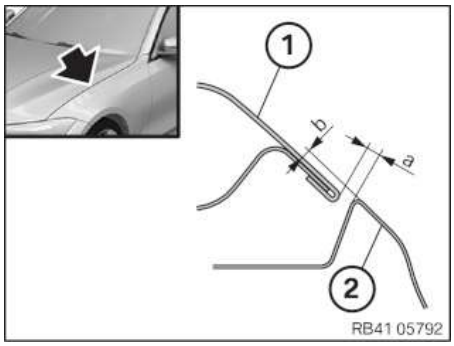
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- Check the gap dimensions between the bonnet and the adjacent components.

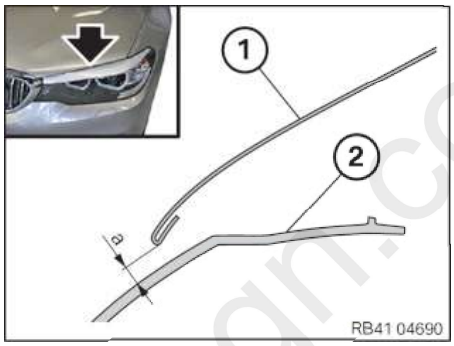
Gap dimension bonnet to front side panel

1 bonnet; 2 front side panel	
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



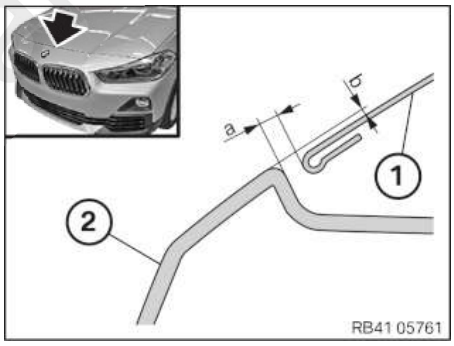
Gap dimension bonnet to headlight

1 bonnet; 2 headlight	
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to bumper panel

1 bonnet; 2 bumper panel	
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



desired state

- Gap dimension does not correspond to the secondary document 41 00 ... gap dimension body.

Result

» Gap dimension does not correspond to the secondary document 41 00 ... gap dimension body.

Measure

- Adjust bonnet.

19 – Connecting all battery earth leads

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- See additional information.

Additional Information

Overview of Tightening Torques

Engine compartment lid hinge to body			Used in step 10
Screw		Tightening torque	28 Nm

Actuator to engine compartment lid hinge			Used in step 11
M6x12	Renew screw.		8 Nm

Windscreen wiper arm			Used in step 14
Combination hexagon nut		Tightening torque	35 Nm

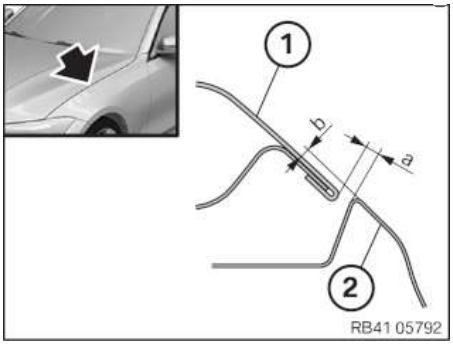
Bonnet to hinge			Used in step 17
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Overview Technical Data

Distance from window pane edge to wiper blade	Used in step 14
Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

Gap dimension bonnet to front side panel	Used in step 18
1 bonnet; 2 front side panel	
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm

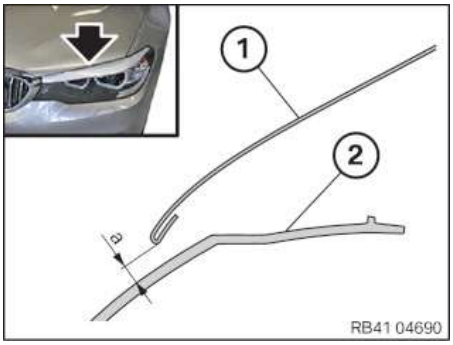


Gap dimension bonnet to headlight	Used in step 18

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1 bonnet; 2 headlight

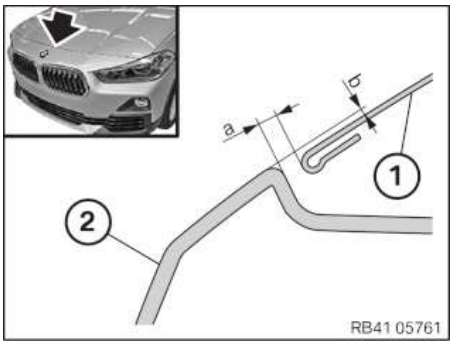
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to bumper panel Used in step 18

1 bonnet; 2 bumper panel

a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



Links

Repair instructions (PRE)	Used in step
Gap dimensions, body	18
Gap dimensions, body	18

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

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	119
61 20 900 Disconnecting and connecting battery earth lead	119
61 20 900 Disconnecting and connecting battery earth lead	119
61 20 900 Disconnecting and connecting battery earth lead	119
61 20 900 Disconnecting and connecting battery earth lead	119
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	119
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61 20 900 Disconnecting and connecting battery earth lead	119
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	119

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61 20 900 Disconnecting and connecting battery earth lead 119

61 20 900 Disconnecting and connecting battery earth lead 119
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61 20 900 Disconnecting and connecting battery earth lead 119
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61 20 900 Disconnecting and connecting battery earth lead 119
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 119
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle) 119
61 20 900 Disconnecting and connecting battery earth lead 119
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61 20 900 Disconnecting and connecting battery earth lead 119

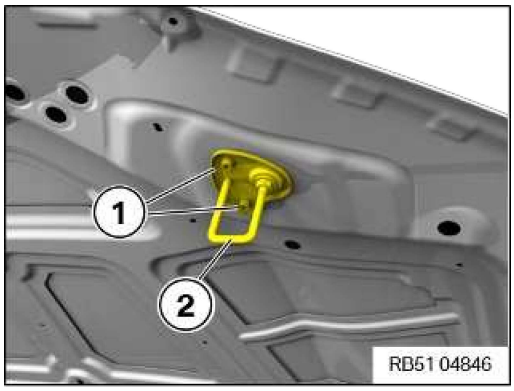
41 61 001 Replacing the bonnet

Prerequisite

- Vehicle does not have active pedestrian protection.

PRELIMINARY WORK

1 – Removing the bonnet striker



- Loosen the screws (1) and remove the striker (2).

MAIN WORK

2 – Replacing the bonnet

Prerequisite

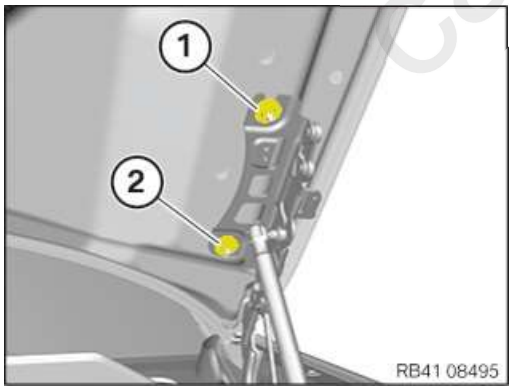
New part is painted.

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

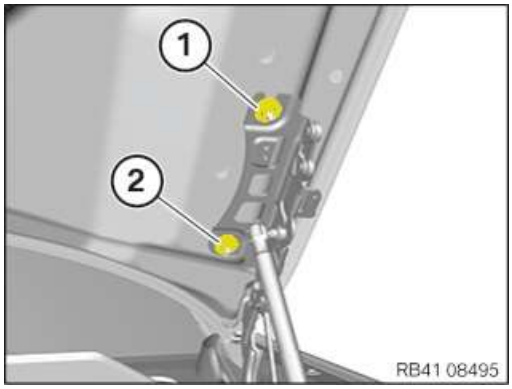


NOTICE

Perform the operations on the left and right side.

- Support the bonnet.
- Release the nuts (1) and (2) and remove the bonnet.

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NOTICE

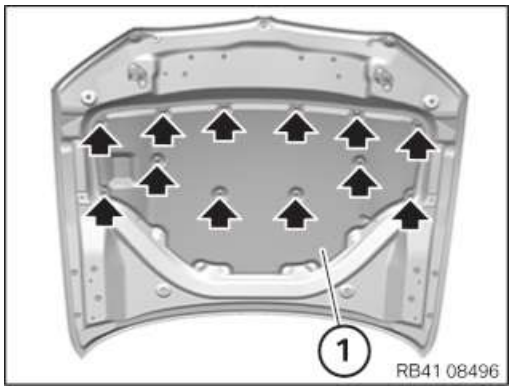
Perform the operations on the left and right side.

- Position the new bonnet at the bonnet hinge. Observe the existing impressions of nuts (1) and (2).
- Support the bonnet.
- Tighten nuts (1) and (2).

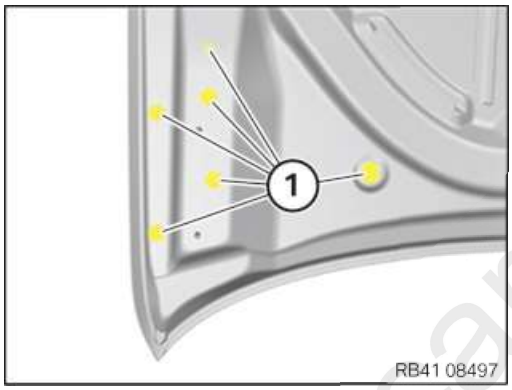
Bonnet to hinge

Nut M8		Tightening torque	19 Nm

- Slowly close the front flap and check for body ground, reposition front flap if necessary.



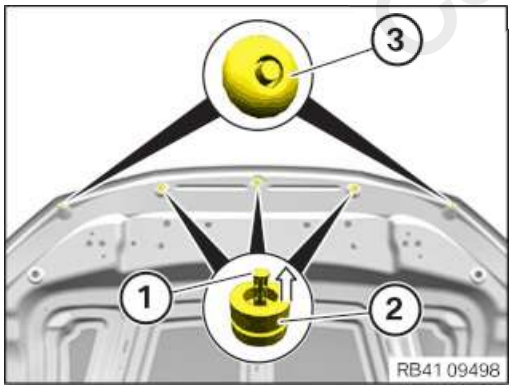
- Release all clips (arrows) using the special tool 2 298 505.
- Remove damping material (1) and install on the new bonnet.
- Fit all clips.



NOTICE

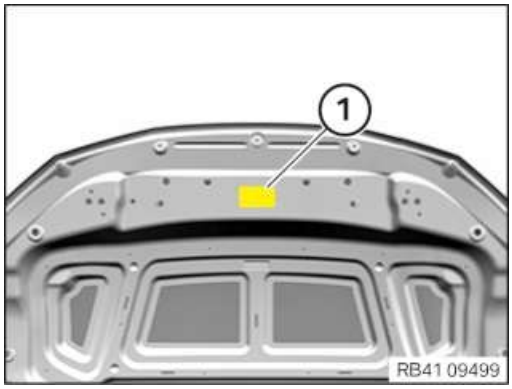
Perform the operations on the left and right side.

- Remount the seal plug on the new bonnet(1).



- Pull out the locking pin (1) in direction of arrow.
- Remove spacer (2) and install on the new bonnet.
- Remount seal plug (3) on the new front flap.

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- Renew the sign (1) for the refrigerant.

  Parts: Label
- Stick the sign onto the new bonnet.

POSTPROCESSES

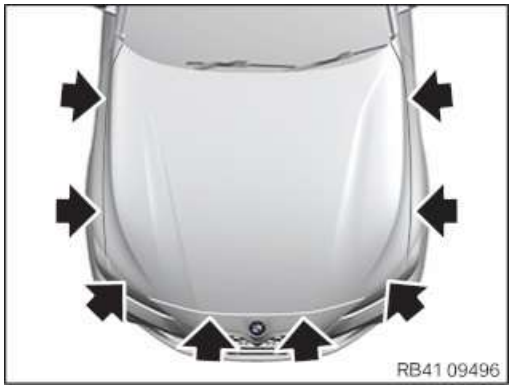
3 – Adjusting bonnet

TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body

Check

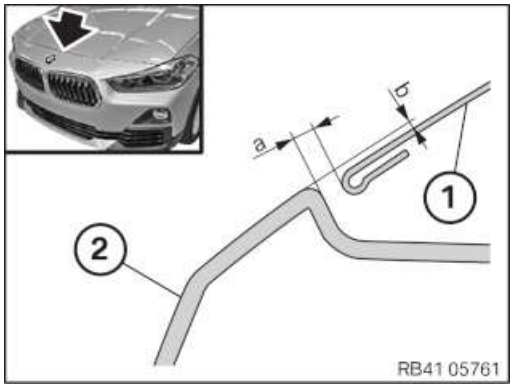
cardiagn.com



- Check gap dimensions sides between bonnet and adjoining components.

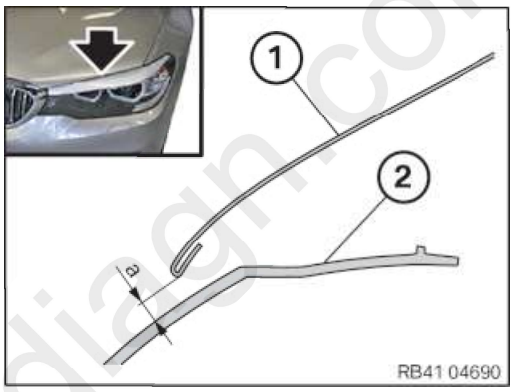
Gap dimension bonnet to bumper panel

1 bonnet; 2 bumper panel	
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



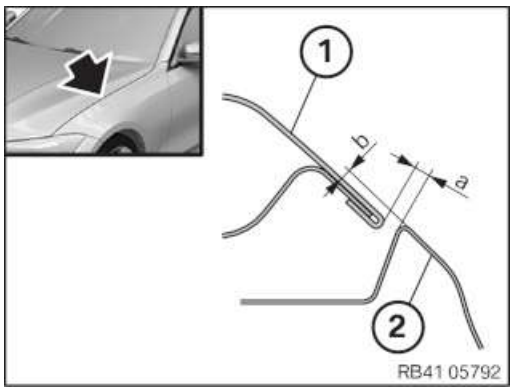
Gap dimension bonnet to headlight

1 bonnet; 2 headlight	
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to front side panel

1 bonnet; 2 front side panel	
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



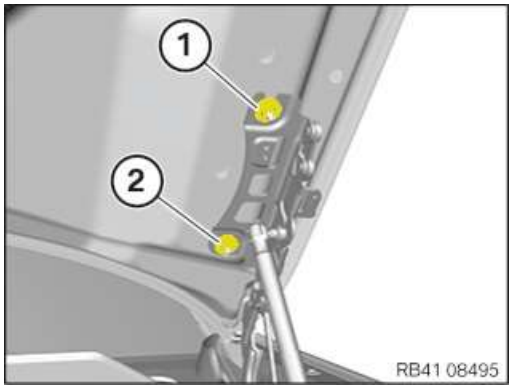
Result

» Gap dimensions do not correspond to the specifications.

Measure

- Adjust bonnet at the bonnet hinge.

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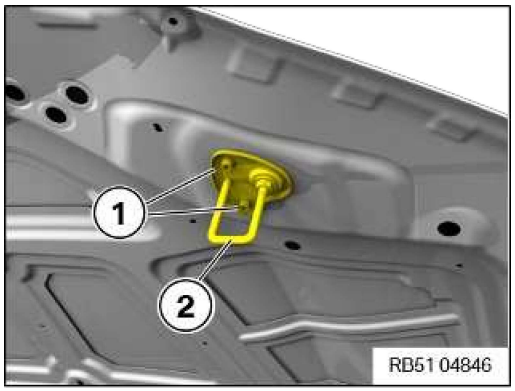


- Loosen nuts (1) and (2) until the bonnet can be pushed.
- Move the bonnet in longitudinal and sidewise direction until the bonnet reaches the predefined gap dimension.
- Tighten nuts (1) and (2).

Bonnet to hinge

Nut M8		Tightening torque	19 Nm

4 – Installing the bonnet striker



- Position striker (2) on bonnet and tighten with screws (1).

Striker to bonnet

Screw		Tightening torque	8 Nm

5 – Adjusting the striker on the bonnet

Check

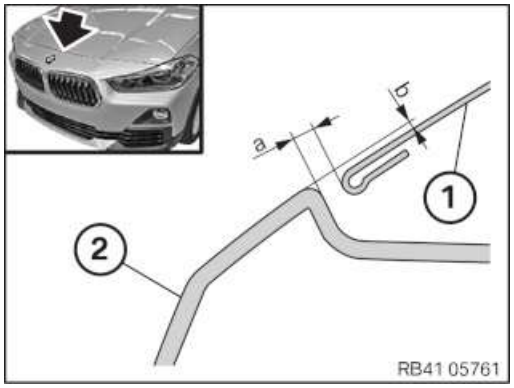
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- Check gap dimensions between bonnet and the adjoining components.

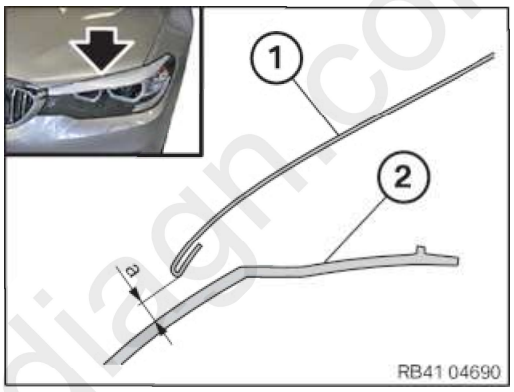
Gap dimension bonnet to bumper panel

1 bonnet; 2 bumper panel	
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



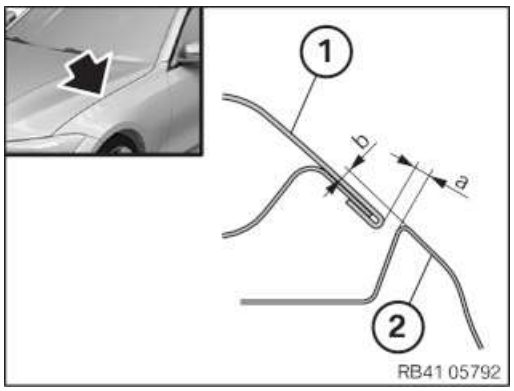
Gap dimension bonnet to headlight

1 bonnet; 2 headlight	
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to front side panel

1 bonnet; 2 front side panel	
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



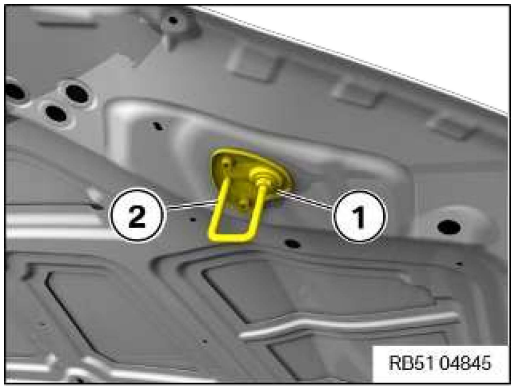
Result

» Gap dimensions do not correspond to the specifications.

Measure

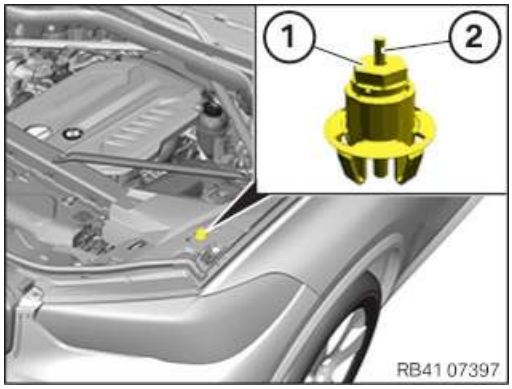
- Adjust the striker.

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- Adjust striker (2) by turning nut (1).

▸ **Adjusting the stop pads of the bonnet**



NOTICE

Perform the operations on the left and right side.

- Screw in stop pads (1) fully until the pin (2) can be pulled out.
  Pull out the pin (2) by approximately 5 mm.
- Slowly close bonnet. Pin (2) is pressed into stop pad (1) .
- Raise bonnet.
- Unscrew stop pad (1) until the stop pad is flush with the upper edge of pin (2).

Additional Information

Overview of Tightening Torques

Bonnet to hinge — Used in step 23

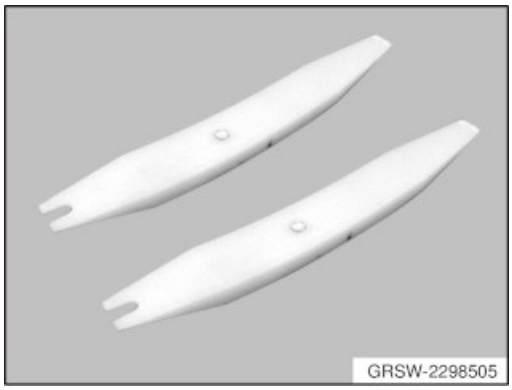
Nut M8		Tightening torque	19 Nm

Striker to bonnet — Used in step 4

Screw		Tightening torque	8 Nm

Overview of Special Tools

2 298 505 Wedge



Common — Used in step 2

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

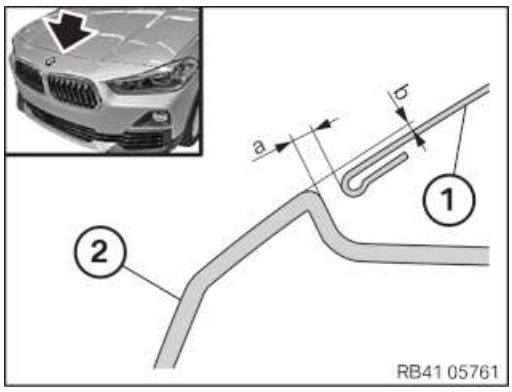
Overview Technical Data

Gap dimension bonnet to bumper panel — Used in step 35

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1 bonnet; 2 bumper panel

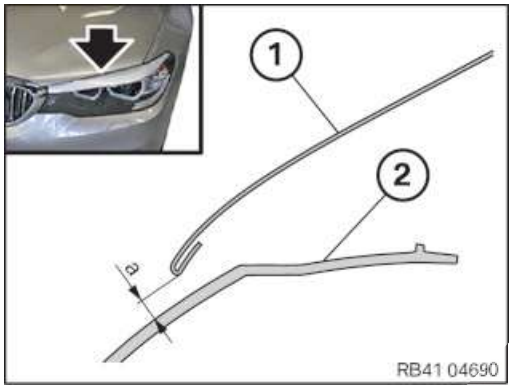
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



Gap dimension bonnet to headlight Used in step 35

1 bonnet; 2 headlight

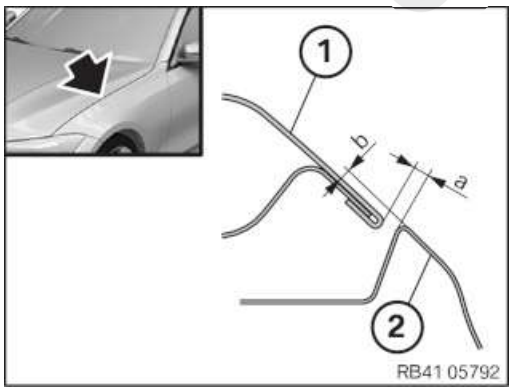
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to front side panel Used in step 35

1 bonnet; 2 front side panel

a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



Links

Repair instructions (PRE)	Used in step
Gap dimensions, body	3

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41 61 002 Replacing the bonnet

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

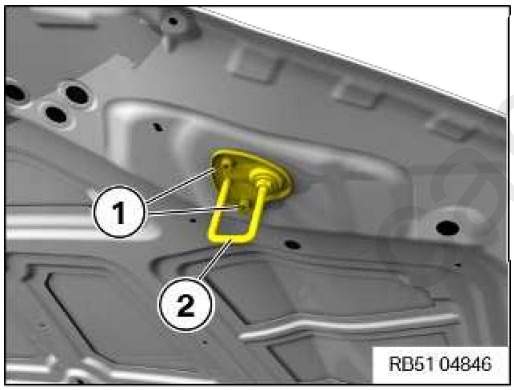
PRELIMINARY WORK

1 – Disconnecting all battery earth leads



- See additional information.

2 – Removing the bonnet striker



- Loosen the screws (1) and remove the striker (2).

MAIN WORK

3 – Replacing the bonnet

Prerequisite

New part is painted.

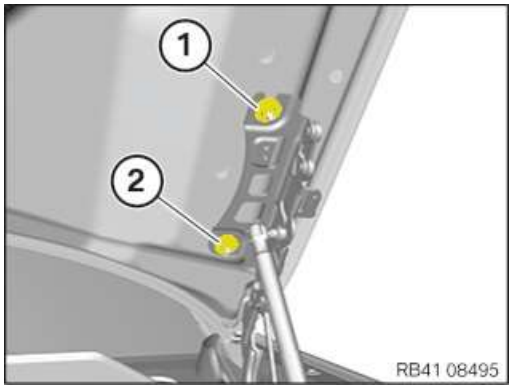
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RISK OF DAMAGE

Mechanical effects.

Paint damage.

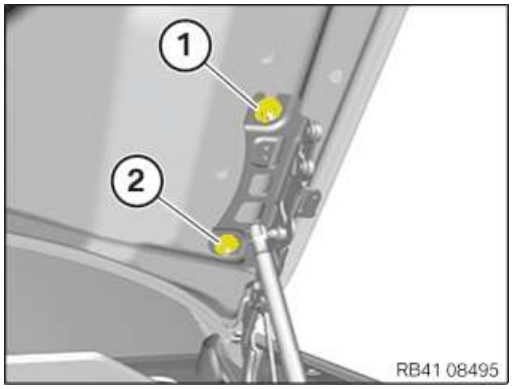
- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.



NOTICE

Perform the operations on the left and right side.

- Support the bonnet.
- Release the nuts (1) and (2) and remove the bonnet.



NOTICE

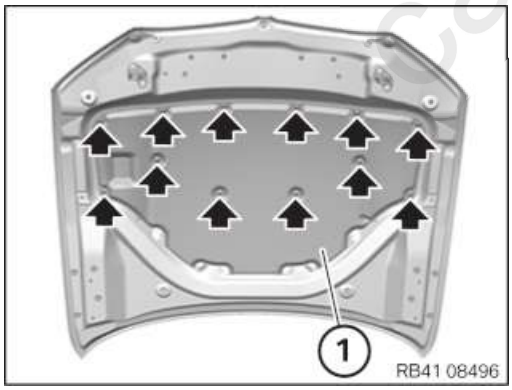
Perform the operations on the left and right side.

- Position the new bonnet at the bonnet hinge. Observe the existing impressions of nuts (1) and (2).
- Support the bonnet.
- Tighten nuts (1) and (2).

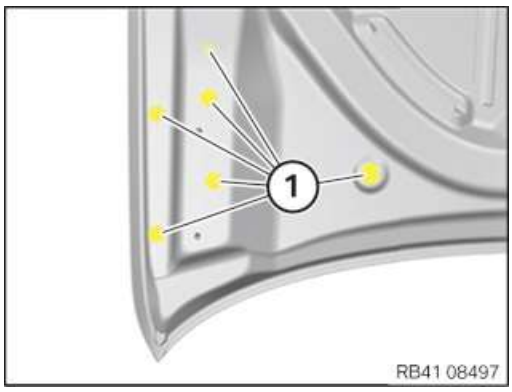
Bonnet to hinge

Nut M8		Tightening torque	19 Nm

- Slowly close the front flap and check for body ground, reposition front flap if necessary.



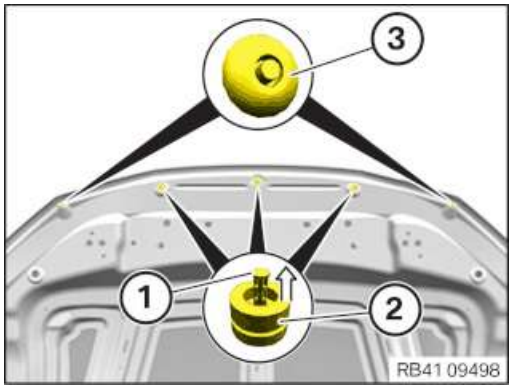
- Release all clips (arrows) using the special tool 2 298 505.
- Remove damping material (1) and install on the new bonnet.
- Fit all clips.



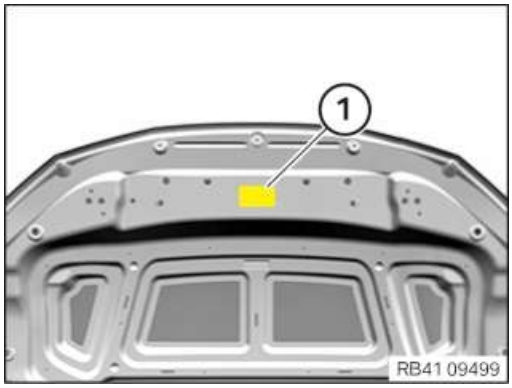
NOTICE

Perform the operations on the left and right side.

- Remount the seal plug on the new bonnet(1).



- Pull out the locking pin (1) in direction of arrow.
- Remove spacer (2) and install on the new bonnet.
- Remount seal plug (3) on the new front flap.



- Renew the sign (1) for the refrigerant.

  Parts: Label
- Stick the sign onto the new bonnet.

POSTPROCESSES

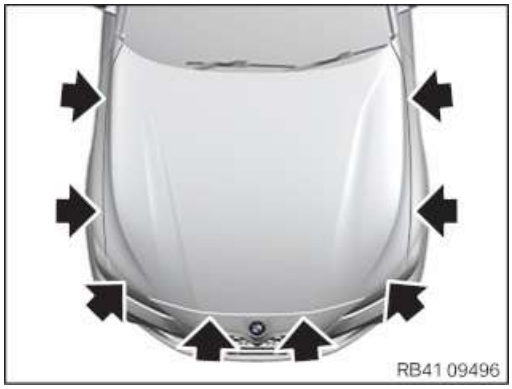
4 – Adjusting bonnet

TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body

Check

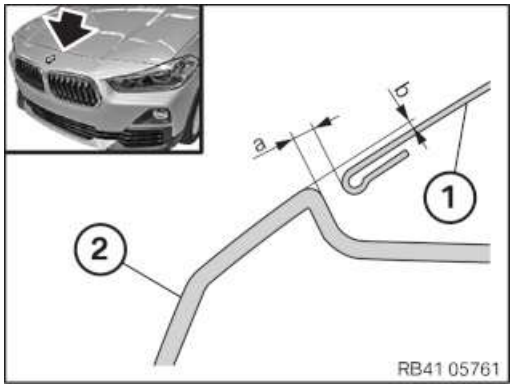
cardiagn.com



- Check gap dimensions sides between bonnet and adjoining components.

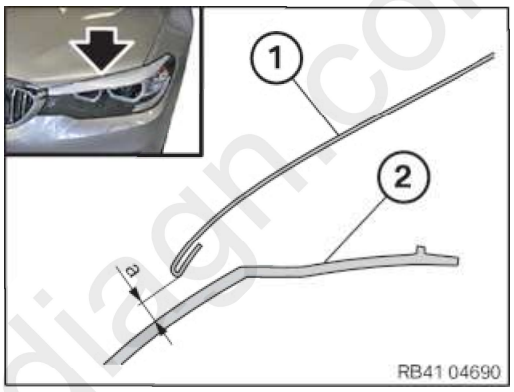
Gap dimension bonnet to bumper panel

1 bonnet; 2 bumper panel	
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



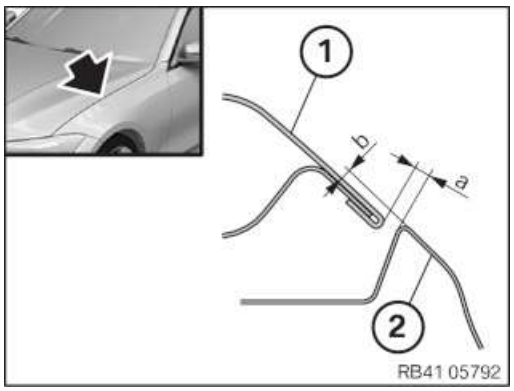
Gap dimension bonnet to headlight

1 bonnet; 2 headlight	
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to front side panel

1 bonnet; 2 front side panel	
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



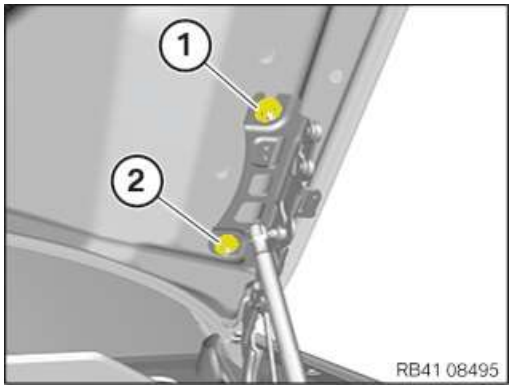
Result

» Gap dimensions do not correspond to the specifications.

Measure

- Adjust bonnet at the bonnet hinge.

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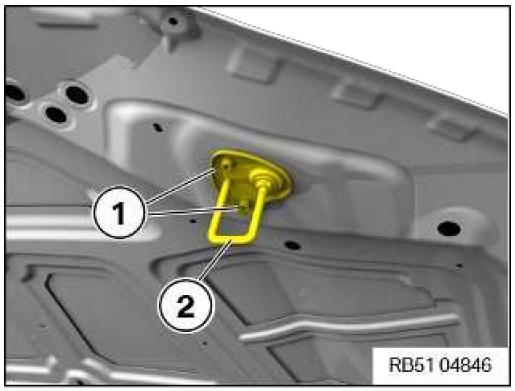


- Loosen nuts (1) and (2) until the bonnet can be pushed.
- Move the bonnet in longitudinal and sidewise direction until the bonnet reaches the predefined gap dimension.
- Tighten nuts (1) and (2).

Bonnet to hinge

Nut M8		Tightening torque	19 Nm

5 – Installing the bonnet striker



- Position striker (2) on bonnet and tighten with screws (1).

Striker to bonnet

Screw		Tightening torque	8 Nm

6 – Adjusting the striker on the bonnet

Check

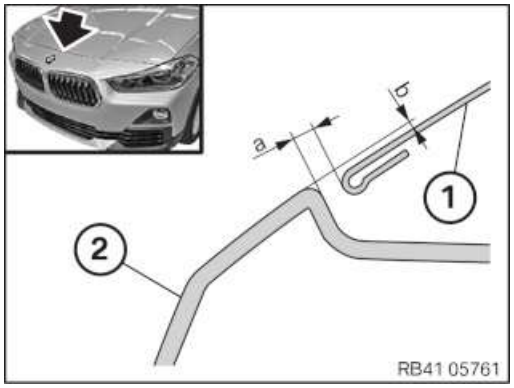
cardiagn.com



- Check gap dimensions between bonnet and the adjoining components.

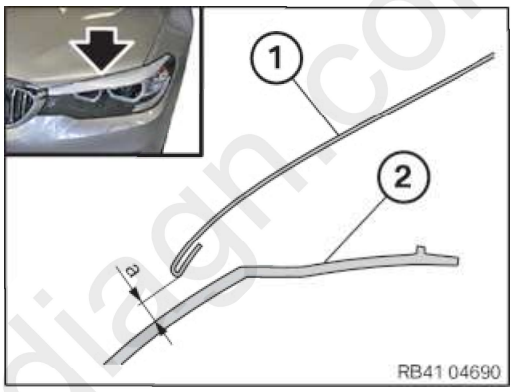
Gap dimension bonnet to bumper panel

1 bonnet; 2 bumper panel	
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



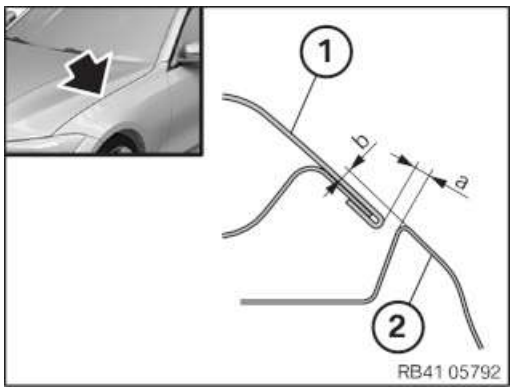
Gap dimension bonnet to headlight

1 bonnet; 2 headlight	
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to front side panel

1 bonnet; 2 front side panel	
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



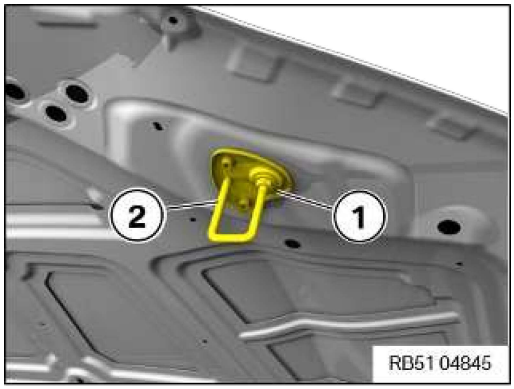
Result

» Gap dimensions do not correspond to the specifications.

Measure

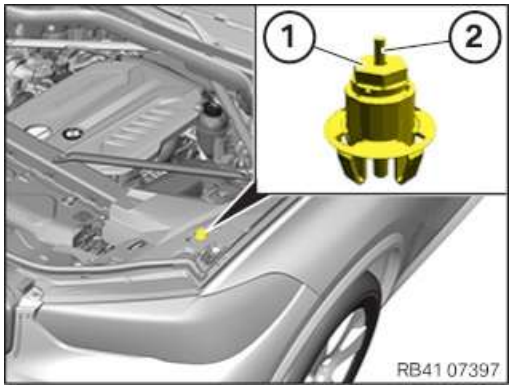
- Adjust the striker.

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- Adjust striker (2) by turning nut (1).

▸ **Adjusting the stop pads of the bonnet**



NOTICE

Perform the operations on the left and right side.

- Screw in stop pads (1) fully until the pin (2) can be pulled out.
  Pull out the pin (2) by approximately 5 mm.
- Slowly close bonnet. Pin (2) is pressed into stop pad (1) .
- Raise bonnet.
- Unscrew stop pad (1) until the stop pad is flush with the upper edge of pin (2).

7 – Connecting all battery earth leads



- See additional information.

Additional Information

Overview of Tightening Torques

Bonnet to hinge — Used in step 34

Nut M8		Tightening torque	19 Nm

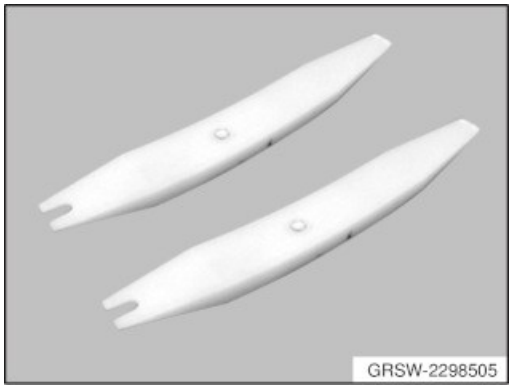
Striker to bonnet — Used in step 5

Screw		Tightening torque	8 Nm

Overview of Special Tools

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2 298 505 Wedge



Common Used in step 3

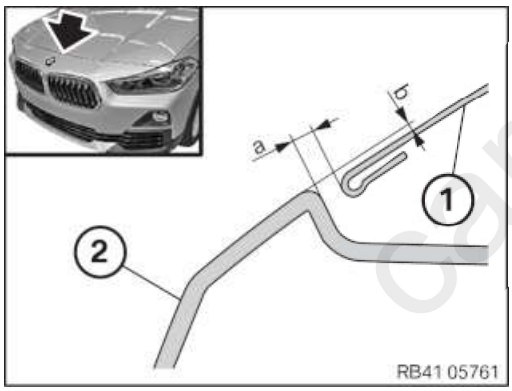
Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

Overview Technical Data

Gap dimension bonnet to bumper panel Used in step 46

1 bonnet; 2 bumper panel

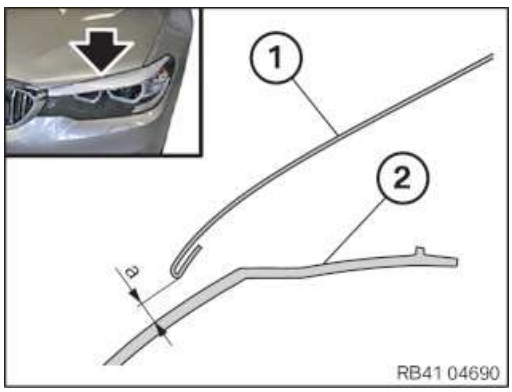
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



Gap dimension bonnet to headlight Used in step 46

1 bonnet; 2 headlight

a	5,3 (3,5 - 7,1) mm

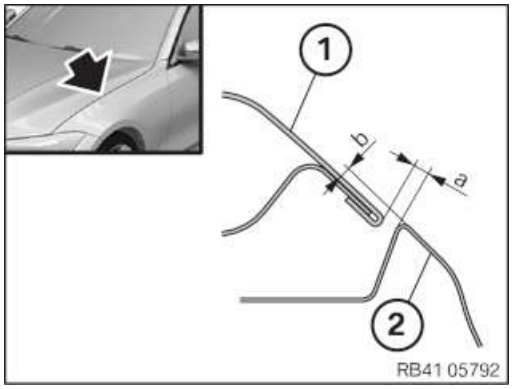


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Gap dimension bonnet to front side panel Used in step 46

1 bonnet; 2 front side panel

a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



Links

Repair instructions (PRE)	Used in step
Gap dimensions, body	4

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	17
61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting battery earth lead	17
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61 20 900 Disconnecting and connecting battery earth lead	17
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61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	17
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	17
61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	17
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	17

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61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting battery earth lead	17
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61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	17
61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting battery earth lead	17

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41 62 740 Adjusting both tailgate hinges

RISK OF DAMAGE

Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

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

NOTICE

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

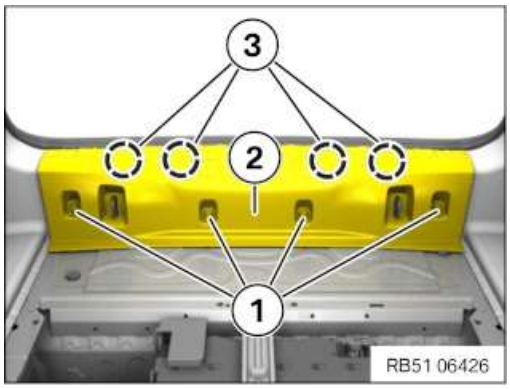


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

NOTICE

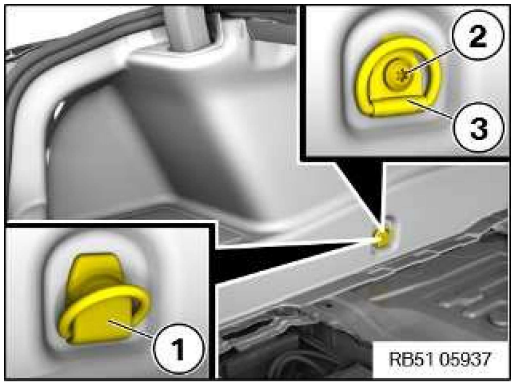
Schematic diagram is for example purposes. Some parts may differ in certain details.



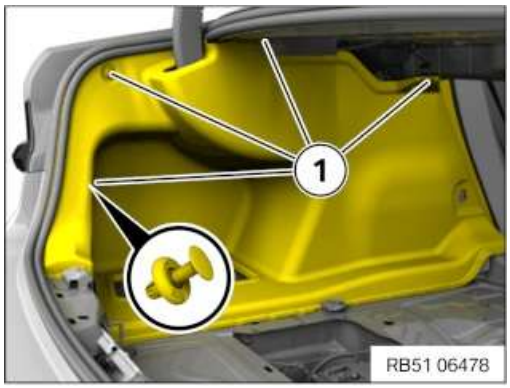
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

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

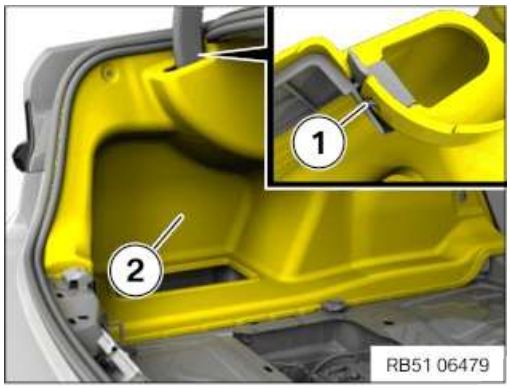
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- Remove the cover (1).
- Loosen screw (2).
- Remove lashing eye (3).

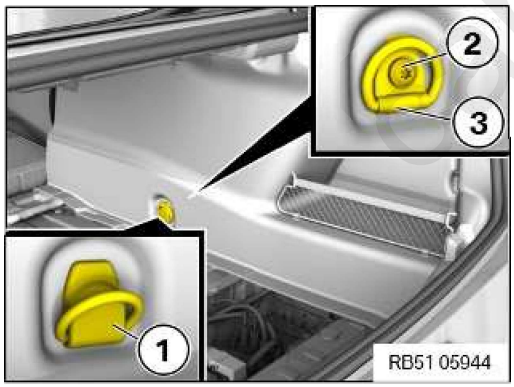


- Reposition left rear seat backrest.
- Loosen the expanding rivet (1).

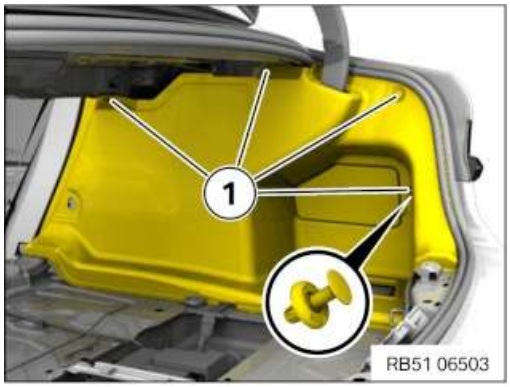


- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip for the tailgate and the side trim panel in the rear passenger compartment.
- Remove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

4 – Removing right luggage compartment wheel arch trim panel

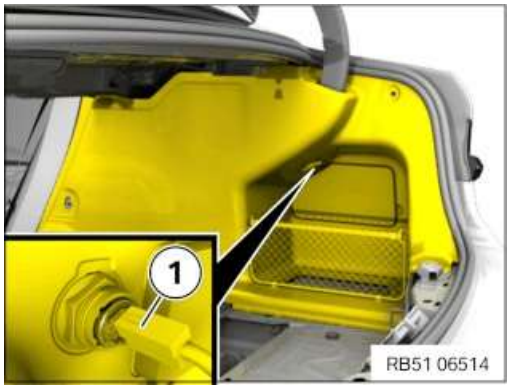


- Remove the cover (1).
- Loosen screw (2).
- Remove the lashing eye (3).

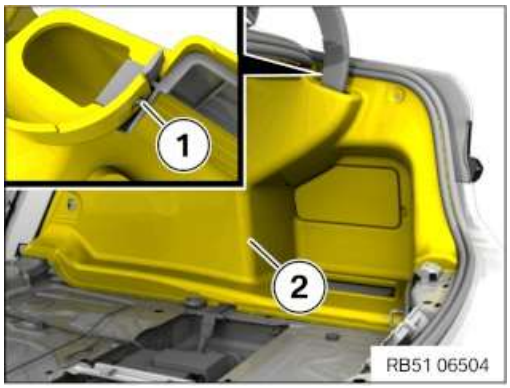


- Reposition the right rear seat backrest.
- Loosen the expanding rivet (1).

▸ **If installed: Disconnect plug connection of the 12 V connection (additional work with storage package equipment specification)**



- Unlock and disconnect the plug connection (1) of the 12 V power socket.



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

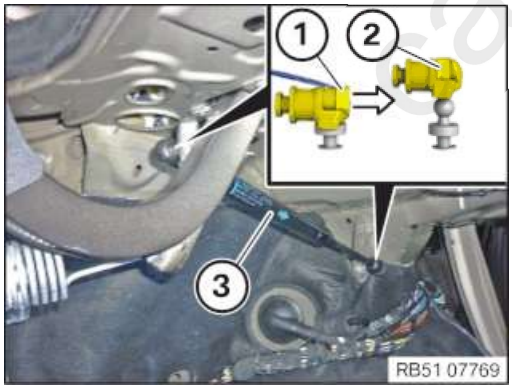
5 – Remove gas pressure spring for tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.



- Disassemble the ball sockets.

  Observe the disassembly sequence:

  1. Push clamp (1) on in the direction of arrow using a screwdriver.
  2. Lift off the ball socket (2) from the ball pin.
  3. Push back the clamp (1).
- Remove spindle drive (3).

6 – Removing tension spring for tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.

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CAUTION

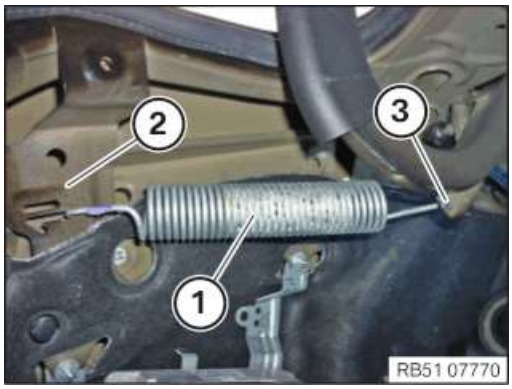
Tension spring.

Danger of injury!

- Wear protective gloves while removing and installing the tension spring.

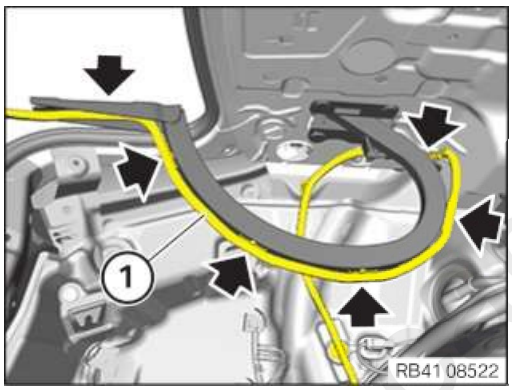
NOTICE

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



- Note down position of tension spring (1) at rear holder (2).
- Detach the tension spring (1) from the rear holder (2).
- Feed out tension spring (1) from hinge (3).

7 – Releasing the left and right wiring harness section from the hinge

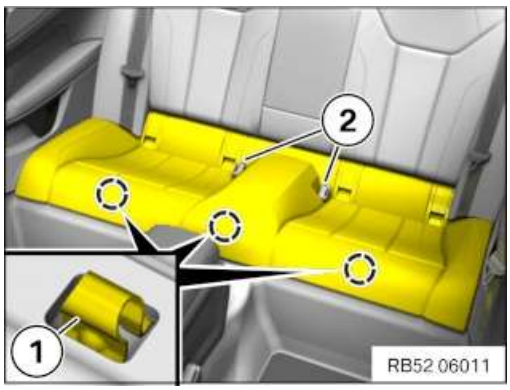


NOTICE

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

- Release the wiring harness section (1) on the attachment points (arrows) from the hinge and set aside.

8 – Remove rear seat bench



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

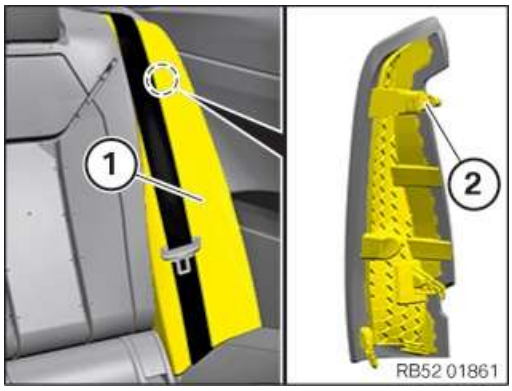
9 – Remove backrest side section on left and right

NOTICE

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

▶ **Remove armrest side section**

▷ **Remove armrest side section**



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

◁

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

NOTICE

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

▶ **Remove C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

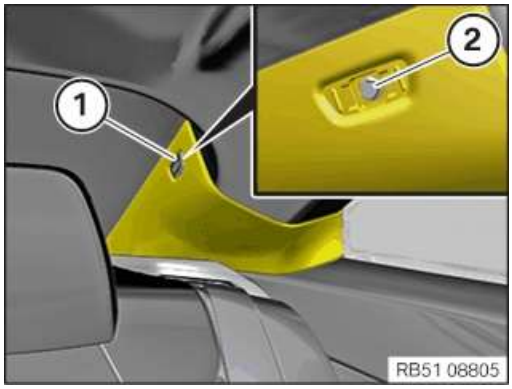
RISK OF DAMAGE

Damage to the head airbag.

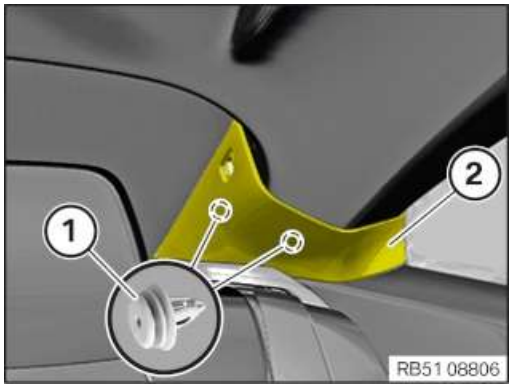
Improper use of a tool when removing the trim panel may damage the head airbag.

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

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



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

11 – Remove side trim panel, rear left and right

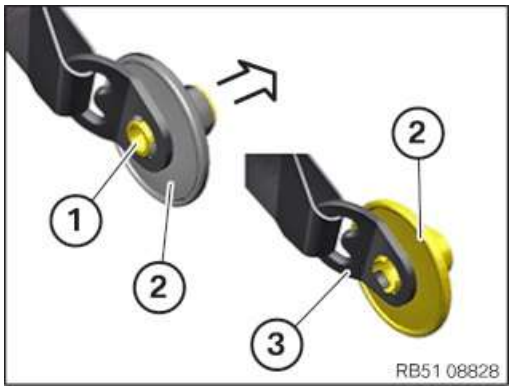
NOTICE

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

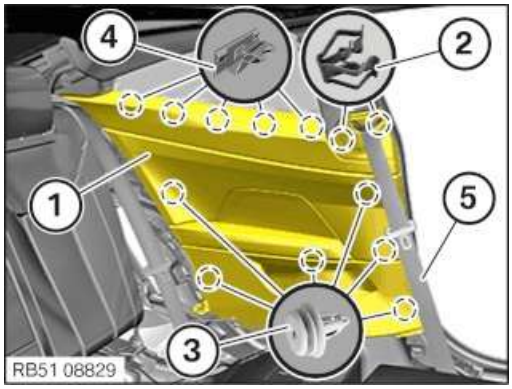
▸ **Remove rear side trim panel**



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

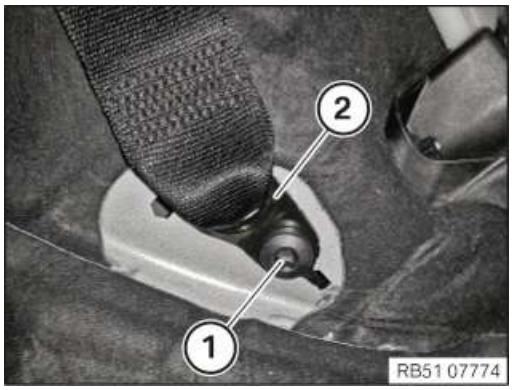


- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



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

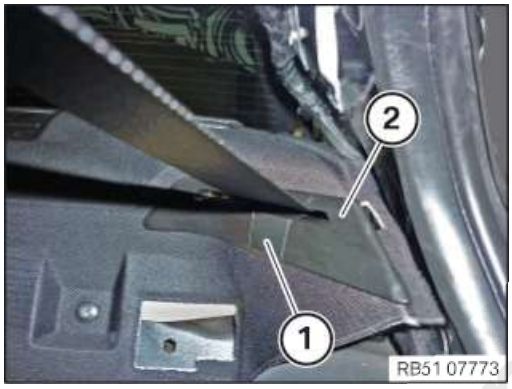
12 – Removing the trim panel for the storage shelf



NOTICE

Perform the operations on the left and right side.

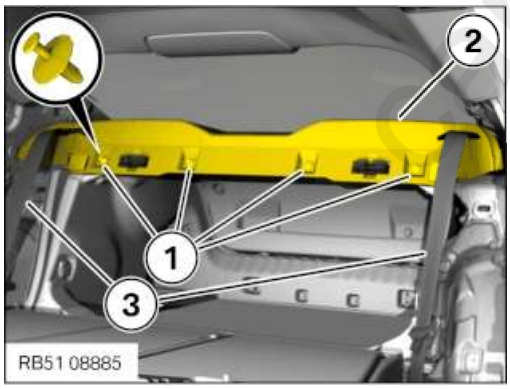
- Release the screw (1) from the rear end fitting (2).
- Feed out the rear end fitting (2) from the body.



NOTICE

Perform the operations on the left and right side.

- Unclip the cover (1) to the front.
- Unclip the outer belt feed trim (2) starting from the front and remove it.



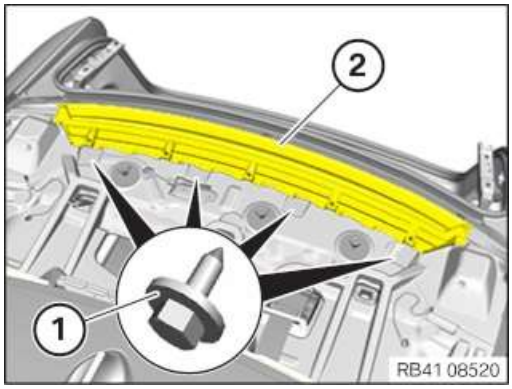
- Release the expanding rivet (1).
- Unlock and disconnect the plug connections under the trim panel (2). Lift the trim panel (2) for that.
- Release the wiring harness with all holders from trim panel (2).
- Remove the trim panel (2) to the front and feed out the seat belts (3).

13 – Removing the screen trim

NOTICE

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

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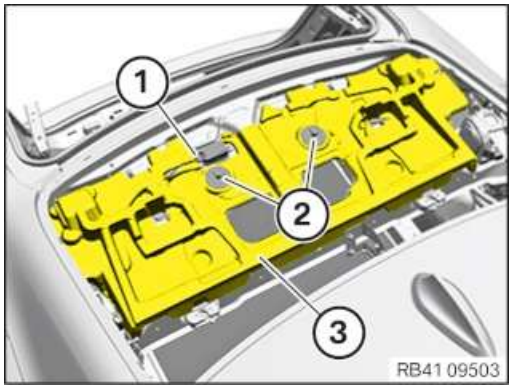


- Release screw (1) and remove screen trim (2).

14 – Remove sound insulation

NOTICE

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



- Unlock plug connection (1) and disconnect.
- Unscrew retaining dome (2) and remove sound insulation (3).

MAIN WORK

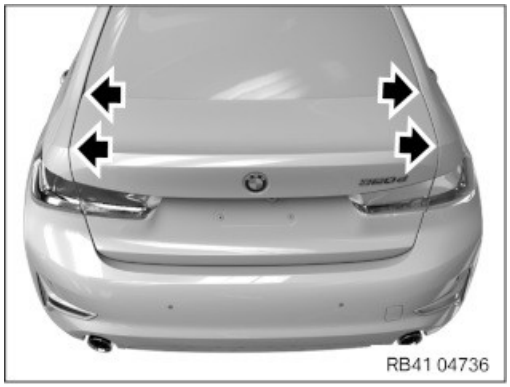
15 – Adjusting left and right tailgate hinge

TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body

Check

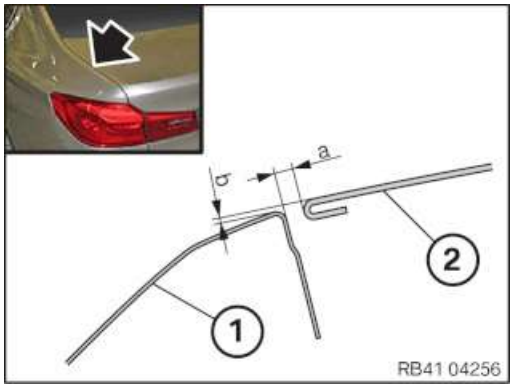
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- Check the gap dimensions (arrows) between tailgate and side panels.

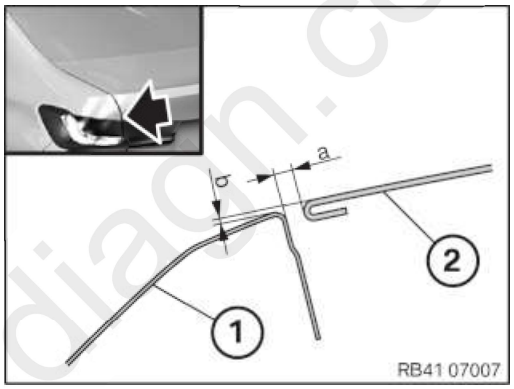
Gap dimension rear side panel to tailgate

1 rear side panel; 2 tailgate	
a	3.5 (2,4 - 4.6) mm
b	0,3 (-1,1 - 1,7) mm



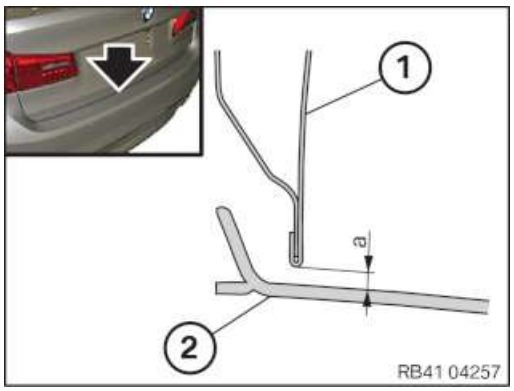
Gap dimension rear side panel to tailgate

1 rear side panel; 2 tailgate	
a	3.5 (2.3 - 4,7) mm
b	-0,6 (-2,0 - 0,8) mm



Gap dimension tailgate to rear bumper panel

1 tailgate; 2 rear bumper panel	
a	5,1 (3,6 - 6,6) mm



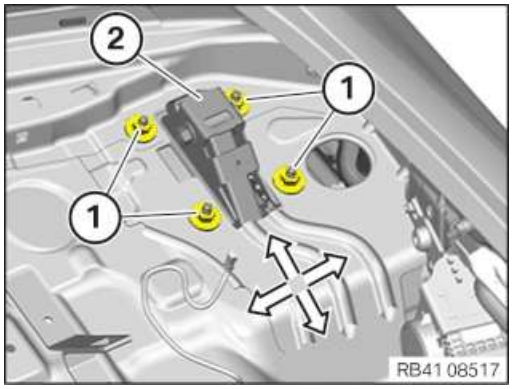
Result

» Gap dimensions do not correspond to the specifications.

Measure

- Adjust tailgate hinge.

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NOTICE

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

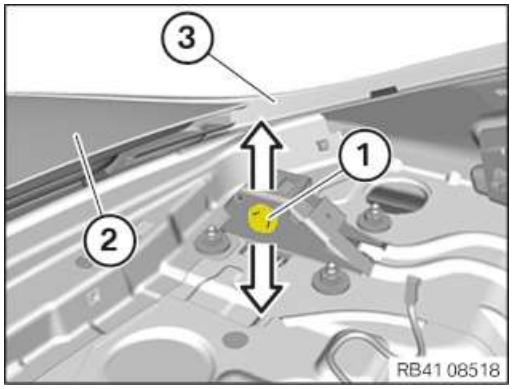
NOTICE

Perform the operations on the left and right side.

- Loosen nuts (1) until the tailgate hinge (2) can be moved.
- Move tailgate hinge (2) horizontally, till the Tailgate has the specified gap dimension for the side panel.
- Tighten nuts (1).

Tailgate hinge to body

Nut M8		Tightening torque	19 Nm



NOTICE

Perform the operations on the left and right side.

- Loosen nut (1) until the tailgate hinge (2) can be moved.
- Move the hinge arm vertically until the tailgate has the specified gap dimension to the side panel.
- Tighten nut (1).

Hinge to hinge support

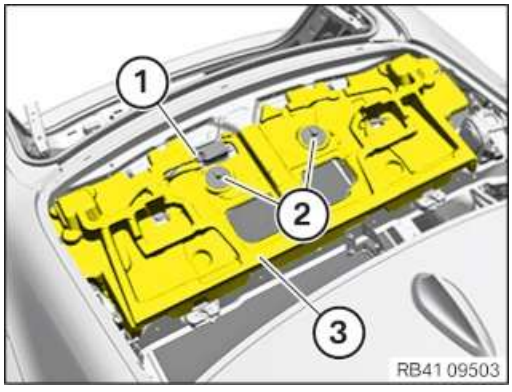
Nut		Tightening torque	19 Nm

POSTPROCESSES

16 – Install sound insulation

NOTICE

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



- Install the sound insulation (3).
- Mount and tighten the mounting dome (2).

Mounting dome for parcel shelf

Mounting dome		Tightening torque	3,6 Nm

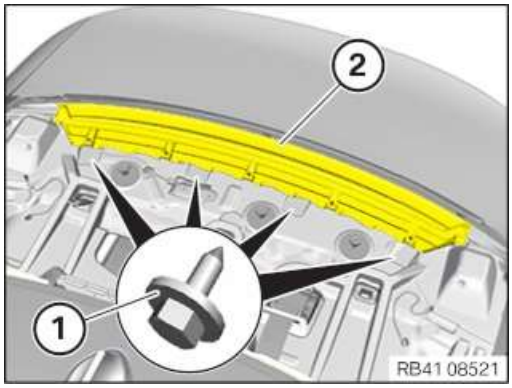
- Connect plug connection (1).

17 – Installing the screen trim

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NOTICE

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

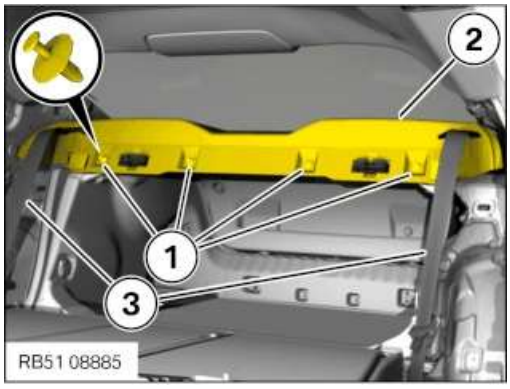


- Install screen trim (2) and tighten screws (1).

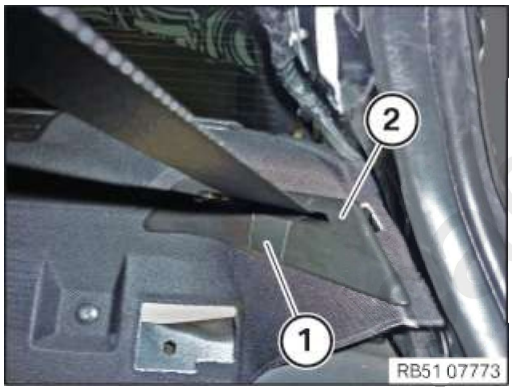
Screen trim mounting

Sheet metal screw 4.8 x 16		Tightening torque	2 Nm

18 – Install the trim panel for the storage shelf



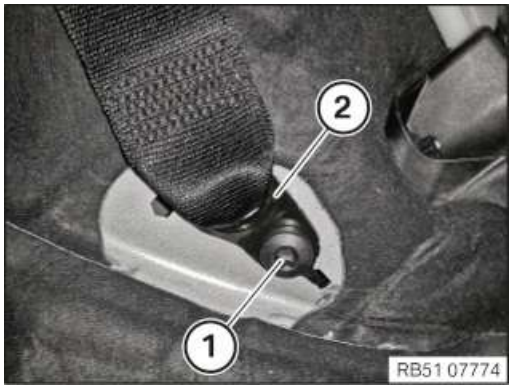
- Install the trim panel (2) and the feed in the seat belts (3).
- Clip in the wiring harness with all the holders to the trim panel for the storage shelf (2).
- Connect all connectors and lock.
- Feed in the trim panel (2) to the rear guides and position it correctly.
- Secure expanding rivet (1).



NOTICE

Perform the operations on the left and right side.

- Feed in the belt feed trim (2).
- Clip in the cover (1).



NOTICE

Perform the operations on the left and right side.

- Feed the rear end fitting (2) into the body.
- Renew the screw (1).

  Part: Screw
- Tighten down screw (1).

End fitting to body

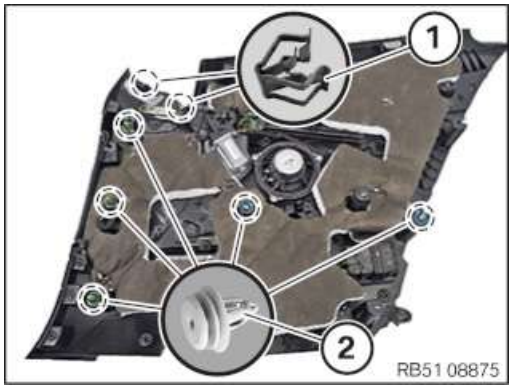
M10	Renew screw.	Tightening torque	42 Nm

19 – Install side trim panel, rear left and right

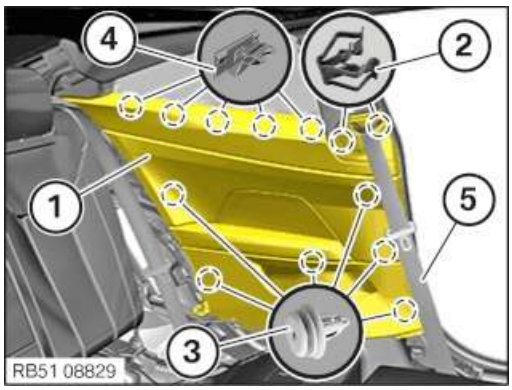
NOTICE

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

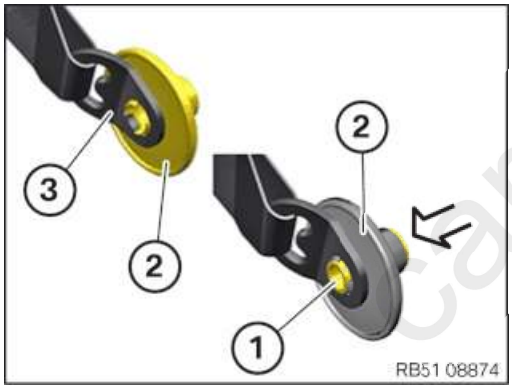
▸ Install rear side trim panel



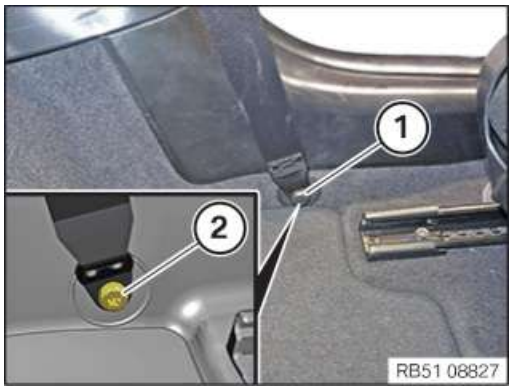
- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.



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



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



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

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

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

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NOTICE

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

▸ **Installing C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

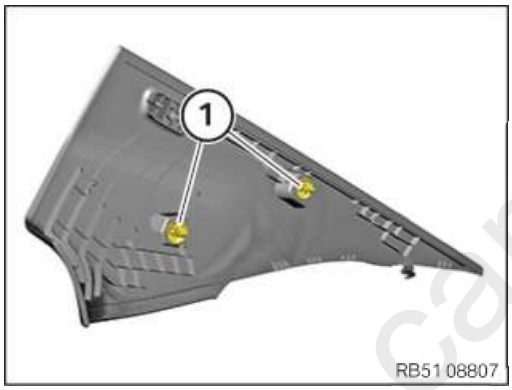
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

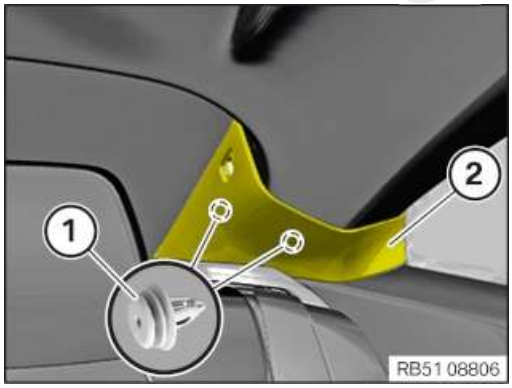
Damage to the head airbag.

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

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

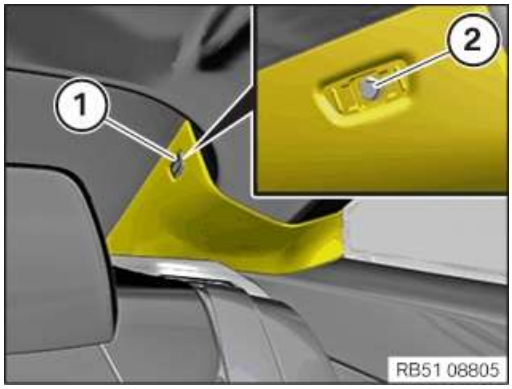


- Check clips (1) for damage and, if necessary, renew them.



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

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- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

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

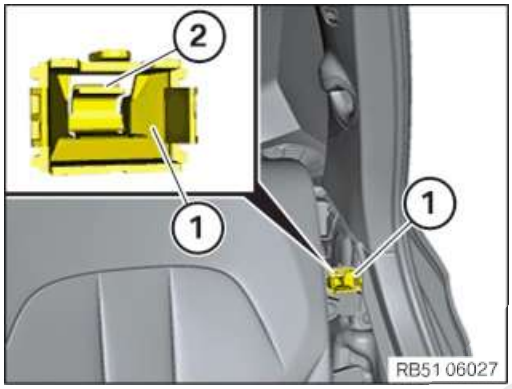
21 – Install the backrest side section on the left and right

NOTICE

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

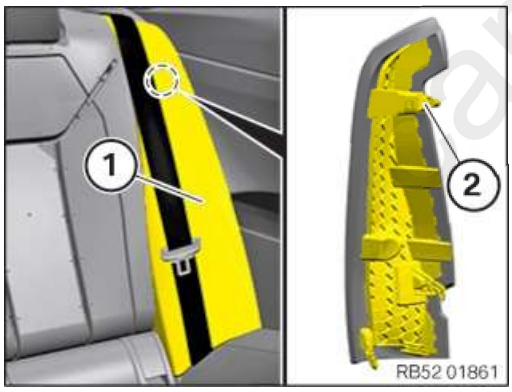
▶ **Installing backrest side section**

▷ **Installing backrest side section**



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

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

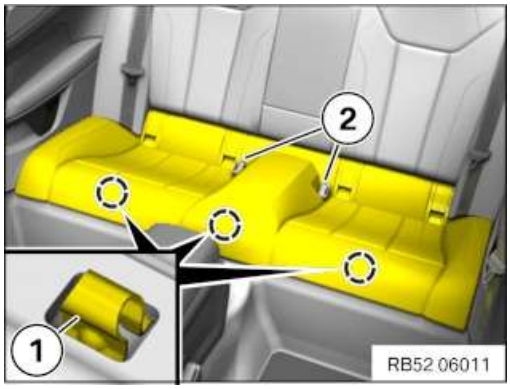


- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

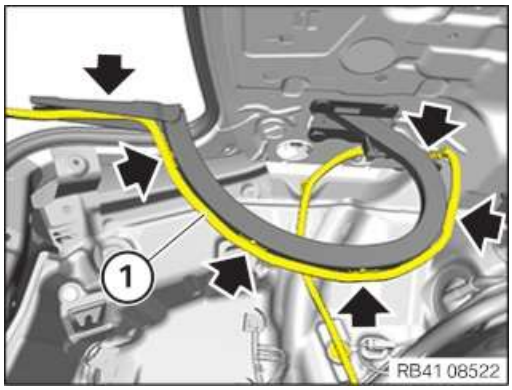
22 – Installing the rear seat bench

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

23 – Fastening the wiring harness section on the left and right on the hinge



NOTICE

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

- Fasten the wiring harness section (1) on the attachment points (arrows) on the hinge.

24 – Installing the tension spring for tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.

CAUTION

Tension spring.

Danger of injury!

- Wear protective gloves while removing and installing the tension spring.

TECHNICAL INFORMATION

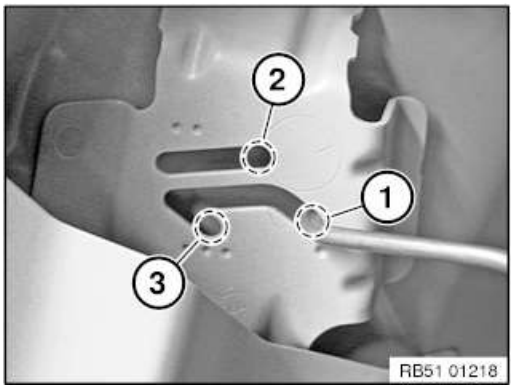
Notes for setting up the closing force are a fundamental requirement for these repair instructions and must be complied with at all times.

For additional information see: 51 24 ... Notes for setting up closing force on tailgate

NOTICE

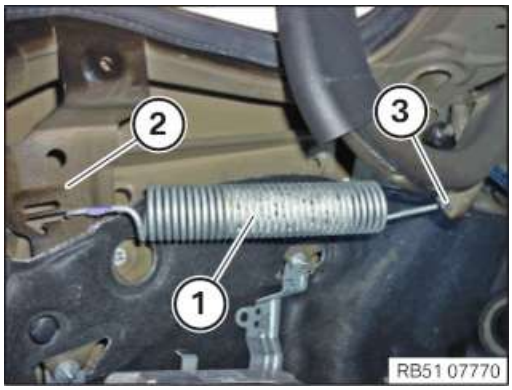
Description is for left component only. Procedure on the right side is identical.

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- Positions (1) to (3) influence the closing force of the tension spring.

  If the closing force needs to be changed:see additional information.



- Feed in the tension spring (1) to the hinge (3).

  Mount tension spring (1) to rear holder (2) again in the same position.

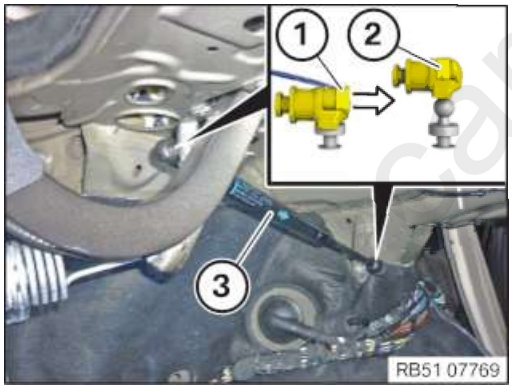
25 – Installing the gas pressure spring for the tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.



- Attach the spindle drive (3) and, together with the ball socket (2), place on the ball pin and engage with force.

  Check the clamp (1) is fitted correctly.

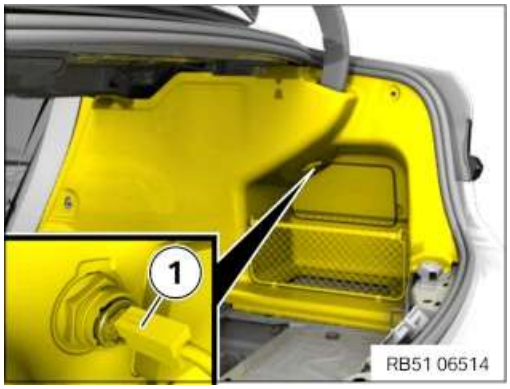
26 – Installing the luggage compartment wheel arch trim panel on the right

NOTICE

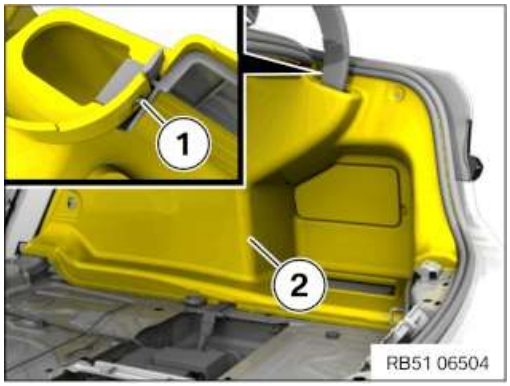
Schematic diagram is for example purposes. Some parts may differ in certain details.

▸ If installed: Connecting plug of the 12 V power socket (additional work for equipment specification with storage package)

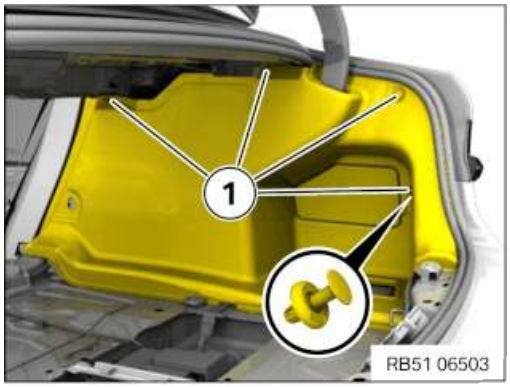
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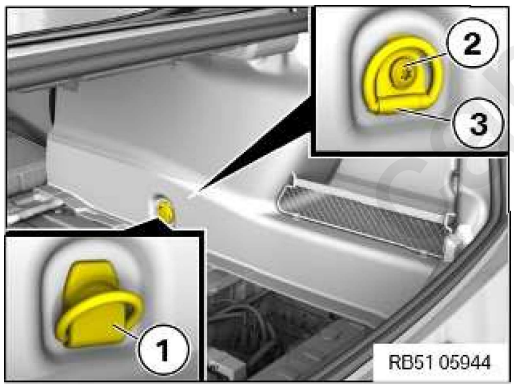
- Connect and lock connector (1) of the 12 V power socket.



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



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



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

Lashing eye to body

	Tightening torque	19 Nm

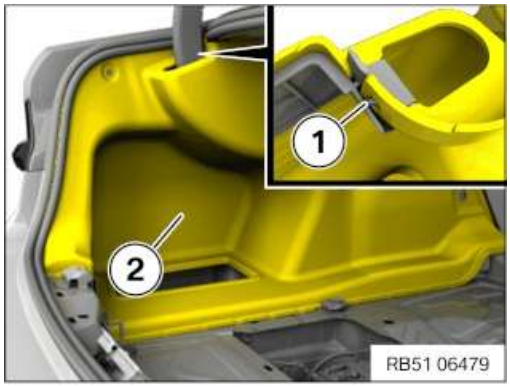
- Install the cover (1) .

27 – Install luggage compartment wheel arch trim panel at left

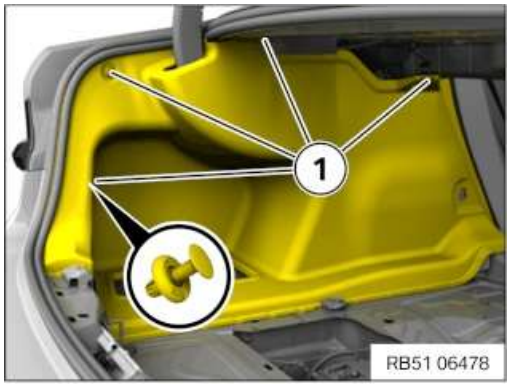
NOTICE

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

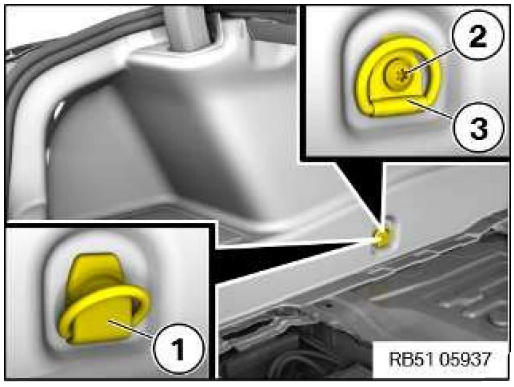
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- Feed luggage compartment wheel arch trim panel (2) under the side trim panel in the rear passenger compartment and the sealing lip for the tailgate.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge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



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



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

Lashing eye to body

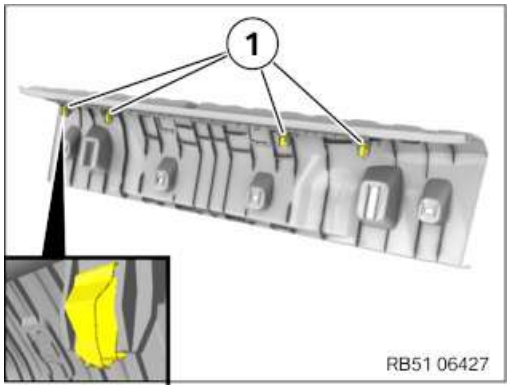
	Tightening torque	19 Nm

- Install the cover (1) .

28 – Installing loading edge trim

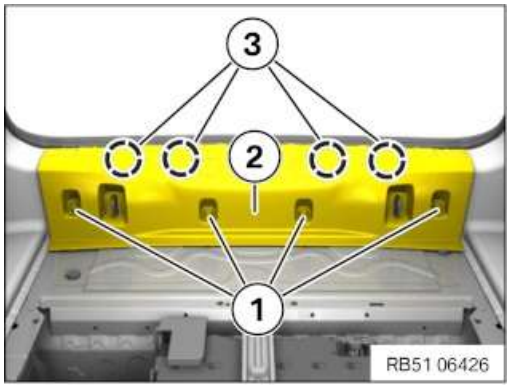
NOTICE

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



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

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

29 – Installing the luggage compartment floor trim panel

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

NOTICE

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



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

Additional Information

Overview of Tightening Torques

Tailgate hinge to body			Used in step 15
Nut M8		Tightening torque	19 Nm

Hinge to hinge support			Used in step 15
Nut		Tightening torque	19 Nm

Mounting dome for parcel shelf			Used in step 16
Mounting dome		Tightening torque	3,6 Nm

Screen trim mounting			Used in step 17
Sheet metal screw 4.8 x 16		Tightening torque	2 Nm

End fitting to body			Used in step 18
M10	Renew screw.	Tightening torque	42 Nm

End fitting to body			Used in step 19
M10		Tightening torque	42 Nm

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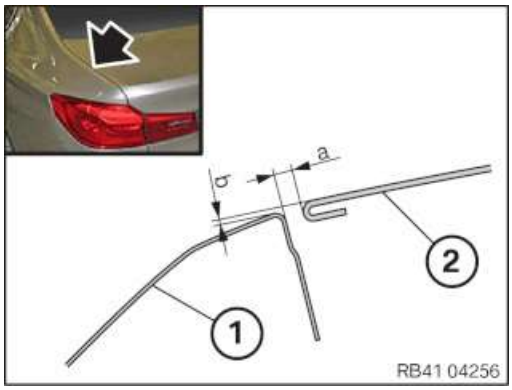
C-pillar trim panel to body			Used in step 20
Screw		Tightening torque	2,6 Nm

Lashing eye to body			Used in step 2627
		Tightening torque	19 Nm

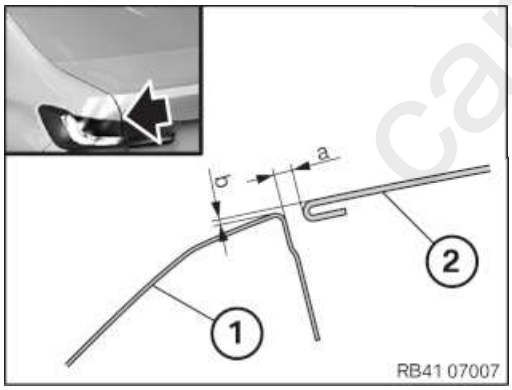
Overview of Special Tools

Overview Technical Data

Gap dimension rear side panel to tailgate	Used in step 15
1 rear side panel; 2 tailgate	
a	3.5 (2,4 - 4.6) mm
b	0,3 (-1,1 - 1,7) mm



Gap dimension rear side panel to tailgate	Used in step 15
1 rear side panel; 2 tailgate	
a	3.5 (2.3 - 4,7) mm
b	-0,6 (-2,0 - 0,8) mm

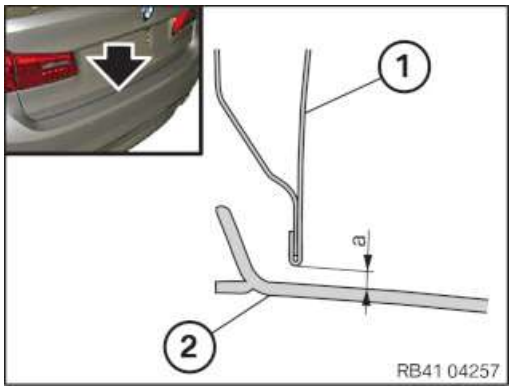


Gap dimension tailgate to rear bumper panel	Used in step 15

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1 tailgate; 2 rear bumper panel

a	5,1 (3,6 - 6,6) mm



Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	921
Gap dimensions, body	15

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	921
51 24 ... Notes on setting tailgate closing force	24

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	921
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	921
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting battery earth lead	921

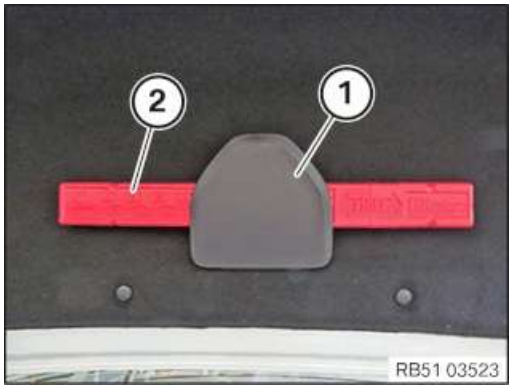
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61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	921
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	921
61 20 900 Disconnecting and connecting battery earth lead	921
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	921
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	921
61 20 900 Disconnecting and connecting battery earth lead

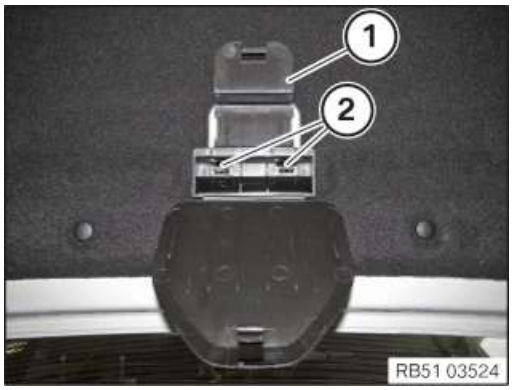
41 62 014 Adjusting tailgate

PRELIMINARY WORK

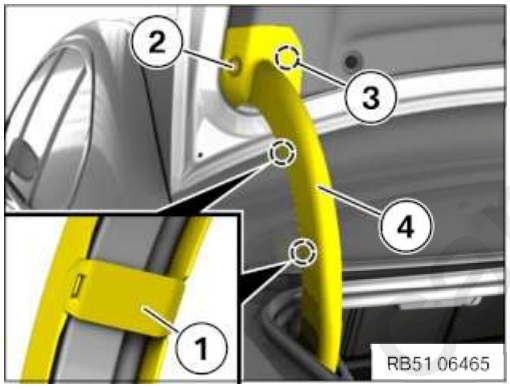
1 – Remove tailgate trim panel



- Fold the cover (1) towards the bottom.
- Remove the warning triangle (2).



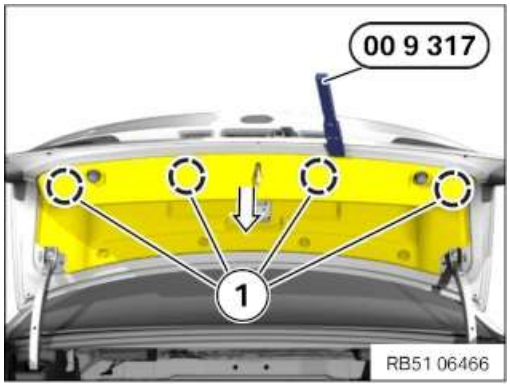
- Detach the warning triangle holder (1) from the latch mechanisms (2) and slide downwards.



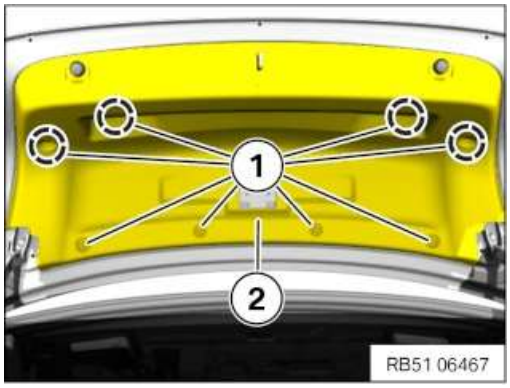
NOTICE

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

- Unclip the tabs (1).
- Loosen expanding rivet (2).
- To avoid damage, release the trim panel for the hinge of the tailgate (4) without using a tool by jerking it along the hinge bracket and out of the clip fastening (3).



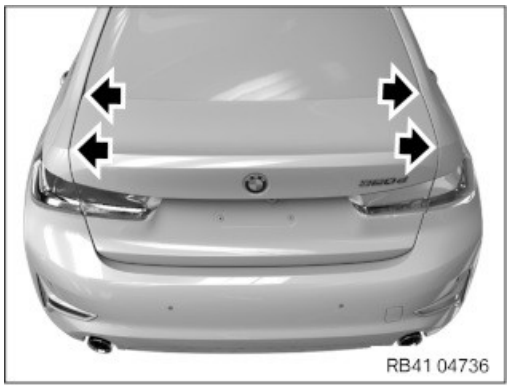
- Unclip clips (1) with special tool 0 490 534 (00 9 317) in the direction of arrow.



- Release expanding rivet (1) on the tailgate trim panel (2).
- Remove tailgate trim panel (2).
- **If installed**: Unlock plug connection of the switch for the tailgate lift and disconnect.

MAIN WORK

2 – Adjusting tailgate

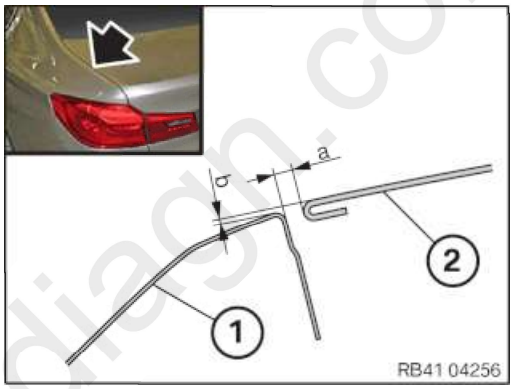


Check

- Check the gap dimensions (arrows) between tailgate and rear side panels.

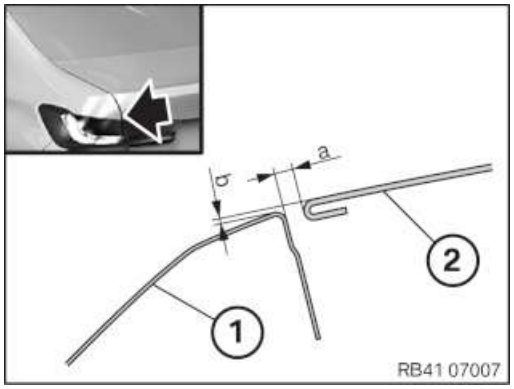
Gap dimension rear side panel to tailgate

1 rear side panel; 2 tailgate	
a	3.5 (2,4 - 4.6) mm
b	0,3 (-1,1 - 1,7) mm



Gap dimension rear side panel to tailgate

1 rear side panel; 2 tailgate	
a	3.5 (2.3 - 4,7) mm
b	-0,6 (-2,0 - 0,8) mm



Result

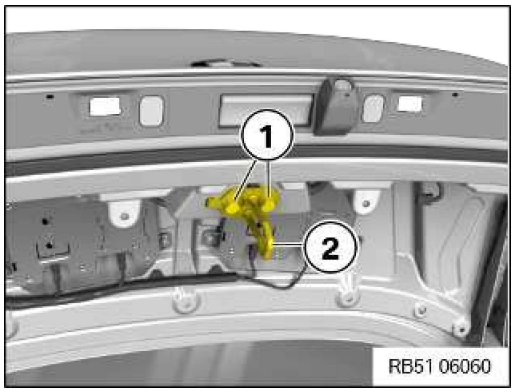
» Gap dimensions between tailgate and rear side panels do not correspond to the specifications.

Measure

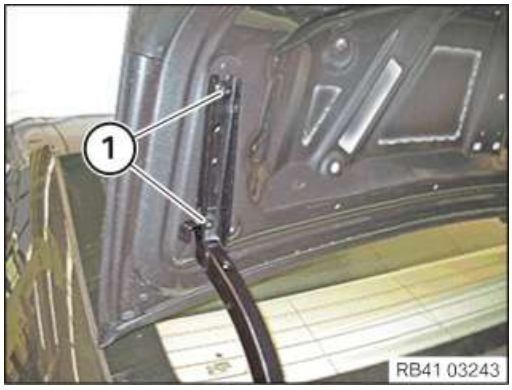
- Adjust tailgate on the tailgate hinge.

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▸ **Remove the striker for the tailgate catch**



- Loosen screws (1).
- Remove the striker for the tailgate catch (2).



NOTICE

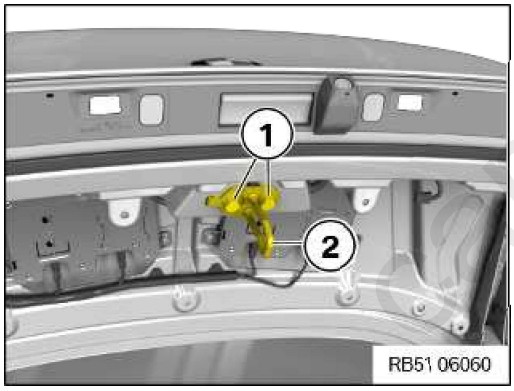
Perform the operations on the left and right side.

- Loosen screws (1) on the tailgate hinge until the tailgate can be moved.
- Move the tailgate lengthwise and laterally until the tailgate has reached the specified gap dimension to the side panel.
- Tighten screws (1) on the tailgate hinge.

Tailgate hinge to tailgate

Hexagon screw M8 x 18		Tightening torque	19 Nm

▸ **Install striker for the tailgate catch**



- Position the striker for the tailgate catch (2) and tighten the screws (1).

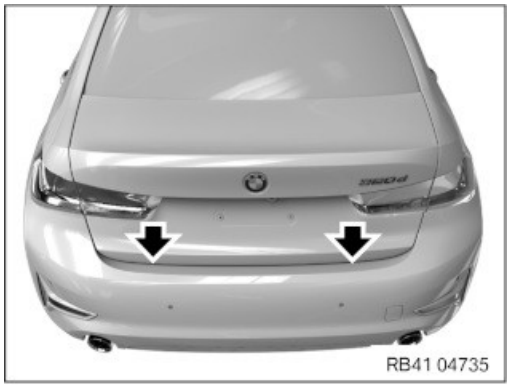
Striker to rear lid

Hexagon screw M8x20		Tightening torque	19 Nm

▸ **Installing the lower section of the tailgate lock**

Check

carmanuals.com

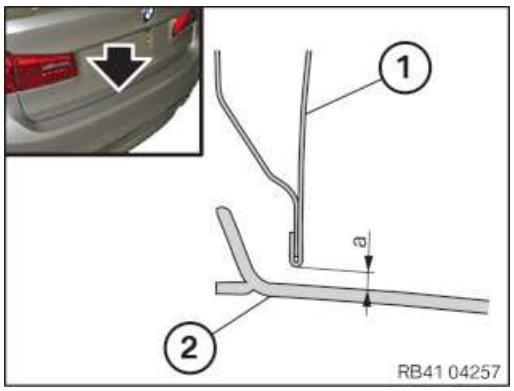


- Check the gap dimensions between the tailgate and bumper panel (arrows).

Gap dimension tailgate to rear bumper panel

1 tailgate; 2 rear bumper panel

a	5,1 (3,6 - 6,6) mm

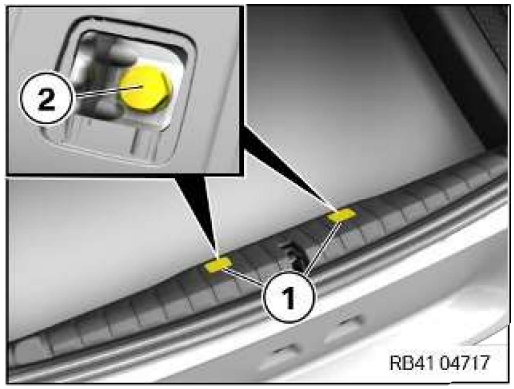


Result

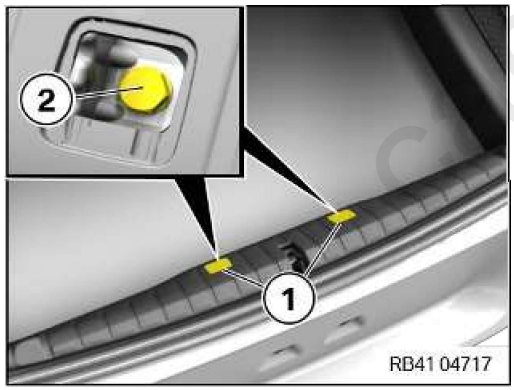
» Gap dimension does not correspond to specifications.

Measure

- Adjusting tailgate lock.



- Lever out the covers (1) with a suitable screwdriver and remove.
- Loosen screws (2) until the tailgate lock can be moved.
- Adjust tailgate lock so that the tailgate has the specified gap dimension to the bumper panel.

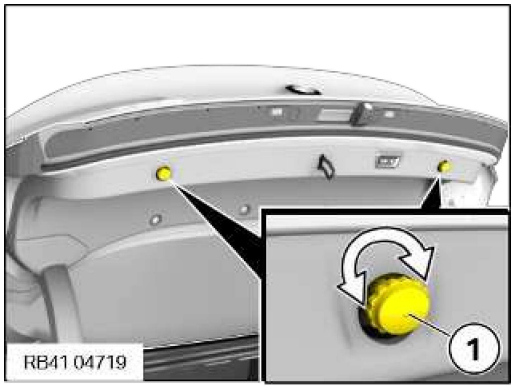


- Tighten the screws (2).

Tailgate lock to body

Hexagon screw M8x20		Tightening torque	19 Nm

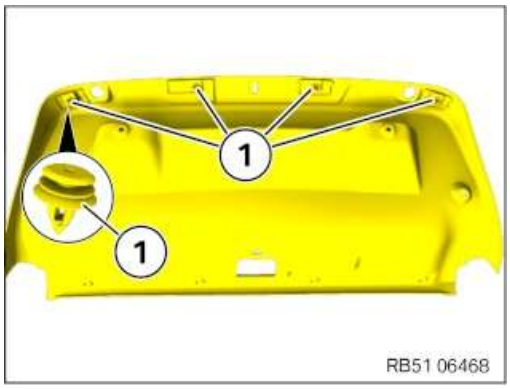
- Install and clip in the covers (1).



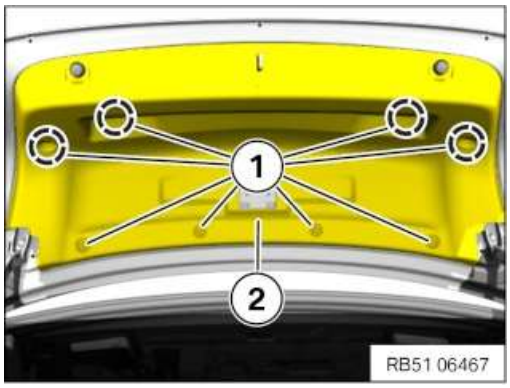
- Adjust the stop pad (1) by twisting in arrow direction.

POSTPROCESSES

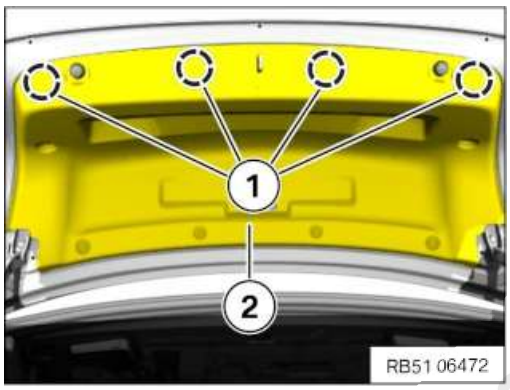
3 – Installing the tailgate trim panel



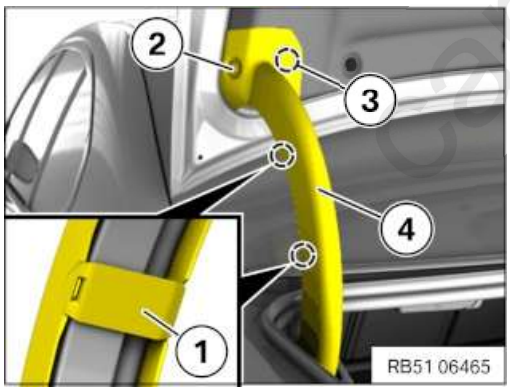
- Check the clips (1) for damage and renew if necessary.



- Fit the tailgate trim panel (2) and fasten in place with the expanding rivets (1).
- **If installed**: Connect and lock plug connection on the switch for the tailgate lift.



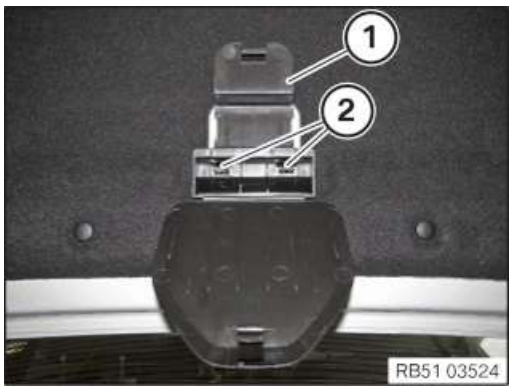
- Clip in the tailgate trim panel (2) with the clips (1).



NOTICE

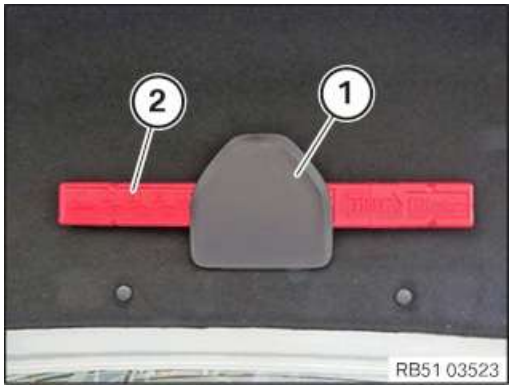
Description is for left component only. Procedure on the right side is identical.

- Clip in the trim panel for the hinge of the tailgate (4) to the clip fastening (3).
- Fasten expanding rivet (2).
- Clip in tabs (1).



- Position the warning triangle holder (1) and snap into the latch mechanisms (2).

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- Install the warning triangle (2).
- Clip in the cover (1).

Additional Information

Overview of Tightening Torques

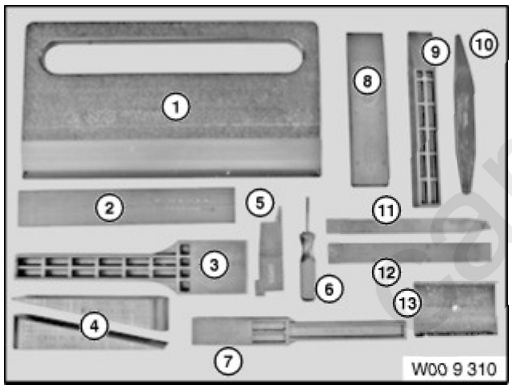
Tailgate hinge to tailgate			Used in step 2
Hexagon screw M8 x 18		Tightening torque	19 Nm

Striker to rear lid			Used in step 2
Hexagon screw M8x20		Tightening torque	19 Nm

Tailgate lock to body			Used in step 2
Hexagon screw M8x20		Tightening torque	19 Nm

Overview of Special Tools

0 490 534 (00 9 317) Wedge



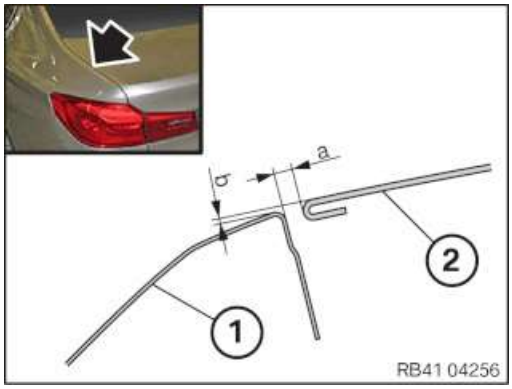
Common	Used in step 1
Usage	(Trim wedge) Replaced by special tool 00 9 325 from 11/2008 (quality improvement due to new material) Replaced by 00 9 325 (0 496 569)
Included in the tool or work	0 490 527
Storage location	
Replaced by	
In connection with	
SI-Number	

Overview Technical Data

Gap dimension rear side panel to tailgate	Used in step 2

1 rear side panel; 2 tailgate

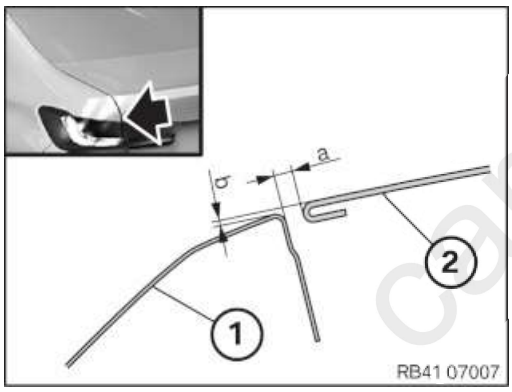
a	3.5 (2,4 - 4.6) mm
b	0,3 (-1,1 - 1,7) mm



Gap dimension rear side panel to tailgate Used in step 2

1 rear side panel; 2 tailgate

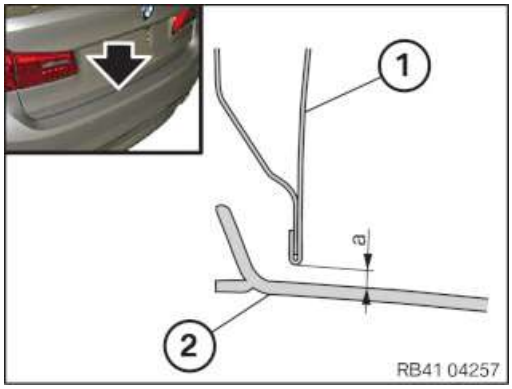
a	3.5 (2.3 - 4,7) mm
b	-0,6 (-2,0 - 0,8) mm



Gap dimension tailgate to rear bumper panel Used in step 2

1 tailgate; 2 rear bumper panel

a	5,1 (3,6 - 6,6) mm

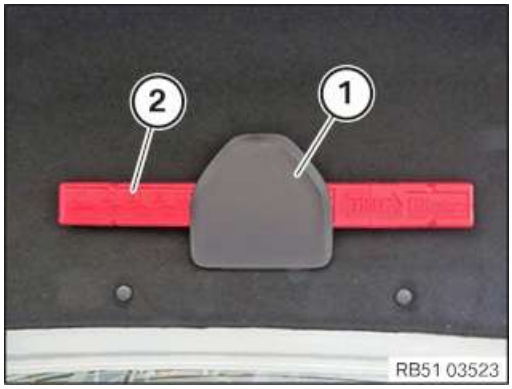


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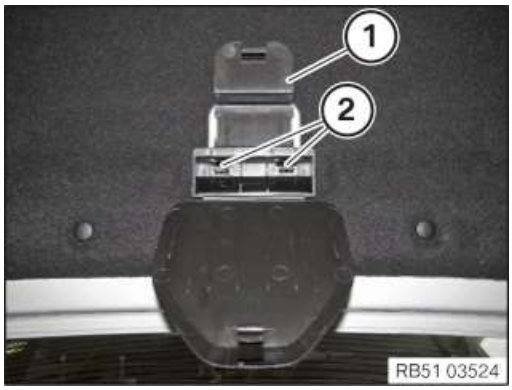
41 62 000 Removing and installing rear lid

PRELIMINARY WORK

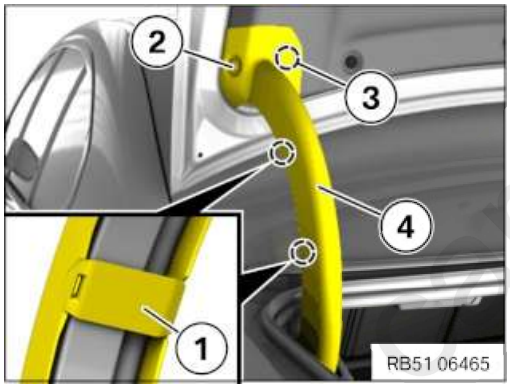
1 – Remove tailgate trim panel



- Fold the cover (1) towards the bottom.
- Remove the warning triangle (2).



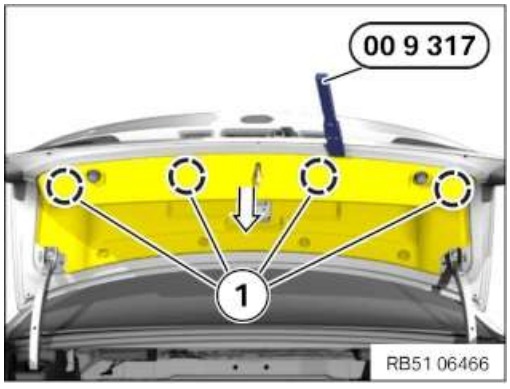
- Detach the warning triangle holder (1) from the latch mechanisms (2) and slide downwards.



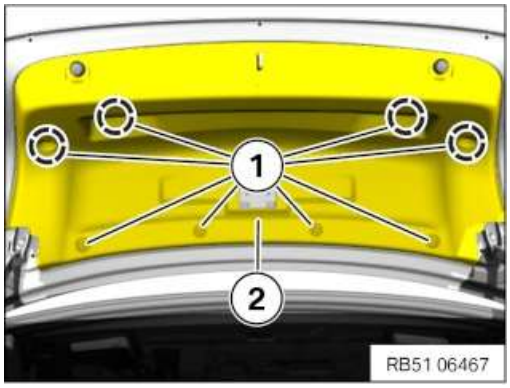
NOTICE

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

- Unclip the tabs (1).
- Loosen expanding rivet (2).
- To avoid damage, release the trim panel for the hinge of the tailgate (4) without using a tool by jerking it along the hinge bracket and out of the clip fastening (3).

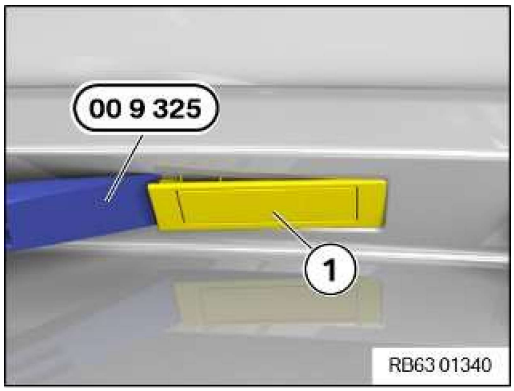


- Unclip clips (1) with special tool 0 490 534 (00 9 317) in the direction of arrow.



- Release expanding rivet (1) on the tailgate trim panel (2).
- Remove tailgate trim panel (2).
- **If installed**: Unlock plug connection of the switch for the tailgate lift and disconnect.

2 – Remove number plate light



- Remove the number plate light (1) with the special tool 0 496 569 (00 9 325).
- Unlock plug connection and disconnect.

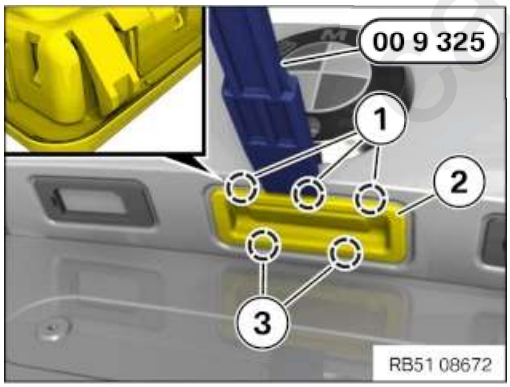
3 – Remove tailgate pushbutton

RISK OF DAMAGE

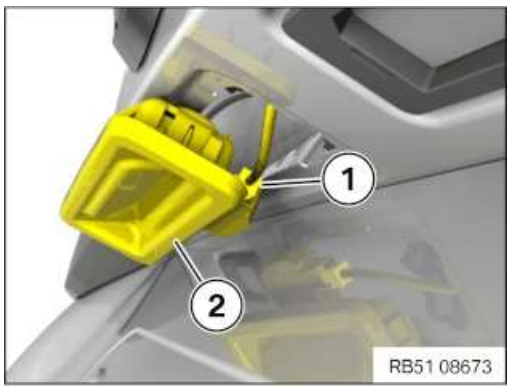
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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



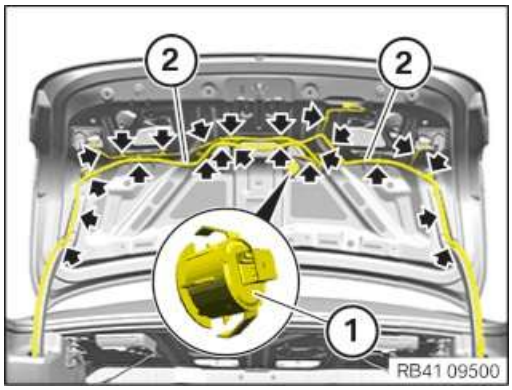
- Mount the special tool 0 496 569 (00 9 325) as shown.
- Open the latch mechanisms (1) of the tailgate button (2) by carefully knocking on to the special tool 0 496 569 (00 9 325).
- Release the latch mechanisms (3) from the inside and unclip the tailgate button (2) in a downwards direction.



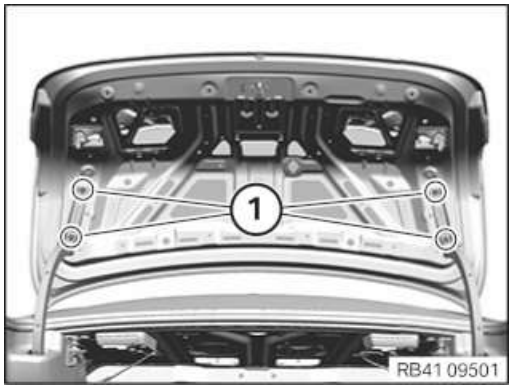
- Disconnect the connector (1) and remove the tailgate button (2).
- If necessary, remove the broken parts of the tailgate button (2) from the tailgate.

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4 – Removing the tailgate



- Unclip acoustic transmitter (1). Disconnect the associated plug connection and remove the acoustic transmitter.
- Unlock and disconnect all the plug connections of wiring harnesses (2) on the tailgate.
- Release wiring harnesses (2) from the tailgate at the attachment points (arrows) and keep them aside.



RISK OF DAMAGE

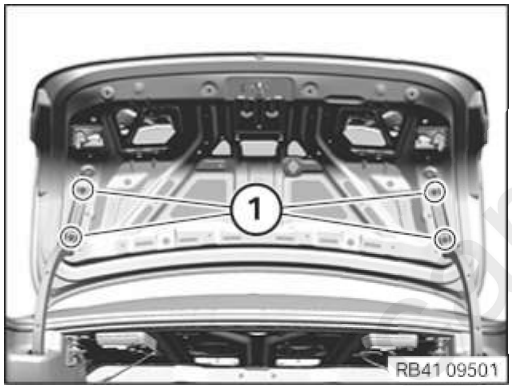
Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

- Release screws (1) and remove the tailgate.

5 – Installing the tailgate



RISK OF DAMAGE

Mechanical effects.

Paint damage.

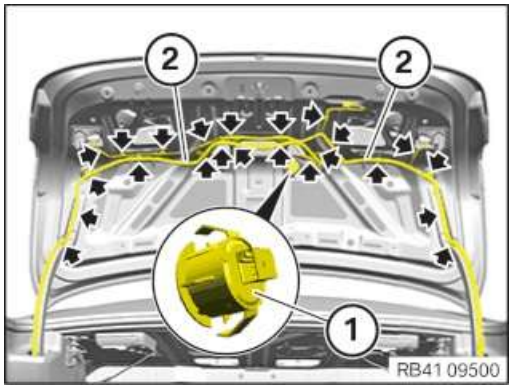
- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

- Position tailgate on the tailgate hinges.
- Tighten the screws (1).

Tailgate hinge to tailgate

Hexagon screw M8 x 18		Tightening torque	19 Nm

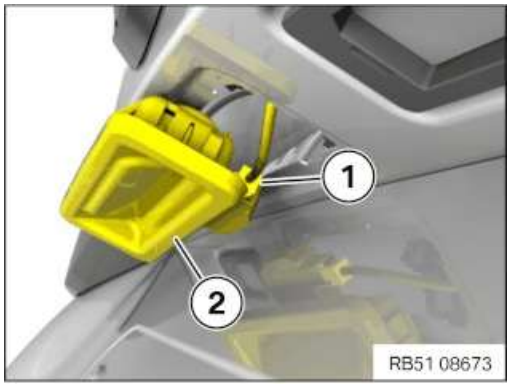
- Carefully close the tailgate and check for contact between vehicle bodies. If necessary position the tailgate again.



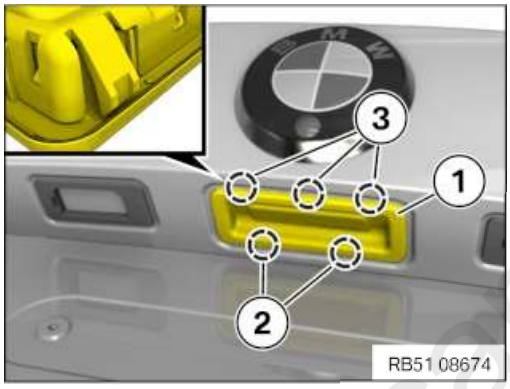
- Clip in wiring harness (2) at the attachment points (arrows).
- Connect and lock all connectors of the wiring harnesses (2) on the tailgate.
- Connect the associated acoustic transmitter's plug connection (1) and install the acoustic transmitter.

POSTPROCESSES

6 – Install the tailgate button

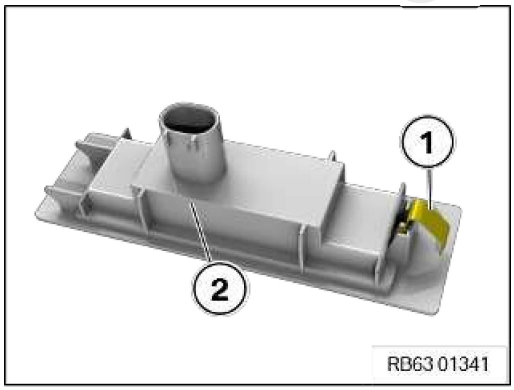


- Check the tailgate in the area of tailgate button (2) for damage; touch it up if necessary.
- Connect connector (1) to tailgate button (2).



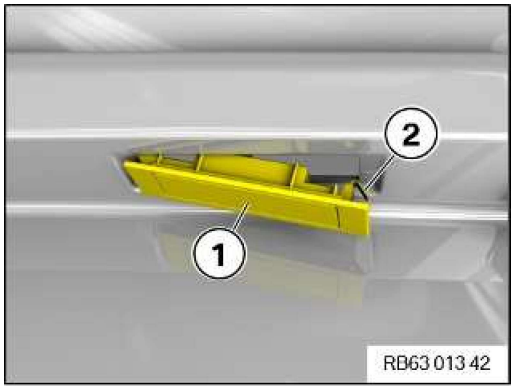
- Insert tailgate button (1) in the tailgate and clip it in with latch mechanisms (2) and (3) .

7 – Installing number plate light



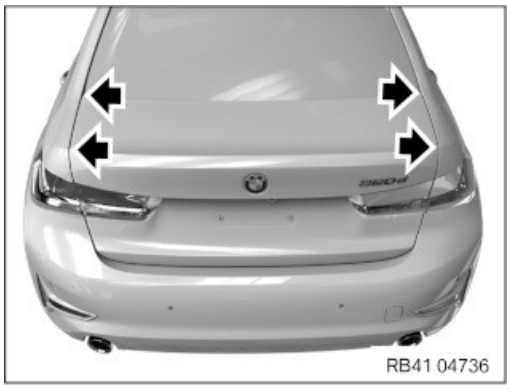
- Check the clamp (1) on the number plate light (2) for damage.

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- Connect connectors and lock.
- Position the number plate light (1) and clip it in with the clamp (2).

8 – Adjusting tailgate

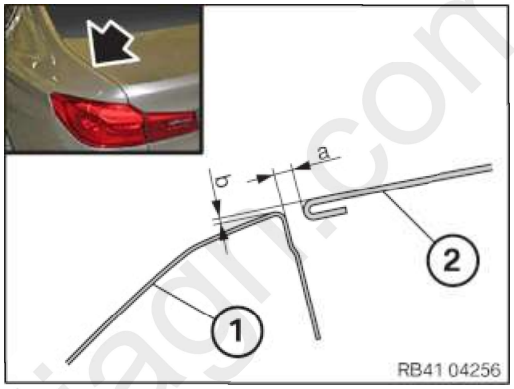


Check

- Check the gap dimensions (arrows) between tailgate and rear side panels.

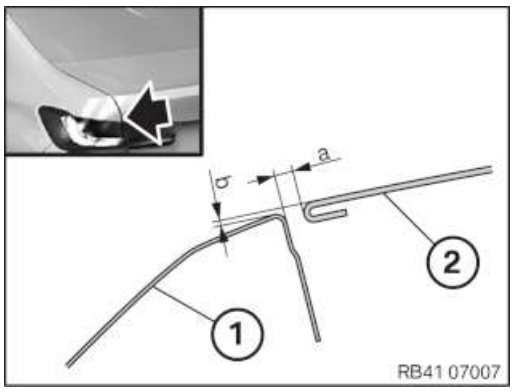
Gap dimension rear side panel to tailgate

1 rear side panel; 2 tailgate	
a	3.5 (2,4 - 4.6) mm
b	0,3 (-1,1 - 1,7) mm



Gap dimension rear side panel to tailgate

1 rear side panel; 2 tailgate	
a	3.5 (2.3 - 4,7) mm
b	-0,6 (-2,0 - 0,8) mm



Result

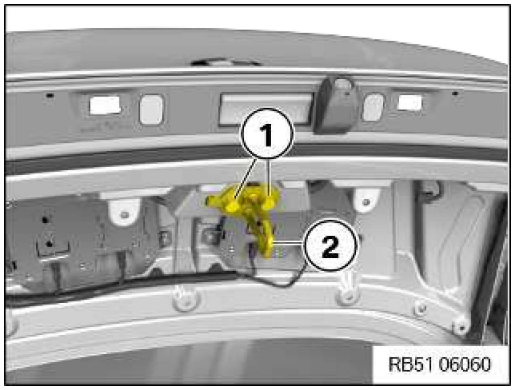
» Gap dimensions between tailgate and rear side panels do not correspond to the specifications.

Measure

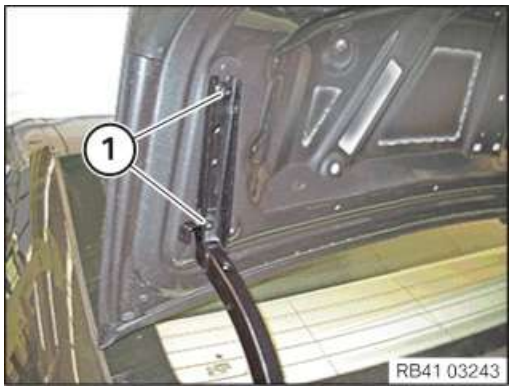
- Adjust tailgate on the tailgate hinge.

▸ **Remove the striker for the tailgate catch**

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- Loosen screws (1).
- Remove the striker for the tailgate catch (2).



NOTICE

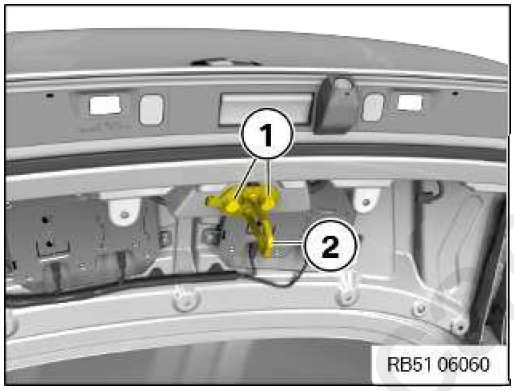
Perform the operations on the left and right side.

- Loosen screws (1) on the tailgate hinge until the tailgate can be moved.
- Move the tailgate lengthwise and laterally until the tailgate has reached the specified gap dimension to the side panel.
- Tighten screws (1) on the tailgate hinge.

Tailgate hinge to tailgate

Hexagon screw M8 x 18		Tightening torque	19 Nm

▸ **Install striker for the tailgate catch**



- Position the striker for the tailgate catch (2) and tighten the screws (1).

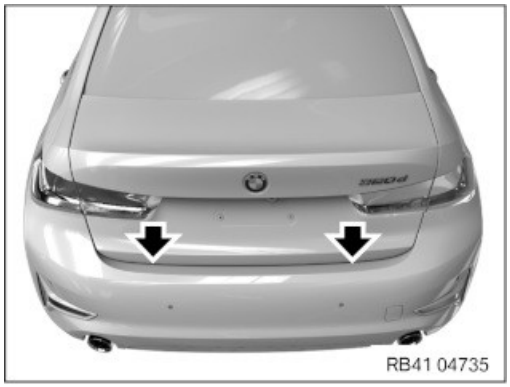
Striker to rear lid

Hexagon screw M8x20		Tightening torque	19 Nm

▸ **Installing the lower section of the tailgate lock**

Check

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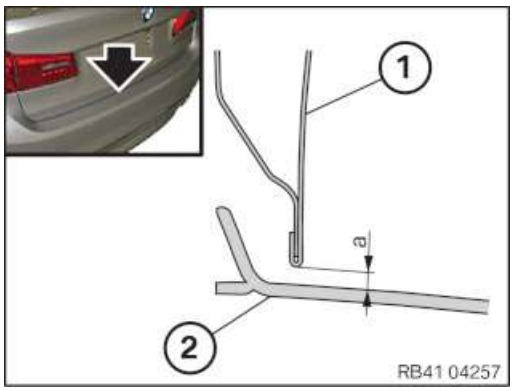


- Check the gap dimensions between the tailgate and bumper panel (arrows).

Gap dimension tailgate to rear bumper panel

1 tailgate; 2 rear bumper panel

a	5,1 (3,6 - 6,6) mm

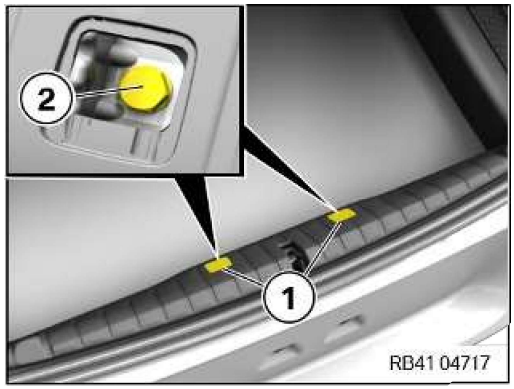


Result

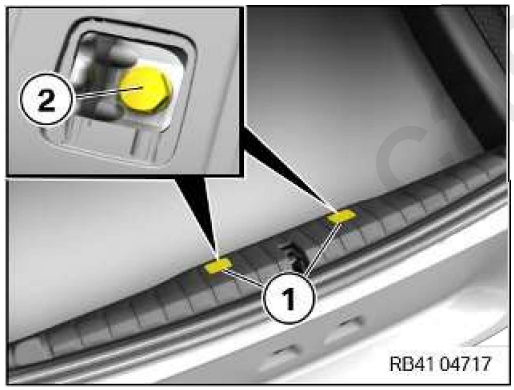
» Gap dimension does not correspond to specifications.

Measure

- Adjusting tailgate lock.



- Lever out the covers (1) with a suitable screwdriver and remove.
- Loosen screws (2) until the tailgate lock can be moved.
- Adjust tailgate lock so that the tailgate has the specified gap dimension to the bumper panel.

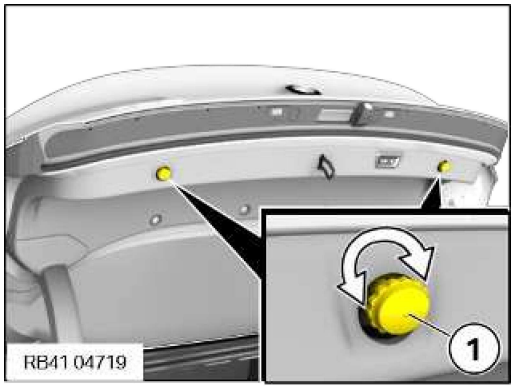


- Tighten the screws (2).

Tailgate lock to body

Hexagon screw M8x20		Tightening torque	19 Nm

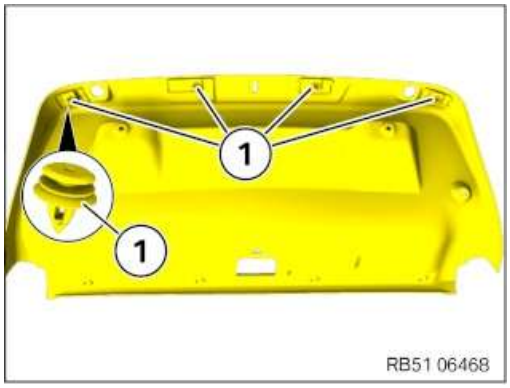
- Install and clip in the covers (1).



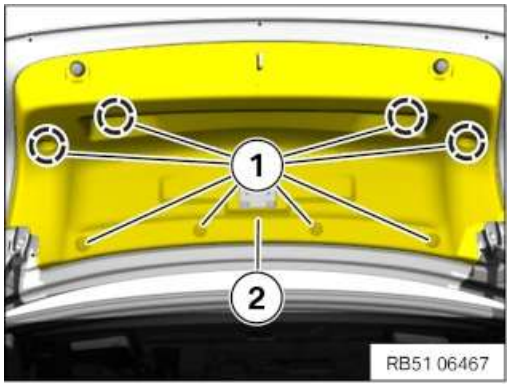
- Adjust the stop pad (1) by twisting in arrow direction.

9 – Installing the tailgate trim panel

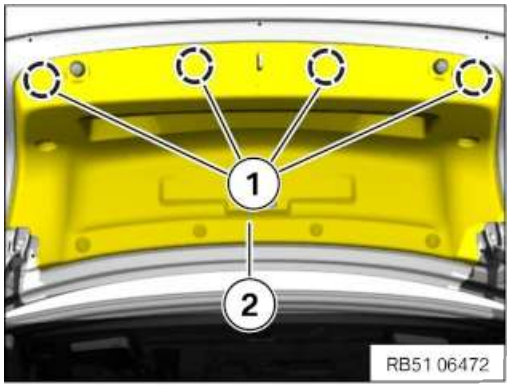
c-diagn.com



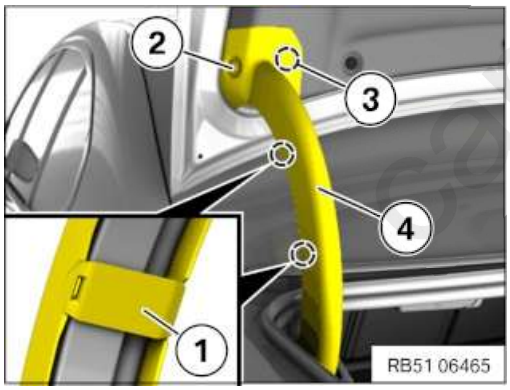
- Check the clips (1) for damage and renew if necessary.



- Fit the tailgate trim panel (2) and fasten in place with the expanding rivets (1).
- **If installed**: Connect and lock plug connection on the switch for the tailgate lift.



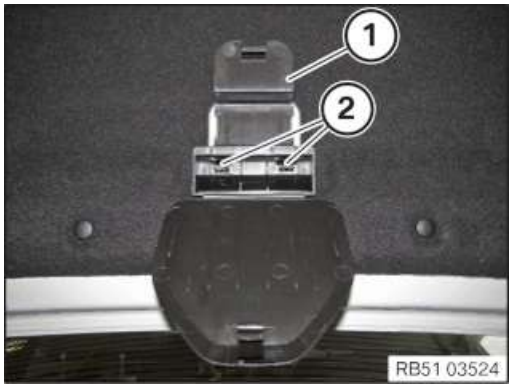
- Clip in the tailgate trim panel (2) with the clips (1).



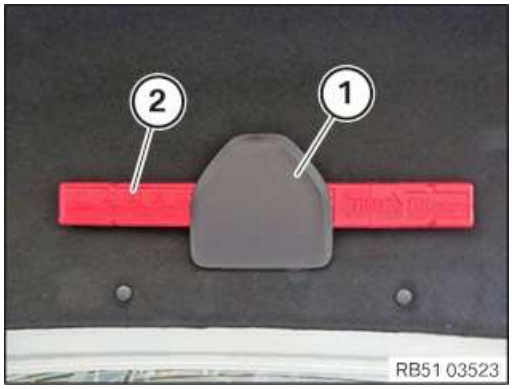
NOTICE

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

- Clip in the trim panel for the hinge of the tailgate (4) to the clip fastening (3).
- Fasten expanding rivet (2).
- Clip in tabs (1).



- Position the warning triangle holder (1) and snap into the latch mechanisms (2).



- Install the warning triangle (2).
- Clip in the cover (1).

Additional Information

Overview of Tightening Torques

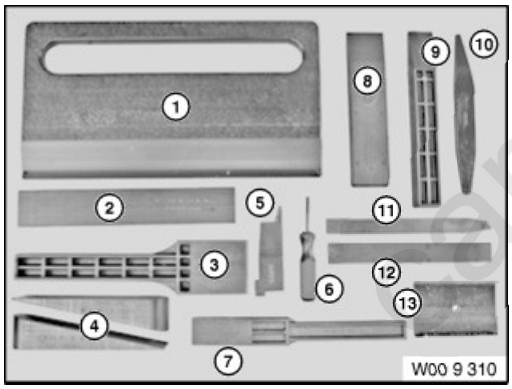
Tailgate hinge to tailgate			Used in step 58
Hexagon screw M8 x 18		Tightening torque	19 Nm

Striker to rear lid			Used in step 8
Hexagon screw M8x20		Tightening torque	19 Nm

Tailgate lock to body			Used in step 8
Hexagon screw M8x20		Tightening torque	19 Nm

Overview of Special Tools

0 490 534 (00 9 317) Wedge



Common	Used in step 1
Usage	(Trim wedge) Replaced by special tool 00 9 325 from 11/2008 (quality improvement due to new material) Replaced by 00 9 325 (0 496 569)
Included in the tool or work	0 490 527
Storage location	
Replaced by	
In connection with	
SI-Number	

0 496 569 (00 9 325) Wedge



Common	Used in step 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)

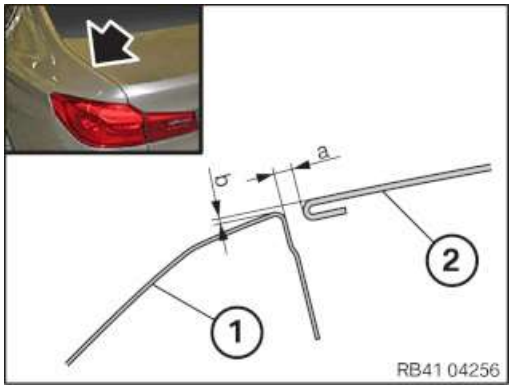
Overview Technical Data

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Gap dimension rear side panel to tailgate Used in step 8

1 rear side panel; 2 tailgate

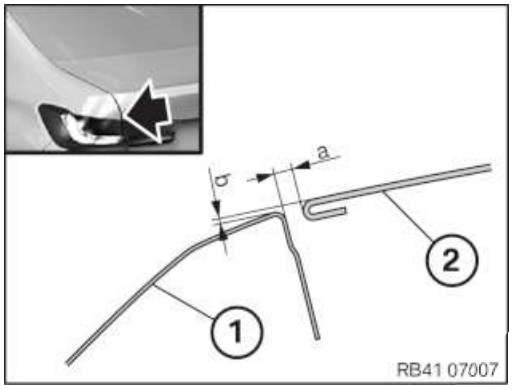
a	3.5 (2,4 - 4.6) mm
b	0,3 (-1,1 - 1,7) mm



Gap dimension rear side panel to tailgate Used in step 8

1 rear side panel; 2 tailgate

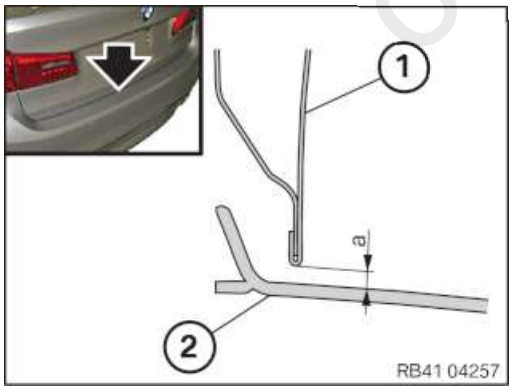
a	3.5 (2.3 - 4,7) mm
b	-0,6 (-2,0 - 0,8) mm



Gap dimension tailgate to rear bumper panel Used in step 8

1 tailgate; 2 rear bumper panel

a	5,1 (3,6 - 6,6) mm



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41 62 540 Removing and installing/replacing both tailgate hinges

RISK OF DAMAGE

Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

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

NOTICE

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

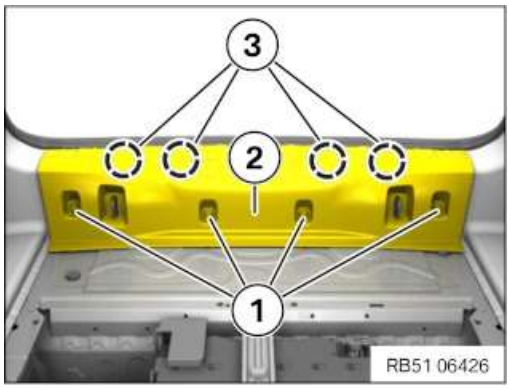


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

NOTICE

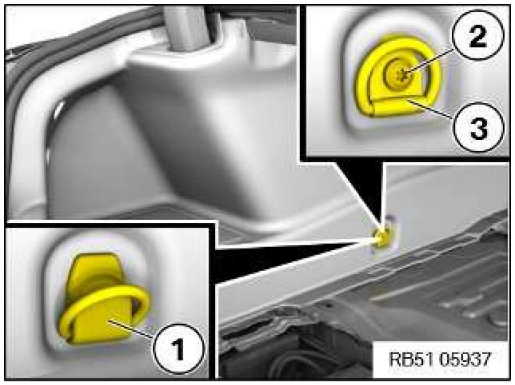
Schematic diagram is for example purposes. Some parts may differ in certain details.



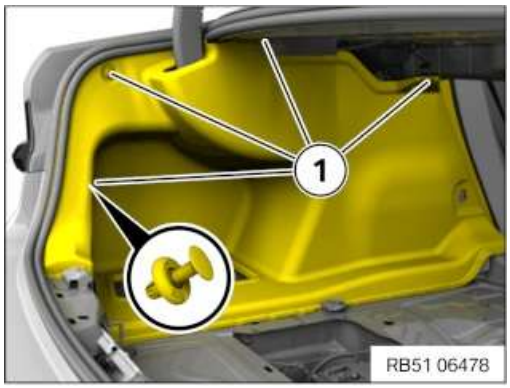
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

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

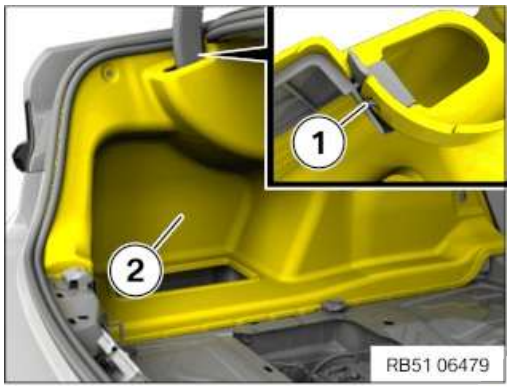
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- Remove the cover (1).
- Loosen screw (2).
- Remove lashing eye (3).

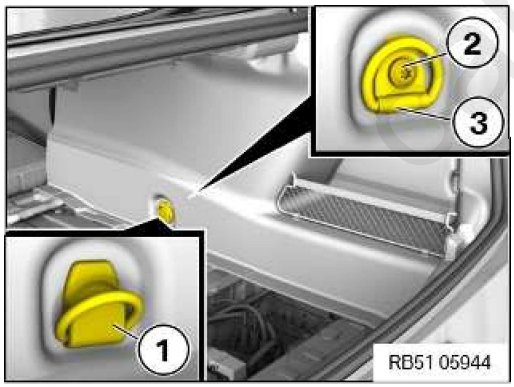


- Reposition left rear seat backrest.
- Loosen the expanding rivet (1).

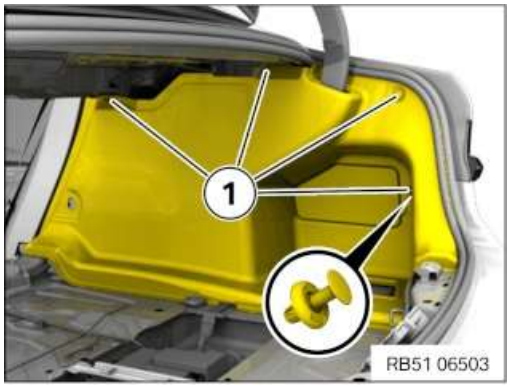


- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip for the tailgate and the side trim panel in the rear passenger compartment.
- Remove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

4 – Removing right luggage compartment wheel arch trim panel

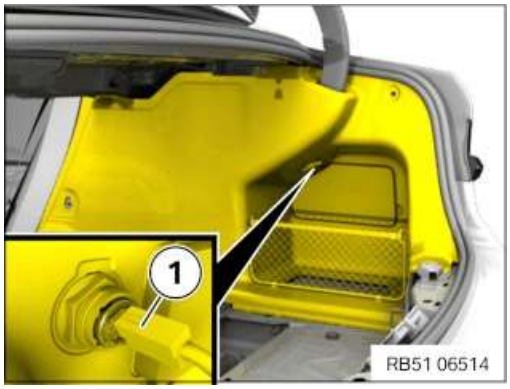


- Remove the cover (1).
- Loosen screw (2).
- Remove the lashing eye (3).

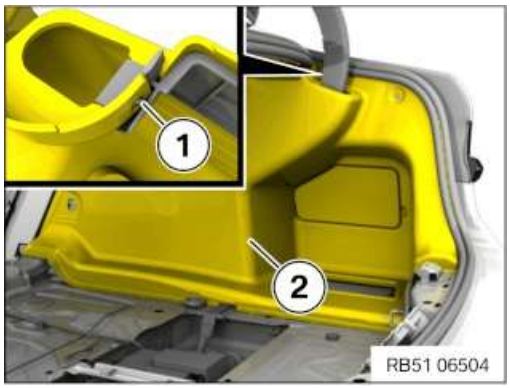


- Reposition the right rear seat backrest.
- Loosen the expanding rivet (1).

▸ **If installed: Disconnect plug connection of the 12 V connection (additional work with storage package equipment specification)**



- Unlock and disconnect the plug connection (1) of the 12 V power socket.



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

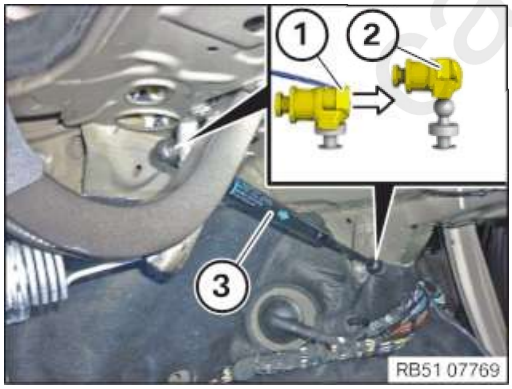
5 – Remove gas pressure spring for tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.



- Disassemble the ball sockets.

  Observe the disassembly sequence:

  1. Push clamp (1) on in the direction of arrow using a screwdriver.
  2. Lift off the ball socket (2) from the ball pin.
  3. Push back the clamp (1).
- Remove spindle drive (3).

6 – Removing tension spring for tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.

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CAUTION

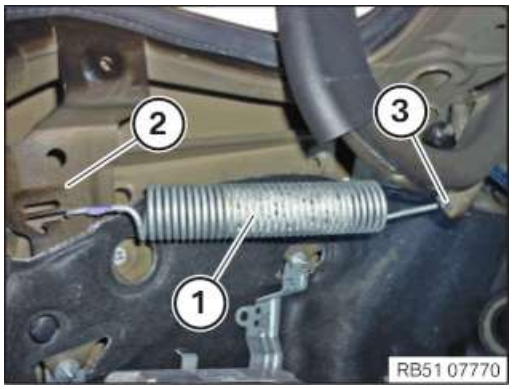
Tension spring.

Danger of injury!

- Wear protective gloves while removing and installing the tension spring.

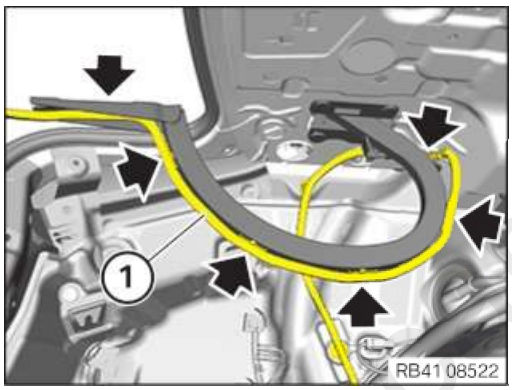
NOTICE

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



- Note down position of tension spring (1) at rear holder (2).
- Detach the tension spring (1) from the rear holder (2).
- Feed out tension spring (1) from hinge (3).

7 – Releasing the left and right wiring harness section from the hinge

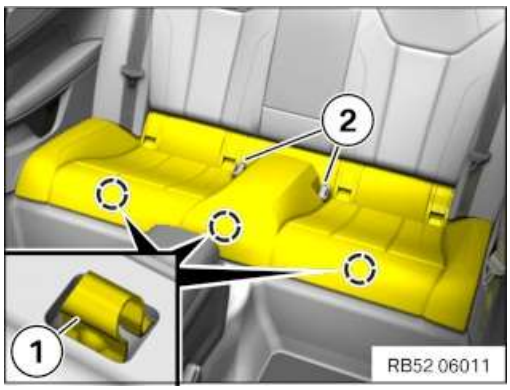


NOTICE

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

- Release the wiring harness section (1) on the attachment points (arrows) from the hinge and set aside.

8 – Remove rear seat bench



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

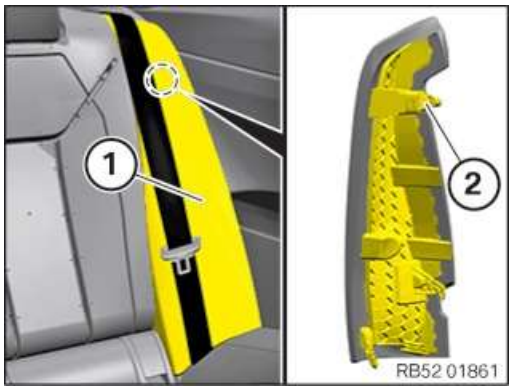
9 – Remove backrest side section on left and right

NOTICE

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

▶ **Remove armrest side section**

▷ **Remove armrest side section**



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

◁

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

NOTICE

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

▶ **Remove C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

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

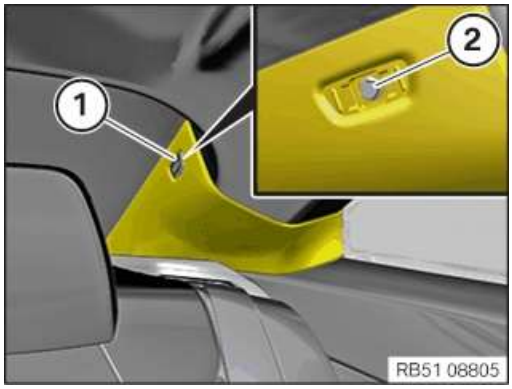
RISK OF DAMAGE

Damage to the head airbag.

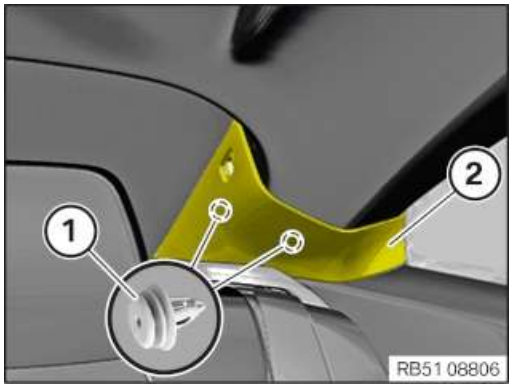
Improper use of a tool when removing the trim panel may damage the head airbag.

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

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



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

11 – Remove side trim panel, rear left and right

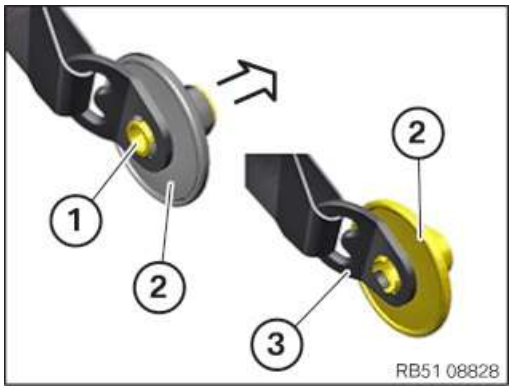
NOTICE

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

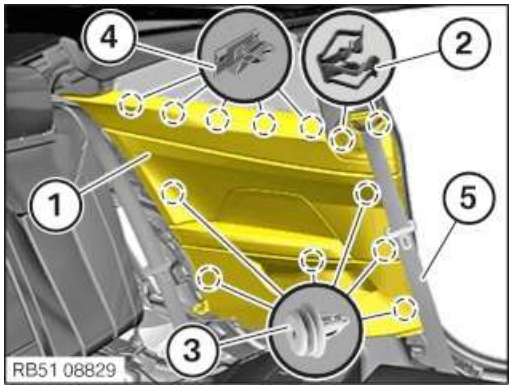
▸ **Remove rear side trim panel**



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

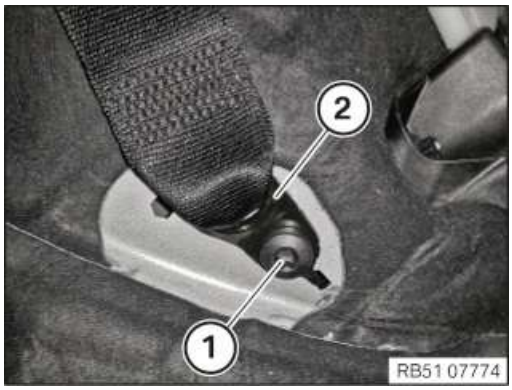


- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



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

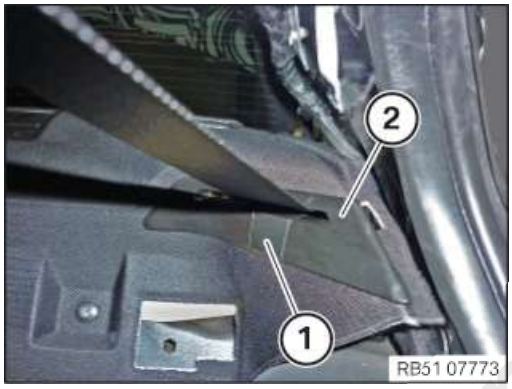
12 – Removing the trim panel for the storage shelf



NOTICE

Perform the operations on the left and right side.

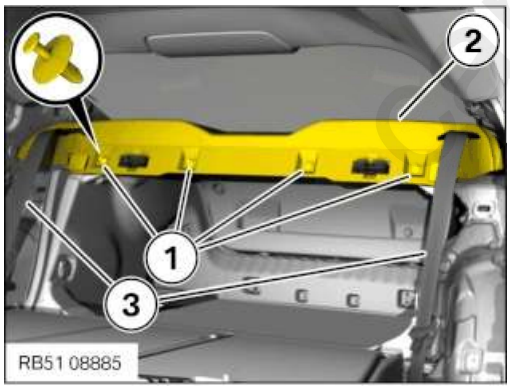
- Release the screw (1) from the rear end fitting (2).
- Feed out the rear end fitting (2) from the body.



NOTICE

Perform the operations on the left and right side.

- Unclip the cover (1) to the front.
- Unclip the outer belt feed trim (2) starting from the front and remove it.



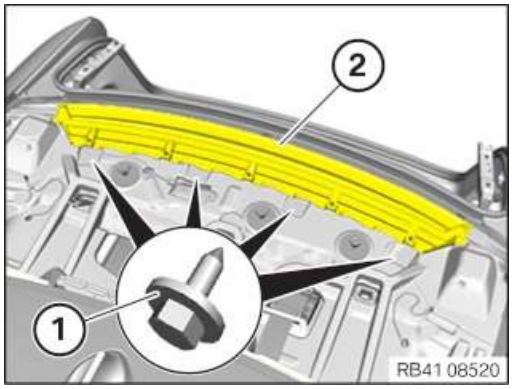
- Release the expanding rivet (1).
- Unlock and disconnect the plug connections under the trim panel (2). Lift the trim panel (2) for that.
- Release the wiring harness with all holders from trim panel (2).
- Remove the trim panel (2) to the front and feed out the seat belts (3).

13 – Removing the screen trim

NOTICE

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

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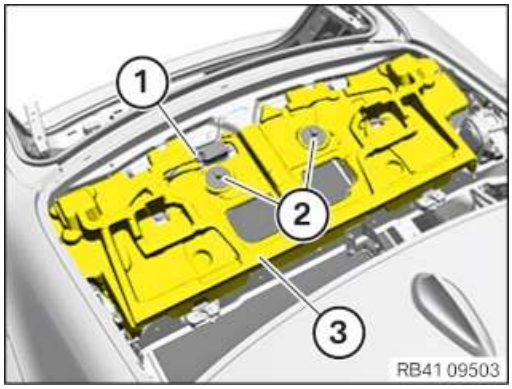


- Release screw (1) and remove screen trim (2).

14 – Remove sound insulation

NOTICE

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



- Unlock plug connection (1) and disconnect.
- Unscrew retaining dome (2) and remove sound insulation (3).

MAIN WORK

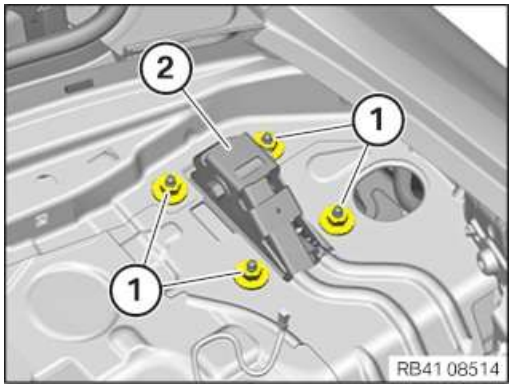
15 – Remove both tailgate hinges

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.



- Loosen nuts (1).
- Remove tailgate hinge (2) downwards.

16 – Installing both tailgate hinges

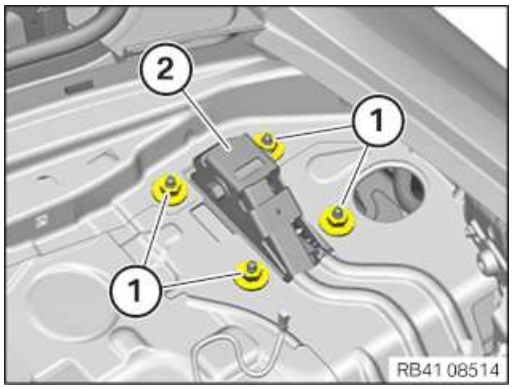
cardiagn.com

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.

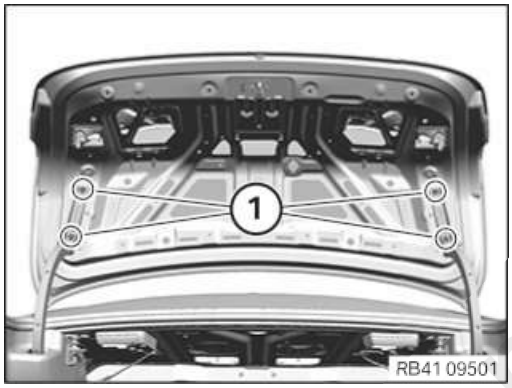


- (2)Place tailgate hinge .
- Tighten nuts (1).

Tailgate hinge to body

Nut M8		Tightening torque	19 Nm

17 – Installing the tailgate



RISK OF DAMAGE

Mechanical effects.

Paint damage.

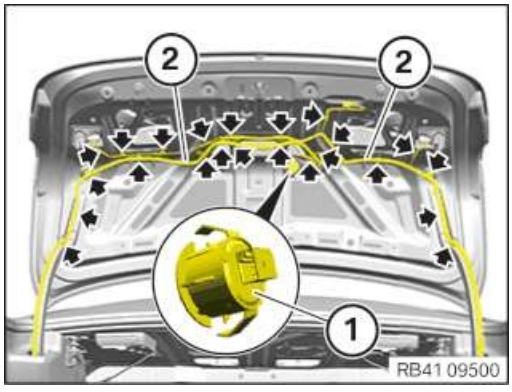
- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

- Position tailgate on the tailgate hinges.
- Tighten the screws (1).

Tailgate hinge to tailgate

Hexagon screw M8 x 18		Tightening torque	19 Nm

- Carefully close the tailgate and check for contact between vehicle bodies. If necessary position the tailgate again.



- Clip in wiring harness (2) at the attachment points (arrows).
- Connect and lock all connectors of the wiring harnesses (2) on the tailgate.
- Connect the associated acoustic transmitter's plug connection (1) and install the acoustic transmitter.

18 – Adjusting left and right tailgate hinge

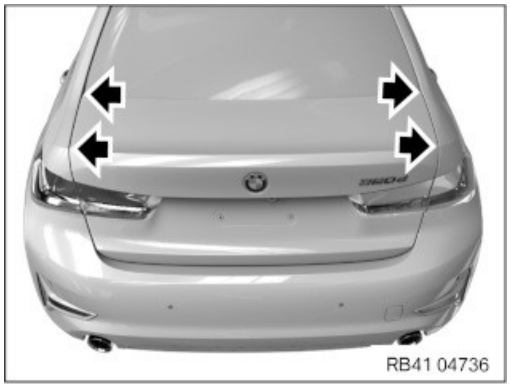
carmanuals.com

TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body

Check

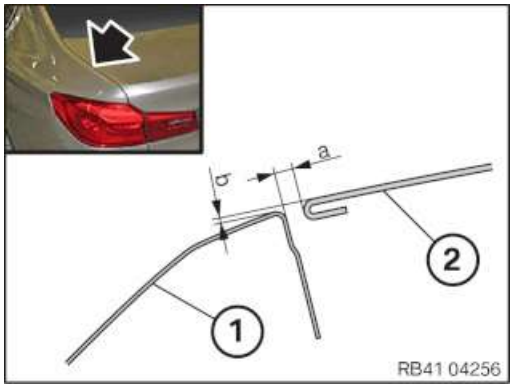
cardiagn.com



- Check the gap dimensions (arrows) between tailgate and side panels.

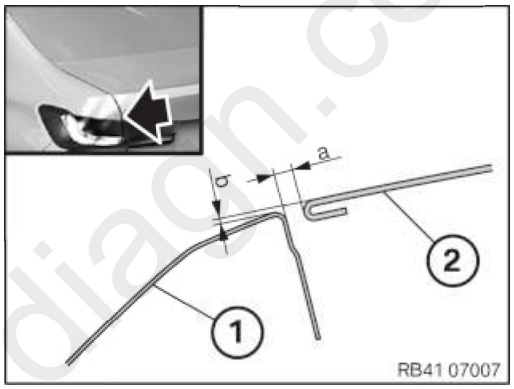
Gap dimension rear side panel to tailgate

1 rear side panel; 2 tailgate	
a	3.5 (2,4 - 4.6) mm
b	0,3 (-1,1 - 1,7) mm



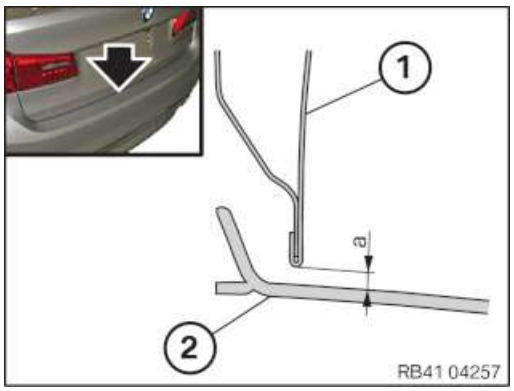
Gap dimension rear side panel to tailgate

1 rear side panel; 2 tailgate	
a	3.5 (2.3 - 4,7) mm
b	-0,6 (-2,0 - 0,8) mm



Gap dimension tailgate to rear bumper panel

1 tailgate; 2 rear bumper panel	
a	5,1 (3,6 - 6,6) mm



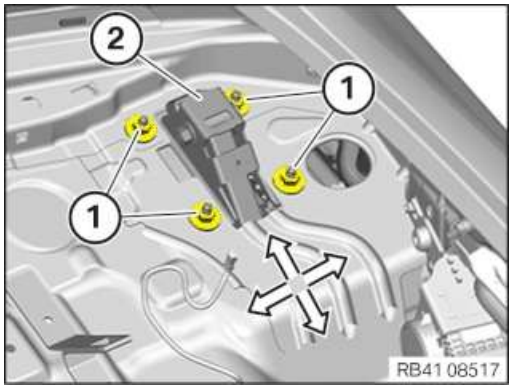
Result

» Gap dimensions do not correspond to the specifications.

Measure

- Adjust tailgate hinge.

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NOTICE

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

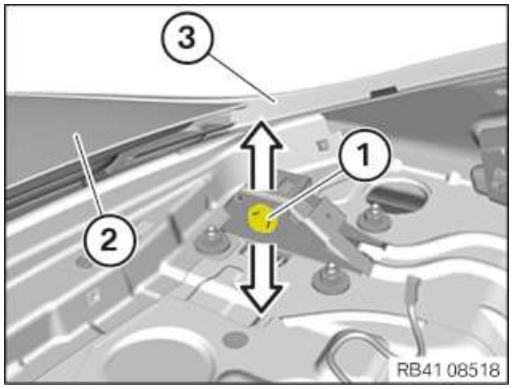
NOTICE

Perform the operations on the left and right side.

- Loosen nuts (1) until the tailgate hinge (2) can be moved.
- Move tailgate hinge (2) horizontally, till the Tailgate has the specified gap dimension for the side panel.
- Tighten nuts (1).

Tailgate hinge to body

Nut M8		Tightening torque	19 Nm



NOTICE

Perform the operations on the left and right side.

- Loosen nut (1) until the tailgate hinge (2) can be moved.
- Move the hinge arm vertically until the tailgate has the specified gap dimension to the side panel.
- Tighten nut (1).

Hinge to hinge support

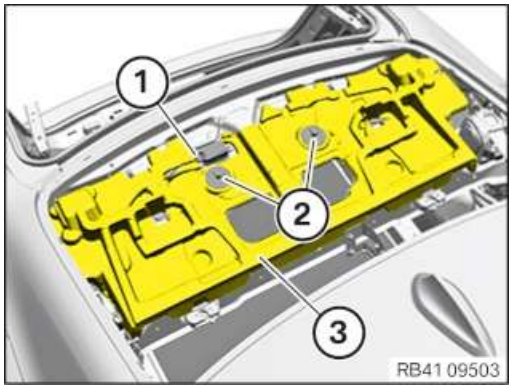
Nut		Tightening torque	19 Nm

POSTPROCESSES

19 – Install sound insulation

NOTICE

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



- Install the sound insulation (3).
- Mount and tighten the mounting dome (2).

Mounting dome for parcel shelf

Mounting dome		Tightening torque	3,6 Nm

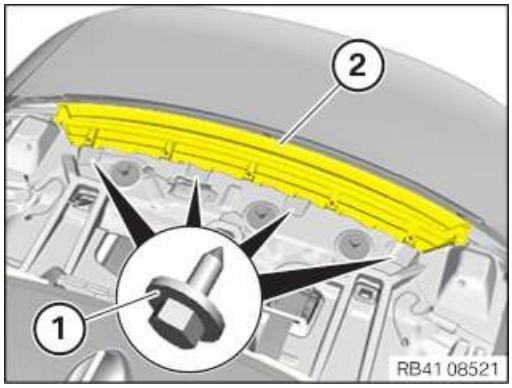
- Connect plug connection (1).

20 – Installing the screen trim

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NOTICE

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

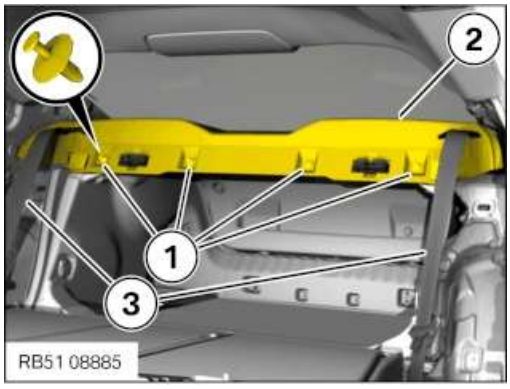


- Install screen trim (2) and tighten screws (1).

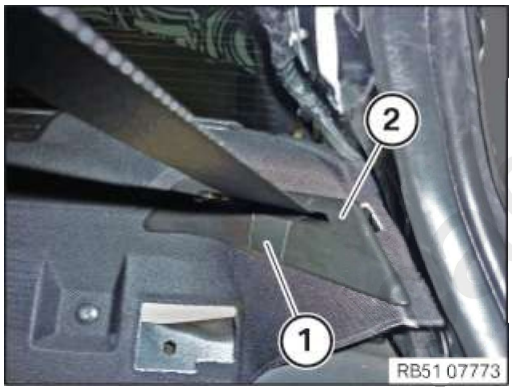
Screen trim mounting

Sheet metal screw 4.8 x 16		Tightening torque	2 Nm

21 – Install the trim panel for the storage shelf



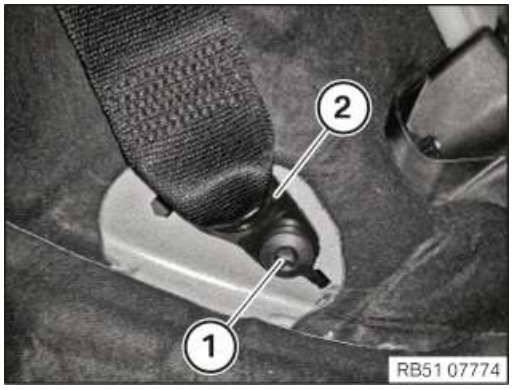
- Install the trim panel (2) and the feed in the seat belts (3).
- Clip in the wiring harness with all the holders to the trim panel for the storage shelf (2).
- Connect all connectors and lock.
- Feed in the trim panel (2) to the rear guides and position it correctly.
- Secure expanding rivet (1).



NOTICE

Perform the operations on the left and right side.

- Feed in the belt feed trim (2).
- Clip in the cover (1).



NOTICE

Perform the operations on the left and right side.

- Feed the rear end fitting (2) into the body.
- Renew the screw (1).

  Part: Screw
- Tighten down screw (1).

End fitting to body

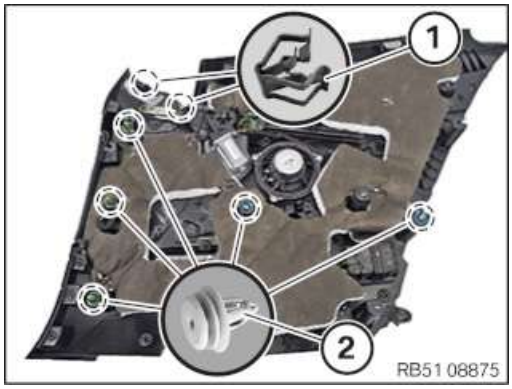
M10	Renew screw.	Tightening torque	42 Nm

22 – Install side trim panel, rear left and right

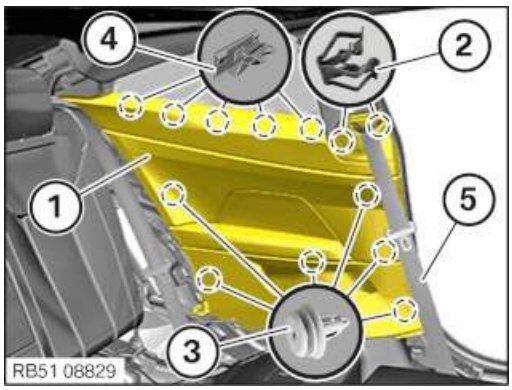
NOTICE

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

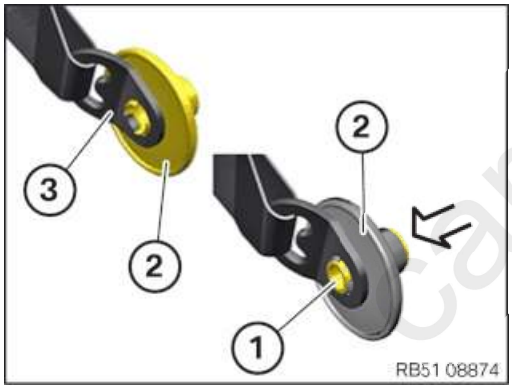
▸ **Install rear side trim panel**



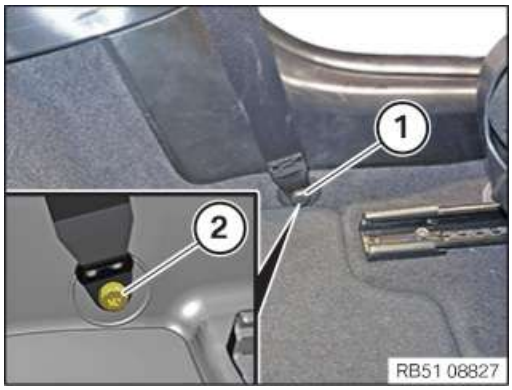
- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.



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



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



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

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

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

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NOTICE

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

▸ **Installing C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

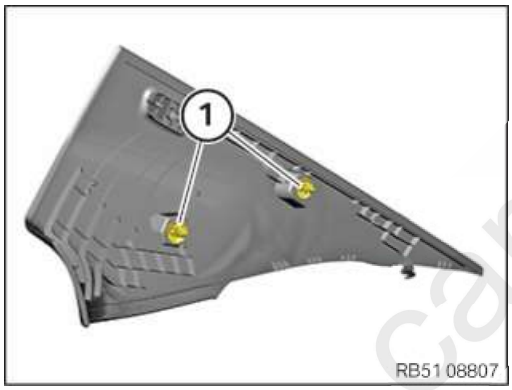
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

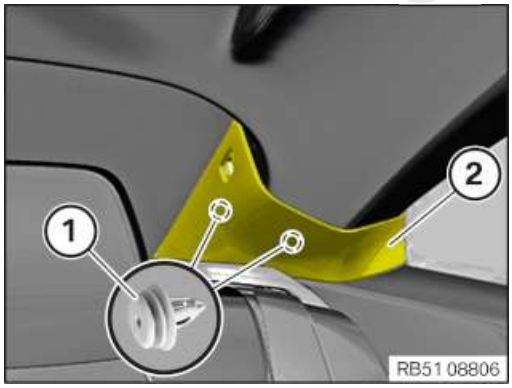
Damage to the head airbag.

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

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

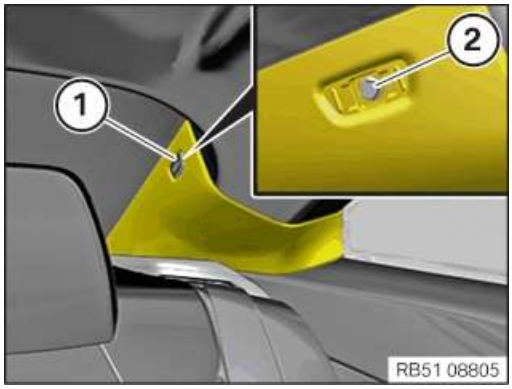


- Check clips (1) for damage and, if necessary, renew them.



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

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- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

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

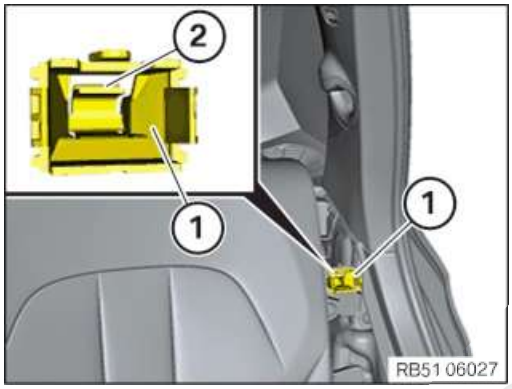
24 – Install the backrest side section on the left and right

NOTICE

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

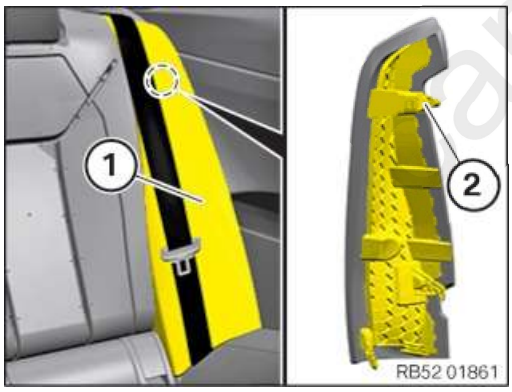
▸ **Installing backrest side section**

▹ **Installing backrest side section**



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

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

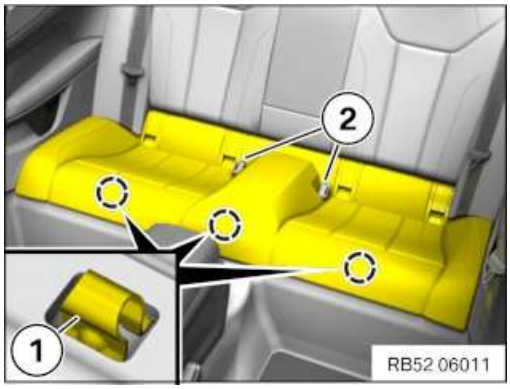


- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◃

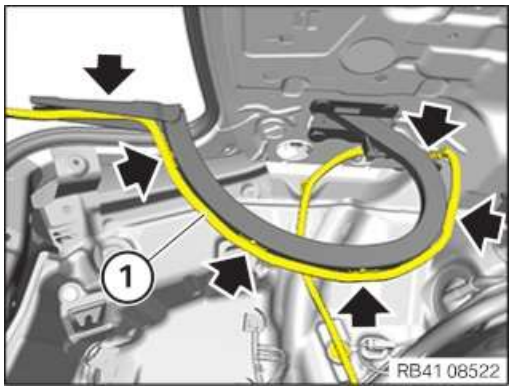
25 – Installing the rear seat bench

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

26 – Fastening the wiring harness section on the left and right on the hinge



NOTICE

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

- Fasten the wiring harness section (1) on the attachment points (arrows) on the hinge.

27 – Installing the tension spring for tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.

CAUTION

Tension spring.

Danger of injury!

- Wear protective gloves while removing and installing the tension spring.

TECHNICAL INFORMATION

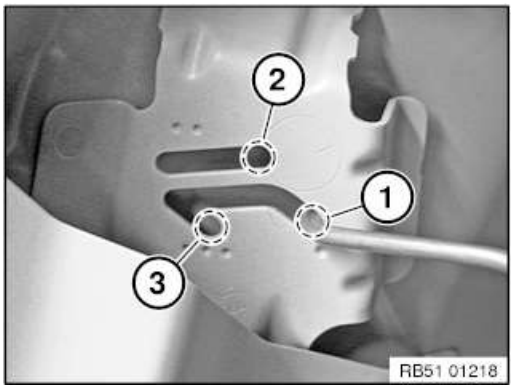
Notes for setting up the closing force are a fundamental requirement for these repair instructions and must be complied with at all times.

For additional information see: 51 24 ... Notes for setting up closing force on tailgate

NOTICE

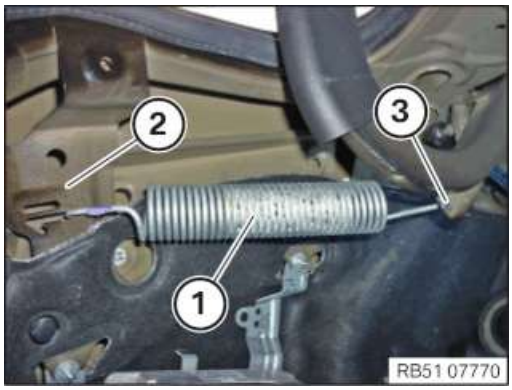
Description is for left component only. Procedure on the right side is identical.

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- Positions (1) to (3) influence the closing force of the tension spring.

  If the closing force needs to be changed:see additional information.



- Feed in the tension spring (1) to the hinge (3).

  Mount tension spring (1) to rear holder (2) again in the same position.

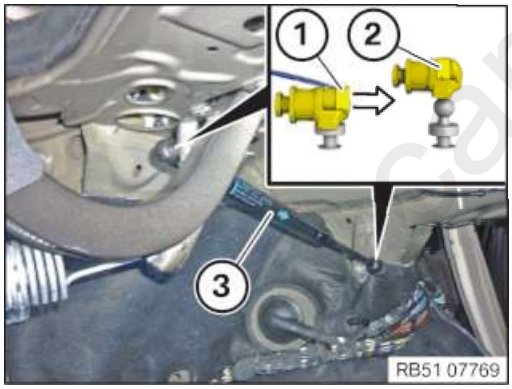
28 – Installing the gas pressure spring for the tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.



- Attach the spindle drive (3) and, together with the ball socket (2), place on the ball pin and engage with force.

  Check the clamp (1) is fitted correctly.

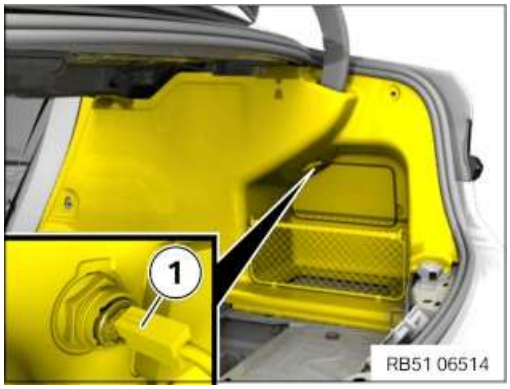
29 – Installing the luggage compartment wheel arch trim panel on the right

NOTICE

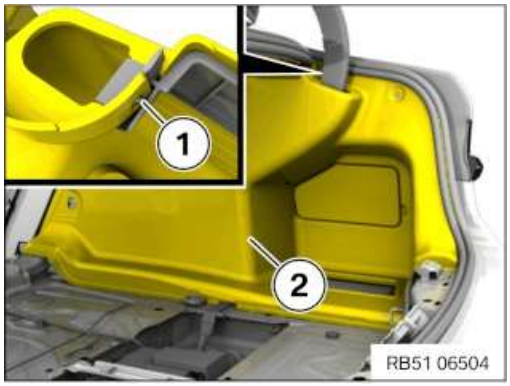
Schematic diagram is for example purposes. Some parts may differ in certain details.

▸ If installed: Connecting plug of the 12 V power socket (additional work for equipment specification with storage package)

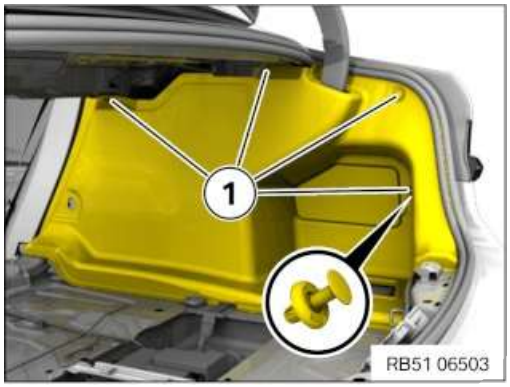
cardiagn.com



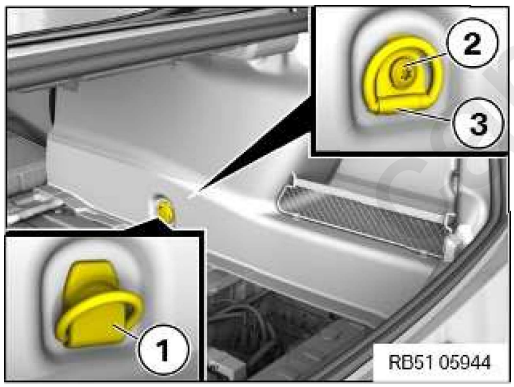
- Connect and lock connector (1) of the 12 V power socket.



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



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



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

Lashing eye to body

	Tightening torque	19 Nm

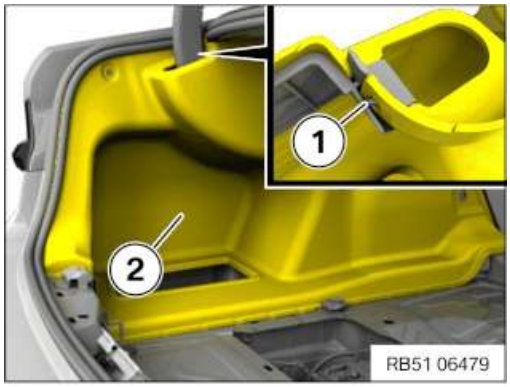
- Install the cover (1) .

30 – Install luggage compartment wheel arch trim panel at left

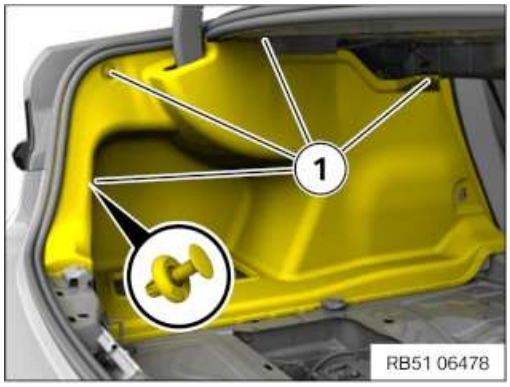
NOTICE

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

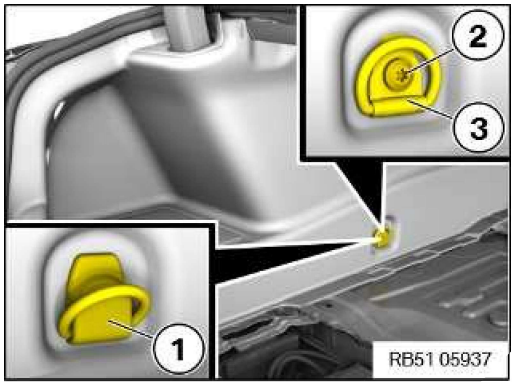
cardiagn.com



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



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



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

Lashing eye to body

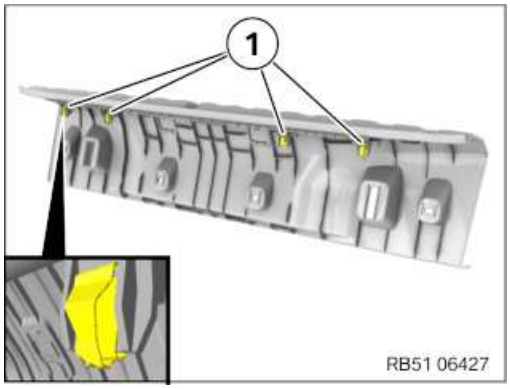
	Tightening torque	19 Nm

- Install the cover (1) .

31 – Installing loading edge trim

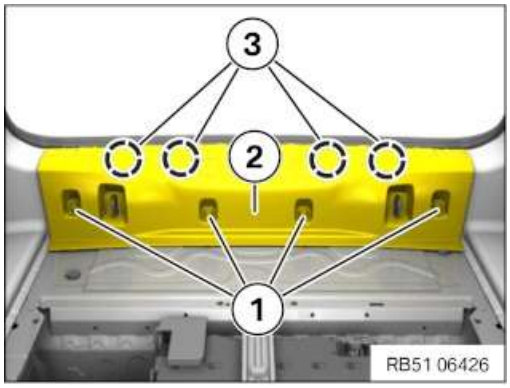
NOTICE

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



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

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

32 – Installing the luggage compartment floor trim panel

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

NOTICE

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



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

Additional Information

Overview of Tightening Torques

Tailgate hinge to body — Used in step 1618

Nut M8		Tightening torque	19 Nm

Tailgate hinge to tailgate — Used in step 17

Hexagon screw M8 x 18		Tightening torque	19 Nm

Hinge to hinge support — Used in step 18

Nut		Tightening torque	19 Nm

Mounting dome for parcel shelf — Used in step 19

Mounting dome		Tightening torque	3,6 Nm

Screen trim mounting — Used in step 20

Sheet metal screw 4.8 x 16		Tightening torque	2 Nm

End fitting to body — Used in step 21

M10	Renew screw.	Tightening torque	42 Nm

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End fitting to body Used in step 22

M10		Tightening torque	42 Nm

C-pillar trim panel to body Used in step 23

Screw		Tightening torque	2,6 Nm

Lashing eye to body Used in step 2930

		Tightening torque	19 Nm

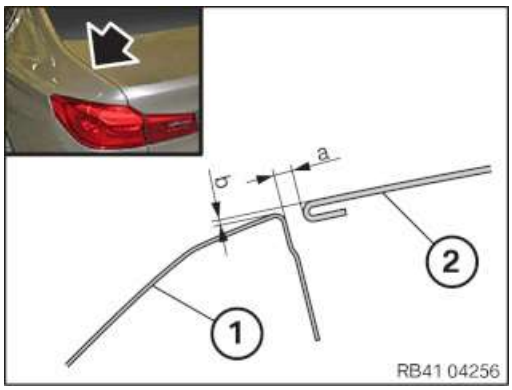
Overview of Special Tools

Overview Technical Data

Gap dimension rear side panel to tailgate Used in step 18

1 rear side panel; 2 tailgate

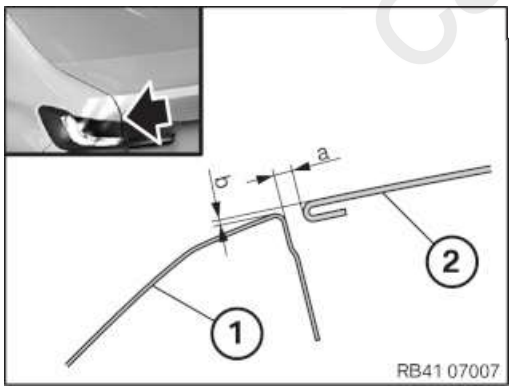
a	3.5 (2,4 - 4.6) mm
b	0,3 (-1,1 - 1,7) mm



Gap dimension rear side panel to tailgate Used in step 18

1 rear side panel; 2 tailgate

a	3.5 (2.3 - 4,7) mm
b	-0,6 (-2,0 - 0,8) mm

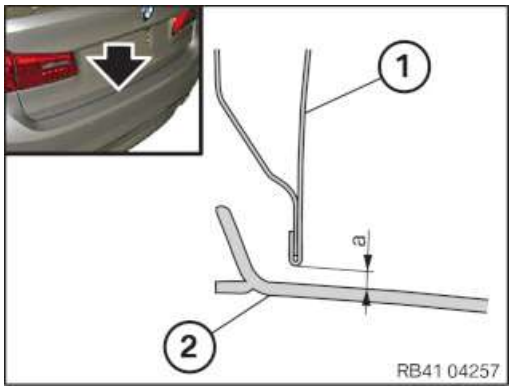


Gap dimension tailgate to rear bumper panel Used in step 18

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1 tailgate; 2 rear bumper panel

a	5,1 (3,6 - 6,6) mm



Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	924
Gap dimensions, body	18

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	924
51 24 ... Notes on setting tailgate closing force	27

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	924
61 20 900 Disconnecting and connecting battery earth lead	924
61 20 900 Disconnecting and connecting battery earth lead	924
61 20 900 Disconnecting and connecting battery earth lead	924
61 20 900 Disconnecting and connecting battery earth lead	924
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61 20 900 Disconnecting and connecting battery earth lead	924

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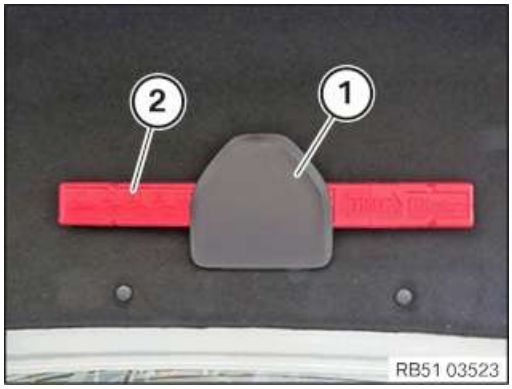
61 20 900 Disconnecting and connecting battery earth lead	924
61 20 900 Disconnecting and connecting battery earth lead	924
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	924
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	924
61 20 900 Disconnecting and connecting battery earth lead	924
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	924
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	924
61 20 900 Disconnecting and connecting battery earth lead	924
61 20 900 Disconnecting and connecting battery earth lead	924
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	924
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61 20 900 Disconnecting and connecting battery earth lead	924

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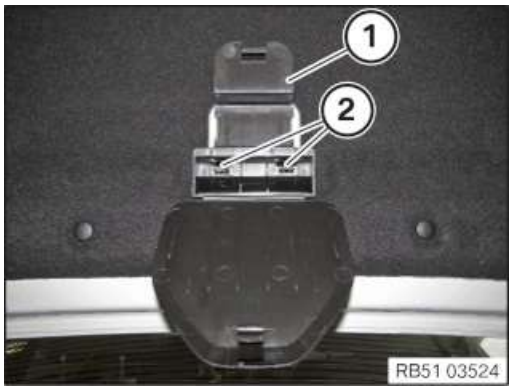
41 62 001 Replacing the tailgate

PRELIMINARY WORK

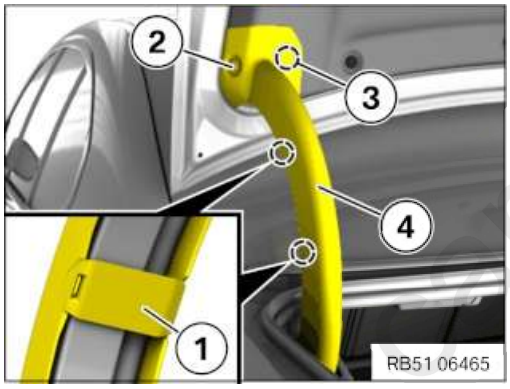
1 – Remove tailgate trim panel



- Fold the cover (1) towards the bottom.
- Remove the warning triangle (2).



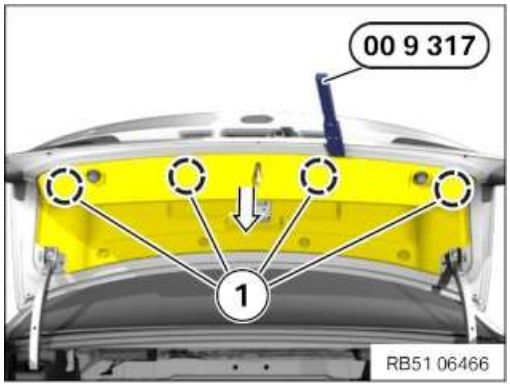
- Detach the warning triangle holder (1) from the latch mechanisms (2) and slide downwards.



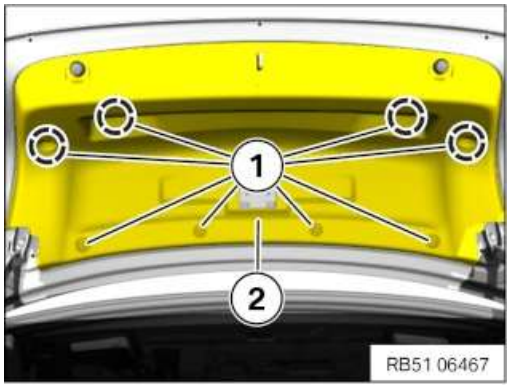
NOTICE

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

- Unclip the tabs (1).
- Loosen expanding rivet (2).
- To avoid damage, release the trim panel for the hinge of the tailgate (4) without using a tool by jerking it along the hinge bracket and out of the clip fastening (3).



- Unclip clips (1) with special tool 0 490 534 (00 9 317) in the direction of arrow.



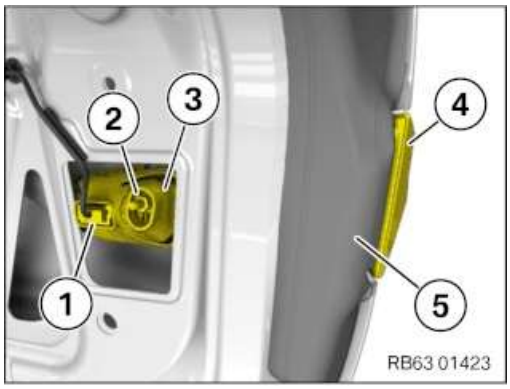
- Release expanding rivet (1) on the tailgate trim panel (2).
- Remove tailgate trim panel (2).
- **If installed**: Unlock plug connection of the switch for the tailgate lift and disconnect.

2 – Removing the left and right rear lights on the tailgate

NOTICE

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

▸ **Remove the rear light on the tailgate**



TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

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

- Unlock plug connection (1) and disconnect.
- Release the nut (2) using the clamping claw (3).
- Feed out the rear light (4) from the tailgate and at the sealing lip of the trim (5).



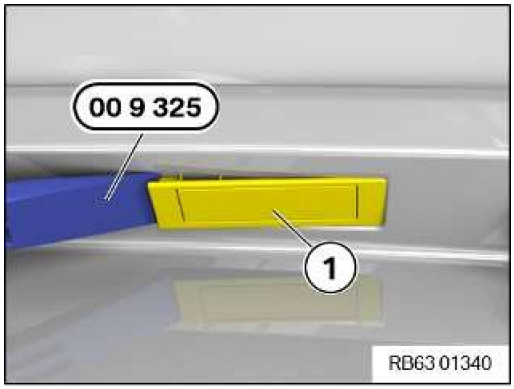
- If necessary, release the soft-top bow (1) at the guides (2) and remove outwards.

3 – Removing the number plate light on the left and right

NOTICE

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

▸ **Remove number plate light**



- Remove the number plate light (1) with the special tool 0 496 569 (00 9 325).
- Unlock plug connection and disconnect.

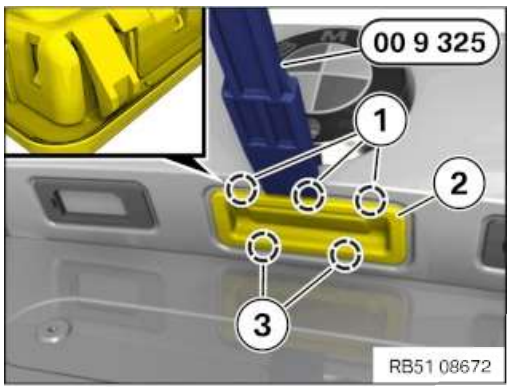
4 – Remove tailgate pushbutton

RISK OF DAMAGE

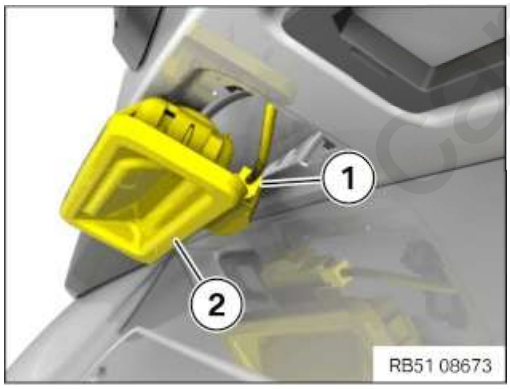
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

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

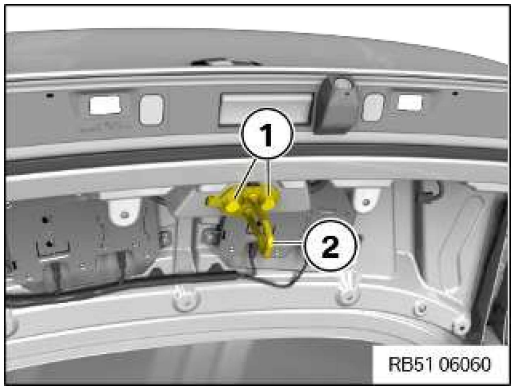


- Mount the special tool 0 496 569 (00 9 325) as shown.
- Open the latch mechanisms (1) of the tailgate button (2) by carefully knocking on to the special tool 0 496 569 (00 9 325).
- Release the latch mechanisms (3) from the inside and unclip the tailgate button (2) in a downwards direction.



- Disconnect the connector (1) and remove the tailgate button (2).
- If necessary, remove the broken parts of the tailgate button (2) from the tailgate.

5 – Remove the striker for the tailgate catch



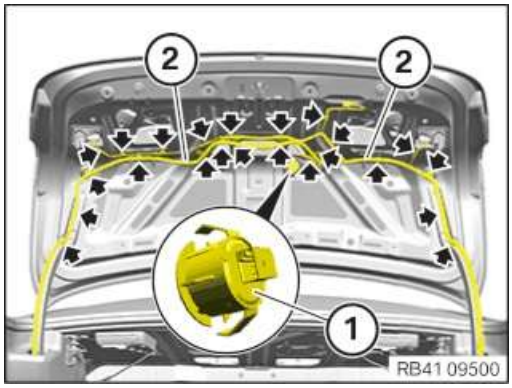
- Loosen screws (1).
- Remove the striker for the tailgate catch (2).

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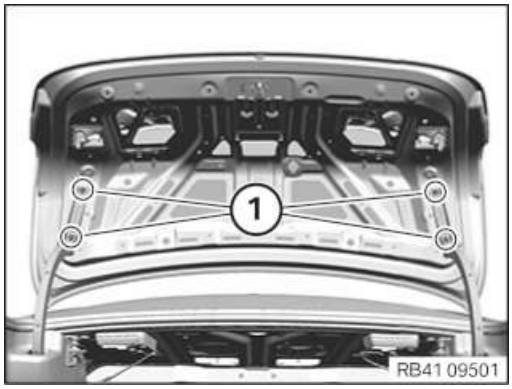
6 – Replacing the tailgate

Prerequisite

New part is painted.



- Unclip acoustic transmitter (1). Disconnect the associated plug connection and remove the acoustic transmitter.
- Unlock and disconnect all the plug connections of wiring harnesses (2) to the tailgate.
- Release wiring harnesses (2) from the attachment points (arrows) from the tailgate and keep them aside.



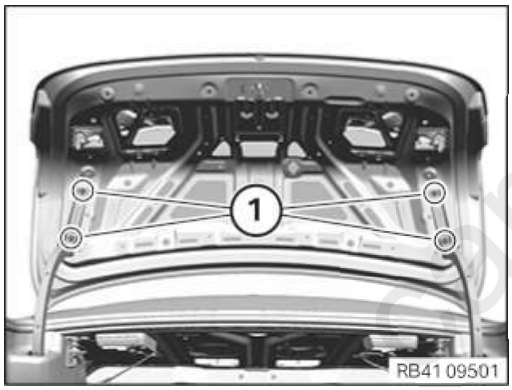
RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

- Release screws (1) and remove the tailgate.

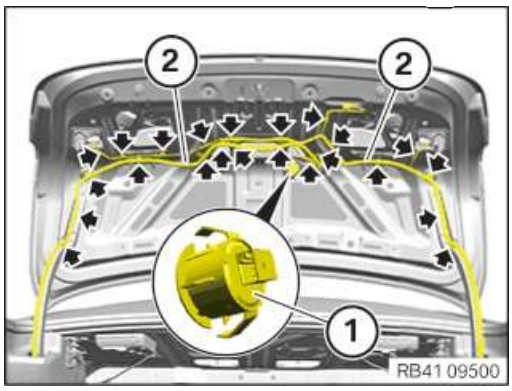


- Position the new tailgate on the tailgate hinges.
- Tighten the screws (1).

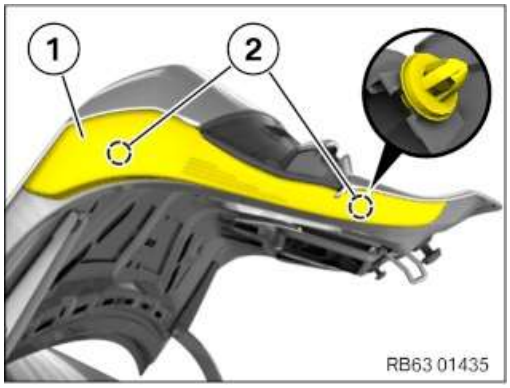
Tailgate hinge to tailgate

Hexagon screw M8 x 18		Tightening torque	19 Nm

- Carefully close the tailgate and check the contact between vehicle bodies. If necessary position the tailgate again.



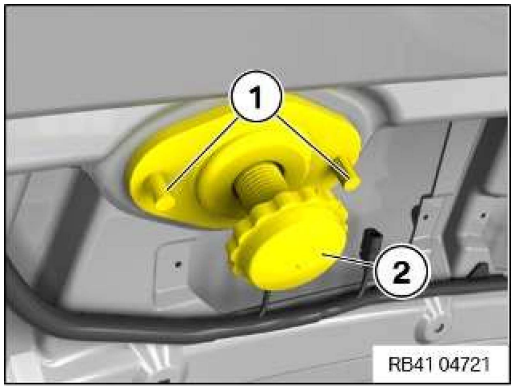
- Clip wiring harnesses (2) into the attachment points (arrows).
- Connect all the connectors of wiring harnesses (2) to the tailgate and lock them.
- Connect the associated plug connection of acoustic transmitter (1) and install the acoustic transmitter.



NOTICE

Perform the operations on the left and right side.

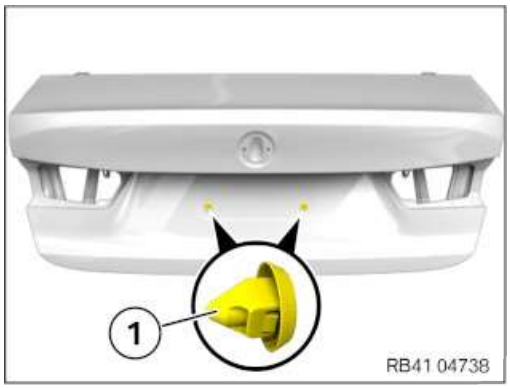
- Unclip cover (1) from clips (2).



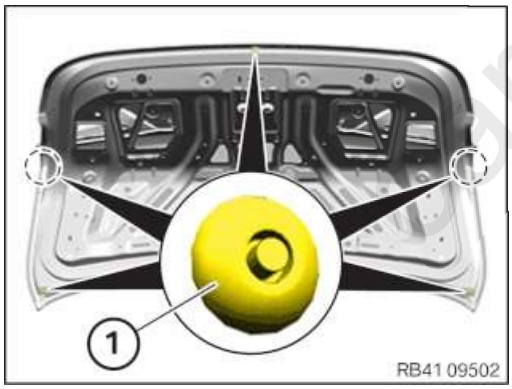
NOTICE

Perform the operations on the left and right side.

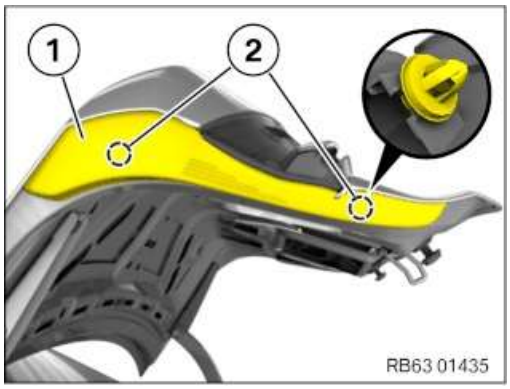
- Press in the pins (1) of the stop pad (2) and remove the stop pad (2).
- Fit the stop pad (2) on the new tailgate.
- Drive in the pins (1) of the stop pad (2) until they are flush.



- Remount clips (1) for the number plate.



- Remount the seal plug (1).



NOTICE

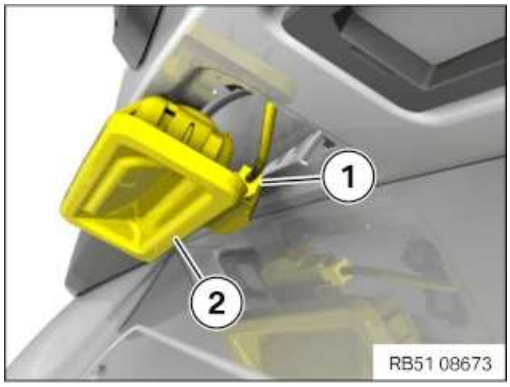
Perform the operations on the left and right side.

- Remount cover (1) on the new tailgate and clip it in using clips (2).

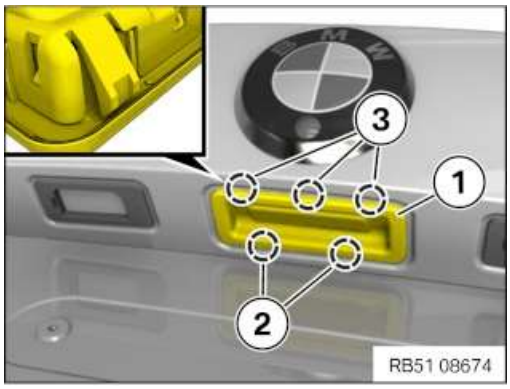
POSTPROCESSES

7 – Install the tailgate button

grdiagn.com



- Check the tailgate in the area of tailgate button (2) for damage; touch it up if necessary.
- Connect connector (1) to tailgate button (2).



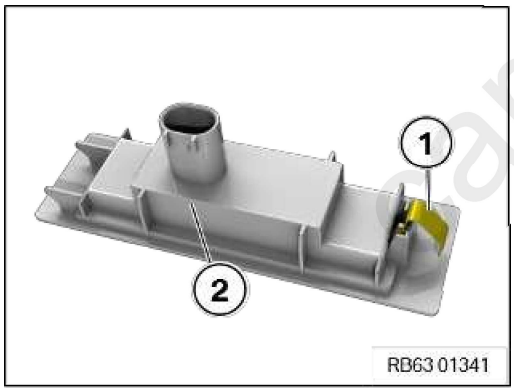
- Insert tailgate button (1) in the tailgate and clip it in with latch mechanisms (2) and (3) .

8 – Installing the license plate light on left and right

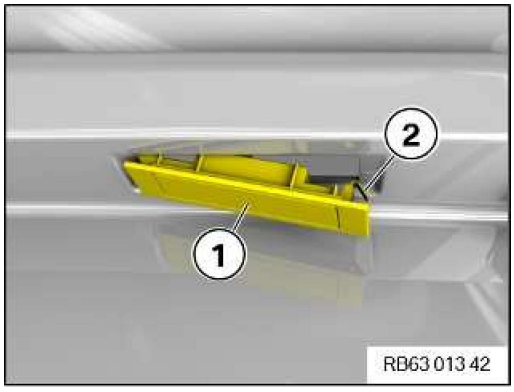
NOTICE

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

▸ **Installing number plate light**



- Check the clamp (1) on the number plate light (2) for damage.



- Connect connectors and lock.
- Position the number plate light (1) and clip it in with the clamp (2).

9 – Installing the left and right rear light on the tailgate

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NOTICE

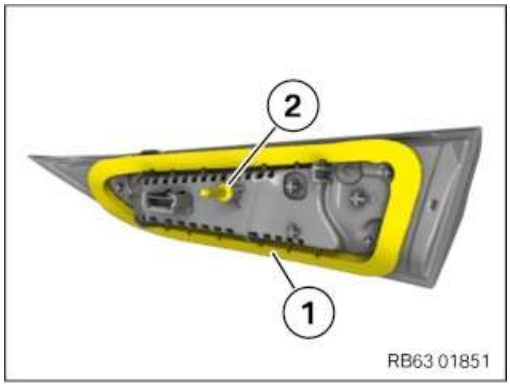
Description is for left component only. Procedure on the right side is identical.

▸ **Install the rear light on the tailgate**



- If necessary, insert the soft-top bow (1) from the outside in the tailgate and position it with the guides (2).

Check



- Check the seal (1) and the threaded bolts (2) of the rear light for damage.

Result

» The seal (1) is damaged.

Measure

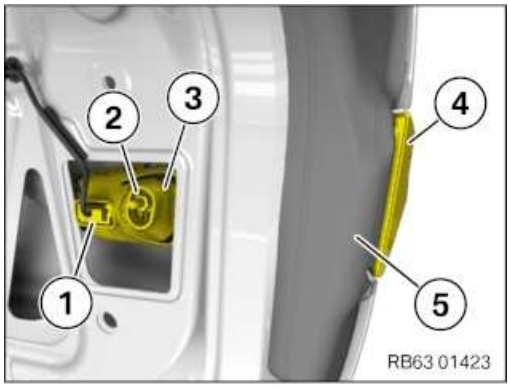
- Renew gasket.

Result

» The threaded bolt (2) is damaged.

Measure

- Replace rear light.



- Insert and position the rear light (4) in the tailgate. While doing so, insert the rear light (4) below the sealing lip of the trim (5) and in the clamping claw (3).
- Tighten the nut (2) with the clamping claw (3).

Rear light at tailgate

Clamping claw		Tightening torque	2,6 Nm

- Connect connectors (1) and lock.

10 – Installing the rear emblem

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TECHNICAL INFORMATION

Notes on component bonding using adhesive tape form the basis for these repair instructions and must be observed without fail.

For more information see: 51 00 ... Notes on component bonding with adhesive tape



- Renew the badge.

  Parts: Emblem
- Remove adhesive residue from the tailgate, if necessary.
- Clean the bonding surface (1).

Expendable materials

Cleaning agent R2	500 ml	83190417324

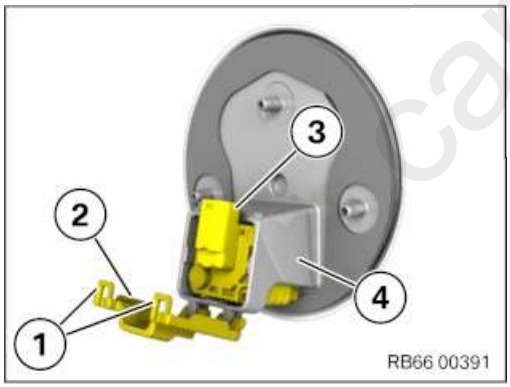
- Adhere to the air drying time of 2 minutes.
- Check the guide pins (2).

  The guide pins (2) must not be damaged or missing.

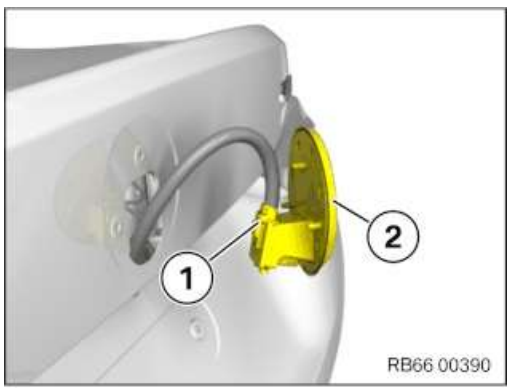
▸ **If installed: Installing the Reversing Assist Camera (RFK)**



- Check the sealing ring (1) for accuracy of fit.

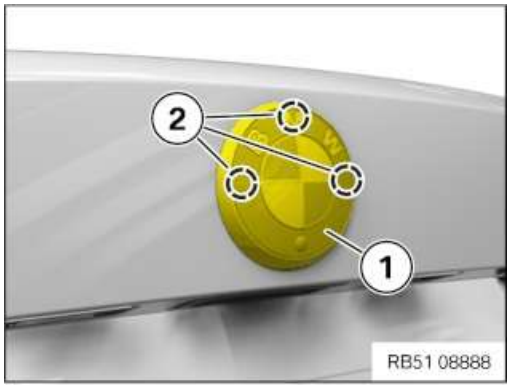


- Set the Reversing Assist Camera (RFK) (3) in the badge socket (4).
- Fold the lid (2) and clip into the latch mechanisms (1).



- Set the badge (2) with the Reversing Assist Camera (RFK).
- Connect connectors (1) and lock.

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- Pull off the liner from the adhesive tape of the badge (1).
- Correctly position the badge (1) with the guide pins (2) and press firmly.

11 – Installing rear model inscription

CAUTION

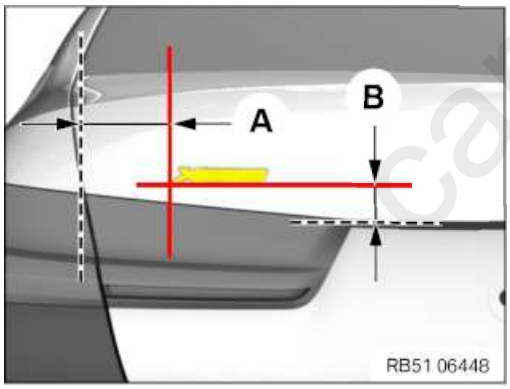
Laser beam.

Danger of injury!

- Do not look into the laser beam.



- Park the vehicle and the special tool 2 407 566 on a flat and even surface.
- Mount the laser on the tripod.
- Switch on laser (Position without automatic level).
- Activate laser horizontally and vertically.



- Position and centre align the special tool behind the vehicle.
- Align the vertical laser beam (A) as per specified dimensions.

Model inscription on the left side of the tailgate

Dimension **A** from corner of tailgate	69 mm

- Align the horizontal laser beam (B) as per predefined dimensions.

Model inscription on the left side of the tailgate

Dimension **B** from horizontal lower edge of tailgate	47 mm

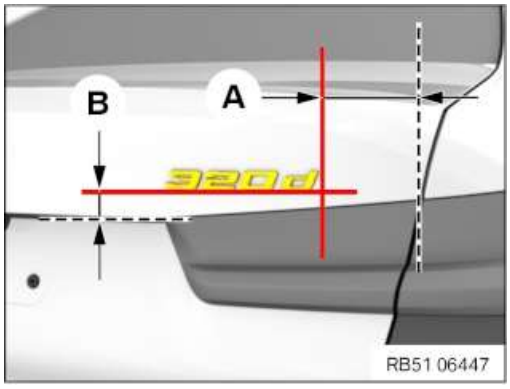
- Clean the adhesive area with cleaning agent R2.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Adhere to the air drying time of 2 minutes.
- Pull off the liner from adhesive strip of the model inscription on the left.
- Align the left model inscription with the laser beams as shown, position it on the tailgate and press on it.

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- Position the special tool behind the vehicle.
- Align the vertical laser beam (A) as per specified dimensions.

Model inscription on the right side of the tailgate

Dimension **A** from corner of tailgate	75 mm

- Align the horizontal laser beam (B) as per predefined dimensions.

Model inscription on the right side of the tailgate

Dimension **B** from horizontal lower edge of tailgate	45 mm

- Pull off the liner from the adhesive strip of the right model inscription.
- Clean the adhesive area with cleaning agent R2.

Expendable materials

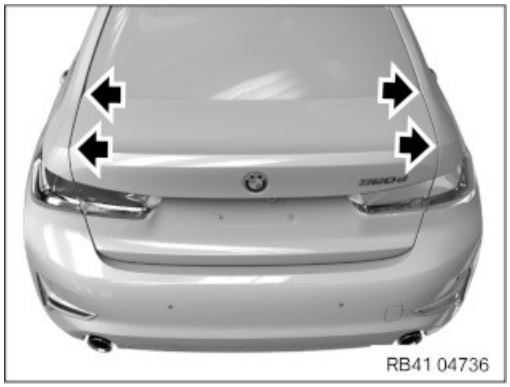
Cleaning agent R2	500 ml	83190417324

- Adhere to the air drying time of 2 minutes.
- Align the right model inscription with the laser beams as shown, position it on the tailgate and press on it.

12 – Adjusting tailgate

Check

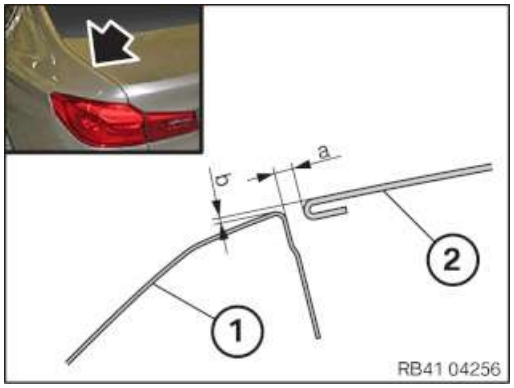
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- Check the gap dimensions (arrows) between tailgate and rear side panels.

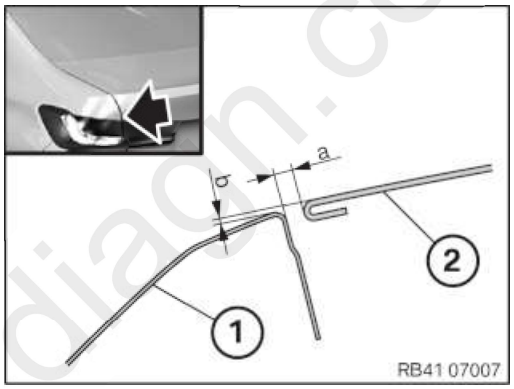
Gap dimension rear side panel to tailgate

1 rear side panel; 2 tailgate	
a	3.5 (2,4 - 4.6) mm
b	0,3 (-1,1 - 1,7) mm



Gap dimension rear side panel to tailgate

1 rear side panel; 2 tailgate	
a	3.5 (2.3 - 4,7) mm
b	-0,6 (-2,0 - 0,8) mm



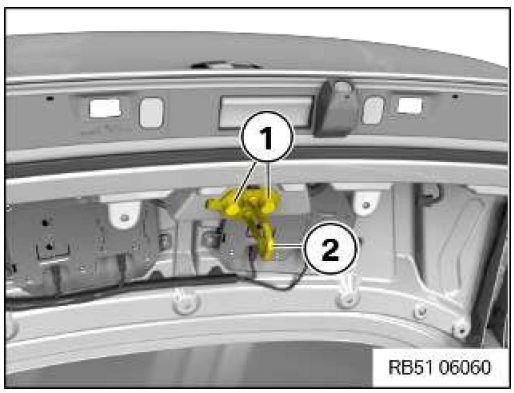
Result

» Gap dimensions between tailgate and rear side panels do not correspond to the specifications.

Measure

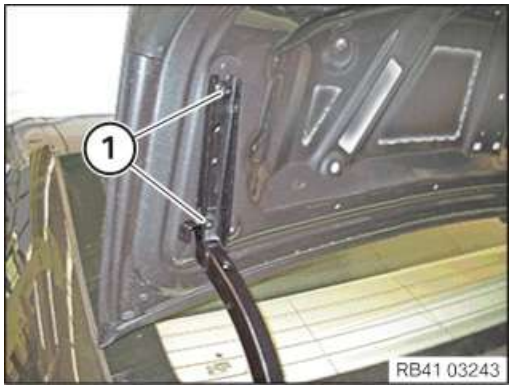
- Adjust tailgate on the tailgate hinge.

▸ **Remove the striker for the tailgate catch**



- Loosen screws (1).
- Remove the striker for the tailgate catch (2).

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NOTICE

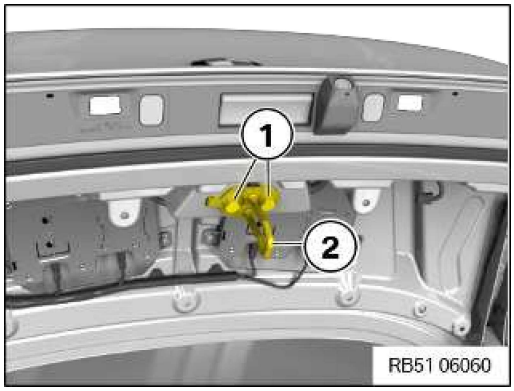
Perform the operations on the left and right side.

- Loosen screws (1) on the tailgate hinge until the tailgate can be moved.
- Move the tailgate lengthwise and laterally until the tailgate has reached the specified gap dimension to the side panel.
- Tighten screws (1) on the tailgate hinge.

Tailgate hinge to tailgate

Hexagon screw M8 x 18		Tightening torque	19 Nm

▸ **Install striker for the tailgate catch**



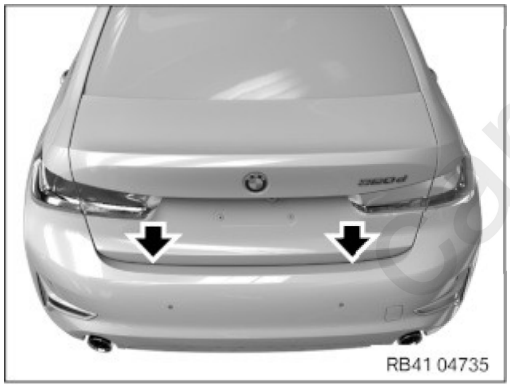
- Position the striker for the tailgate catch (2) and tighten the screws (1).

Striker to rear lid

Hexagon screw M8x20		Tightening torque	19 Nm

▸ **Installing the lower section of the tailgate lock**

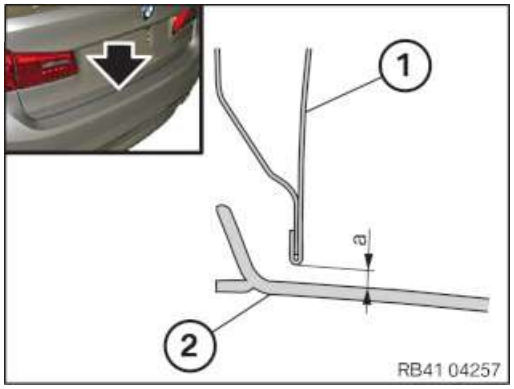
Check



- Check the gap dimensions between the tailgate and bumper panel (arrows).

Gap dimension tailgate to rear bumper panel

1 tailgate; 2 rear bumper panel	
a	5,1 (3,6 - 6,6) mm



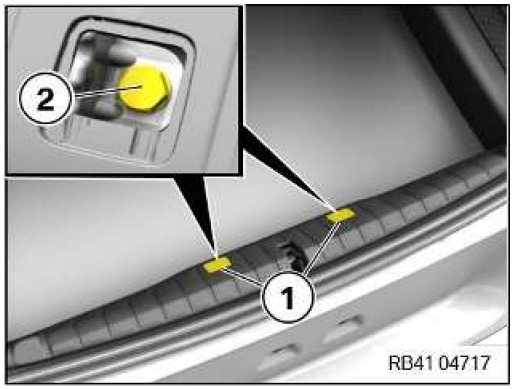
Result

» Gap dimension does not correspond to specifications.

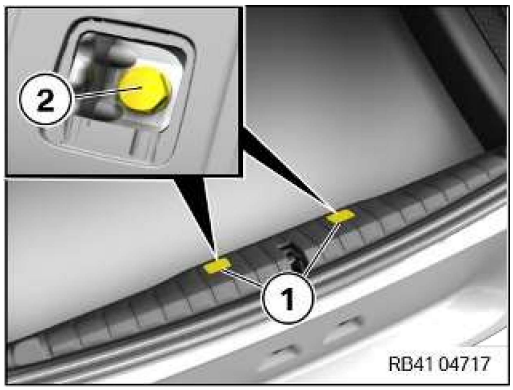
Measure

- Adjusting tailgate lock.

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- Lever out the covers (1) with a suitable screwdriver and remove.
- Loosen screws (2) until the tailgate lock can be moved.
- Adjust tailgate lock so that the tailgate has the specified gap dimension to the bumper panel.

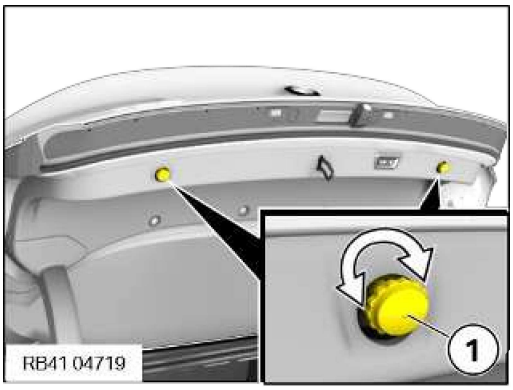


- Tighten the screws (2).

Tailgate lock to body

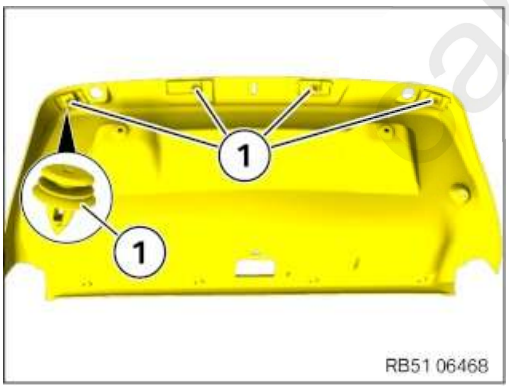
Hexagon screw M8x20		Tightening torque	19 Nm

- Install and clip in the covers (1).

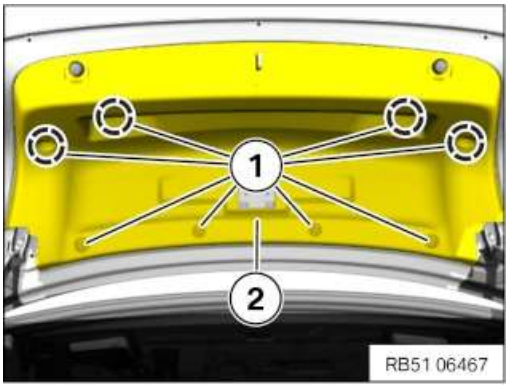


- Adjust the stop pad (1) by twisting in arrow direction.

13 – Installing the tailgate trim panel

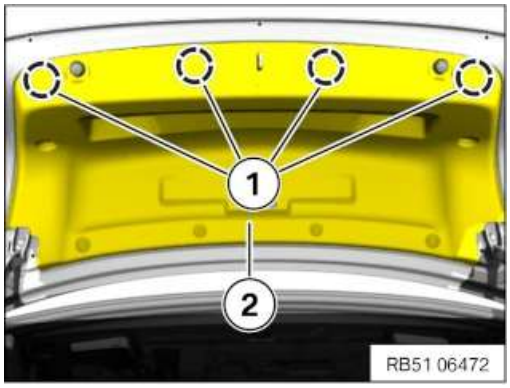


- Check the clips (1) for damage and renew if necessary.

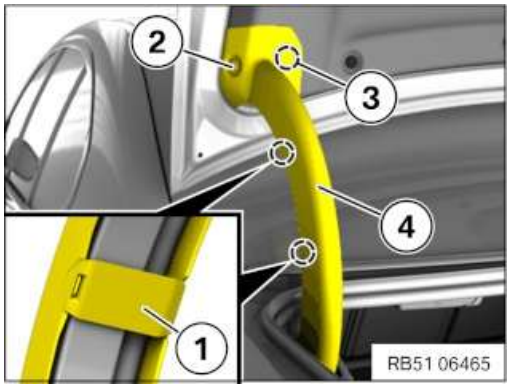


- Fit the tailgate trim panel (2) and fasten in place with the expanding rivets (1).
- **If installed**: Connect and lock plug connection on the switch for the tailgate lift.

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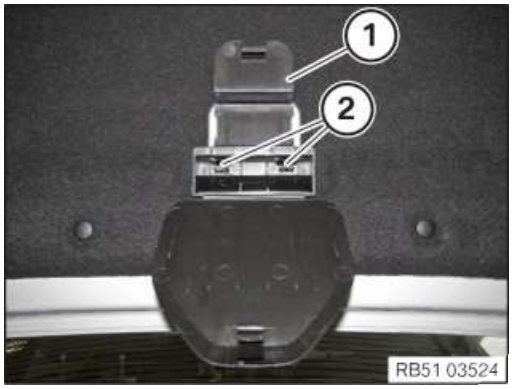
- Clip in the tailgate trim panel (2) with the clips (1).



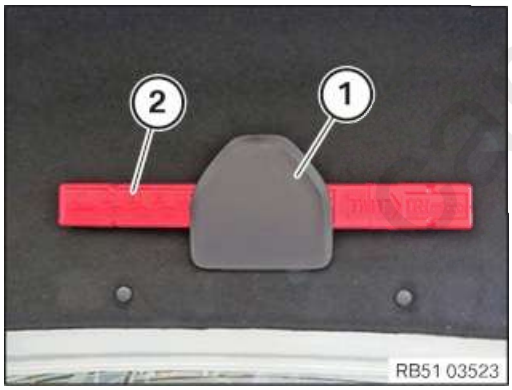
NOTICE

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

- Clip in the trim panel for the hinge of the tailgate (4) to the clip fastening (3).
- Fasten expanding rivet (2).
- Clip in tabs (1).



- Position the warning triangle holder (1) and snap into the latch mechanisms (2).



- Install the warning triangle (2).
- Clip in the cover (1).

Additional Information

Overview of Tightening Torques

Tailgate hinge to tailgate — Used in step 612

Hexagon screw M8 x 18		Tightening torque	19 Nm

Rear light at tailgate — Used in step 9

Clamping claw		Tightening torque	2,6 Nm

Striker to rear lid — Used in step 12

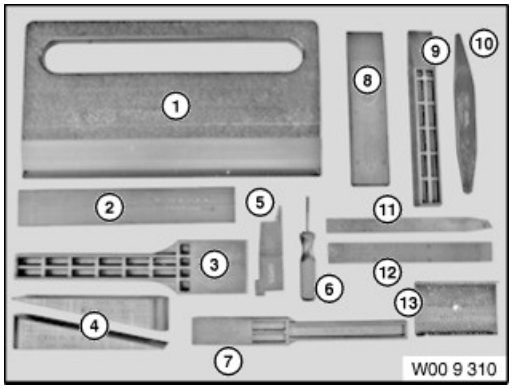
Hexagon screw M8x20		Tightening torque	19 Nm

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Tailgate lock to body			Used in step 12
Hexagon screw M8x20		Tightening torque	19 Nm

Overview of Special Tools

0 490 534 (00 9 317) Wedge



Common	Used in step 1
Usage	(Trim wedge) Replaced by special tool 00 9 325 from 11/2008 (quality improvement due to new material) Replaced by 00 9 325 (0 496 569)
Included in the tool or work	0 490 527
Storage location	
Replaced by	
In connection with	
SI-Number	

0 496 569 (00 9 325) Wedge



Common	Used in step 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)

2 407 566 Laser



Common	Used in step 11
Usage	For aligning a number plate or a support for a number plate on the vehicle (front bumper). Delivery specification 1 x Kreuz-laser and 1 x tripod.
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	01 05 15 (235)

Overview Technical Data

Model inscription on the left side of the tailgate	Used in step 11
Dimension **A** from corner of tailgate	69 mm

Model inscription on the left side of the tailgate	Used in step 11
Dimension **B** from horizontal lower edge of tailgate	47 mm

Model inscription on the right side of the tailgate	Used in step 11

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Dimension **A** from corner of tailgate	75 mm

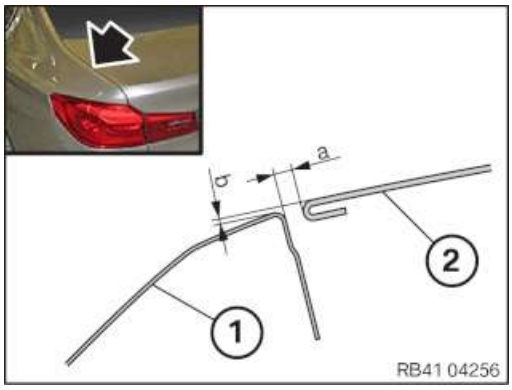
Model inscription on the right side of the tailgate Used in step 11

Dimension **B** from horizontal lower edge of tailgate	45 mm

Gap dimension rear side panel to tailgate Used in step 12

1 rear side panel; 2 tailgate

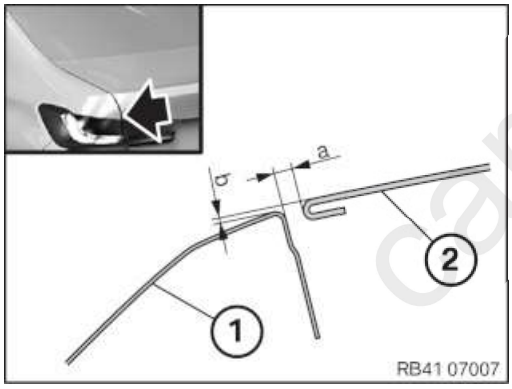
a	3.5 (2,4 - 4.6) mm
b	0,3 (-1,1 - 1,7) mm



Gap dimension rear side panel to tailgate Used in step 12

1 rear side panel; 2 tailgate

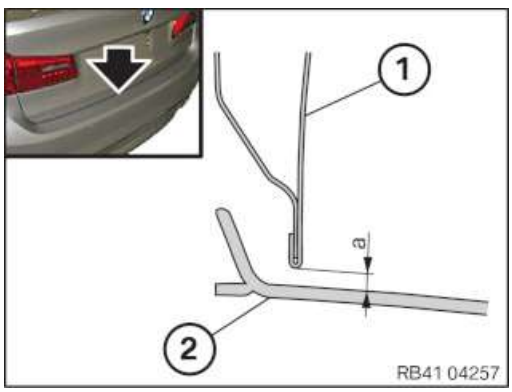
a	3.5 (2.3 - 4,7) mm
b	-0,6 (-2,0 - 0,8) mm



Gap dimension tailgate to rear bumper panel Used in step 12

1 tailgate; 2 rear bumper panel

a	5,1 (3,6 - 6,6) mm



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Links

General repair instructions	Used in step
51 00 ... Notes on component bonding with adhesive tape	10

Repair instructions	Used in step
61 13 ... Unlocking and disconnecting different plug connections	2

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41 ... 0 Notes on the repair technique used in the main group 41

Two different repair techniques are used in body repair.

These are welding and bonding/riveting.

If the repair instructions do not specify a repair technique, then welding must **always** be used.

The bonding/riveting repair technique is **always** described in detail in the repair instructions.

Quality standards must be met.

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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:

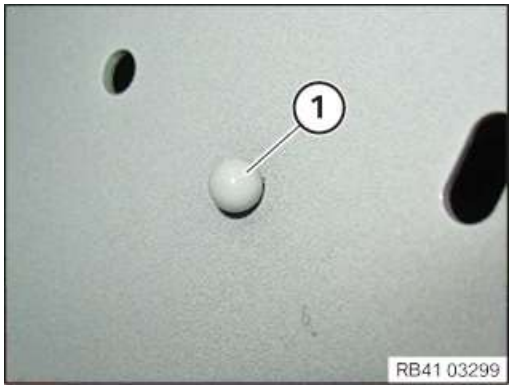
Dispose of cleaning agents/paints in a professional manner!

Observe national/country-specific disposal regulations.

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41 00 513 Fix bolts on the new part

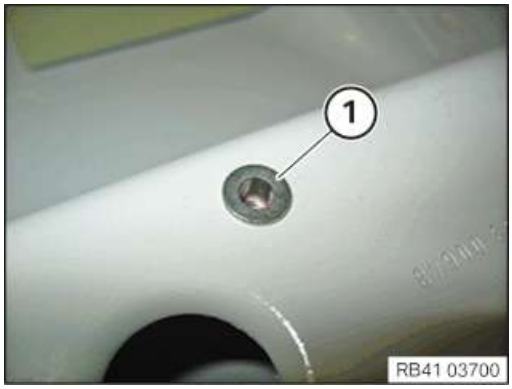
Note: On BMW and MINI bodies, various welded and pushed in bolts are being used.



Single ball/double ball (version 1):

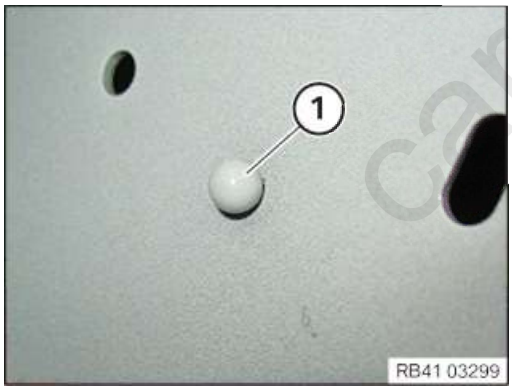
Grind off any residues of the single ball (1), if applicable.

Drill hole with diameter 7 mm.



Set blind rivet nut (1).

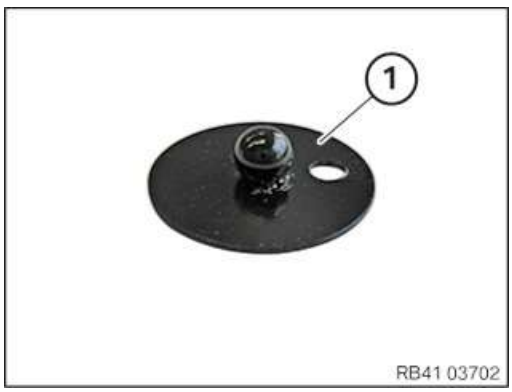
Screw in single ball with thread until a height of 5 mm (double ball 10 mm) is reached.



Single ball/double ball (version 2):

Grind off any residues of the single ball (1), if applicable.

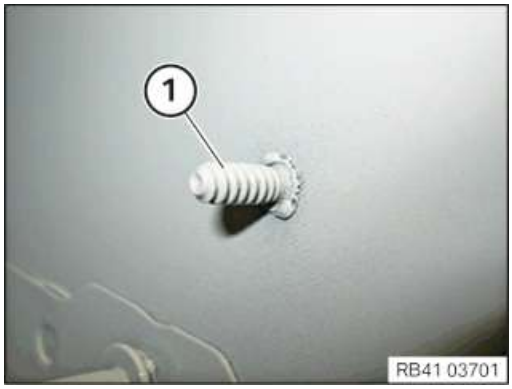
Clean area with solvent cleaner R1.



Clean bonding surface of repair element single ball (1) with solvent cleaner R1.

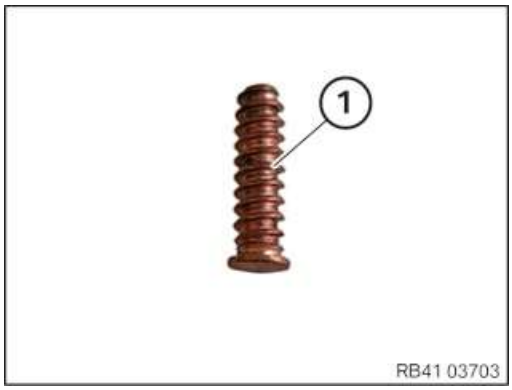
Bond repair element optionally with adhesive K1, K5 or window pane adhesive at the same position.

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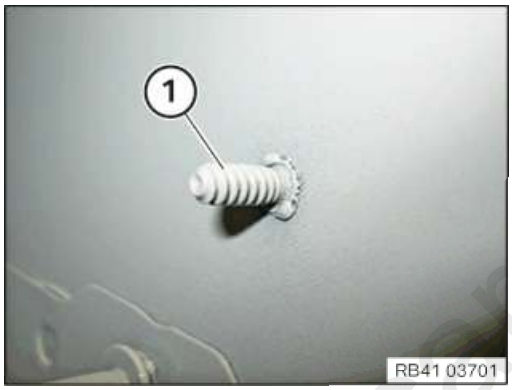


Coarse threaded bolt (version 1):

Grind off any residues of the coarse threaded bolt (1), if applicable.



Spot weld coarse threaded bolt to same position.



Coarse threaded bolt (version 2):

Grind off any residues of the coarse threaded bolt (1), if applicable.

Drill hole with diameter 7 mm.

Set blind rivet coarse threaded bolt using riveting pliers.

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51 00 ... Notes on component bonding with adhesive tape

Unless specified otherwise in vehicle-specific or component-specific instructions, the following notes apply.

Follow repair notes for bonded gaskets for rubber seals.

1. General notes

- Bonding at room and object temperature of >+18 °C.
- Newly painted parts may only be bonded after a drying time of at least 24 hours.
- Optimal bonding/attachment to the background surface is achieved after approx. 48 hours. Components must not be exposed to mechanical strain beforehand (car wash, strength test, etc.).
- Do not touch bonding area.
- It is not the length of time that pressure is applied but rather the force of pressure applied that is crucial.
- Detaching the adhesive tape after pressing destroys the adhesive layer.

2. Auxiliary materials and tools

- Cleaning agent R1 or cleaning agent R2
- Sika Activator 205
- Fluff-free cleaning cloths
- Pressure roller

3. Preparations

- Remove all adhesive residue or clean new part thoroughly
- Clean the areas to be bonded immediately before bonding to remove silicone and grease residues.
- Treat adhesive strips on glass or painted surfaces with Sika activator 205.

Note:

Sika activator 205 **apply extremely thinly. It must not be coated beyond the bonding surface**.

Note: air drying time: ≥ 1 minute

4. Bonding

4.1 Components without preassembled adhesive tape

- Pull off liner* from adhesive tape
- Position adhesive tape on component and stick on
- Press down adhesive tape over entire adhesive area
- Continue with Point 4.2

* Liner is the protective film on the adhesive tape.

4.2 Components with pre-fitted adhesive tape

- Pull off liner* from adhesive side (if adhesive area is large, do not pull off liner completely)
- Align component in correct position on vehicle
- Press down component over entire adhesive area
  Minimum contact pressure ≥ 15 N/cm² (firm thumb pressure reaches approx. 35 N/cm².)

* Liner is the protective film on the adhesive tape.

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61 35 ... Overview of additional work for the removal and installation or replacement of electronic components in the body area/windscreen

Component	**Removal and installation** Calibration/Initialisation required **(diagnosis system must be connected)**	**Removal and installation** Use of the Special tool necessary	**Replacement** Programming/encoding Calibration/Initialisation required **(diagnosis system must be connected)**	**Replacement** Use of the Special tool necessary	Remarks
Front section: (including bumper panel)					
ACC sensor	Yes	Yes	Yes	Yes	
Night vision camera	No	No	Yes	Yes*	*conventional workshop headlight adjusting device
PDC ultrasonic sensor	No	No	No	No	
PMA ultrasonic sensor	No	No	No	No	
Sensor, lane change warning	no*	No	Yes	No	*Required after a body repair in the surrounding area of the sensor. **Comply with the regulations for repainting!**
Sensor for active pedestrian protection	No	No	No	No	Must be replaced after the active pedestrian protection has been activated! **Impact absorber** must also be replaced!
Actuator for active pedestrian protection	No	No	No	No	Must be replaced after the active pedestrian protection has been activated!
Front camera	No	No	Yes	No	

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Side section:					
Top view camera (in the exterior mirror)	No	No	Yes	No	
Rear area: (including bumper panel):					
reversing camera (with Surround View)	No	No	Yes	No	
reversing camera (without Surround View)	No	No	Yes	No	
PDC ultrasonic sensor	No	No	No	No	
PMA ultrasonic sensor	No	No	No	No	
Sensor, lane change warning	no*	No	Yes	No	*Required after a body repair in the surrounding area of the sensor. **Comply with the regulations for repainting!**
Windscreen:					
Camera-based driver support systems camera	no*	No	Yes	No	*Necessary after **replacement of the windscreen**
Rain sensor (separate document)					

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51 00 ... Overview of consumables (Electronic Parts Catalogue)

Designation, repair instructions	Designation, Electronic Parts Catalogue	Part number, Electronic Parts Catalogue	Remarks
Cleaning agent R2	Cleaning agent R2	83 19 0 417 324	500 ml
Lubricants G14	Lubricants G14	83 23 2 360 412	900 ml / Notes
Sika Activator 205	Aktivator 205	83 19 0 030 155	250 ml
Yellow plastic adhesive tape	Adhesive tape	83 19 9 410 979	A = 66 mm; B = 50 mm
Double-sided adhesive tape	Adhesive tape	54 11 2 290 978	L = 50 mm/W = 12 mm
Masking tape	Masking tape	81 22 9 400 181	L = 50 mm / W = 19 mm
Masking tape	Masking tape	81 22 9 400 388	L = 50 mm / W = 30 mm
Eraser disk	Scotch Brite eraser disk	51 91 0 402 946	with shaft
Cutting cord	Cutting cord	81 43 2 344 272	Notes
Adhesive set K6	Adhesive set K6	83 19 2 317 925	
Window glass adhesive	Window glass adhesive, cold, 1 hour	83 19 2 289 286	
Profile rubber adhesive		83 19 2 232 322	
Set of felt pads	Set of felt pads	51 45 2 353 024	

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41 00 ... Replacing blind rivets

Special tools required:

- 2 348 128
- 72 1 210

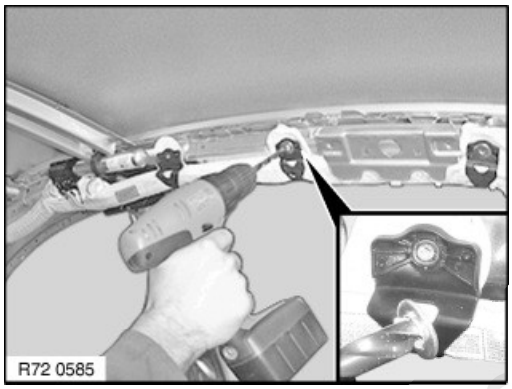


Important!

Lay out protective mats to protect the interior equipment against swarf from the drilled-out rivets and damage.

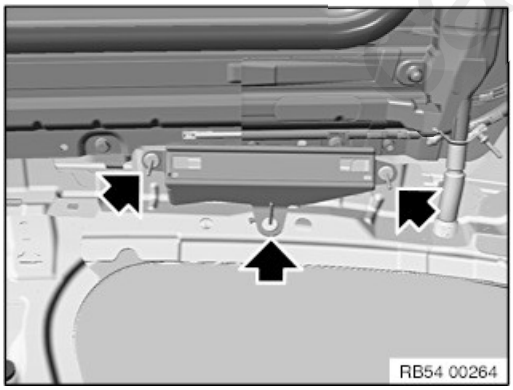
Lay out protective mats in the relevant working area:

- Instrument panel
- Entrance area
- Passenger compartment



<u>Schematic diagram of folding pack holder for head airbag:</u>

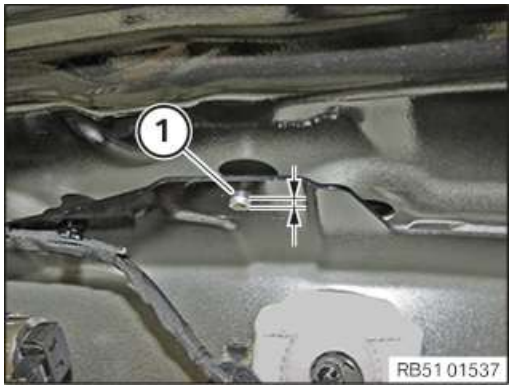
Drill off rivet plate down to rivet shank with a 10 mm twist drill bit.



<u>Described for grab handle holder:</u>

Drill off rivet plate down to rivet shank with a 10 mm twist drill bit.

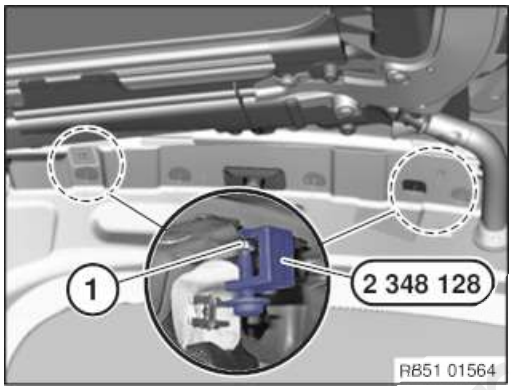
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Drill out all blind rivet protusions (1) up to the body.

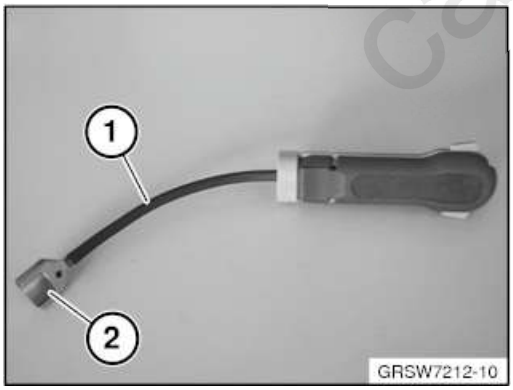
Installation note:
Apply primer to paintwork damages on side frame.
Note:
Depending on accessibility, the rivet heads will have to be removed using special tool 2 348 128 or 72 1 210 .

In areas that cannot be reached using special tools, cavity foam HS3must first be applied around the rivet head before the rivet head is then punched out immediately..



Removal of rivet head with special tool 2 348 128:

Press off rivet heads (1) using special tool 2 348 128 and remove.



Removal of rivet head with special tool 72 1 210:

Shank (1) of special tool 72 1 210 is flexible and can be adapted to the relevant body contours.

Note:
Insert butyl in the collecting tray (2) to secure rivet heads and prevent them from falling out.

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Insert special tool 72 1 210 through bore hole in body next to attachment points.

Position special tool from rear on rivet head in cavity.

Note:
A second person will be needed to help hold the special tool on the rivet head during the driving-out operation.

Make sure collecting tray is correctly fitted on rivet head.

Drive out stem with hammer and 6 mm punch.

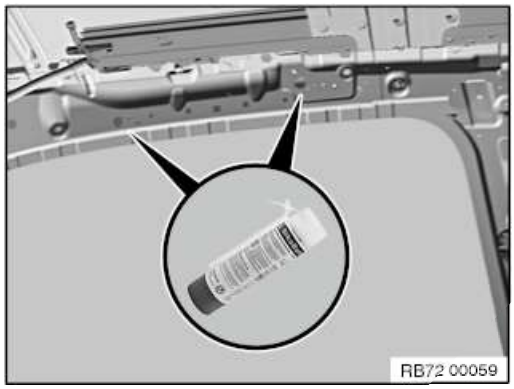
Carefully feed special tool out of body so that rivet head does not fall out of collecting tray.

Note:
If the rivet falls out of the collecting tray into the side frame when the special tool is fed out, this area must be generously filled with foam.

For details of procedure for filling cavities with foam, see further operations.

Use cavity preservation (refer to BMW Group Parts) for foam filling.

Cavity foam (refer to BMW Group Parts) may also be used if required.



Fit tube to foam can.

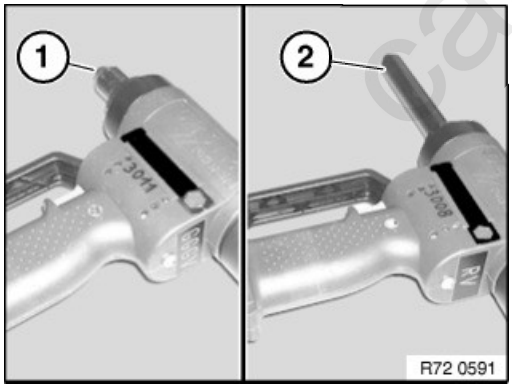
Push the hose in through the pillar holes.

Fill cavity with a filling material.

Warning!

Empty foam can completely onto cardboard and after hardening dispose of foam and can in residual waste.

Can may burst if not completely emptied.



<u>Overview of rivet gun:</u>

Riveting of gas generator housing and holders for folding pack with rivet gun (refer to BMW Workshop Catalogue).

The interchangeable head is changed for the different work operations.

Riveting of gas generator housing with:

1.) 17/36 nosepiece and short shank

Riveting of holders for folding pack:

2.) 17/40 nosepiece and long shank

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

Warning!

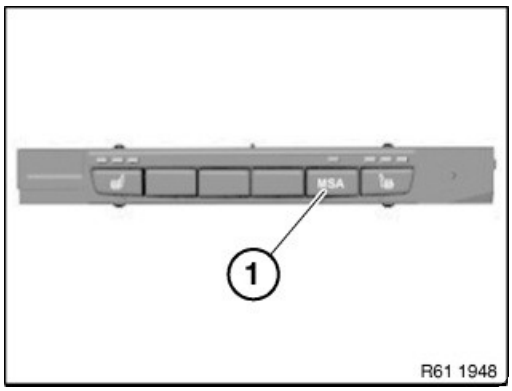
If the engine hood/bonnet contact is pulled upwards (workshop mode), the information "switch closed" is output. The automatic engine start-stop function is active.

An automatic engine start is possible.

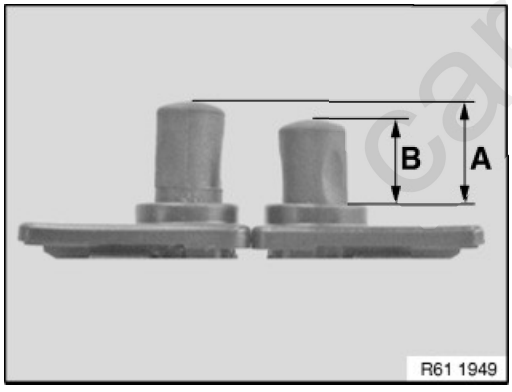
Observe safety precautions when working on MSA vehicles.

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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51 00 ... Safety instructions for working on cars with airbag systems



Warning!

If work is carried out in area of airbag systems, e.g. on:

- Door trim panels
- Interior trims
- Instrument panel etc.

the ignition must be turned off in each case.

- The ignition must always be off.
- The ignition key must be removed from the ignition lock.

This eliminates the risk of injury.

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51 11 156 Remove and install front bumper panel

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

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

Sourcing reference:

https://colorsystem-paint.com/

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

ISTA - HG99 - ColorSystem

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

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

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

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

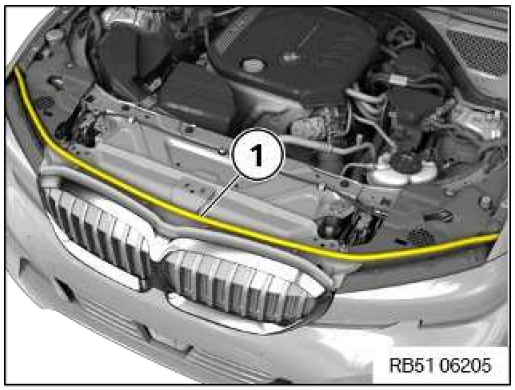
Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

NOTICE

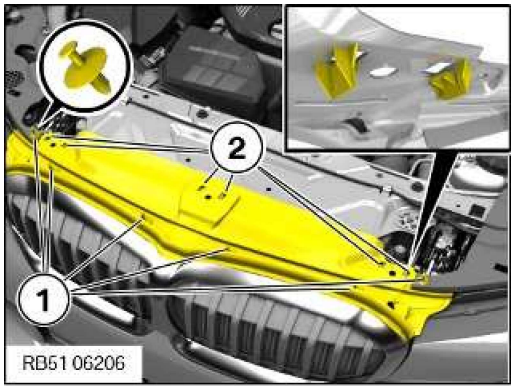
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover

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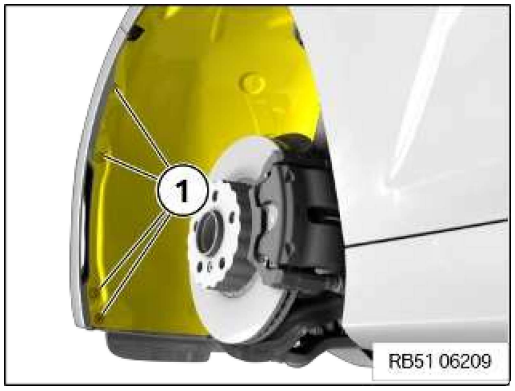
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

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

NOTICE

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

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

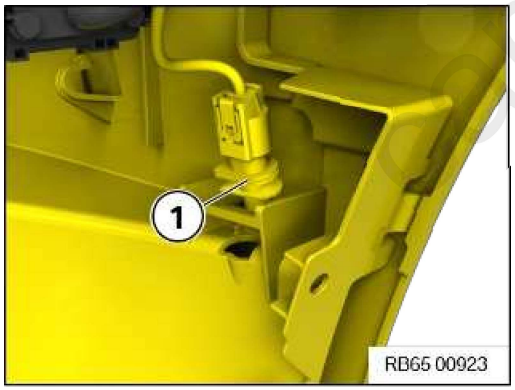


NOTICE

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

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

4 – Partially removing the temperature sensor



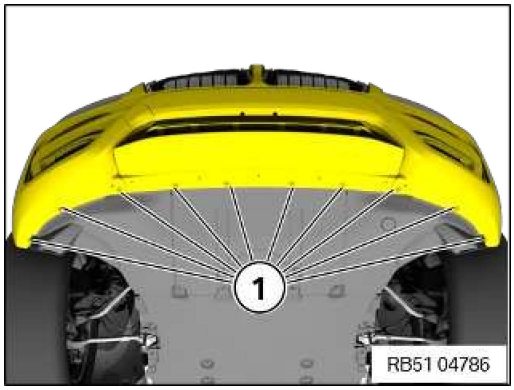
- Unclip temperature sensor (1) from the front bumper panel to the top.

MAIN WORK

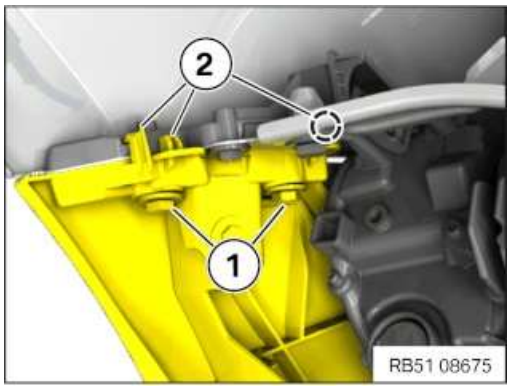
5 – Remove front bumper panel

NOTICE

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



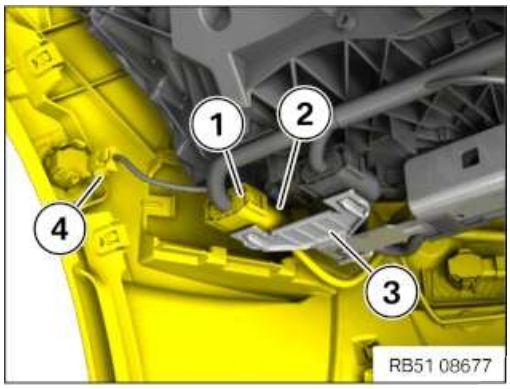
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

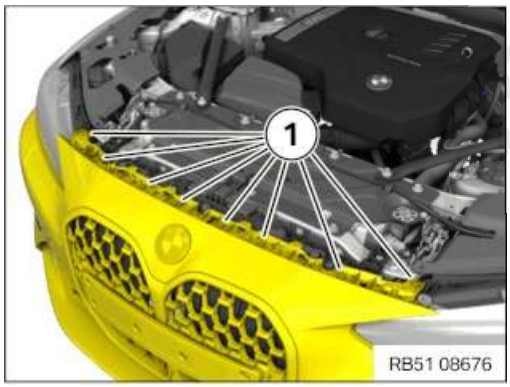
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

Perform the operations on the left and right side.

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

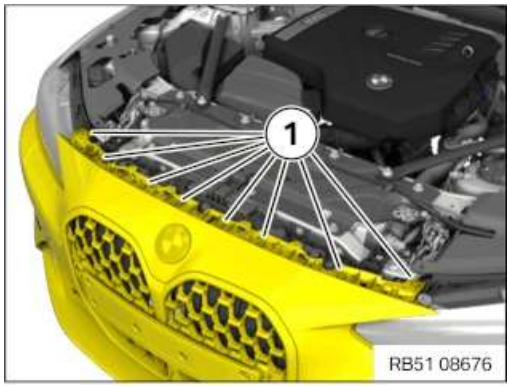


- Loosen screws (1).
- Remove the bumper panel towards the front.

6 – Install bumper panel, front

NOTICE

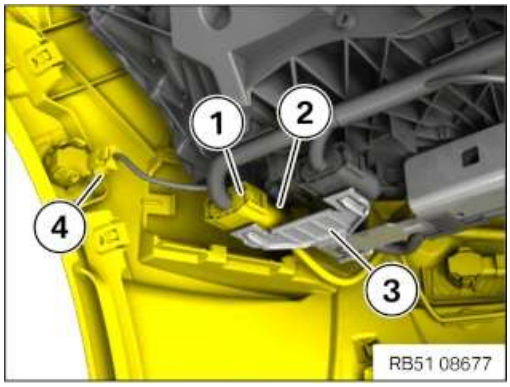
Schematic diagram is for example purposes. Some parts may differ in certain details.



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

Bumper panel, front top

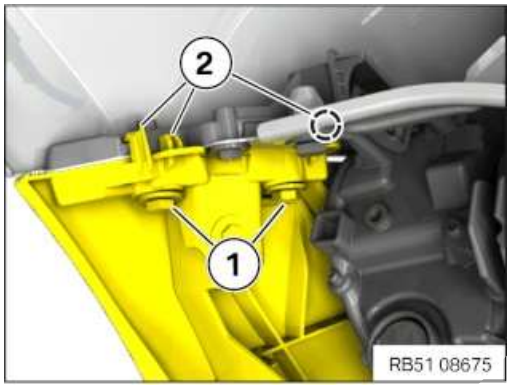
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

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



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

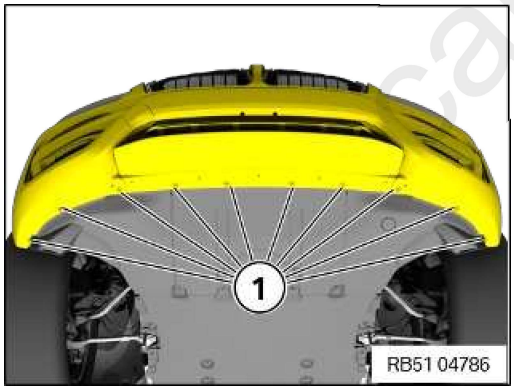
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm



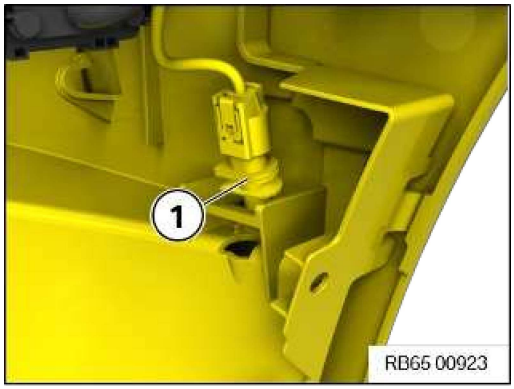
- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

POSTPROCESSES

7 – Partially installing the temperature sensor



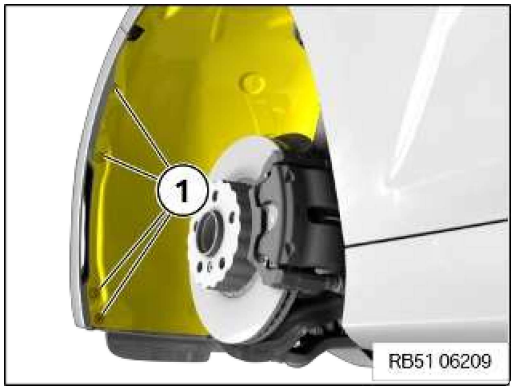
- Clip the temperature sensor (1) downwards into the front bumper panel.

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

NOTICE

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

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



NOTICE

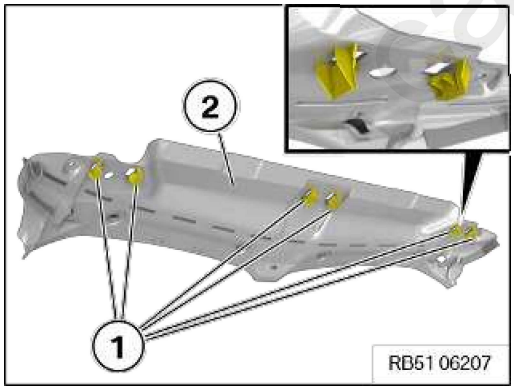
To provide a better overview: Schematic diagram without front wheel.

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

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

9 – Installing the cover for the centre engine compartment



Check

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

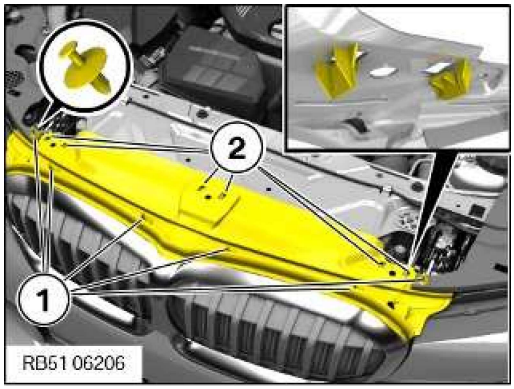
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

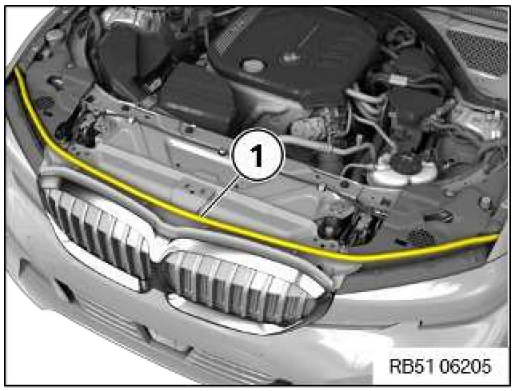


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

10 – Install the seal for the front bonnet

NOTICE

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



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

Additional Information

Overview of Tightening Torques

Bumper panel, front top — Used in step 6

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 6

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 6

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front — Used in step 8

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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51 11 230 Remove and install front bumper panel lower section

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

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

Sourcing reference:

https://colorsystem-paint.com/

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

ISTA - HG99 - ColorSystem

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

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

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

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

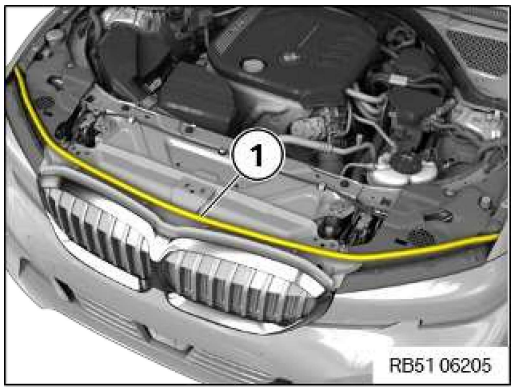
Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

NOTICE

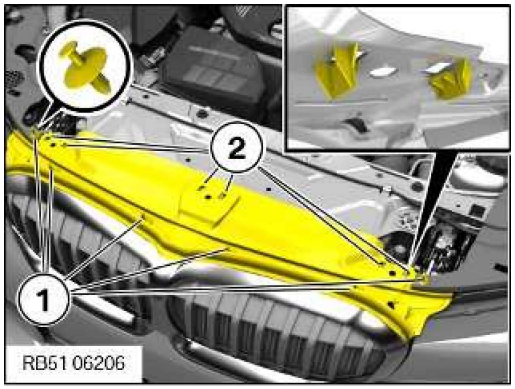
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover

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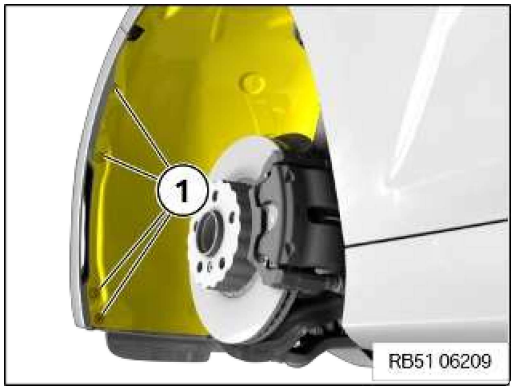
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

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

NOTICE

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

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

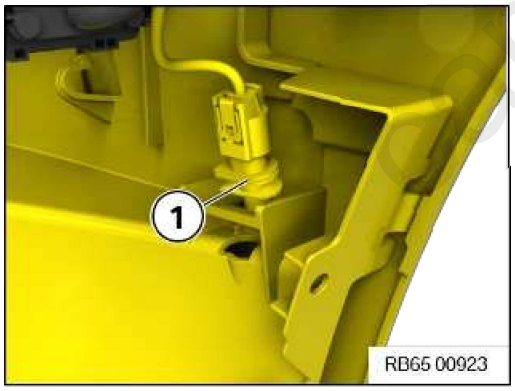


NOTICE

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

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

4 – Partially removing the temperature sensor

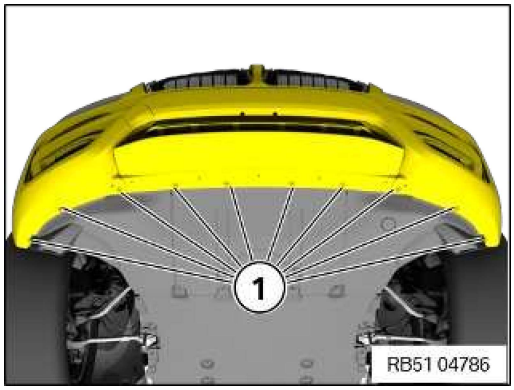


- Unclip temperature sensor (1) from the front bumper panel to the top.

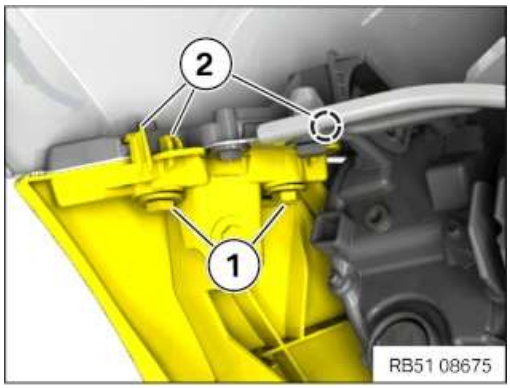
5 – Remove front bumper panel

NOTICE

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



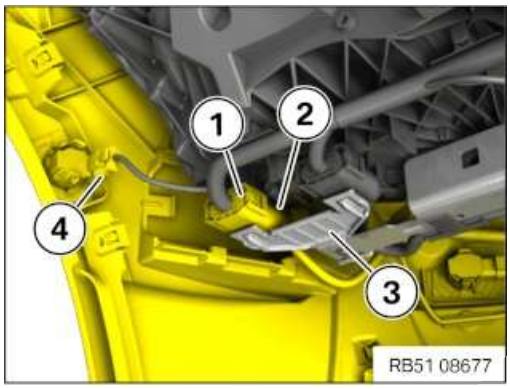
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

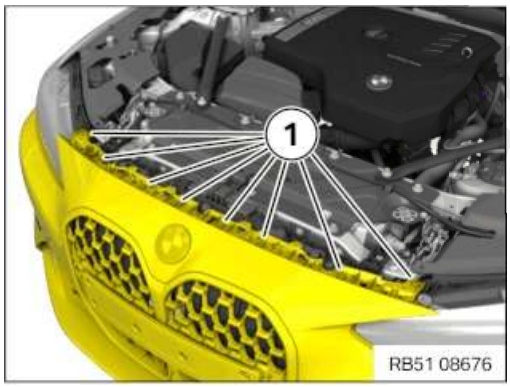
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

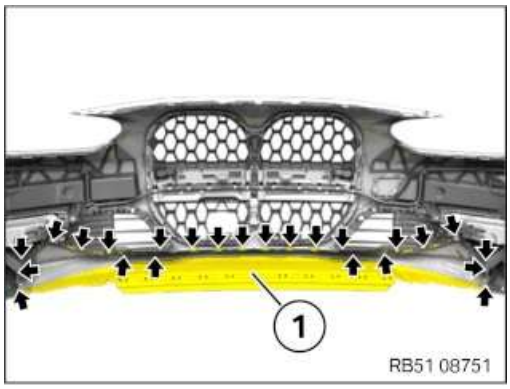
Perform the operations on the left and right side.

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



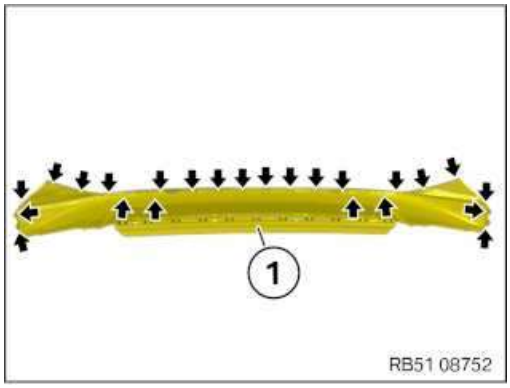
- Loosen screws (1).
- Remove the bumper panel towards the front.

6 – Removing the bumper panel lower section



- Release the bumper panel lower section (1) from the latch mechanisms (arrows) and remove it.

7 – Installing the bumper panel lower section



Check

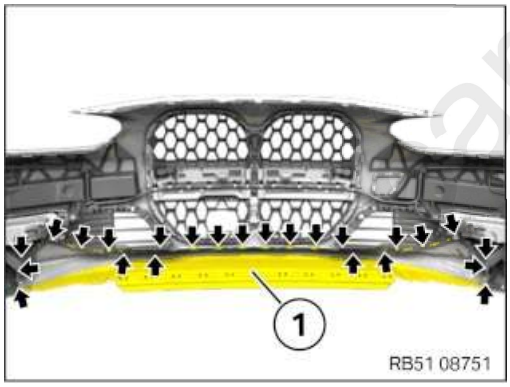
- Check the latch mechanisms (arrows) on the bumper panel lower section (1) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew bumper panel lower section (1).



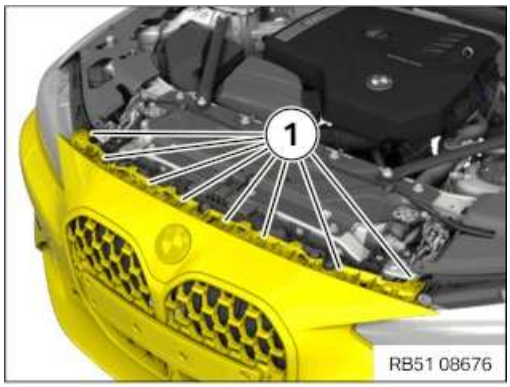
- Position bumper panel lower section (1) and clip it into the latch mechanisms (arrows).

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8 – Install bumper panel, front

NOTICE

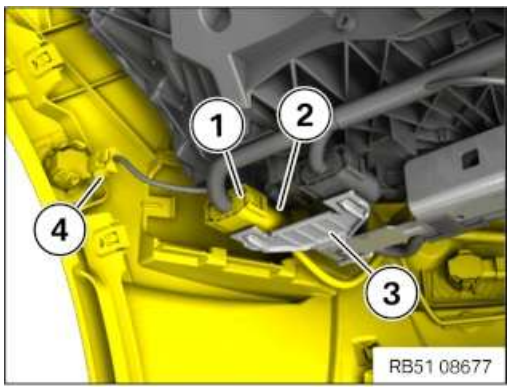
Schematic diagram is for example purposes. Some parts may differ in certain details.



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

Bumper panel, front top

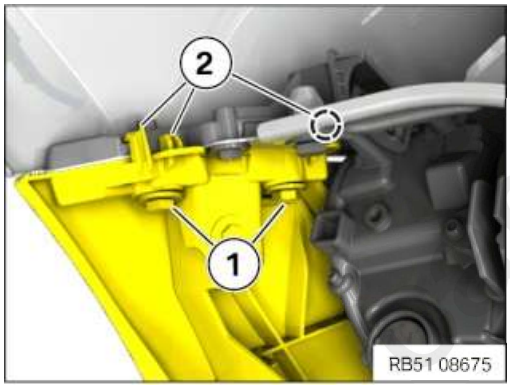
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

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



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

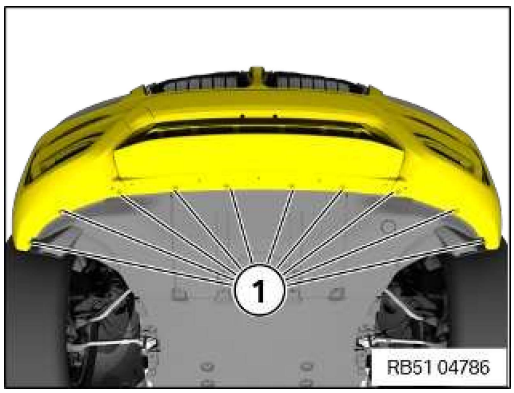
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

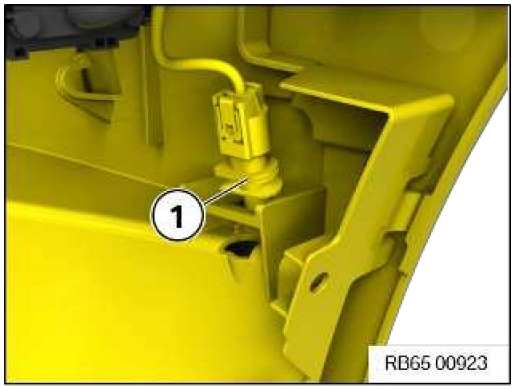


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

9 – Partially installing the temperature sensor



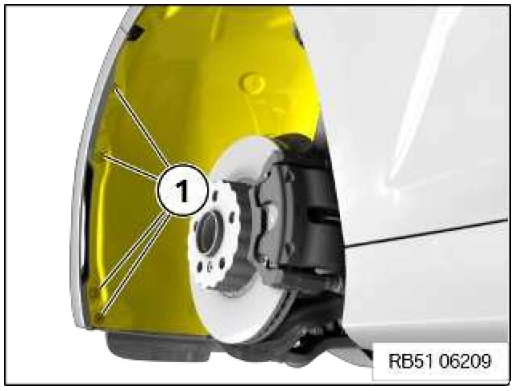
- Clip the temperature sensor (1) downwards into the front bumper panel.

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

NOTICE

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

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



NOTICE

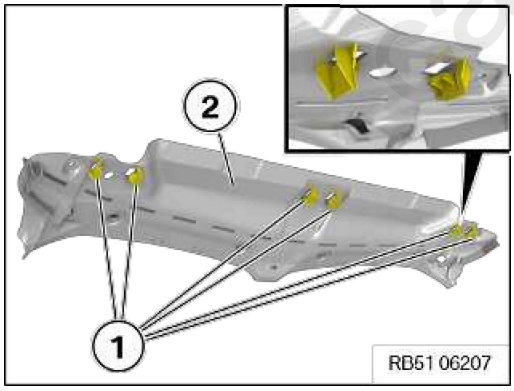
To provide a better overview: Schematic diagram without front wheel.

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

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

11 – Installing the cover for the centre engine compartment



Check

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

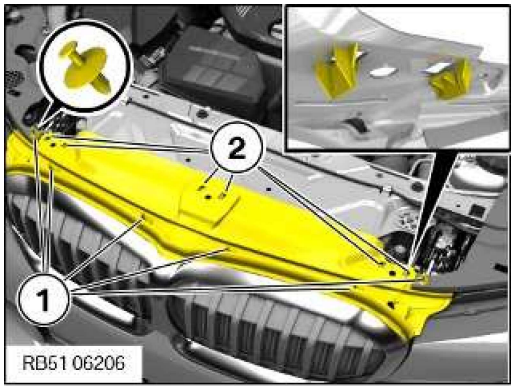
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

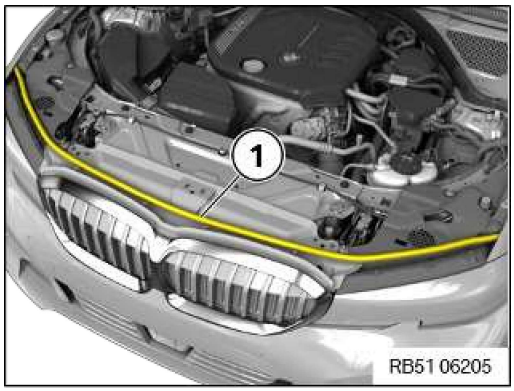


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

12 – Install the seal for the front bonnet

NOTICE

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



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

Additional Information

Overview of Tightening Torques

Bumper panel, front top — Used in step 8

Oval-head screwM6		Tightening torque	4,6 Nm

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

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 8

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front — Used in step 10

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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51 11 183 Removing and installing ornamental grille in front bumper panel

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

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

Sourcing reference:

https://colorsystem-paint.com/

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

ISTA - HG99 - ColorSystem

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

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

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

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

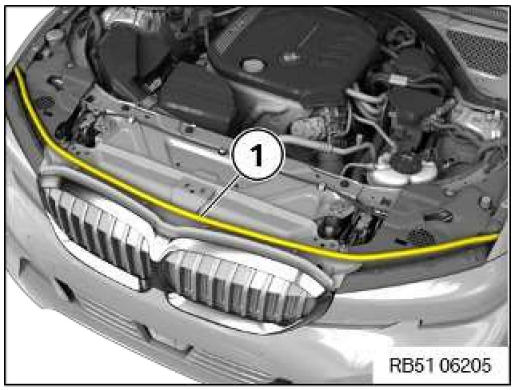
Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

NOTICE

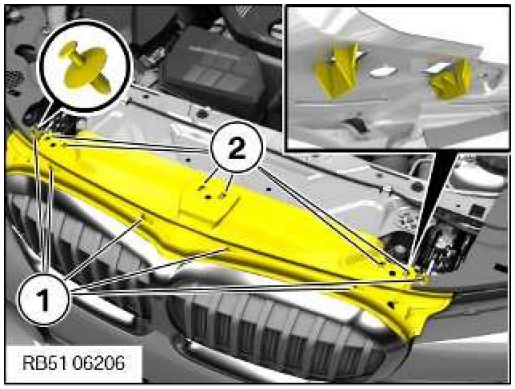
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover

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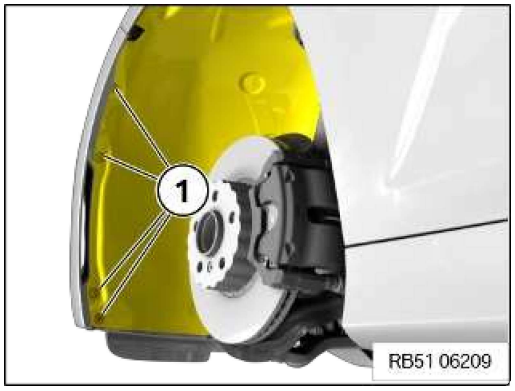
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

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

NOTICE

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

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

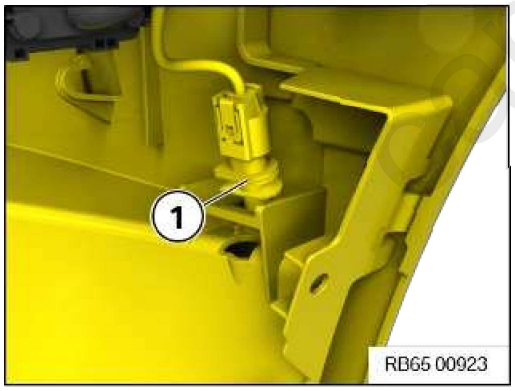


NOTICE

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

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

4 – Partially removing the temperature sensor

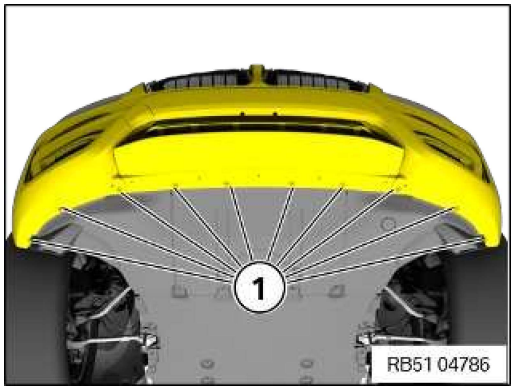


- Unclip temperature sensor (1) from the front bumper panel to the top.

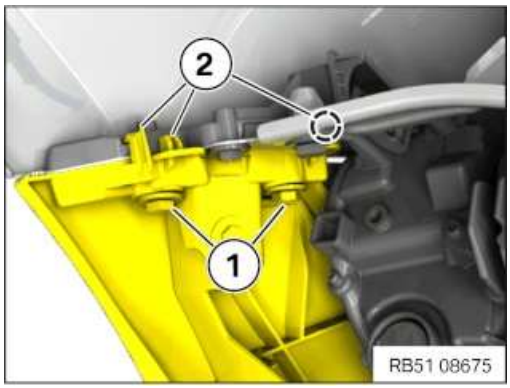
5 – Remove front bumper panel

NOTICE

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



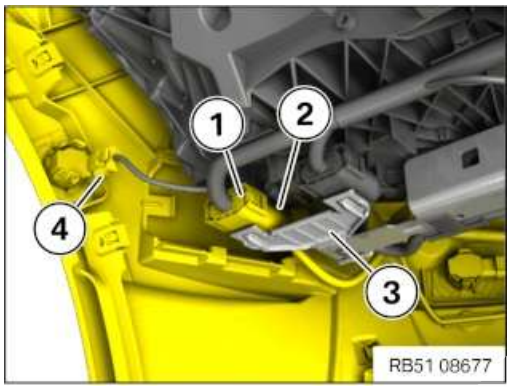
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

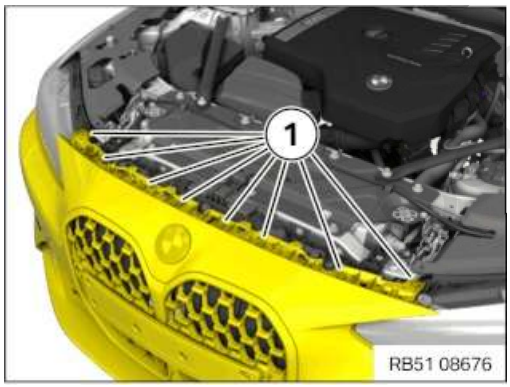
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

Perform the operations on the left and right side.

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



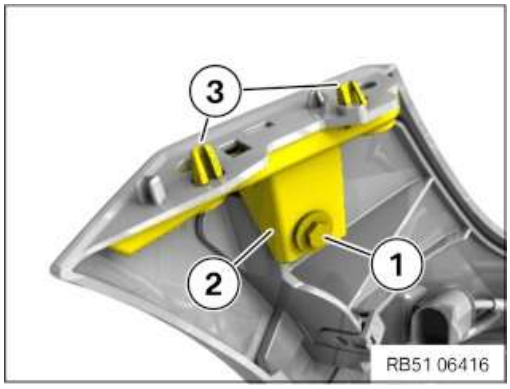
- Loosen screws (1).
- Remove the bumper panel towards the front.

6 – Partially removing the left and right bumper mounting

NOTICE

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

▸ **Partially removing the bumper mounting**



- Loosen screw (1).
- Release bumper mounting (2) with latch mechanisms (3) and guide it downwards.

7 – Removing fog light supports on left and right

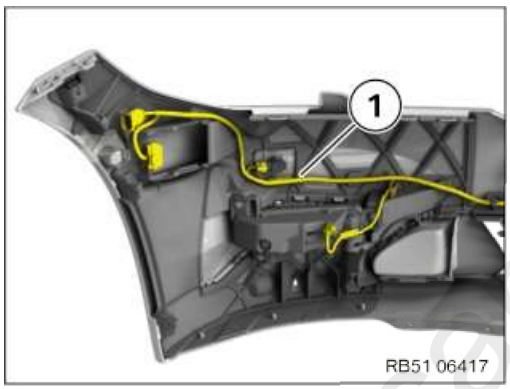
NOTICE

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

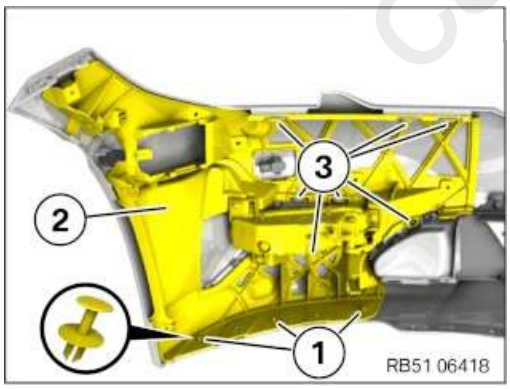
▸ **Remove the fog light support**

NOTICE

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



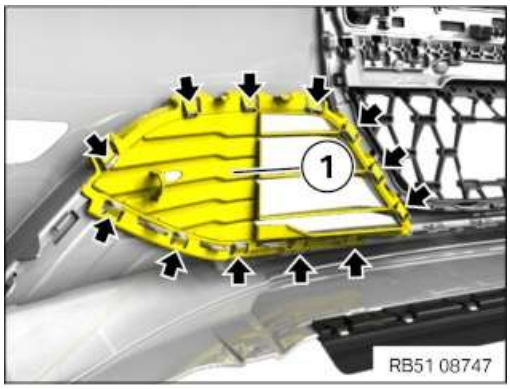
- Unlock all plug connections and disconnect.
- Release the vehicle wiring harness (1) with all the clips and remove from the working area.



- Loosen the expanding rivet (1).
- Release the fog light support (2) from the latch mechanisms (3) and remove it.

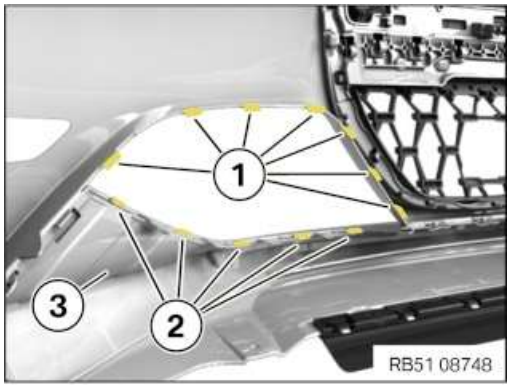
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8 – Removing the ornamental grille from the bumper panel at the side



- Release the ornamental grille (1) from the latch mechanisms (arrows) and remove it.

9 – Installing the ornamental grille in the bumper panel on the side



Check

- Check the latch mechanisms (1) at the bumper panel for damage.
- Check the latch mechanisms (2) at the bumper panel lower section (3) for damage.

Result

» Latch mechanisms (1) are damaged.

Measure

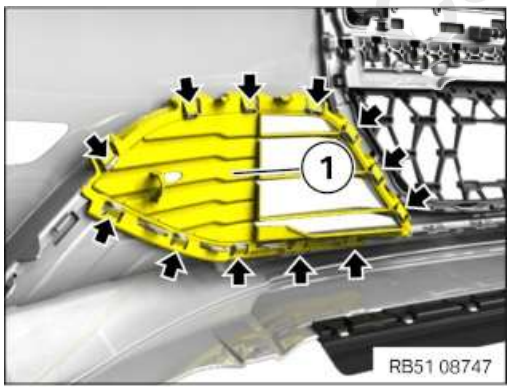
- Renew the bumper panel.

Result

» Latch mechanisms (2) are damaged.

Measure

- Renew bumper panel lower section (3).



- Position the ornamental grille (1) and clip it in the latch mechanisms (arrows).

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10 – Installing left and right fog light support

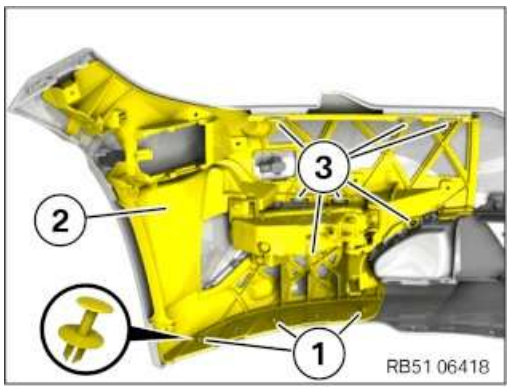
NOTICE

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

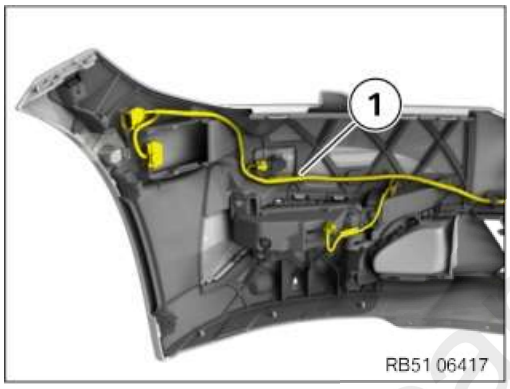
▸ **Install the fog light support**

NOTICE

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



- Place and position the fog light support (2).
- Clip in the fog light support (2) in the latch mechanisms (3) .
- Secure expanding rivet (1).



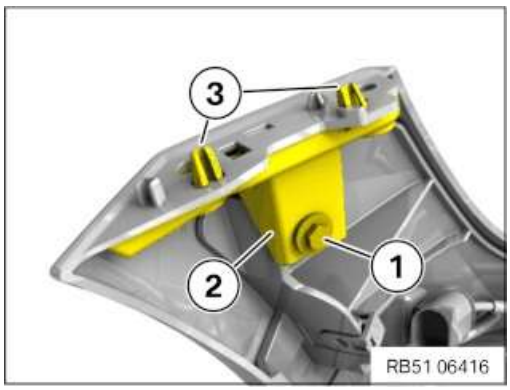
- Position wiring harness (1) and secure using all clips.
- Connect all connectors and lock.

11 – Partially installing the bumper mounting on the left and right

NOTICE

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

▸ **Partially installing the bumper mounting**



- Guide in bumper mounting (2) from down and clip it in with latch mechanisms (3) .
- Tighten down screw (1).

Bumper mounting, side front

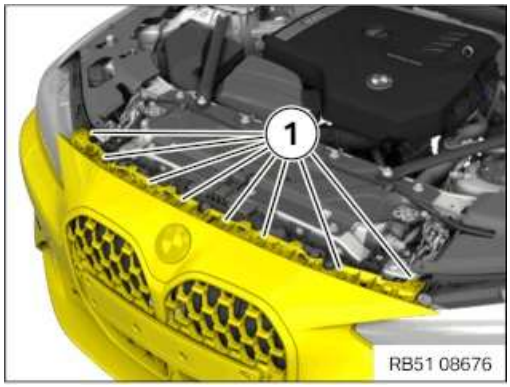
Screw		Tightening torque	3 Nm

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12 – Install bumper panel, front

NOTICE

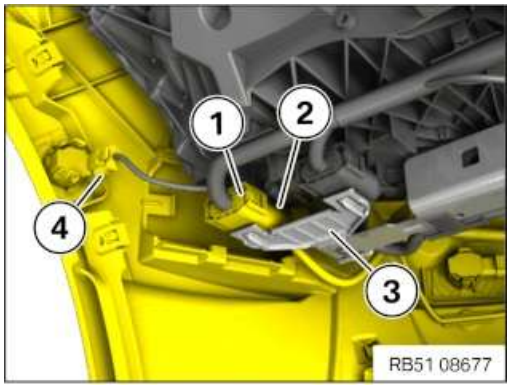
Schematic diagram is for example purposes. Some parts may differ in certain details.



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

Bumper panel, front top

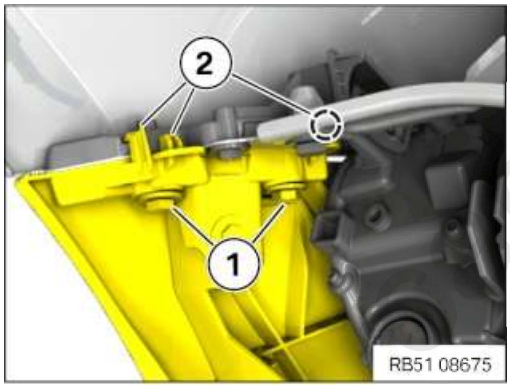
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

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



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

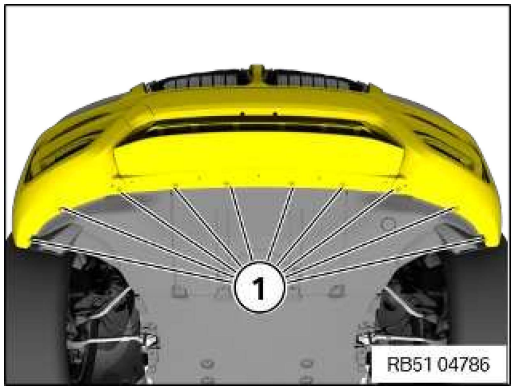
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

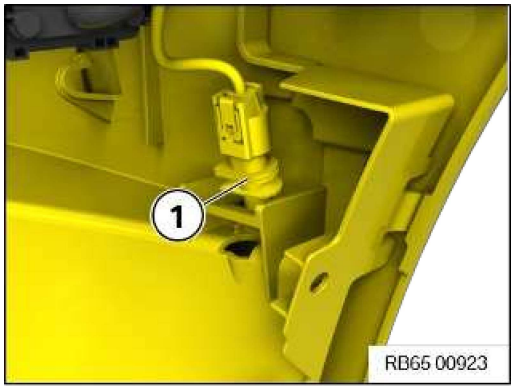


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

13 – Partially installing the temperature sensor



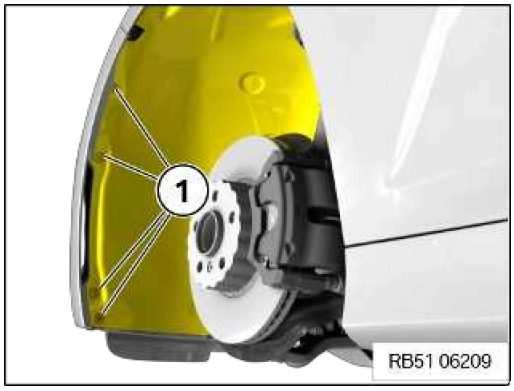
- Clip the temperature sensor (1) downwards into the front bumper panel.

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

NOTICE

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

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



NOTICE

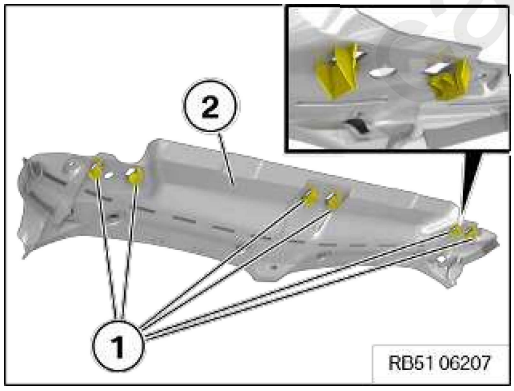
To provide a better overview: Schematic diagram without front wheel.

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

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

15 – Installing the cover for the centre engine compartment



Check

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

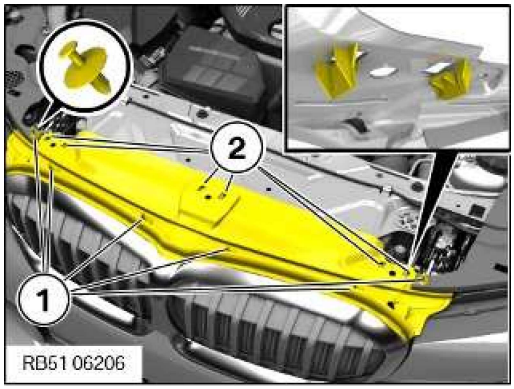
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

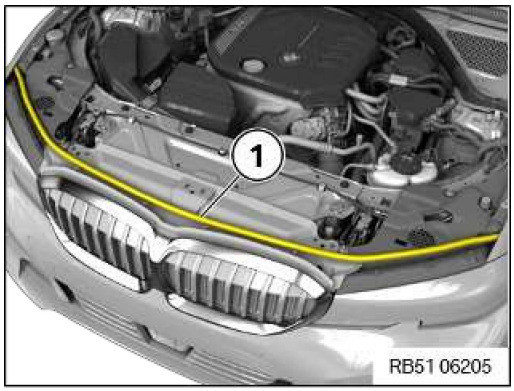


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

16 – Install the seal for the front bonnet

NOTICE

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



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

Additional Information

Overview of Tightening Torques

Bumper mounting, side front — Used in step 11

Screw		Tightening torque	3 Nm

Bumper panel, front top — Used in step 12

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 12

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 12

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front — Used in step 14

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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51 11 050 Removing and installing/replacing support for front bumper panel

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

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

Sourcing reference:

https://colorsystem-paint.com/

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

ISTA - HG99 - ColorSystem

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

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

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

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

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

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

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WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

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

RISK OF DAMAGE

Damage to 48-V battery

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

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

TECHNICAL INFORMATION

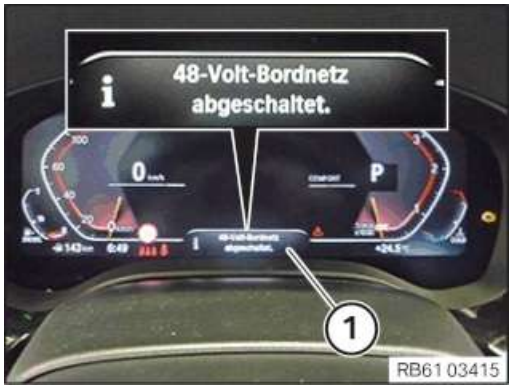
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



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

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

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

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

desired state

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

Result

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

Measure

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

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

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

Result

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

Measure

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

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



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



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

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WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads

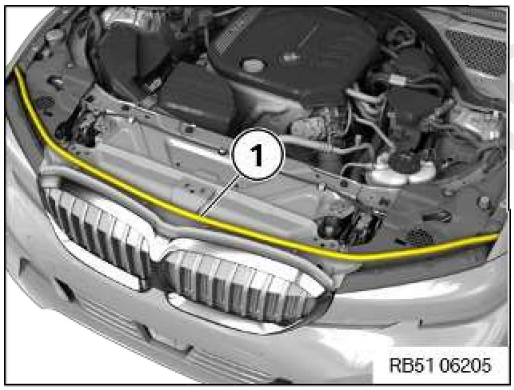


- See additional information.

3 – Remove the seal for the bonnet in front

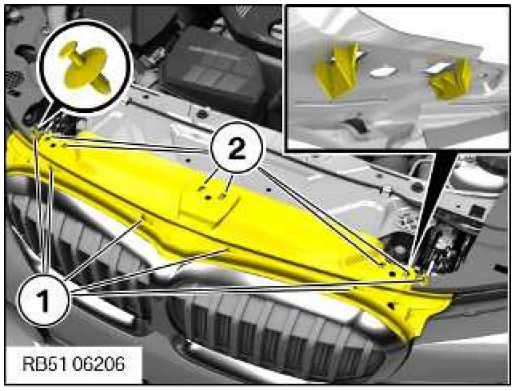
NOTICE

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



- Pull offfront bonnet seal (1) upwards.

4 – Removing the centre engine compartment cover



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

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

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NOTICE

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

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

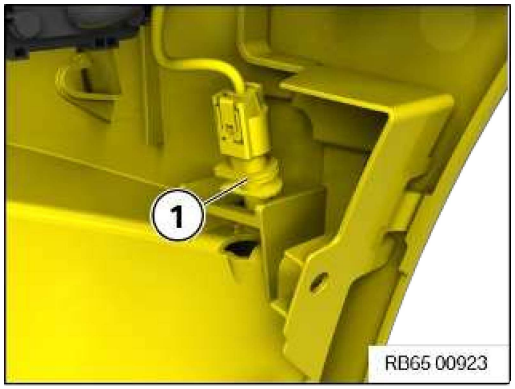


NOTICE

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

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

6 – Partially removing the temperature sensor



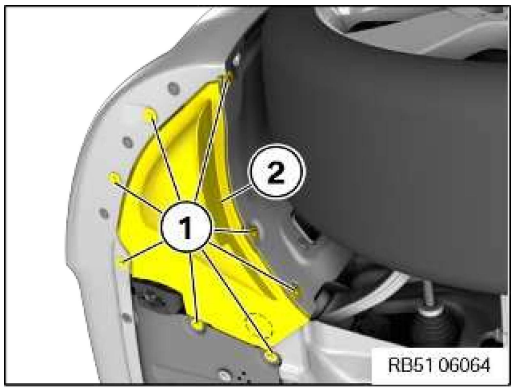
- Unclip temperature sensor (1) from the front bumper panel to the top.

7 – Remove the lower front cover at the left and right side

NOTICE

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

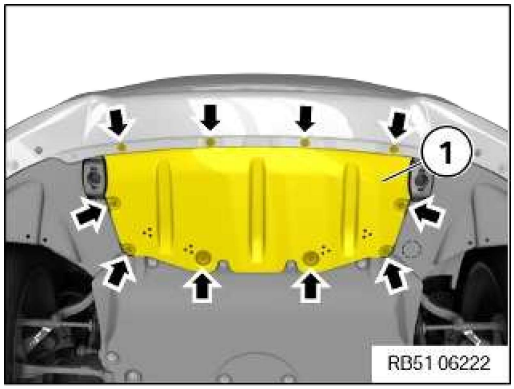
▸ **Removing the lower front cover at the side**



- Loosen screws (1).
- Removing the lower front cover at the side (2).

8 – Removing the front underbody protection

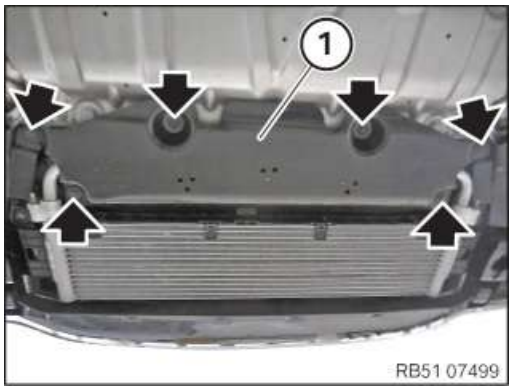
cardiagn.com



- **Version A:**

  Remove screws (arrows).

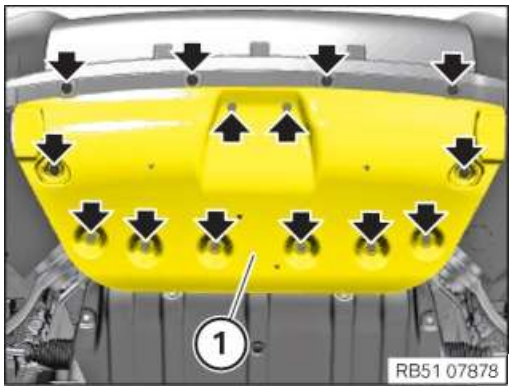
  Feed front underbody protection (1) backwards out of the bumper panel.



- **Version B:**

  Remove screws (arrows).

  Guide out front underbody protection (1) and remove it.



- **Version C:**

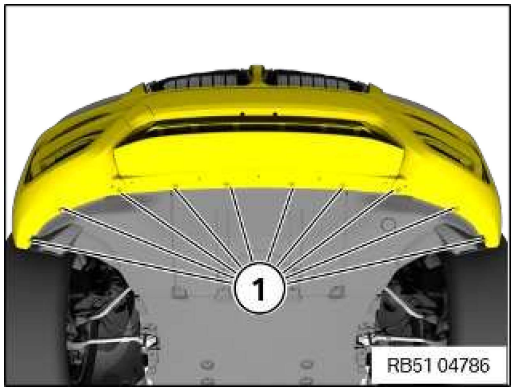
  Remove screws (arrows).

  Guide out front underbody protection (1) and remove it.

9 – Remove front bumper panel

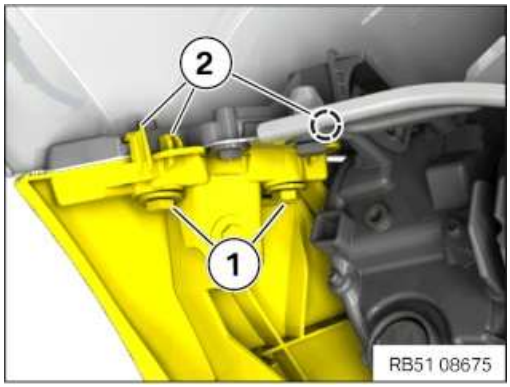
NOTICE

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



- Loosen screws (1).

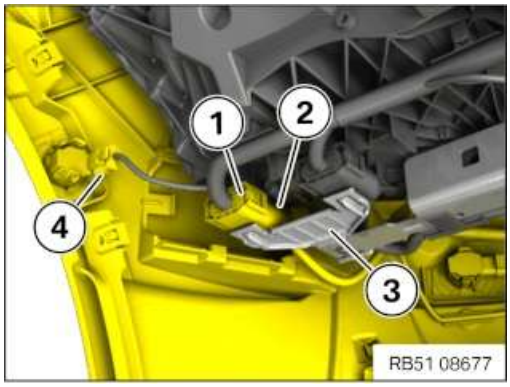
cardiagn.com



NOTICE

Perform the operations on the left and right side.

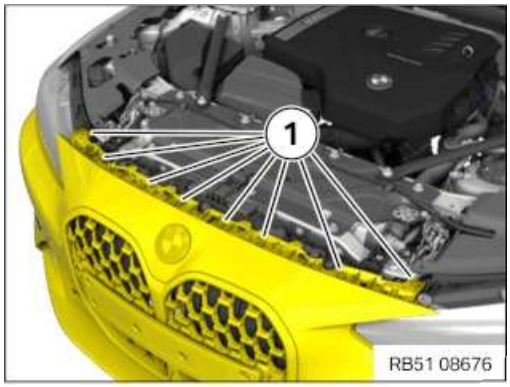
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

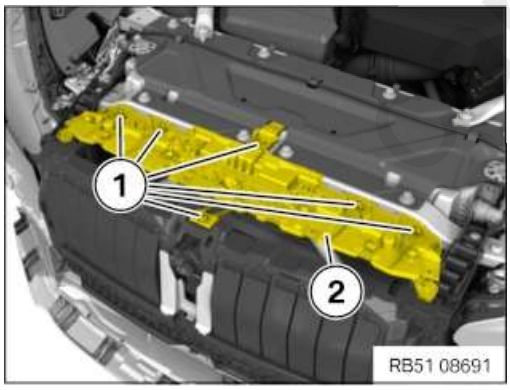
Perform the operations on the left and right side.

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



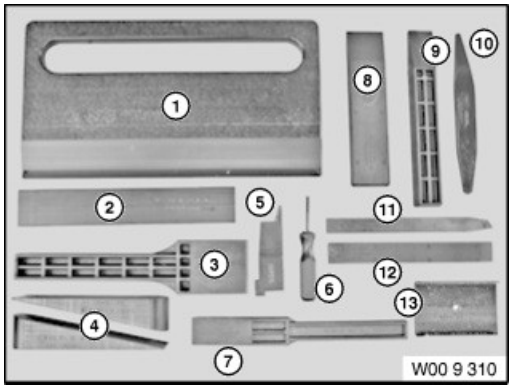
- Loosen screws (1).
- Remove the bumper panel towards the front.

10 – Remove top adapter for bumper panel



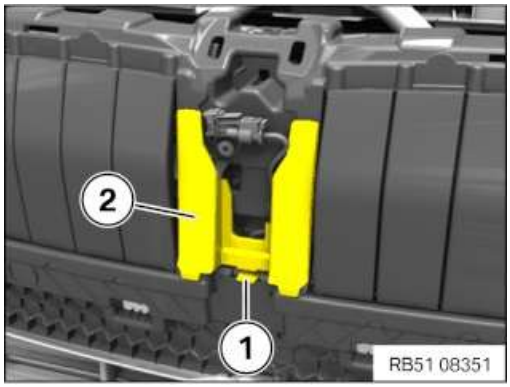
- Loosen screws (1).
- Remove adapter (2).

11 – Remove top automatic air flap control

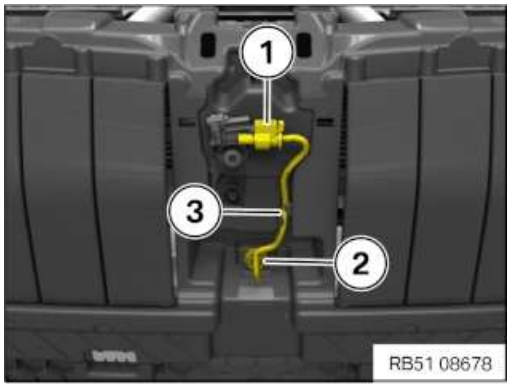


- Have the set of special tools 0 493 752 (00 9 329) ready.

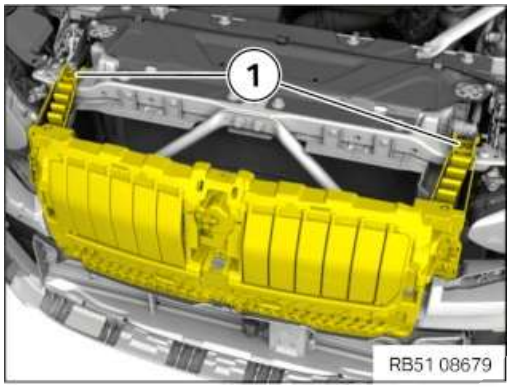
rdiagn.com



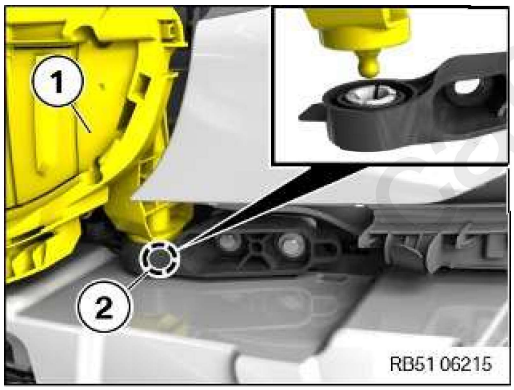
- Release latch mechanism (1) and guide down cover (2).



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



- Loosen screws (1).



NOTICE

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

NOTICE

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

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

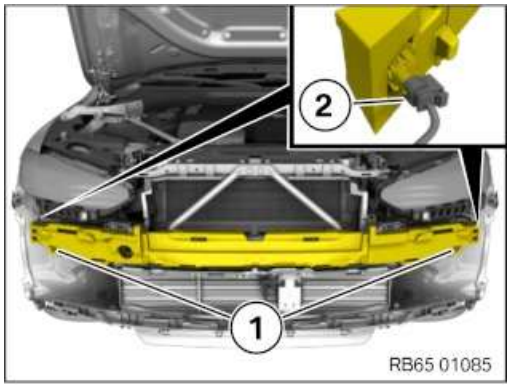
  Lever out ball head (2) to the top.
- Guide out air flap control at the top (1) to the top.
- Unlock associated plug connections and disconnect.

12 – Removing pedestrian protection sensor

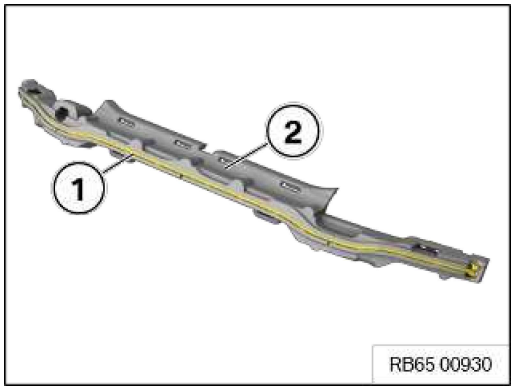
NOTICE

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

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

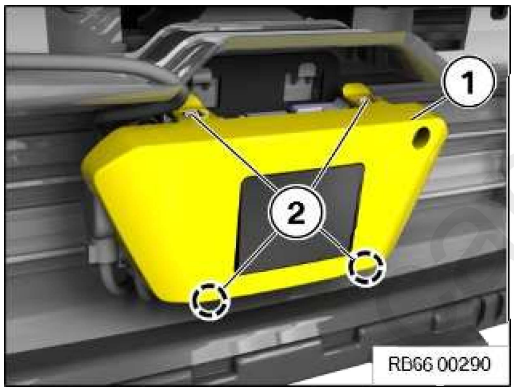


- Remove the pedestrian protection sensor (1) from the impact absorber (2).

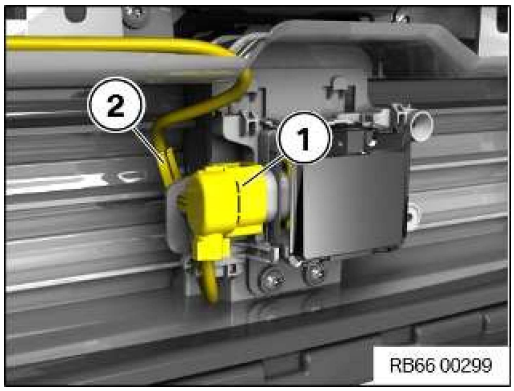
13 – If installed: Remove front radar sensor (FRS) with the holder

NOTICE

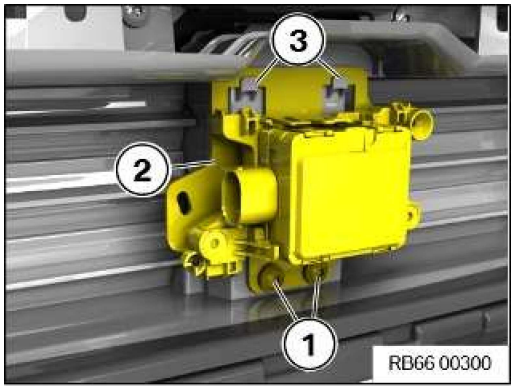
Schematic diagram is for example purposes. Some parts may differ in certain details.



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



- Unlock plug connection (1) and disconnect.
- Unclip the vehicle wiring harness with the bracket (2) and place aside.

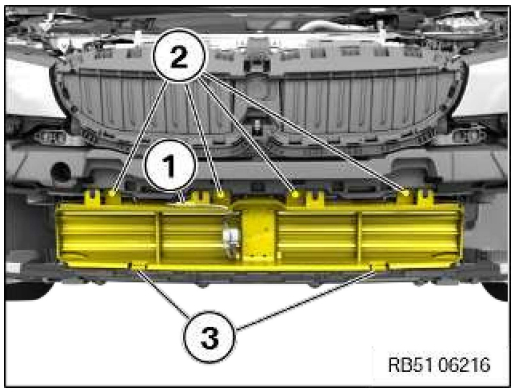


- Mark the position of the holder (2) for the front radar sensor (FRS).
- Loosen screws (1).
- Guide out and remove the front radar sensor (FRS) with holder (2) out of tabs (3) .

14 – Removing the bottom automatic air flap control

NOTICE

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



- If necessary, release the wiring harness from the holder (1) .
- Loosen screws (2).
- Guide out the bottom air flap control with the guides (3) in a forwards direction.
- Unlock associated plug connection and disconnect.

15 – Removing the left and right fanfare

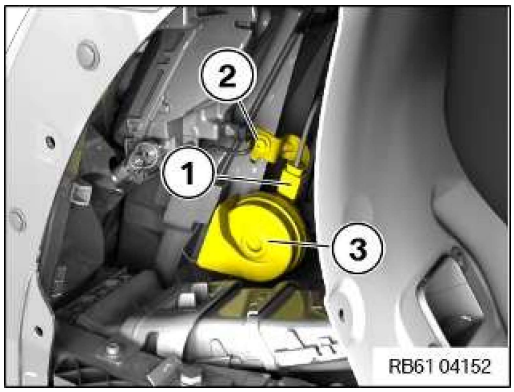
NOTICE

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

▸ **Removing the fanfare**

TECHNICAL INFORMATION

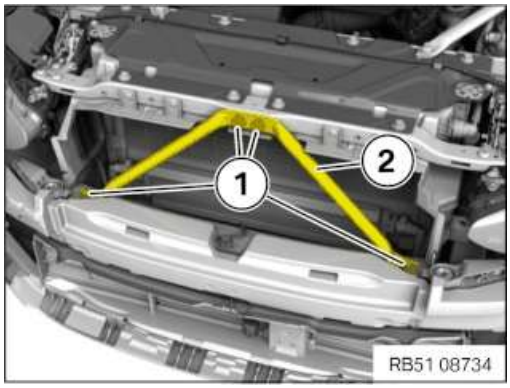
Replace the fanfare only complete with the holder.



- Unlock plug connection (1) and disconnect.
- Release the screw (2) and remove the fanfare (3) with the holder.

16 – Remove stiffening strut

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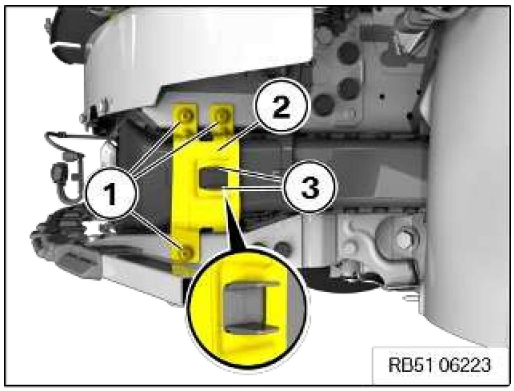
- Loosen screws (1).
- Remove bracing strut (2).

17 – Removing left and right brake air duct

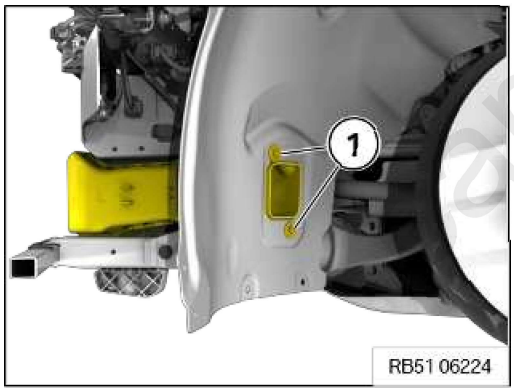
NOTICE

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

▸ **Removing the brake air duct**



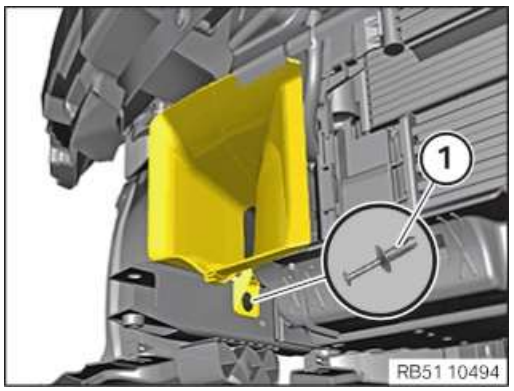
- Loosen screws (1).
- Release and remove vertical connection (2) from latch mechanisms (3) .



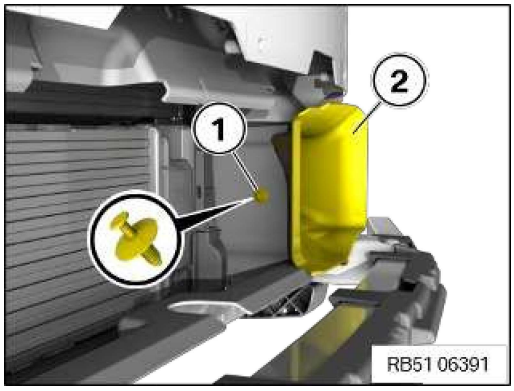
NOTICE

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

- Loosen screws (1).



- Release expanding rivet (1).



- Loosen expanding rivet (1).
- Feed out the brake air duct (2) toward the front.

18 – Remove right front-end strut

NOTICE

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

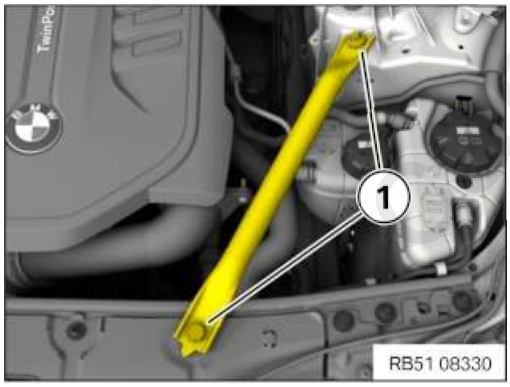
▸ **Removing the front-end strut**

TECHNICAL INFORMATION

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

NOTICE

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

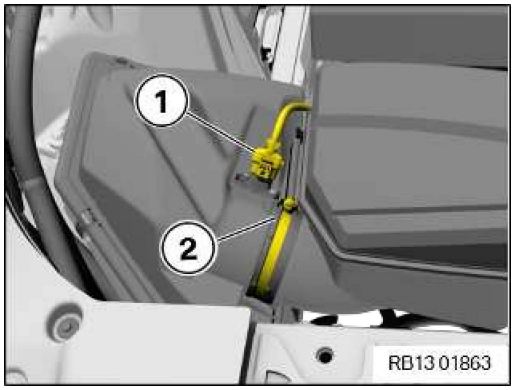


- Loosen screws (1).
- Remove the front-end strut.

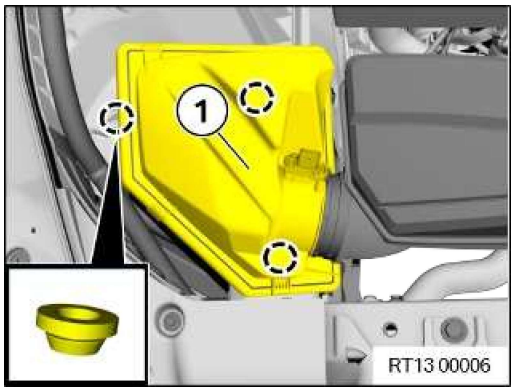
19 – Removing intake silencer housing

NOTICE

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

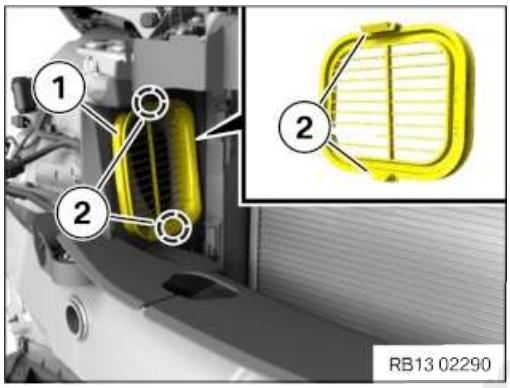


- Unlock plug connection (1) and disconnect.
- Unfasten clamp (2).

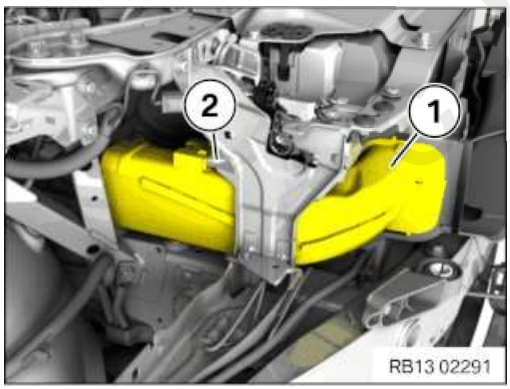


- Detach the intake filter housing (1) from the rubber mounts (marks) toward the top.

20 – Removing intake port



- Release and remove the grille (1) with the latch mechanisms (2).

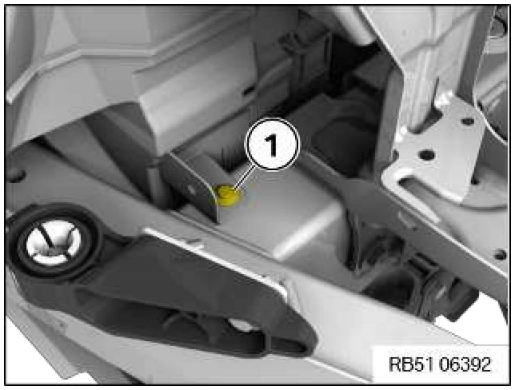


- Feed intake port (1) backward out of the guide (2) on the lock support.
- Remove the intake port (1) to the rear.

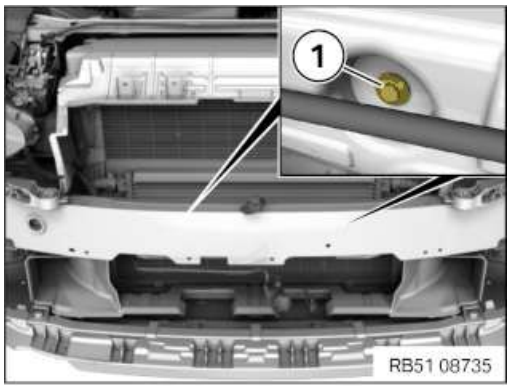
21 – Loosening the air duct for the coolant radiator on the support for the bumper panel

NOTICE

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



- Release expanding rivet (1).

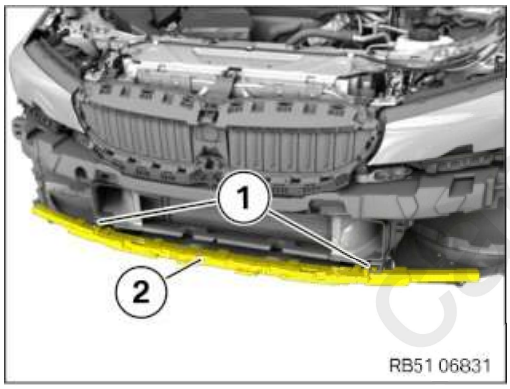


- Release the expanding rivet (1).

22 – Remove support for bumper panel at front bottom

NOTICE

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



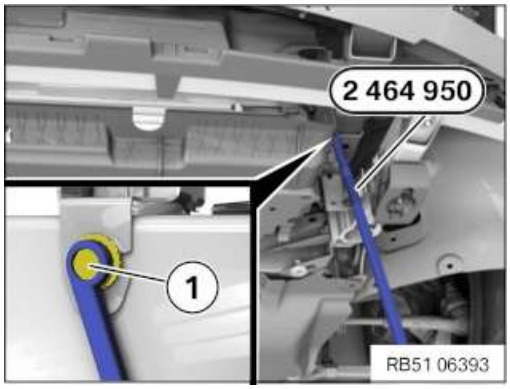
- Loosen screws (1).
- Work the support for front bottom bumper panel(2) out and remove it.

MAIN WORK

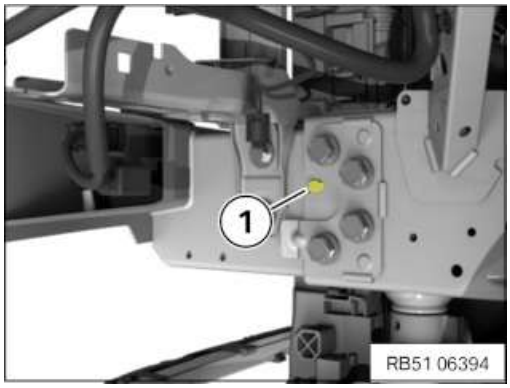
23 – Removing the support for bumper panel

NOTICE

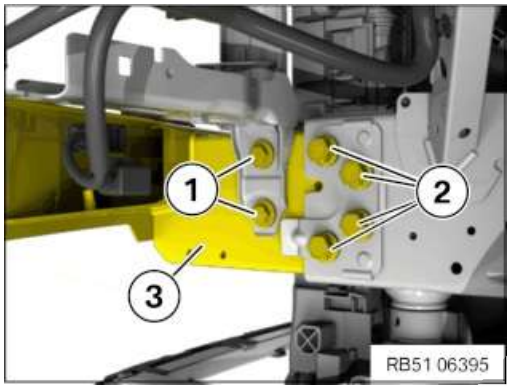
The operations shown only for one side must be carried out on both sides.



- Release the screw (1) using the special tool .

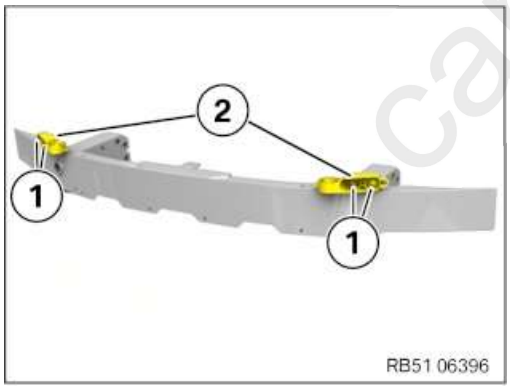


- Drill out the guide pin (1).
  - Ø = 8 mm

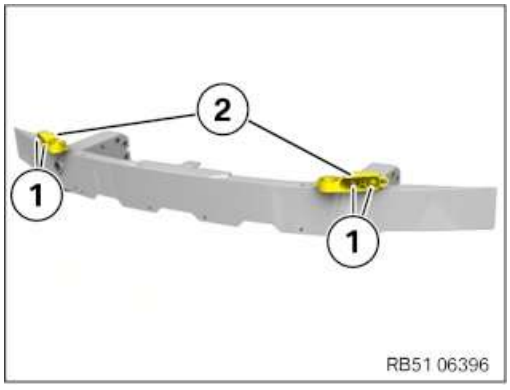


- Loosen screws (1) and (2).
- Remove the support for the bumper panel (3)towards the front.

24 – Replacement: Remounting holder of the upper air flap control



- Release screws (1) and remove holder of the upper air flap control (2).

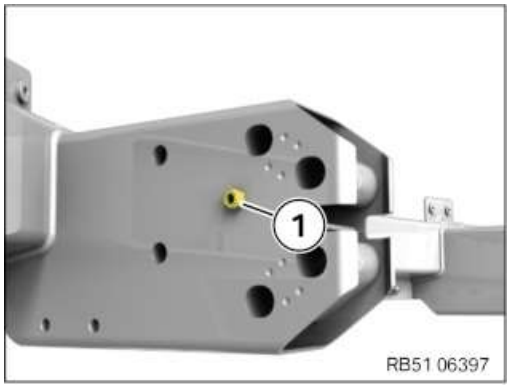


- Position holder of the upper air flap control (2) and tighten screws (1).

Holder to support			
M6x20		Tightening torque	8 Nm

25 – Preparing support for the bumper panel

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NOTICE

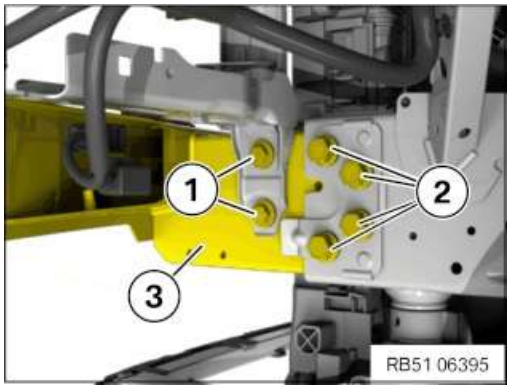
The operations shown only for one side must be carried out on both sides.

- Drill out guide pin (1) on the new part.
  - Ø = 8 mm

26 – Installing the support for the bumper panel

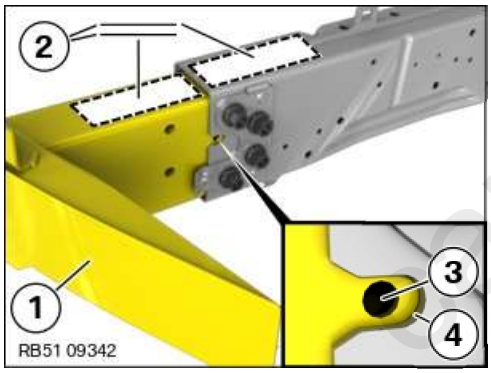
NOTICE

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



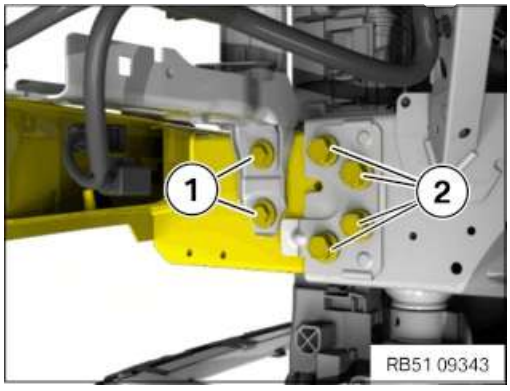
- Feed in the support for the bumper panel (3)from the front.
- Renew screws (2).

  Parts: Screws
- Position the screws (2) and hand-tighten them.
- Position the screws (1) and hand-tighten them.



- Position the support (1) such that the bore hole (3) is centrally aligned with recess (4) .

  Thus, surfaces(2) must be parallel to one another.
- Position the support (1) such that the surfaces (2) are parallel to one another.



- Tighten the screws (2).

Front bumper support to engine support

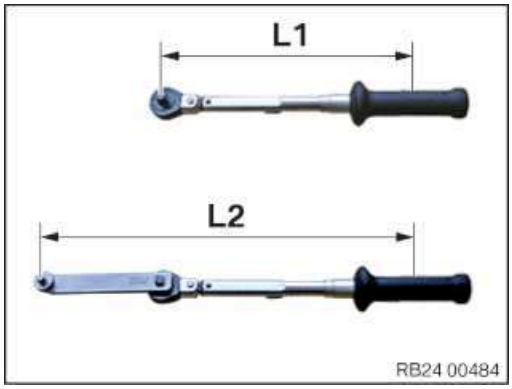
Hexagon screw with flange	Renew screw	Tightening torque Angle of rotation	100 Nm 180 °

- Tighten the screws (1).

Vertical connection to deformation element

Hexagon screw		Tightening torque	21 Nm

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TECHNICAL INFORMATION

The setpoint torque deviates from the torque to be set when using special tool 2 464 950.

NOTICE

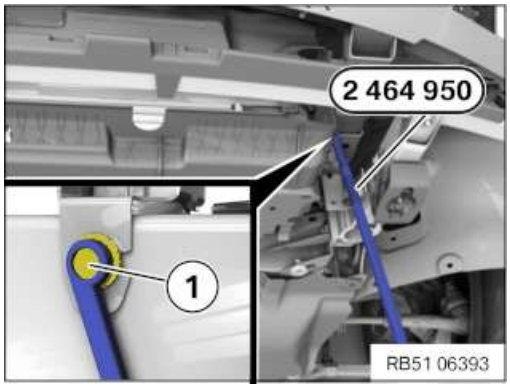
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten bolt (1) with special tool and the torque wrench.

  While doing so, the special tool and the torque wrench must align while tightening.

Vertical connection to deformation element

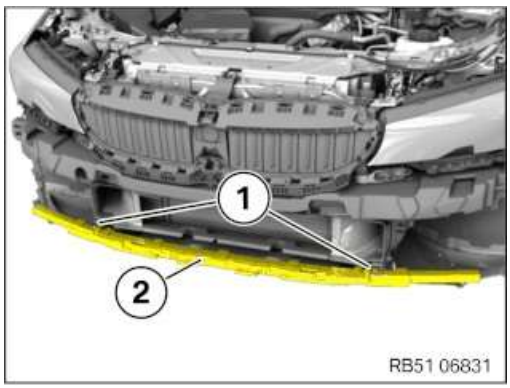
Hexagon screw		Setpoint torque	21 Nm

POSTPROCESSES

27 – Install support for bumper panel at front bottom

NOTICE

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



- Pull in support for bumper panel at front bottom (2) and position.
- Tighten the screws (1).

Support for bumper panel, bottom front on deformation element

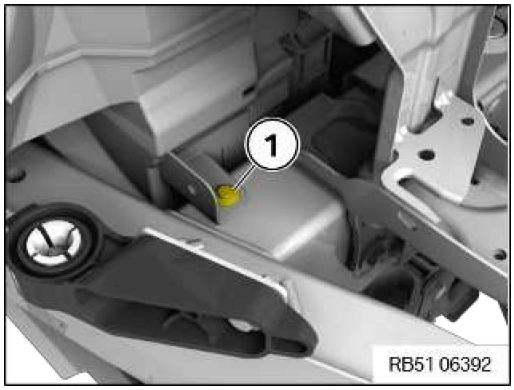
Combination oval-head machine screw		Tightening torque	10 Nm

28 – Fastening the air duct for the coolant radiator to the support for the bumper panel

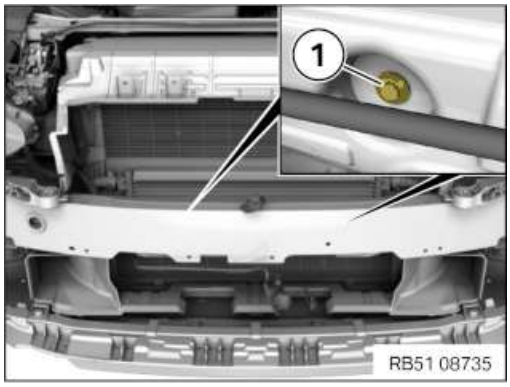
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NOTICE

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

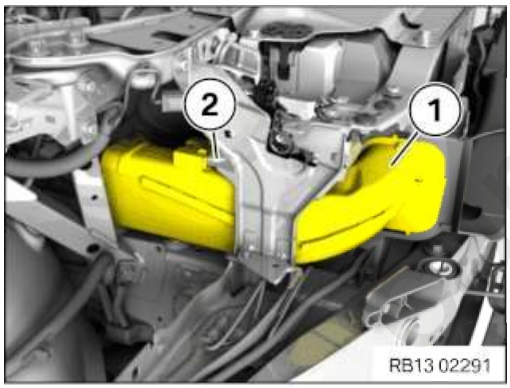


- Secure expanding rivet (1).

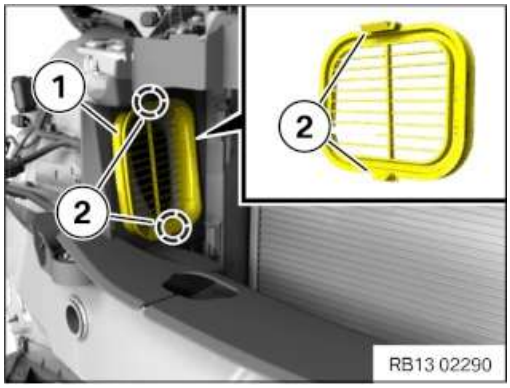


- Fasten the expanding rivet (1).

29 – Installing intake port



- Guide in intake port (1) from the rear.
- Slide intake port (1) onto guide (2) on the lock support.

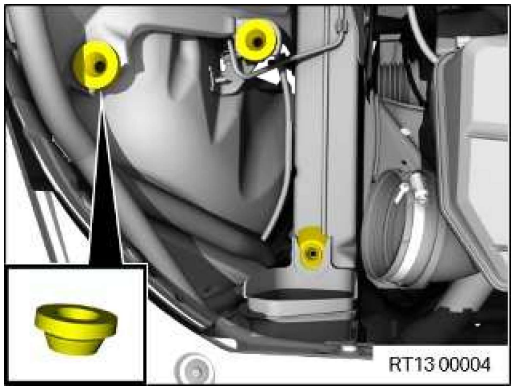


- Check latch mechanisms (2) for damage and, if necessary, renew them.
- Position grille (1) and clip it into latch mechanisms (2) .

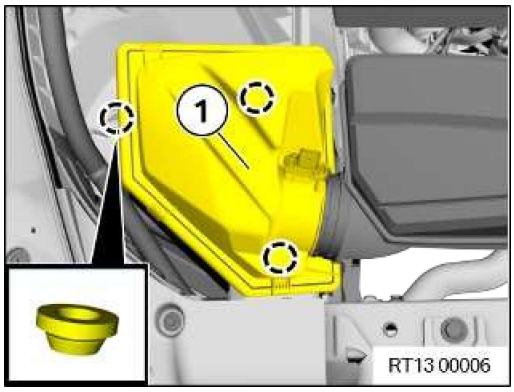
30 – Installing intake silencer housing

NOTICE

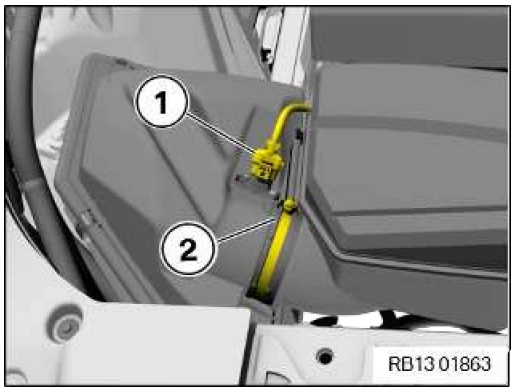
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check that the rubber mount is at the right position.



- Feed the intake filter housing (1) in and engage it in the rubber mounts (marks).



- Connect connectors (1) and lock.

TECHNICAL INFORMATION

- Note the installation position of the component. The component may be installed in various installation positions.

- Tighten clamp (2).

Resonator to intake filter housing

Clamp		Tightening torque	3 Nm

31 – Install the right front-end strut

NOTICE

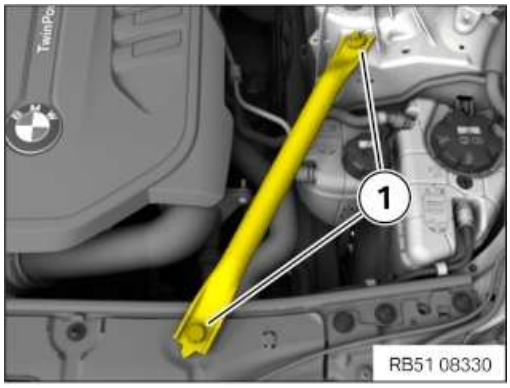
Description is for left component only. Procedure on the right side is identical.

▸ **Installing the front-end strut**

NOTICE

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

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- Position the front-end strut.
- Tighten the screws (1).

Front end strut

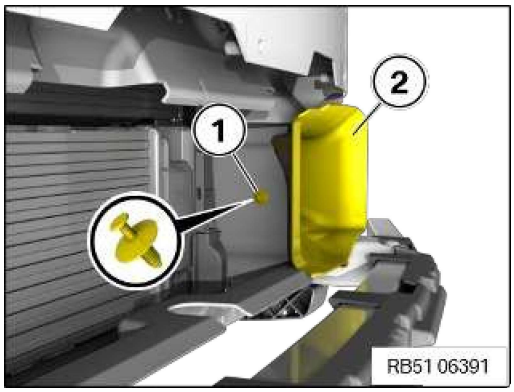
Screw		Tightening torque	56 Nm

32 – Installing the left and right brake air duct

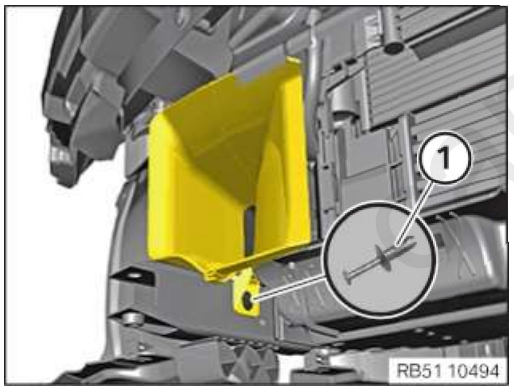
NOTICE

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

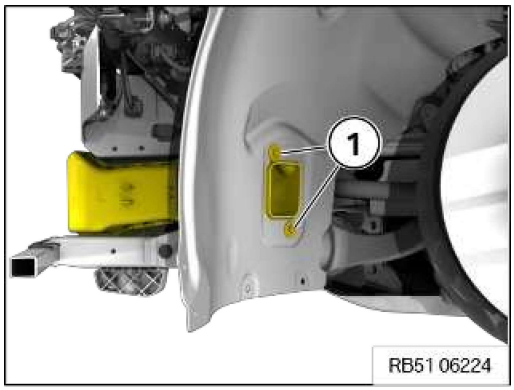
▸ **Installing the brake air duct**



- Guide in and position brake air duct (2).
- Fasten expanding rivet (1).



- Secure expanding rivet (1).



NOTICE

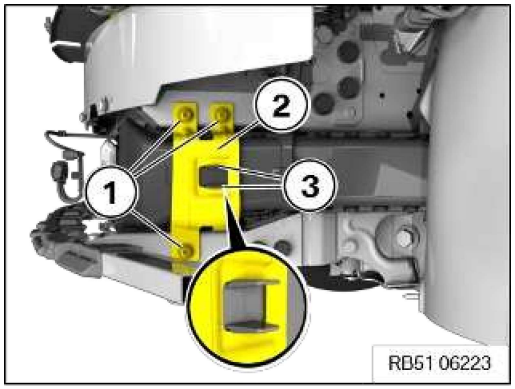
To provide a better overview: Schematic diagram without front wheel.

- Tighten the screws (1).

Brake air duct to front wheel arch cover of front section

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

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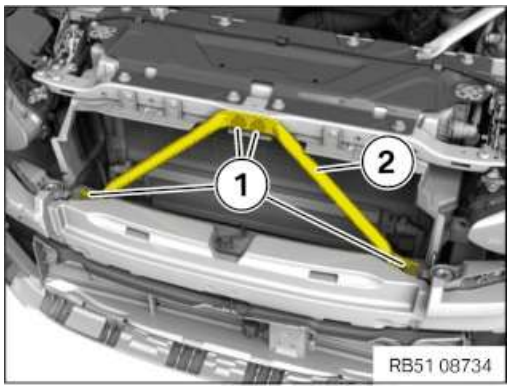


- Position the vertical connection (2) and clip it in the latch mechanisms (3) .
- Tighten the screws (1).

Vertical connection to deformation element

Flat-head screw M6x20		Tightening torque	11,8 Nm

33 – Install bracing strut



- Position the reinforcement strut (2).
- Tighten the screws (1).

Bracing strut on cross connection and bumper support

Hexagon screw M8		Tightening torque	28 Nm

34 – Installing the left and right fanfare

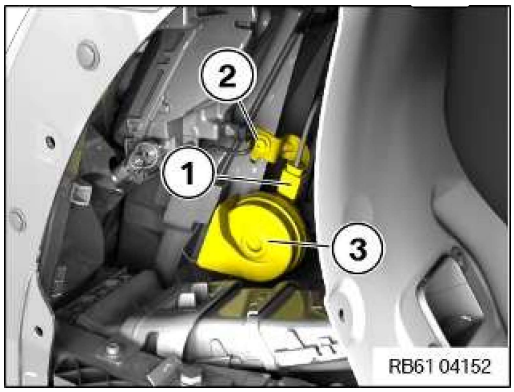
NOTICE

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

▸ **Installing the fanfare**

TECHNICAL INFORMATION

Replace the fanfare only complete with the holder.



- Position the fanfare (3) correctly and tighten the screw (2) .

Fanfare to support for bumper panel

M6x20 screw		Tightening torque	8,8 Nm

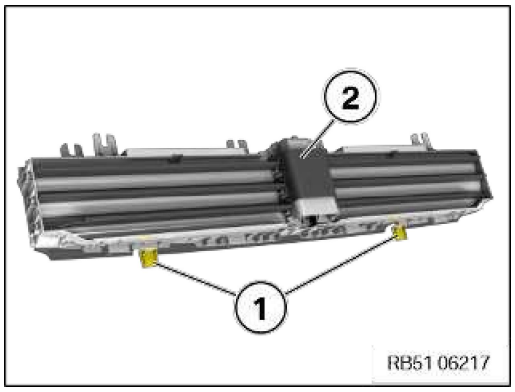
- Connect connectors (1) and lock.

35 – Installing the bottom automatic air flap control

NOTICE

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

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Check

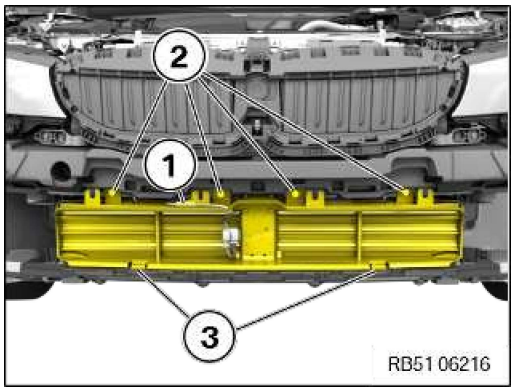
- Check the guides (1) on the bottom air flap control (2) for damage.

Result

» Guide is damaged.

Measure

- Renew the bottom air flap control.



- Connect and lock corresponding connectors.
- Position the bottom air flap control and feed in with the guides (3) .
- Tighten the screws (2).

Bottom air flap control on top bumper panel support

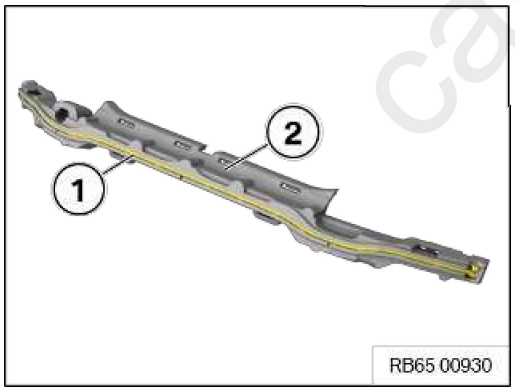
Oval-head screw		Tightening torque	4,6 Nm

- If applicable, clip in the vehicle wiring harness with the holder (1).

36 – Installing the pedestrian protection sensor

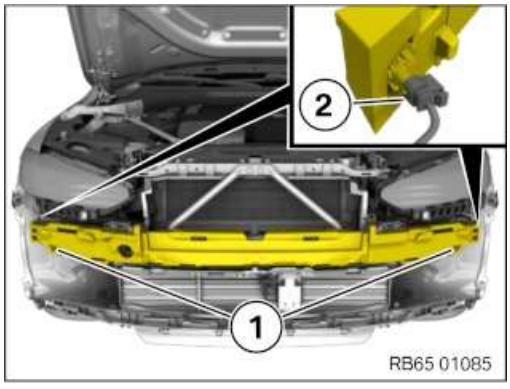
NOTICE

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



- Check the impact absorber (2) for damage.

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



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

37 – Connecting all battery earth leads

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37 – Connecting all battery earth leads

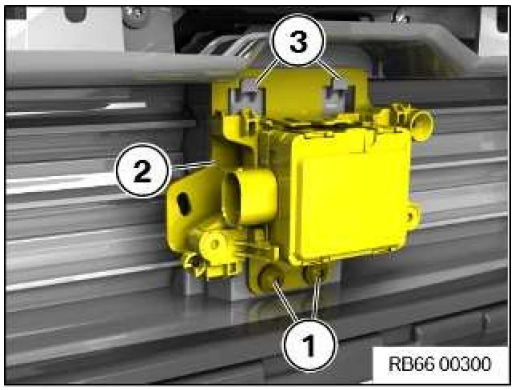


- See additional information.

38 – If installed: Installing front radar sensor (FRS) with bracket

NOTICE

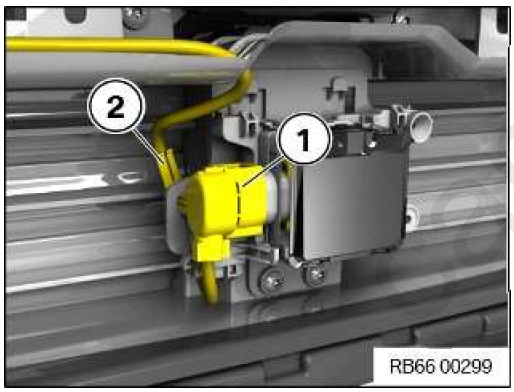
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the front radar sensor (FRS) with the holder (2) in the tabs (3) .
- Position the holder (2) at the mark made during removal.
- Tighten the screws (1).

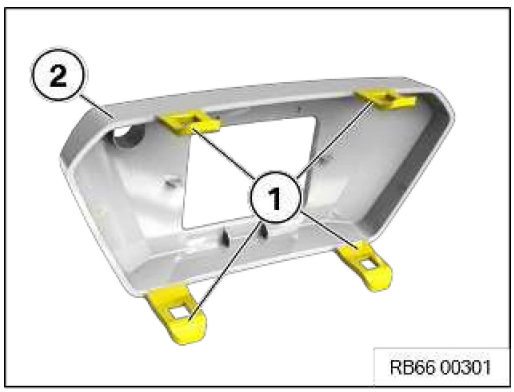
Front radar sensor (FRS) / (FRSF) holder to support

Combination oval-head machine screw		Tightening torque	8 Nm



- Clip in the vehicle wiring harness including bracket. (2)
- Connect connectors (1) and lock.

Check



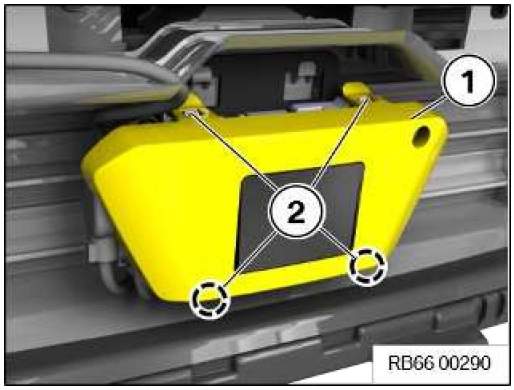
- Check tabs (1) on cover(2) for damage.

Result

» Tabs (2) are damaged.

Measure

- Renew the cover.



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

▸ **Adjusting front radar sensor (FRS)**

TECHNICAL INFORMATION

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

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

TECHNICAL INFORMATION

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

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

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

▹ **Checking vehicle and components for damage**

Check

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

Result

» Damage or deformation.

Measure

- Identify and renew damaged, deformed vehicle parts.

Result

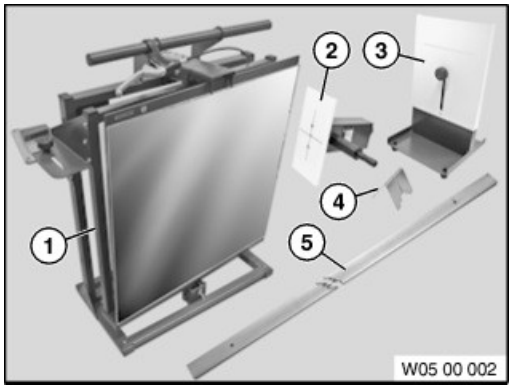
» No damage or deformation

Measure

- Adjust the front radar sensor (FRS).

◃

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



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



NOTICE

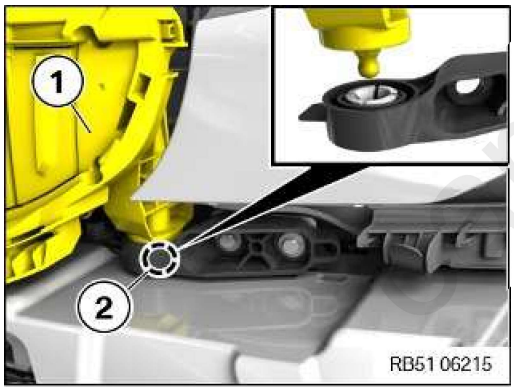
Schematic diagram is for example purposes. Some parts may differ in certain details.

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

  Standard tools:

  (Shaft length > 90 mm)

39 – Insert top automatic air flap control



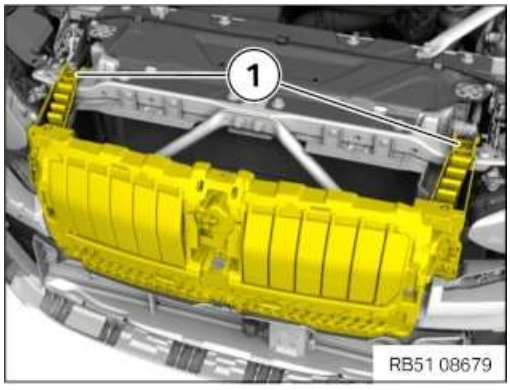
NOTICE

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

NOTICE

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

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

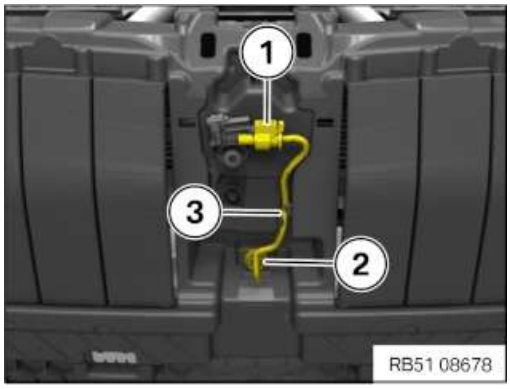


- Tighten the screws (1).

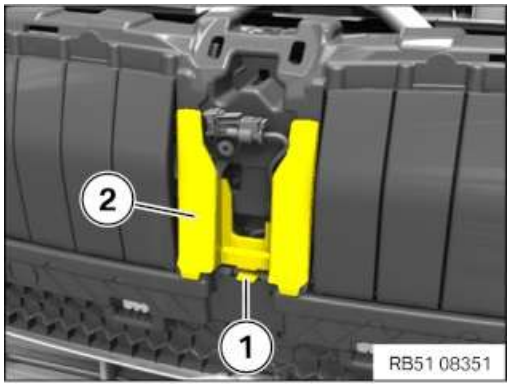
Air flap control to front end

Oval-head screw with spring washer		Tightening torque	4 Nm

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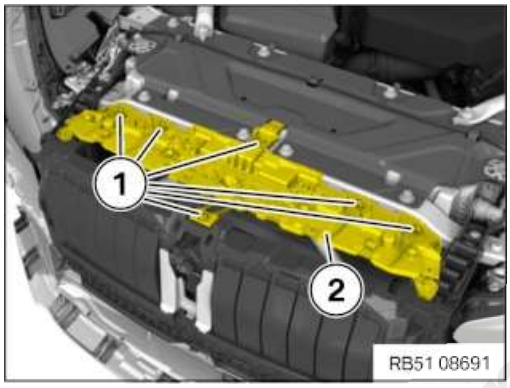


- Clip in the cable for the acceleration sensor with the holder (2) and feed it in the guide (3).
- Connect connectors (1) and lock.



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

40 – Installing top adapter for panel support



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

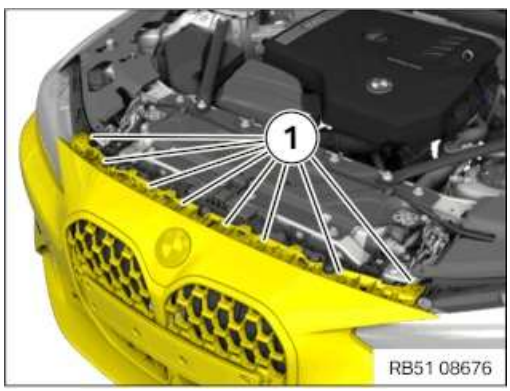
Adapter to the front panel

Oval-head screw with spring washer		Tightening torque	4 Nm

41 – Install bumper panel, front

NOTICE

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

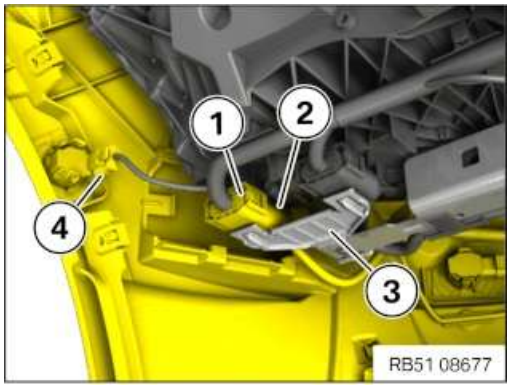


- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

Oval-head screwM6		Tightening torque	4,6 Nm

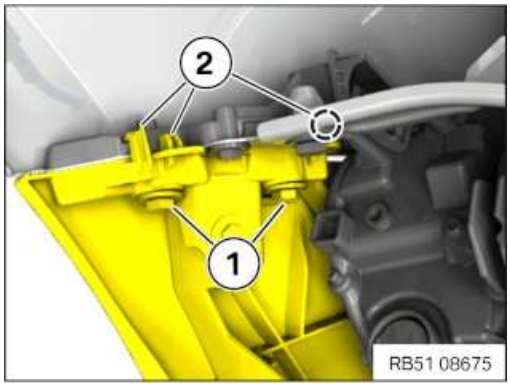
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NOTICE

Perform the operations on the left and right side.

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



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

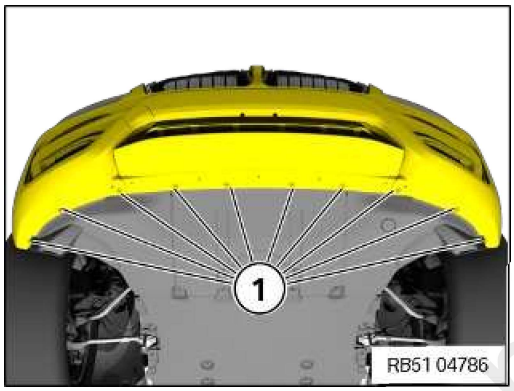
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

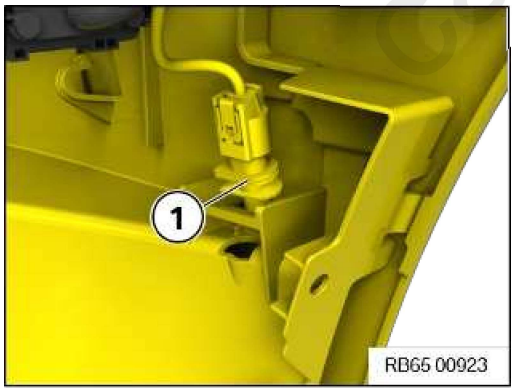


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

42 – Partially installing the temperature sensor



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

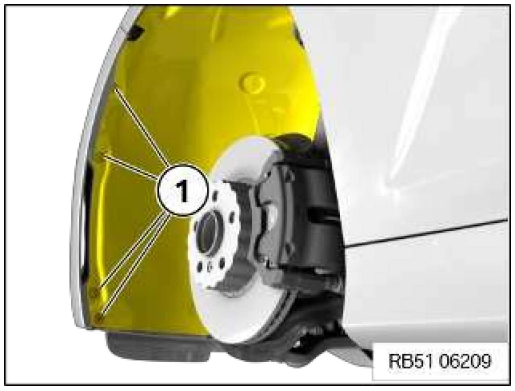
43 – Partially installing the front left and right wheel arch trim panels

NOTICE

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

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

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NOTICE

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

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

Wheel arch trim panel, front

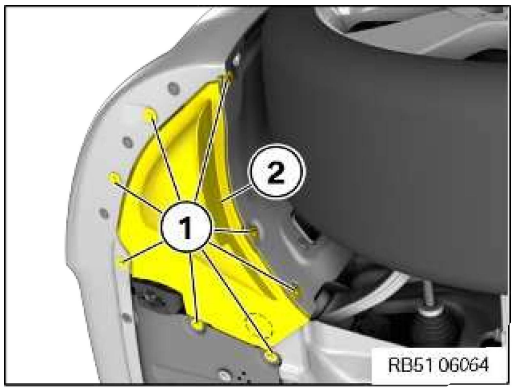
Thermoplastic hexagon screw		Tightening torque	2,6 Nm

44 – Install the lower front cover at the left and right side

NOTICE

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

▸ **Install the lower front cover at the side**

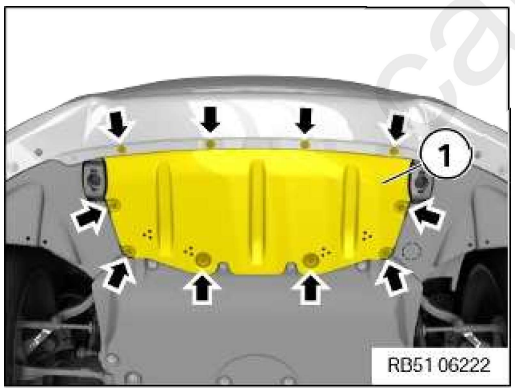


- Install front bottom side cover(2).
- Tighten the screws (1).

Cover, front bottom on side

Hexagon screw for thermoplastic		Tightening torque	3 Nm

45 – Installing the front underbody protection



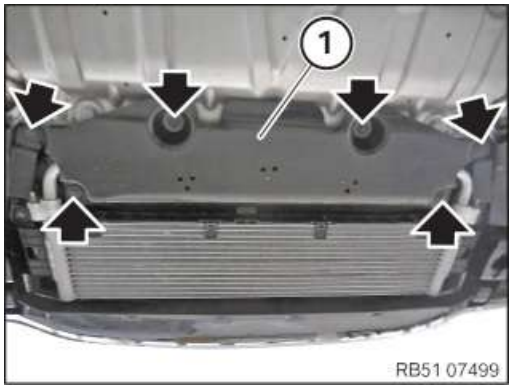
- **Version A:**

  Feed in the front underbody protection (1) towards the front under the bumper panel and position.

  Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm



- **Version B:**

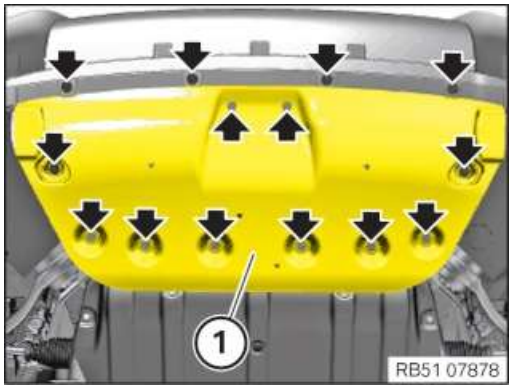
  Feed in and position the front underbody protection (1).

  Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

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- **Version C:**

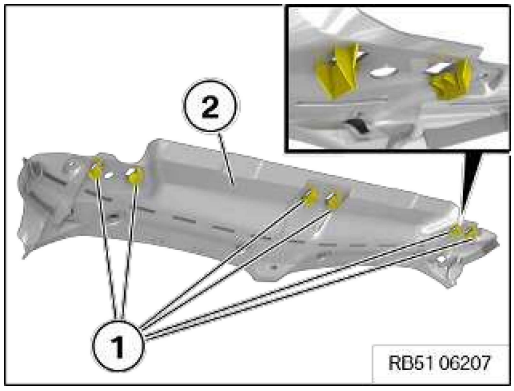
  Feed in and install front underbody protection (1).

  Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

46 – Installing the cover for the centre engine compartment



Check

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

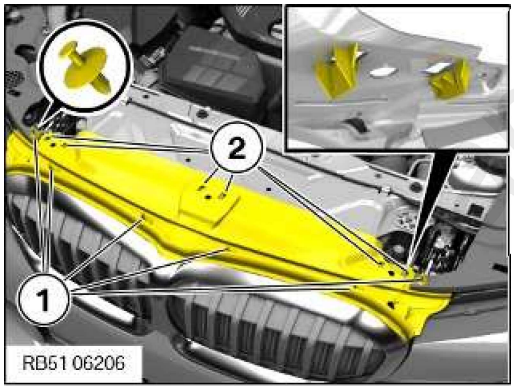
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

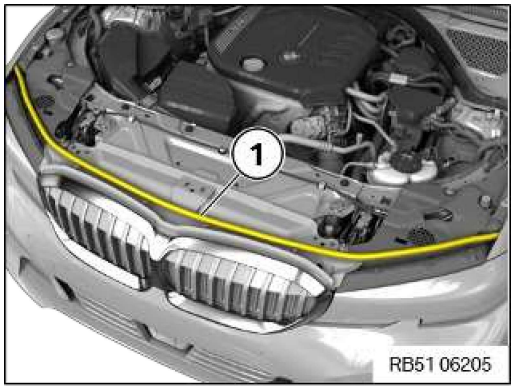


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

47 – Install the seal for the front bonnet

NOTICE

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



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

48 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

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

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



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



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

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



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

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

  The activation takes place automatically.

49 – 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

NOTICE

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



- If necessary, remove the cover over the adjusting screws for headlight 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.

  Remove damaged plug if necessary (refer to additional information).
- Turn adjusting screw (2) for a correct lateral adjustment.
- **US version:** If the lateral adjustment has been checked or corrected: Renew plugs and push into the adjusting screw for the lateral adjustment **without damaging it** (see additional information).
- If necessary, fit a cover over the adjusting screws for headlight adjustment.

Additional Information

Overview of Tightening Torques

Holder to support — Used in step 24

M6x20		Tightening torque	8 Nm

Front bumper support to engine support — Used in step 26

Hexagon screw with flange	Renew screw	Tightening torque	100 Nm
		Angle of rotation	180 °

Vertical connection to deformation element — Used in step 26

Hexagon screw		Tightening torque	21 Nm

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Vertical connection to deformation element			Used in step 26
Hexagon screw		Setpoint torque	21 Nm

Support for bumper panel, bottom front on deformation element			Used in step 27
Combination oval-head machine screw		Tightening torque	10 Nm

Resonator to intake filter housing			Used in step 30
Clamp		Tightening torque	3 Nm

Front end strut			Used in step 31
Screw		Tightening torque	56 Nm

Brake air duct to front wheel arch cover of front section			Used in step 32
Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Vertical connection to deformation element			Used in step 32
Flat-head screw M6x20		Tightening torque	11,8 Nm

Bracing strut on cross connection and bumper support			Used in step 33
Hexagon screw M8		Tightening torque	28 Nm

Fanfare to support for bumper panel			Used in step 34
M6x20 screw		Tightening torque	8,8 Nm

Bottom air flap control on top bumper panel support			Used in step 35
Oval-head screw		Tightening torque	4,6 Nm

Front radar sensor (FRS) / (FRSF) holder to support			Used in step 38
Combination oval-head machine screw		Tightening torque	8 Nm

Air flap control to front end			Used in step 39
Oval-head screw with spring washer		Tightening torque	4 Nm

Adapter to the front panel			Used in step 40
Oval-head screw with spring washer		Tightening torque	4 Nm

Bumper panel, front top			Used in step 41
Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel			Used in step 41
Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection			Used in step 41
Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

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Wheel arch trim panel, front Used in step 43

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Cover, front bottom on side Used in step 44

Hexagon screw for thermoplastic		Tightening torque	3 Nm

Underbody protection front Used in step 45

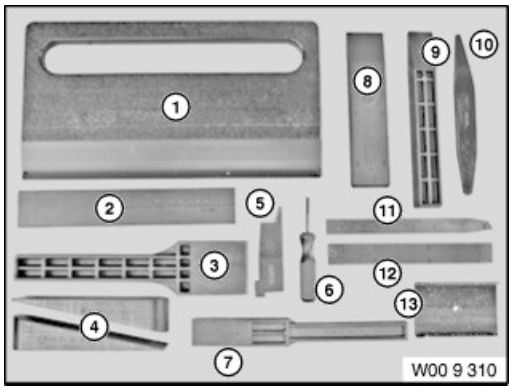
Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

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

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common Used in step 11

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

0 442 898 Measuring device

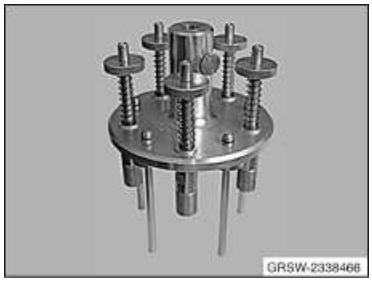


Common Used in step 38

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

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2 338 466 Holder



Common	Used in step 38
Usage	Replacement for holder 36 1 100 (0493771). Holder has longer guide pins and lengthened magnetic guides.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	

Links

Functional descriptions	Used in step
Mirror adjustment for start-up of the front radar sensor	38
Mirror adjustment for start-up of the front radar sensor	38
Mirror adjustment to start up the front radar sensor long range	38
Mirror adjustment to start up the front radar sensor long range	38

Repair instructions (PRE)	Used in step
Notes on 48-V battery	148

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	237
61 20 900 Disconnecting and connecting battery earth lead	237
61 20 900 Disconnecting and connecting battery earth lead	237
61 20 900 Disconnecting and connecting battery earth lead	237
61 20 900 Disconnecting and connecting battery earth lead	237
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	237
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	237

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61 20 900 Disconnecting and connecting battery earth lead 237
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 237
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle) 237
61 20 900 Disconnecting and connecting battery earth lead 237
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 237
61 20 900 Disconnecting and connecting battery earth lead 237
61 20 900 Disconnecting and connecting battery earth lead 237
61 20 900 Disconnecting and connecting battery earth lead 237
66 31 010 Instructions for ACC adjusting device 38
63 10 ... Test requirements for headlights vertical aim adjustment 49

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51 11 060 Removing and installing/replacing support for front lower bumper panel

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

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

Sourcing reference:

https://colorsystem-paint.com/

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

ISTA - HG99 - ColorSystem

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

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

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

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

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

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

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WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

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

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

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

RISK OF DAMAGE

Damage to 48-V battery

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

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

TECHNICAL INFORMATION

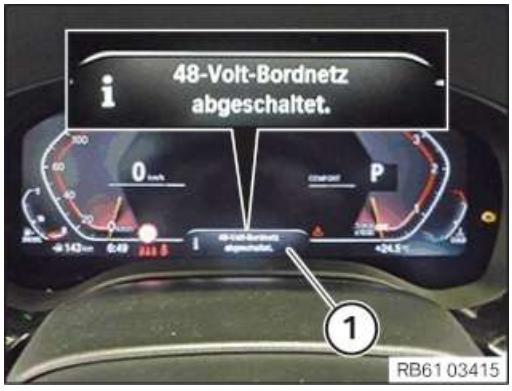
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



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

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

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

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

desired state

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

Result

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

Measure

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

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

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

Result

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

Measure

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

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



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



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

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WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

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

2 – Disconnecting all battery earth leads

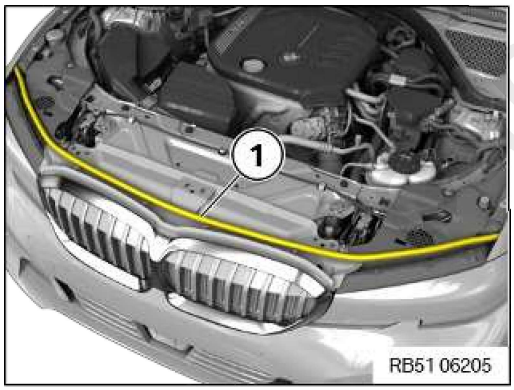


- See additional information.

3 – Remove the seal for the bonnet in front

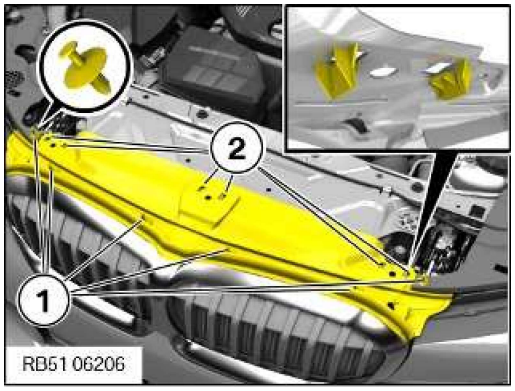
NOTICE

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



- Pull offfront bonnet seal (1) upwards.

4 – Removing the centre engine compartment cover



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

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

carsdiag.com

NOTICE

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

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

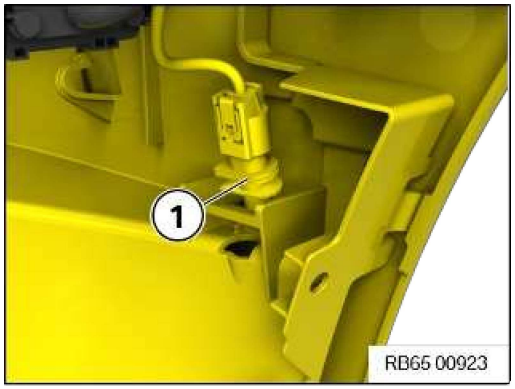


NOTICE

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

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

6 – Partially removing the temperature sensor

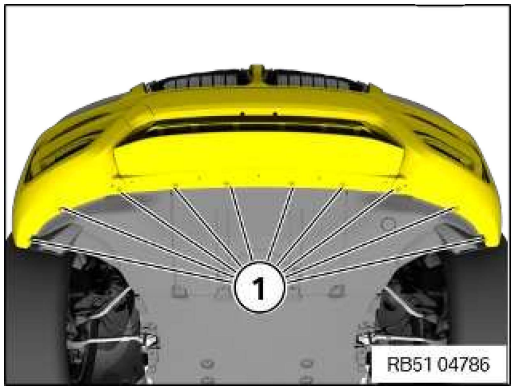


- Unclip temperature sensor (1) from the front bumper panel to the top.

7 – Remove front bumper panel

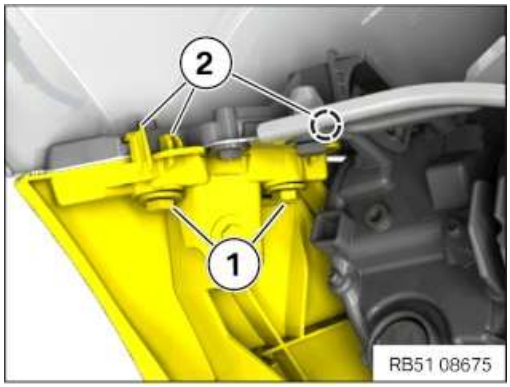
NOTICE

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



- Loosen screws (1).

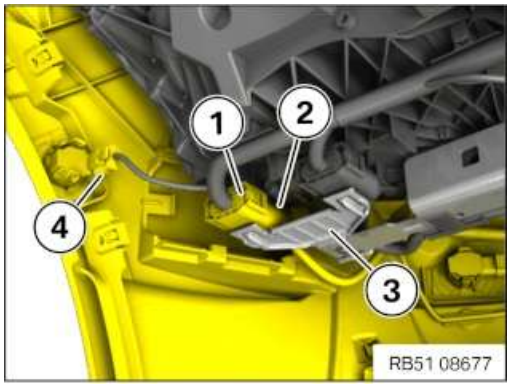
cardiagn.com



NOTICE

Perform the operations on the left and right side.

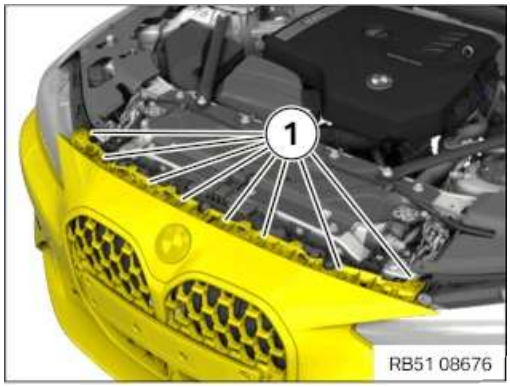
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

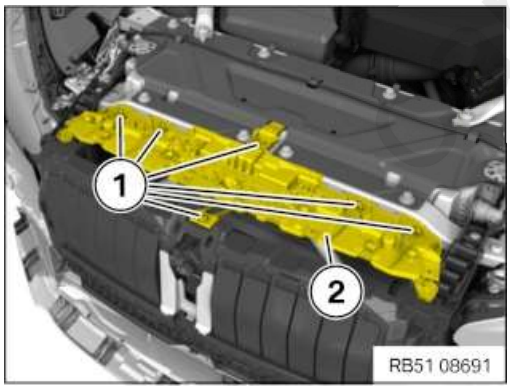
Perform the operations on the left and right side.

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



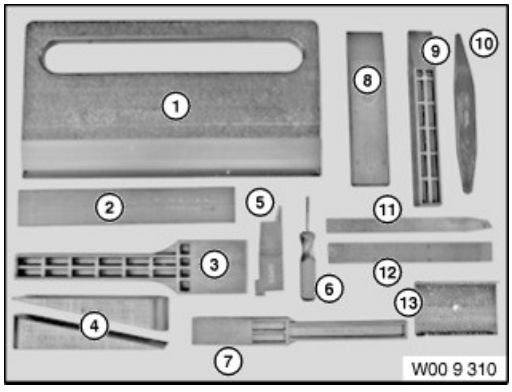
- Loosen screws (1).
- Remove the bumper panel towards the front.

8 – Remove top adapter for bumper panel



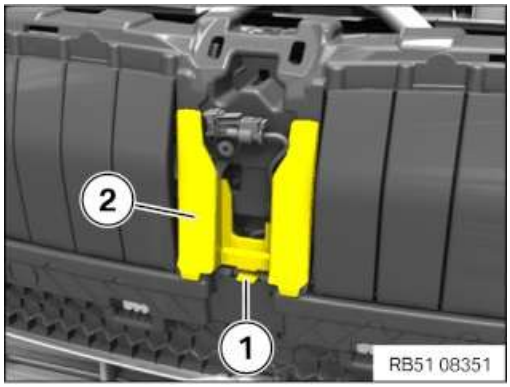
- Loosen screws (1).
- Remove adapter (2).

9 – Remove top automatic air flap control

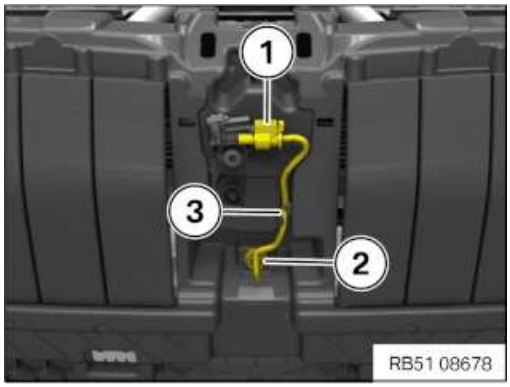


- Have the set of special tools 0 493 752 (00 9 329) ready.

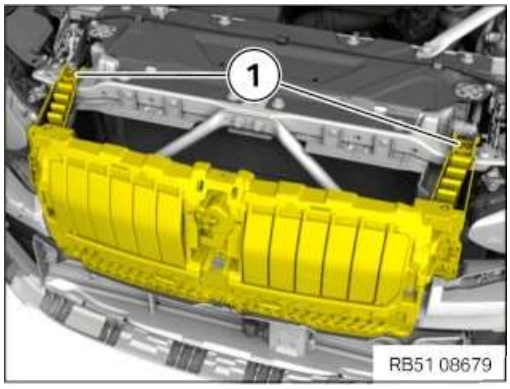
rdiagn.com



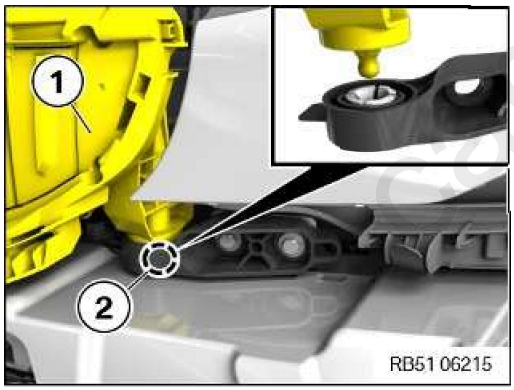
- Release latch mechanism (1) and guide down cover (2).



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



- Loosen screws (1).



NOTICE

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

NOTICE

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

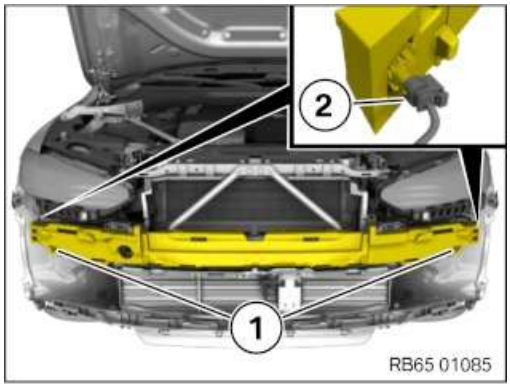
- Release air flap control at the top (1) using a suitable special tool.

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

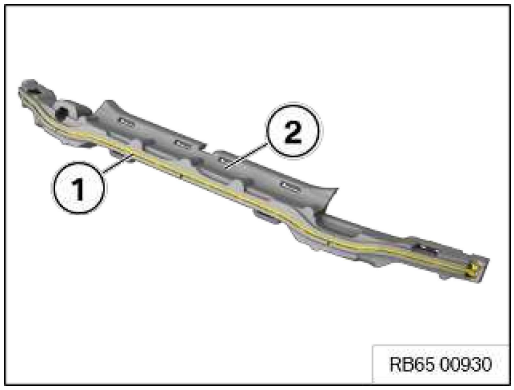
10 – Removing pedestrian protection sensor

NOTICE

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



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

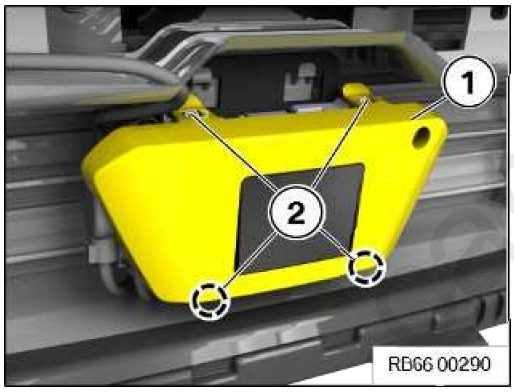


- Remove the pedestrian protection sensor (1) from the impact absorber (2).

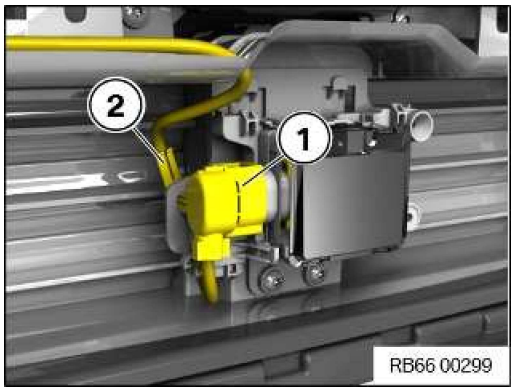
11 – If installed: Remove front radar sensor (FRS) with the holder

NOTICE

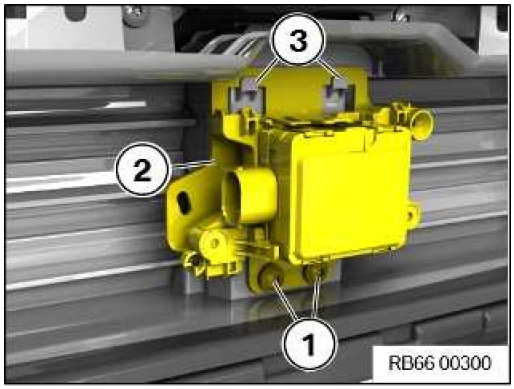
Schematic diagram is for example purposes. Some parts may differ in certain details.



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



- Unlock plug connection (1) and disconnect.
- Unclip the vehicle wiring harness with the bracket (2) and place aside.

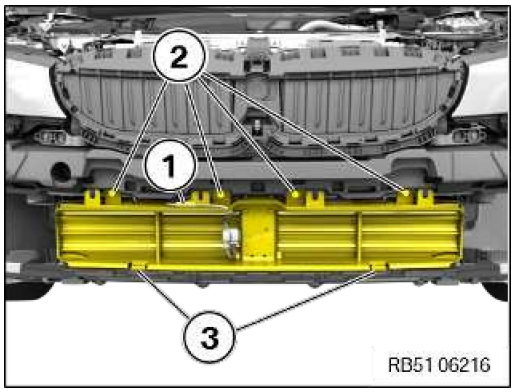


- Mark the position of the holder (2) for the front radar sensor (FRS).
- Loosen screws (1).
- Guide out and remove the front radar sensor (FRS) with holder (2) out of tabs (3) .

12 – Removing the bottom automatic air flap control

NOTICE

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



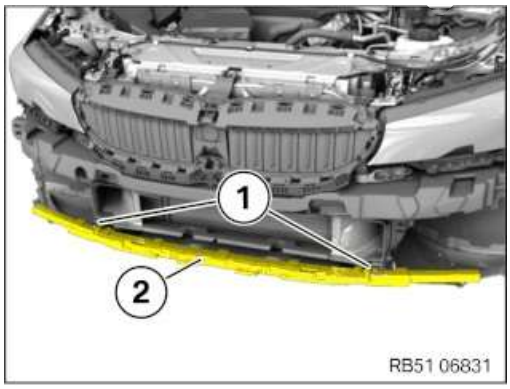
- If necessary, release the wiring harness from the holder (1) .
- Loosen screws (2).
- Guide out the bottom air flap control with the guides (3) in a forwards direction.
- Unlock associated plug connection and disconnect.

MAIN WORK

13 – Remove support for bumper panel at front bottom

NOTICE

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



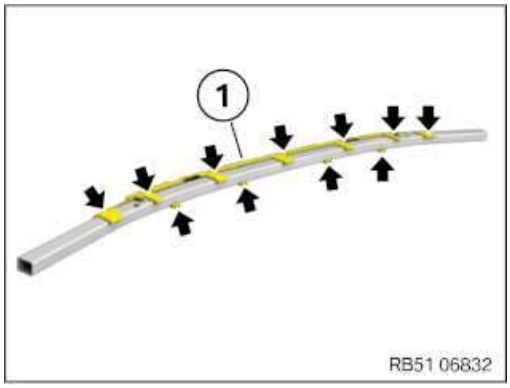
- Loosen screws (1).
- Work the support for front bottom bumper panel(2) out and remove it.

14 – When replacing the front bumper panel support at the bottom: Remounting the impact absorber

NOTICE

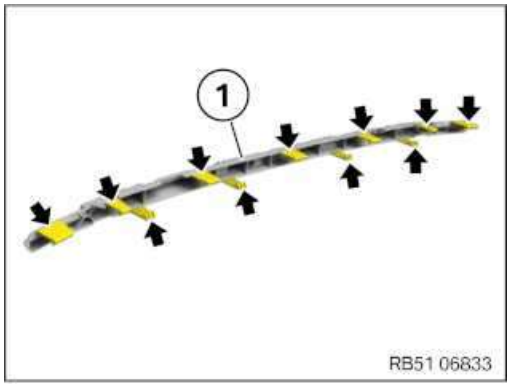
Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Release impact absorber (1) with all latch mechanisms (arrows) and remove.

Check



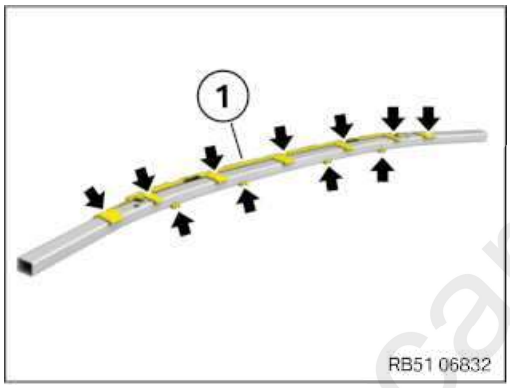
- Check all latch mechanisms (arrows) on impact absorber (1) for damage.

Result

» The latch mechanism is damaged.

Measure

- Renew impact absorber.

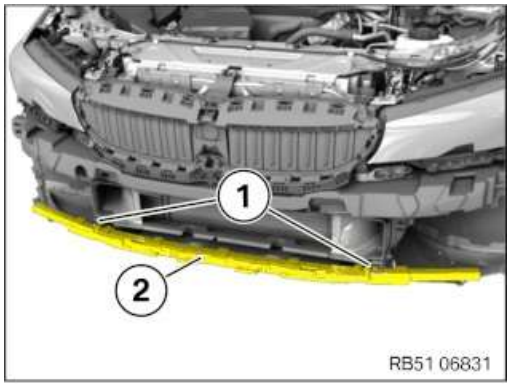


- Position impact absorber (1) and clip in with all latch mechanisms (arrows).

15 – Install support for bumper panel at front bottom

NOTICE

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



- Pull in support for bumper panel at front bottom (2) and position.
- Tighten the screws (1).

Support for bumper panel, bottom front on deformation element

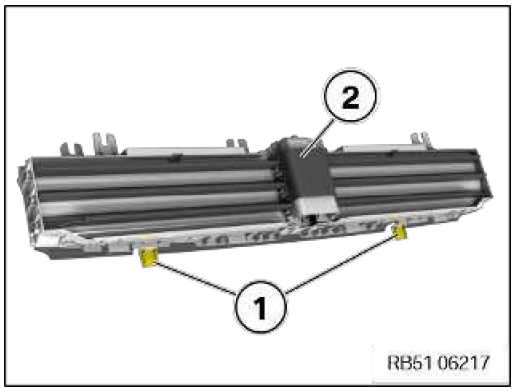
Combination oval-head machine screw		Tightening torque	10 Nm

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16 – Installing the bottom automatic air flap control

NOTICE

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



Check

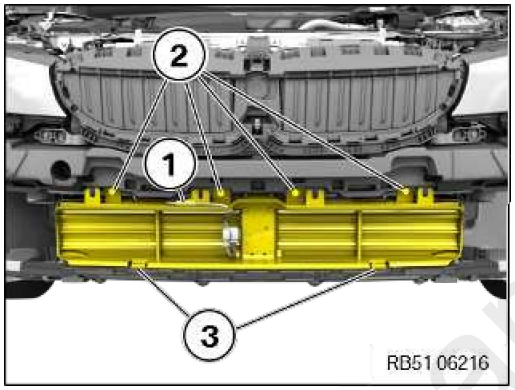
- Check the guides (1) on the bottom air flap control (2) for damage.

Result

» Guide is damaged.

Measure

- Renew the bottom air flap control.



- Connect and lock corresponding connectors.
- Position the bottom air flap control and feed in with the guides (3) .
- Tighten the screws (2).

Bottom air flap control on top bumper panel support

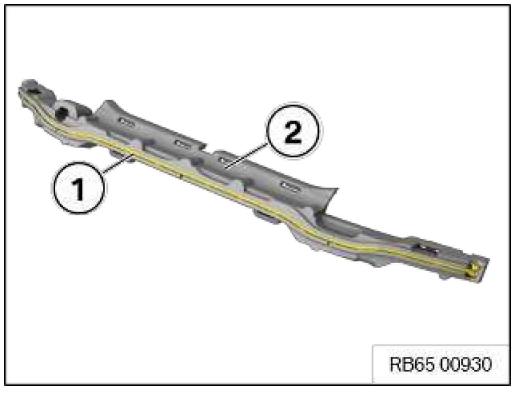
Oval-head screw		Tightening torque	4,6 Nm

- If applicable, clip in the vehicle wiring harness with the holder (1).

17 – Installing the pedestrian protection sensor

NOTICE

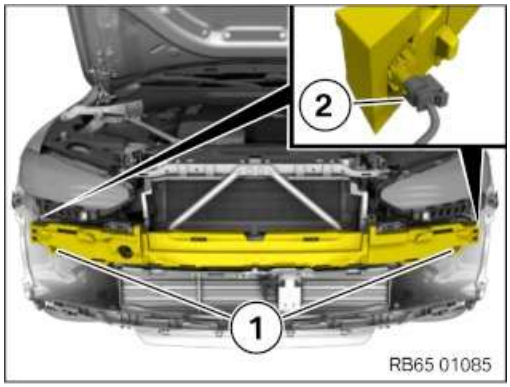
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check the impact absorber (2) for damage.

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

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

18 – Connecting all battery earth leads

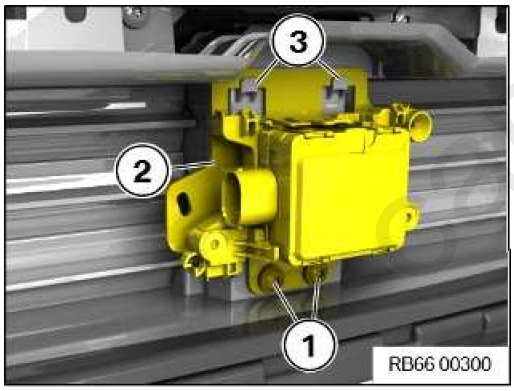


- See additional information.

19 – If installed: Installing front radar sensor (FRS) with bracket

NOTICE

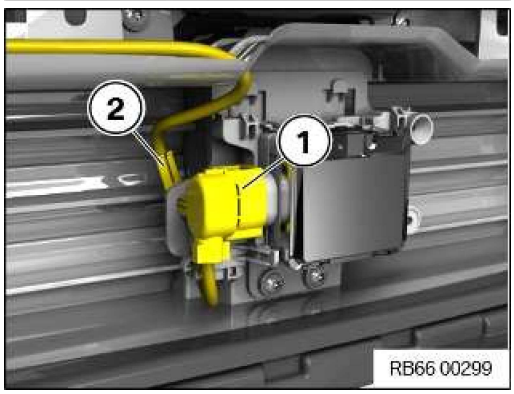
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the front radar sensor (FRS) with the holder (2) in the tabs (3) .
- Position the holder (2) at the mark made during removal.
- Tighten the screws (1).

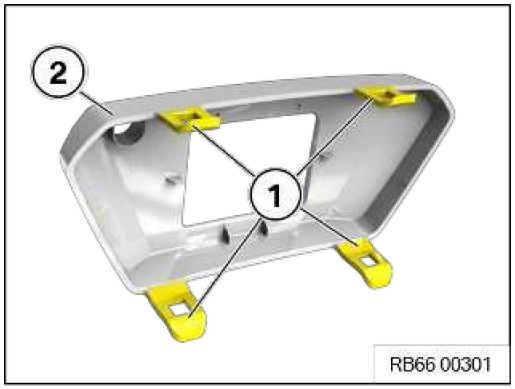
Front radar sensor (FRS) / (FRSF) holder to support

Combination oval-head machine screw		Tightening torque	8 Nm



- Clip in the vehicle wiring harness including bracket. (2)
- Connect connectors (1) and lock.

Check



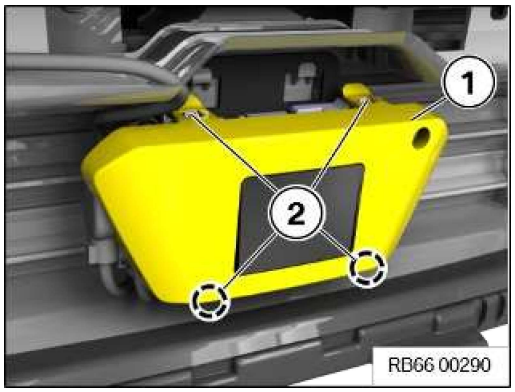
- Check tabs (1) on cover(2) for damage.

Result

» Tabs (2) are damaged.

Measure

- Renew the cover.



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

▸ **Adjusting front radar sensor (FRS)**

TECHNICAL INFORMATION

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

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

TECHNICAL INFORMATION

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

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

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

▹ **Checking vehicle and components for damage**

Check

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

Result

» Damage or deformation.

Measure

- Identify and renew damaged, deformed vehicle parts.

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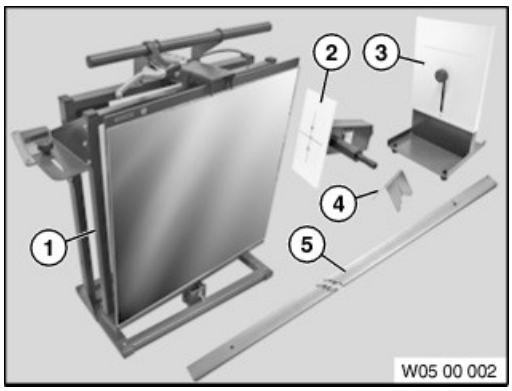
Result

» No damage or deformation

Measure

- Adjust the front radar sensor (FRS).

◁



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



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



NOTICE

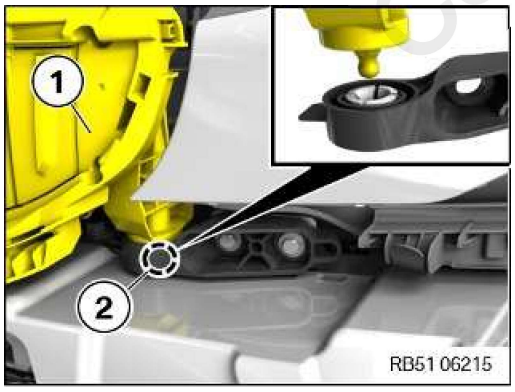
Schematic diagram is for example purposes. Some parts may differ in certain details.

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

Standard tools:

(Shaft length > 90 mm)

20 – Insert top automatic air flap control



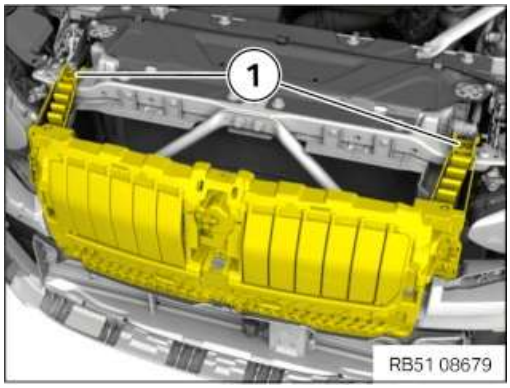
NOTICE

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

NOTICE

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

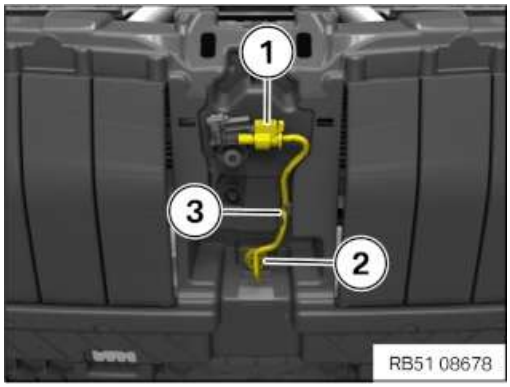
- Position the top air flap control (1).
- Connect and lock the associated connectors.
- Feed in the air flap control (1) at the top and connect with the ball head (2).



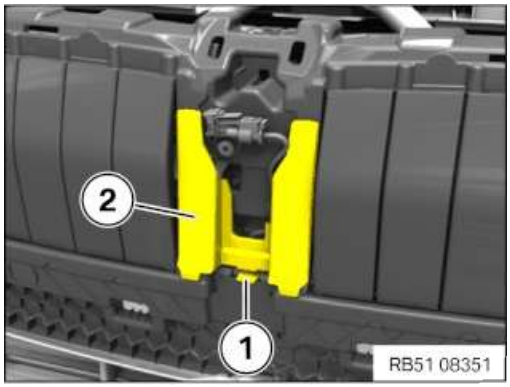
- Tighten the screws (1).

Air flap control to front end

Oval-head screw with spring washer		Tightening torque	4 Nm

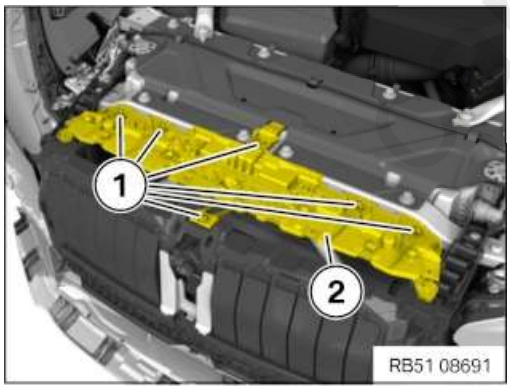


- Clip in the cable for the acceleration sensor with the holder (2) and feed it in the guide (3).
- Connect connectors (1) and lock.



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

21 – Installing top adapter for panel support



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

Adapter to the front panel

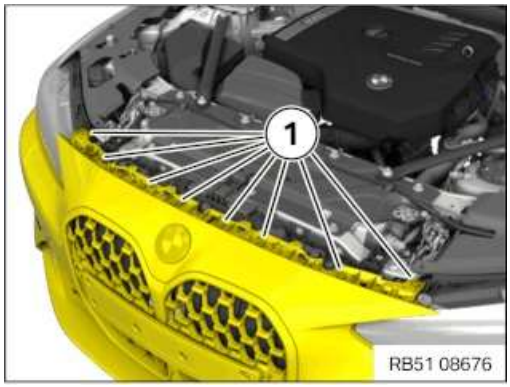
Oval-head screw with spring washer		Tightening torque	4 Nm

22 – Install bumper panel, front

NOTICE

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

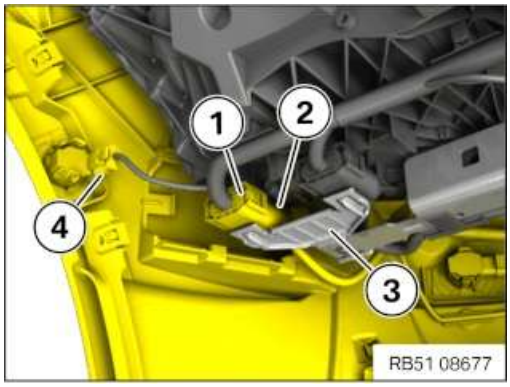
rdiagn.com



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

Bumper panel, front top

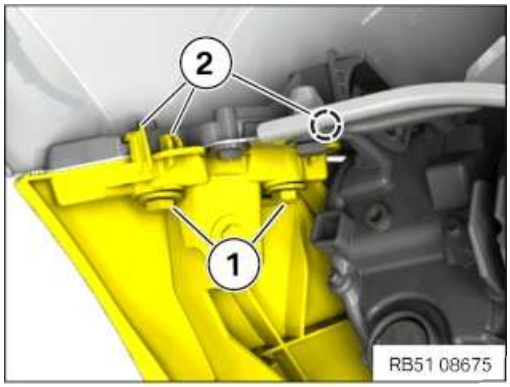
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

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



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

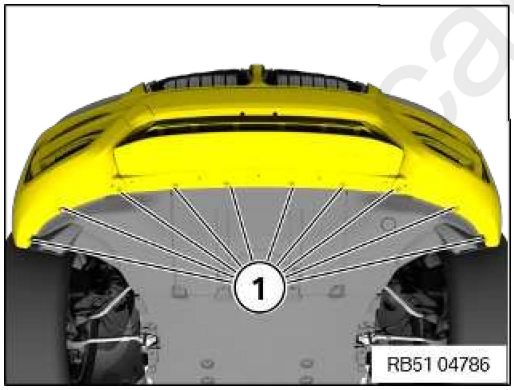
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

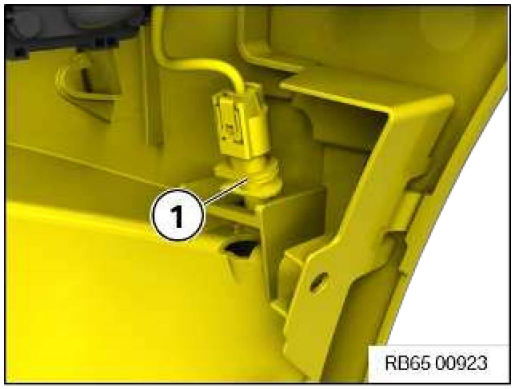


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

23 – Partially installing the temperature sensor



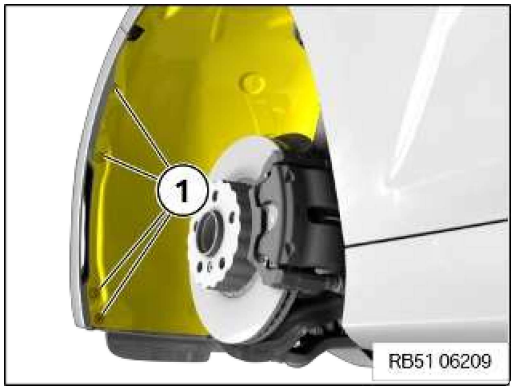
- Clip the temperature sensor (1) downwards into the front bumper panel.

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

NOTICE

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

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



NOTICE

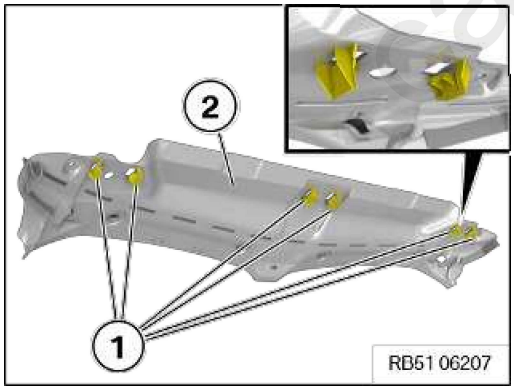
To provide a better overview: Schematic diagram without front wheel.

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

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

25 – Installing the cover for the centre engine compartment



Check

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

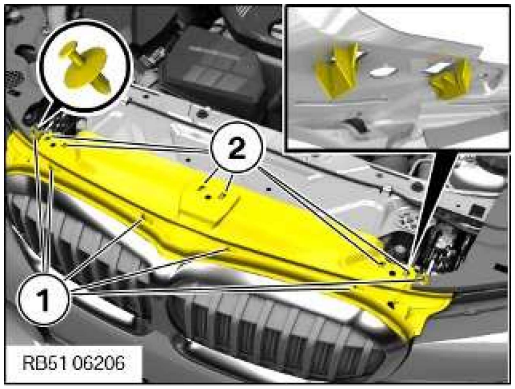
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

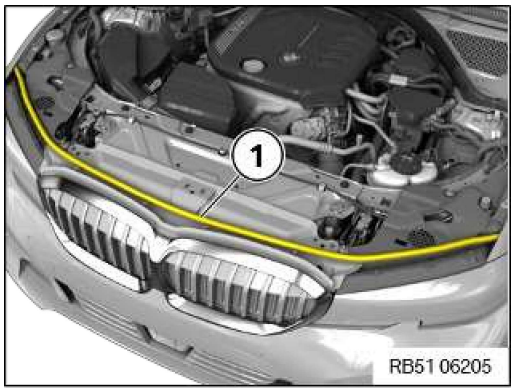


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

26 – Install the seal for the front bonnet

NOTICE

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



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

27 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

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

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



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

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

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



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



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

  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

Support for bumper panel, bottom front on deformation element — Used in step 15

Combination oval-head machine screw		Tightening torque	10 Nm

Bottom air flap control on top bumper panel support — Used in step 16

Oval-head screw		Tightening torque	4,6 Nm

Front radar sensor (FRS) / (FRSF) holder to support — Used in step 19

Combination oval-head machine screw		Tightening torque	8 Nm

Air flap control to front end — Used in step 20

Oval-head screw with spring washer		Tightening torque	4 Nm

Adapter to the front panel — Used in step 21

Oval-head screw with spring washer		Tightening torque	4 Nm

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Bumper panel, front top			Used in step 22
Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel			Used in step 22
Torx screw 5x35		Tightening torque	3 Nm

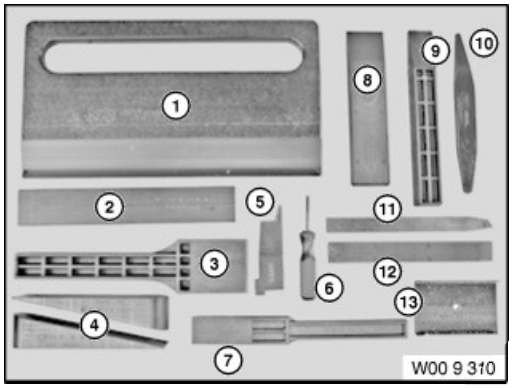
Front bumper panel to underbody protection			Used in step 22
Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front			Used in step 24
Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Negative battery cable to 48-V battery			Used in step 27
Nut M8		Tightening torque	19 Nm

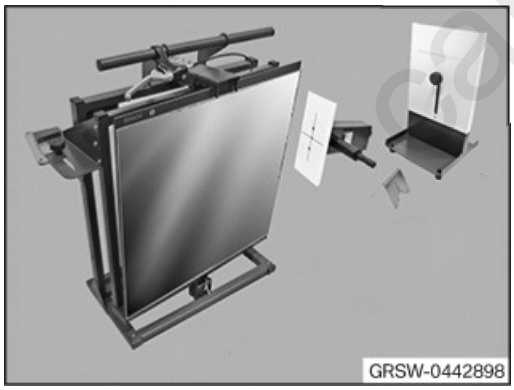
Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 9
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

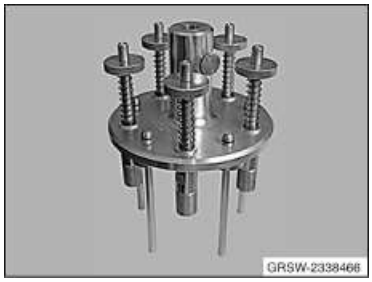
0 442 898 Measuring device



Common	Used in step 19
Usage	ACC adjusting device. Using this adjusting device, an ACC sensor built into the vehicle can be adjusted in the workshop. Is replaced from 11/2021 by 83 30 5 A40 812.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	02 04 05 (208)

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2 338 466 Holder



Common	Used in step 19
Usage	Replacement for holder 36 1 100 (0493771). Holder has longer guide pins and lengthened magnetic guides.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	

Links

Functional descriptions	Used in step
Mirror adjustment for start-up of the front radar sensor	19
Mirror adjustment for start-up of the front radar sensor	19
Mirror adjustment to start up the front radar sensor long range	19
Mirror adjustment to start up the front radar sensor long range	19

Repair instructions (PRE)	Used in step
Notes on 48-V battery	127

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
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61 20 900 Disconnecting and connecting battery earth lead	218
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61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
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61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
66 31 010 Instructions for ACC adjusting device	19

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51 11 159 Removing and installing/replacing trim on front bumper panel

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

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

Sourcing reference:

https://colorsystem-paint.com/

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

ISTA - HG99 - ColorSystem

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

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

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

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

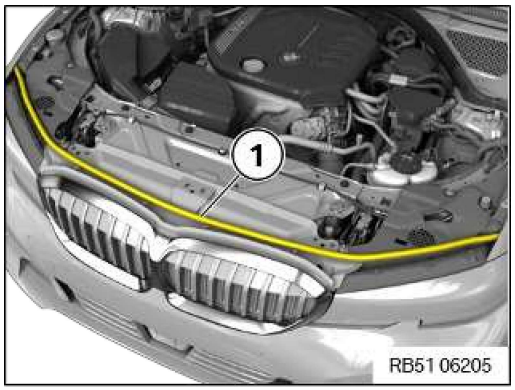
Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

NOTICE

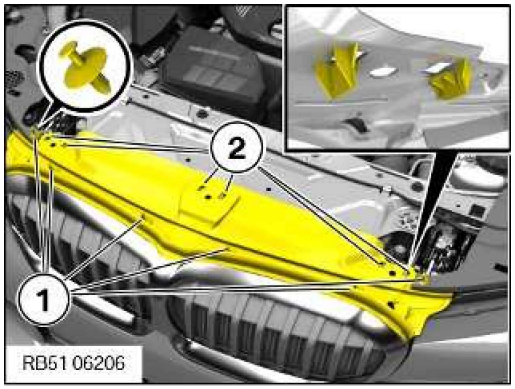
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover

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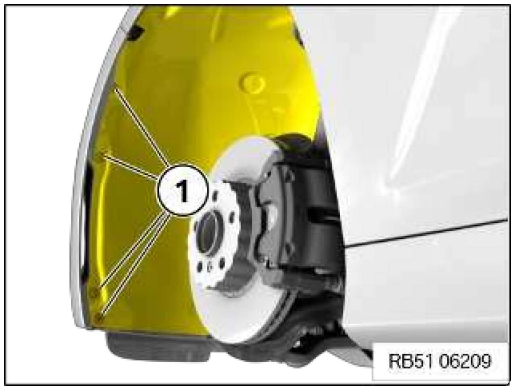
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

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

NOTICE

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

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

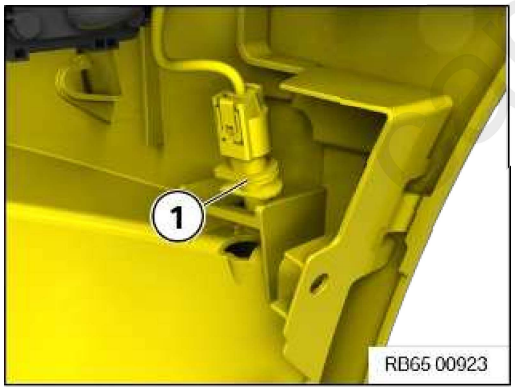


NOTICE

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

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

4 – Partially removing the temperature sensor

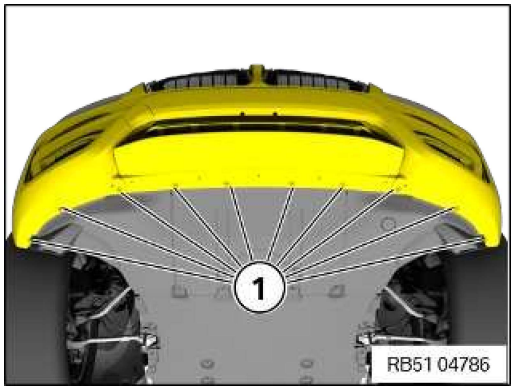


- Unclip temperature sensor (1) from the front bumper panel to the top.

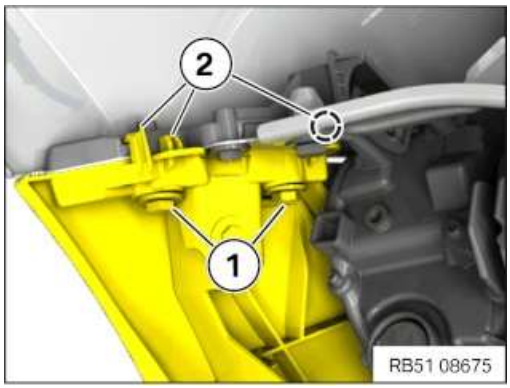
5 – Remove front bumper panel

NOTICE

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



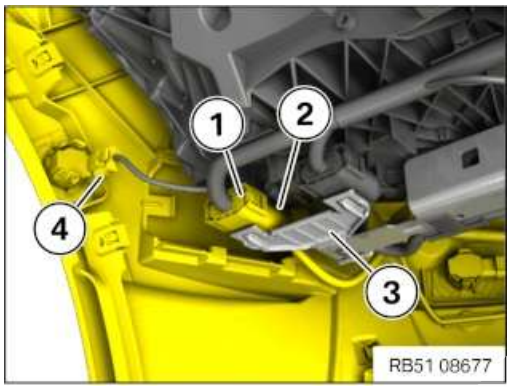
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

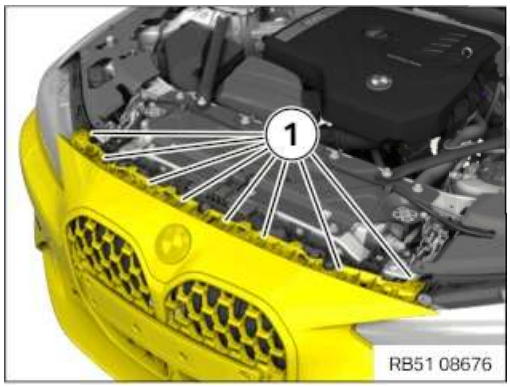
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

Perform the operations on the left and right side.

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



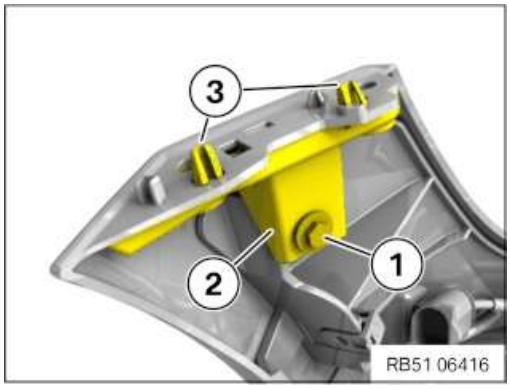
- Loosen screws (1).
- Remove the bumper panel towards the front.

6 – Partially removing the left and right bumper mounting

NOTICE

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

▸ **Partially removing the bumper mounting**



- Loosen screw (1).
- Release bumper mounting (2) with latch mechanisms (3) and guide it downwards.

7 – Removing fog light supports on left and right

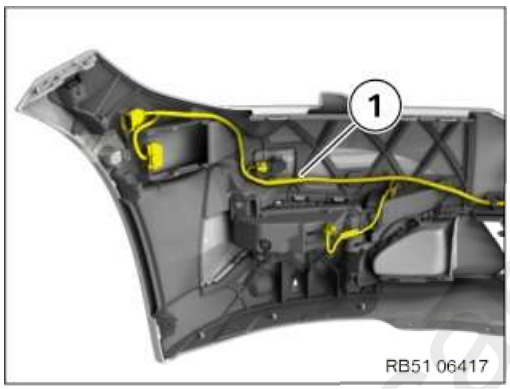
NOTICE

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

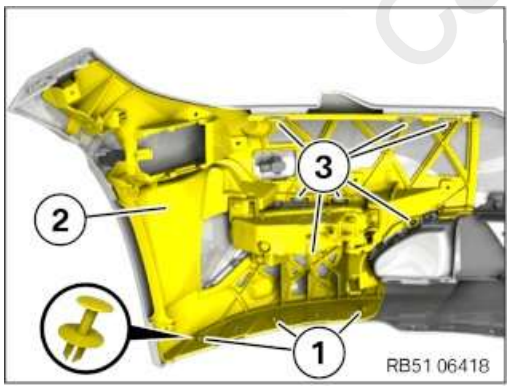
▸ **Remove the fog light support**

NOTICE

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



- Unlock all plug connections and disconnect.
- Release the vehicle wiring harness (1) with all the clips and remove from the working area.

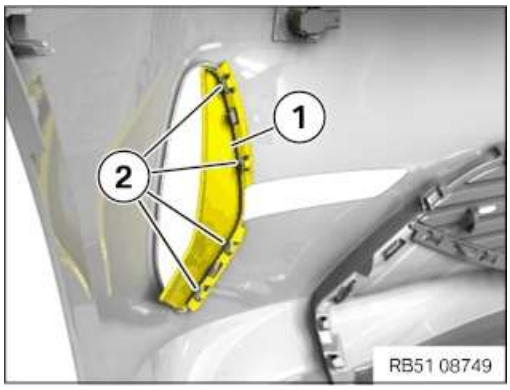


- Loosen the expanding rivet (1).
- Release the fog light support (2) from the latch mechanisms (3) and remove it.

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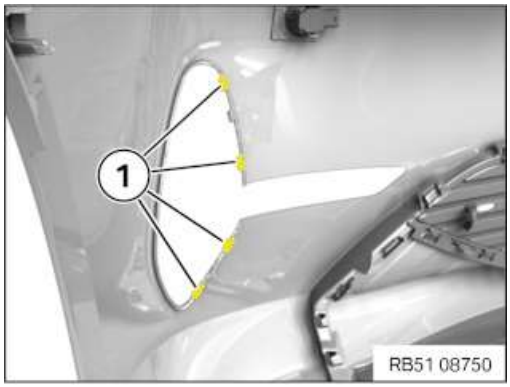
MAIN WORK

8 – Removing the trim on the front bumper panel



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

9 – Installing the trim on front bumper panel



Check

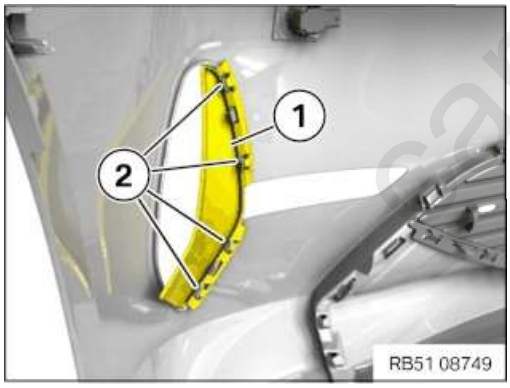
- Check the latch mechanisms (1) at the bumper panel for damage.

Result

» Latch mechanisms (1) are damaged.

Measure

- Renew the bumper panel.



- Fix the trim (1) and clip it in the latch mechanisms (2).

POSTPROCESSES

10 – Installing left and right fog light support

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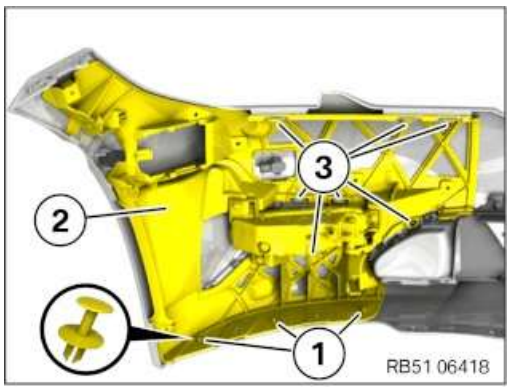
NOTICE

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

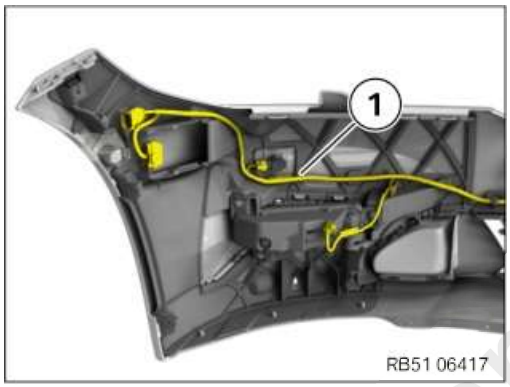
▸ **Install the fog light support**

NOTICE

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



- Place and position the fog light support (2).
- Clip in the fog light support (2) in the latch mechanisms (3) .
- Secure expanding rivet (1).



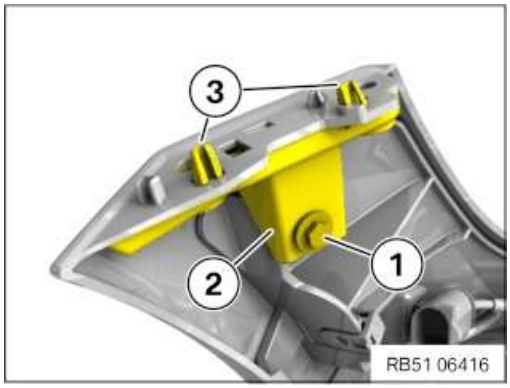
- Position wiring harness (1) and secure using all clips.
- Connect all connectors and lock.

11 – Partially installing the bumper mounting on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially installing the bumper mounting**



- Guide in bumper mounting (2) from down and clip it in with latch mechanisms (3) .
- Tighten down screw (1).

Bumper mounting, side front

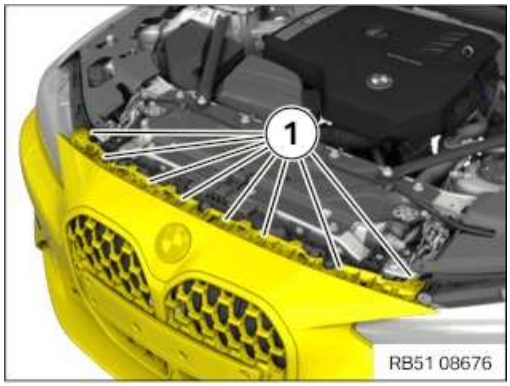
Screw		Tightening torque	3 Nm

12 – Install bumper panel, front

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NOTICE

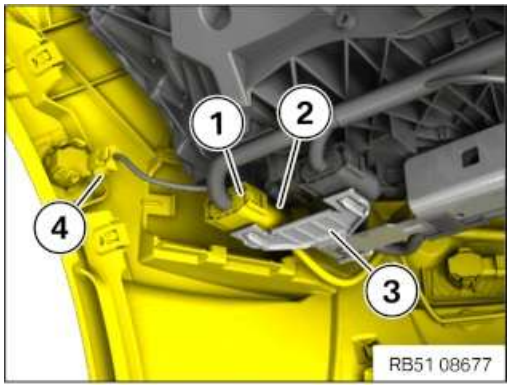
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

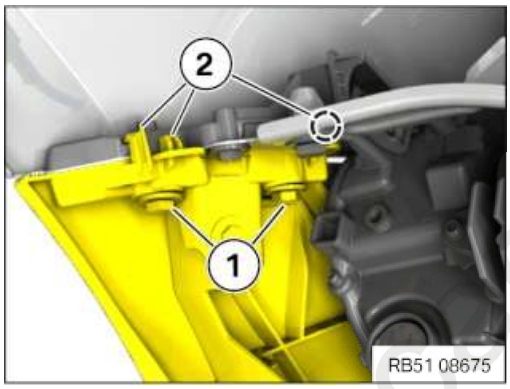
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

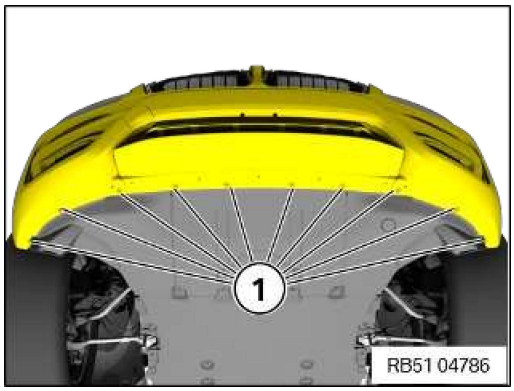
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

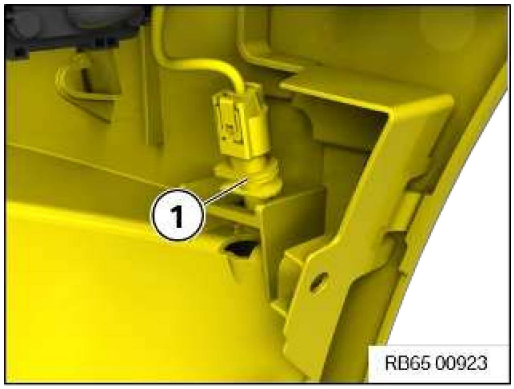


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

13 – Partially installing the temperature sensor



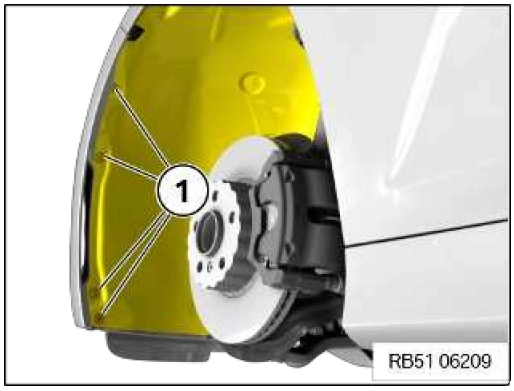
- Clip the temperature sensor (1) downwards into the front bumper panel.

14 – Partially installing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially installing front wheel arch trim panel**



NOTICE

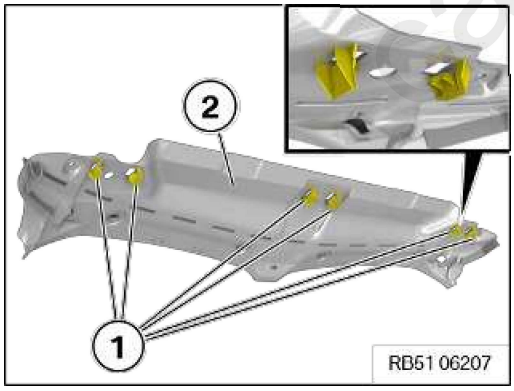
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

15 – Installing the cover for the centre engine compartment



Check

- Check the latch mechanisms (1) of the cover (2) for damage.

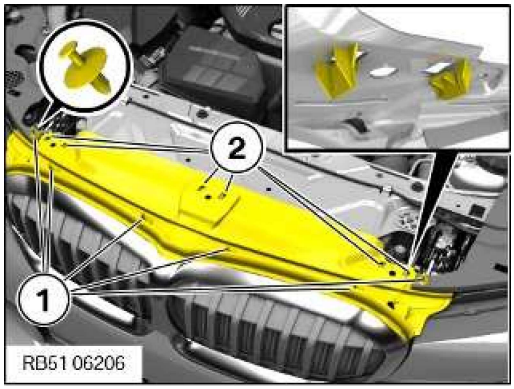
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

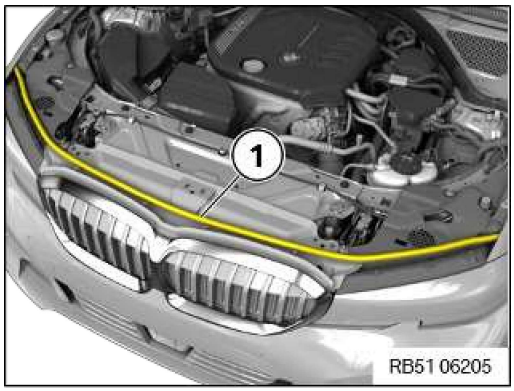


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

16 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

Additional Information

Overview of Tightening Torques

Bumper mounting, side front — Used in step 11

Screw		Tightening torque	3 Nm

Bumper panel, front top — Used in step 12

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 12

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 12

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front — Used in step 14

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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51 11 157 Replace bumper panel, front

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

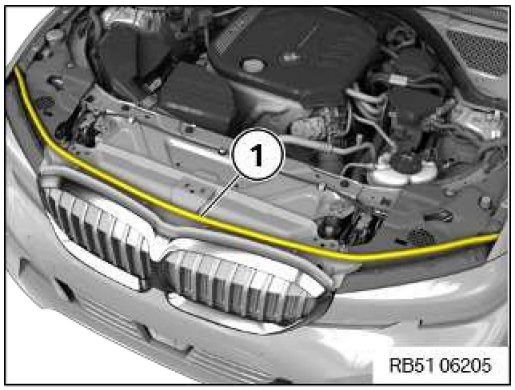
Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

NOTICE

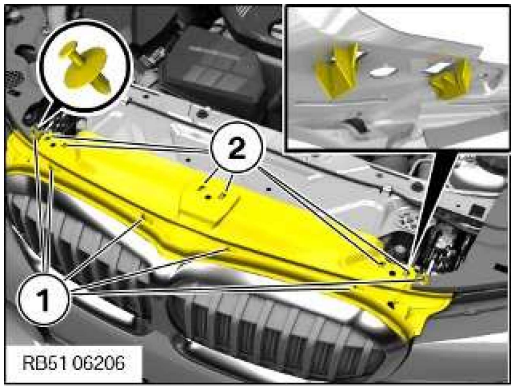
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover

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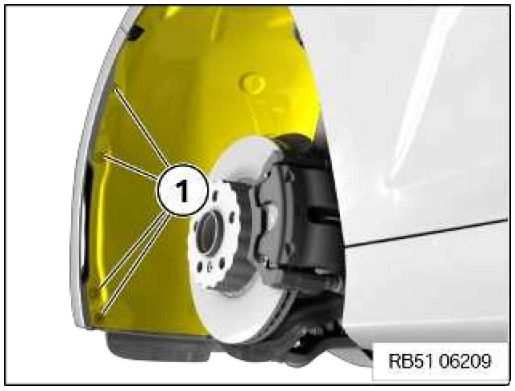
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

3 – Partially releasing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially removing front wheel arch trim panel**

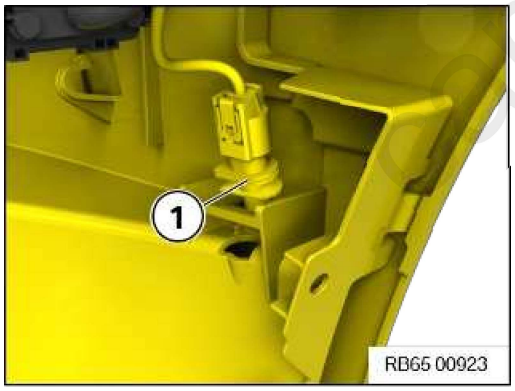


NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

4 – Partially removing the temperature sensor

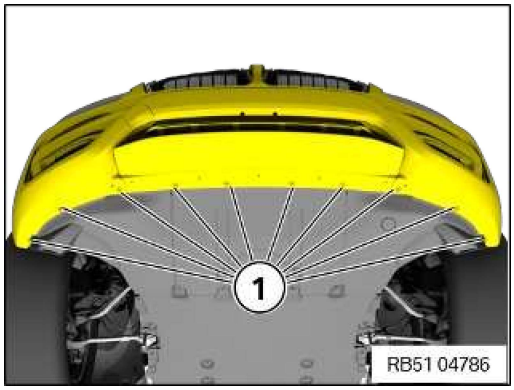


- Unclip temperature sensor (1) from the front bumper panel to the top.

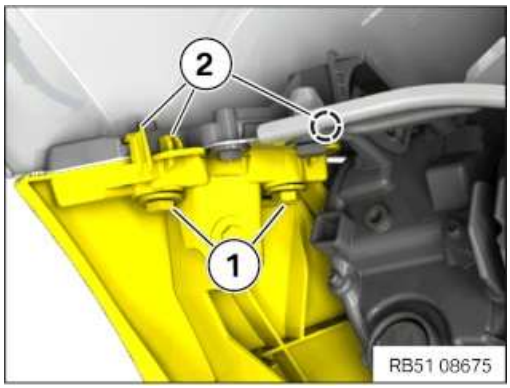
5 – Remove front bumper panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



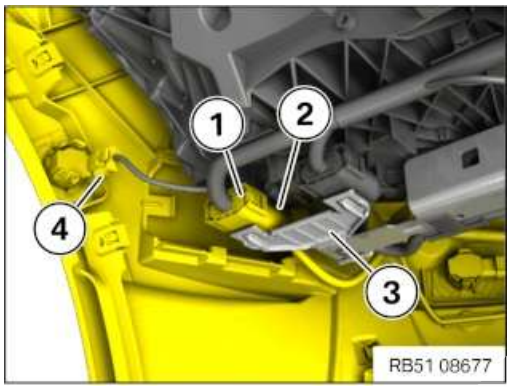
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

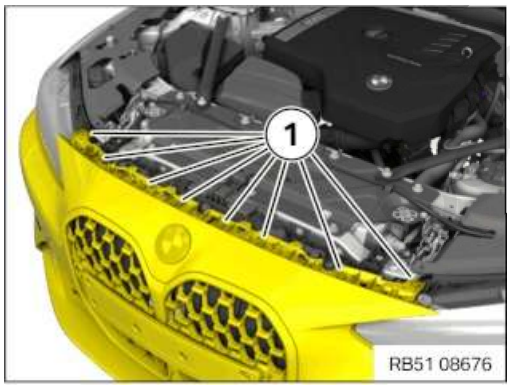
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

Perform the operations on the left and right side.

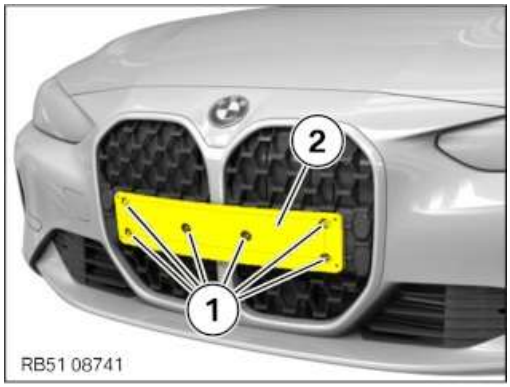
- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



- Loosen screws (1).
- Remove the bumper panel towards the front.

MAIN WORK

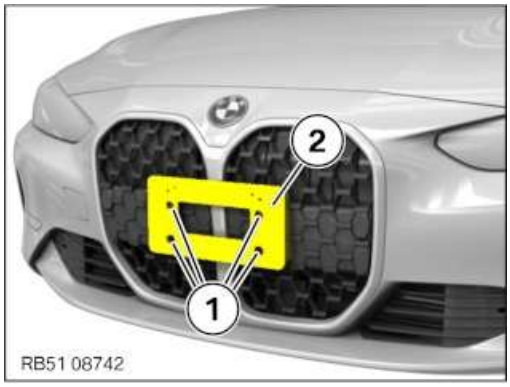
6 – Removing the number plate baseplate for number plate at front



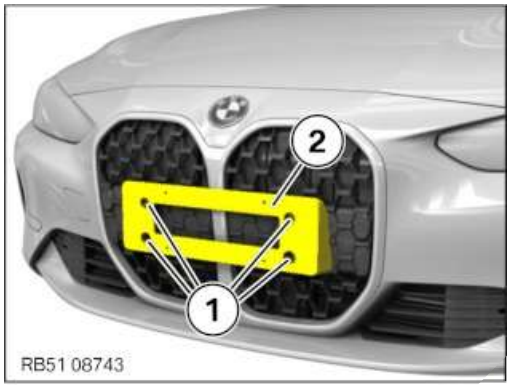
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

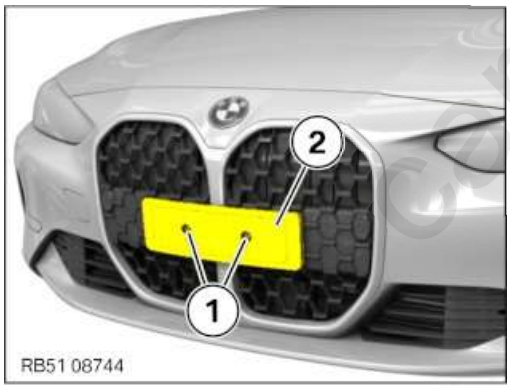
- **For European version**
- Loosen screws (1).
- Remove the number plate baseplate (2) to the front.



- **For US version and Japanese version:**
- Loosen screws (1).
- Remove the number plate baseplate (2) to the front.



- **For Chinese version:**
- Loosen screws (1).
- Remove the number plate baseplate (2) to the front.



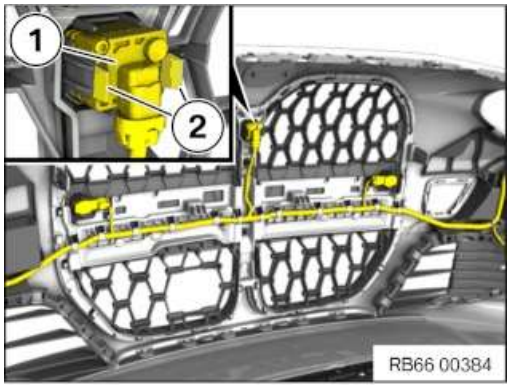
- **For Switzerland equipment specification:**
- Loosen screws (1).
- Remove the number plate baseplate (2) to the front.

7 – Remove front ornamental grille

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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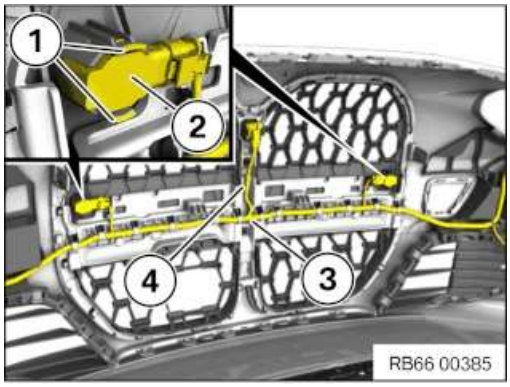


NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Release the front camera (1) from the latch mechanisms (2) and feed out from the front ornamental grille.

  The front camera (1) remains connected to the wiring harness.

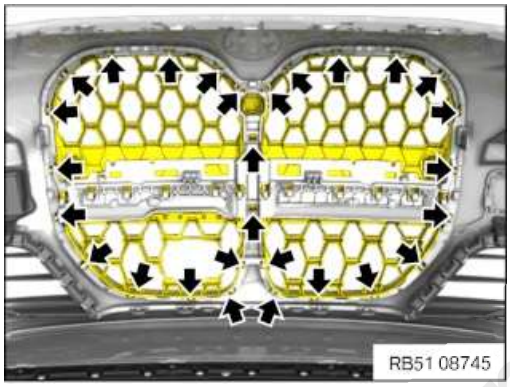


NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Unlock the latch mechanisms (1) and feed out the ultrasonic sensors (2) out of the front ornamental grille.

  The ultrasonic sensors (2) remain connected to the wiring harness.
- Release the wiring harness (3) with the holder (4).
- Detach the wiring harness (3) from the holders on the front ornamental grille.



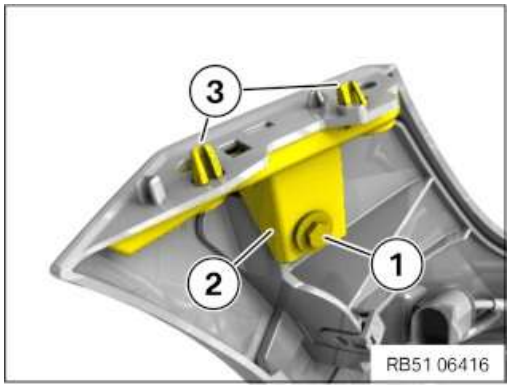
- Release the front ornamental grille from the latch mechanisms (arrows) and remove it.

8 – Partially removing the left and right bumper mounting

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially removing the bumper mounting**



- Loosen screw (1).
- Release bumper mounting (2) with latch mechanisms (3) and guide it downwards.

9 – Removing fog light supports on left and right

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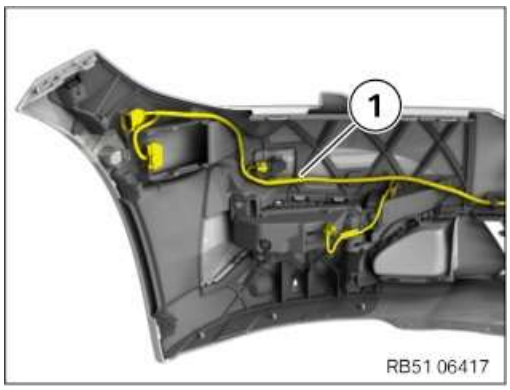
NOTICE

Description is for left component only. Procedure on the right side is identical.

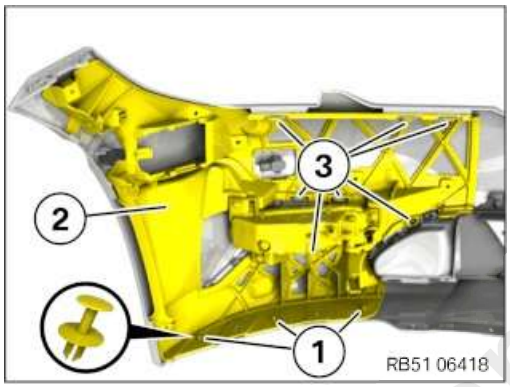
▸ **Remove the fog light support**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Unlock all plug connections and disconnect.
- Release the vehicle wiring harness (1) with all the clips and remove from the working area.



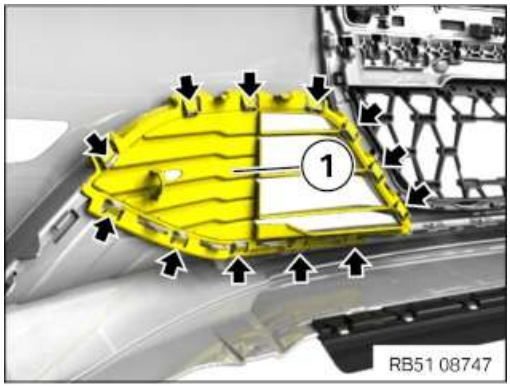
- Loosen the expanding rivet (1).
- Release the fog light support (2) from the latch mechanisms (3) and remove it.

10 – Removing the ornamental grille in bumper panel laterally on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the ornamental grille from the bumper panel at the side**



- Release the ornamental grille (1) from the latch mechanisms (arrows) and remove it.

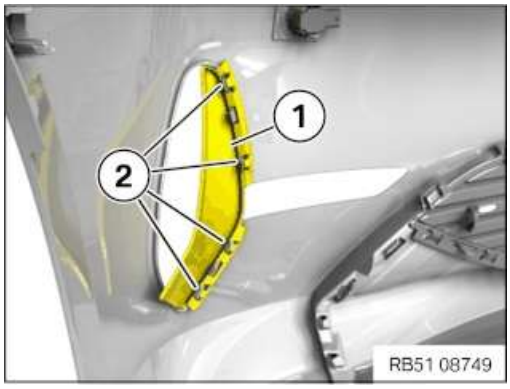
11 – Removing the trim on bumper panel at the front on the left and right

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NOTICE

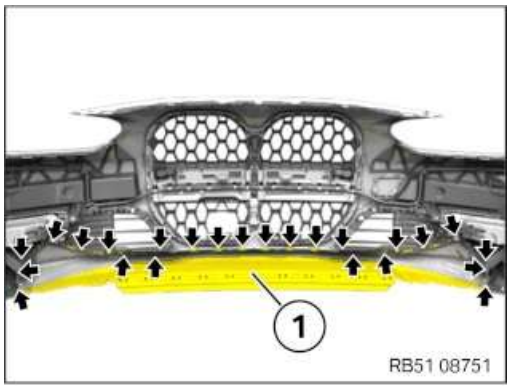
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the trim on the front bumper panel**



- Release the trim (1) from the latch mechanisms (2) and remove it.

12 – Removing the bumper panel lower section

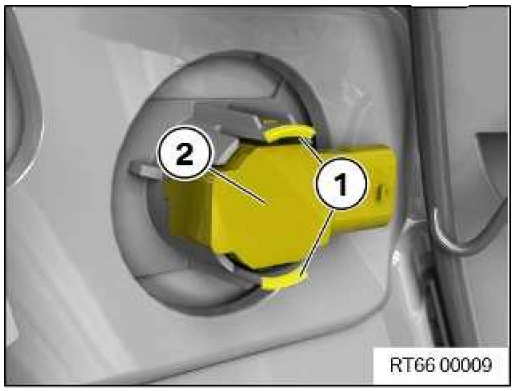


- Release the bumper panel lower section (1) from the latch mechanisms (arrows) and remove it.

13 – Remove ultrasonic sensor

NOTICE

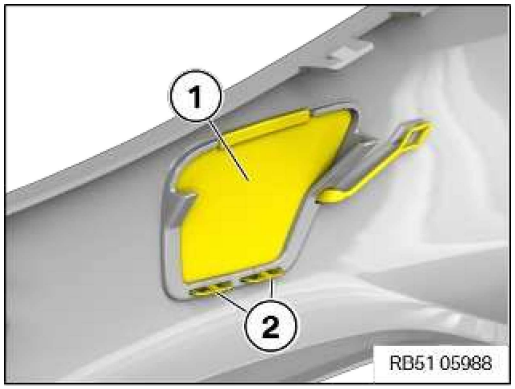
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Unlock latch mechanisms (1) and release ultrasonic sensor(2) from the bumper panel.
- Perform the step on all the other ultrasonic sensors.

14 – Removing towing eye cover

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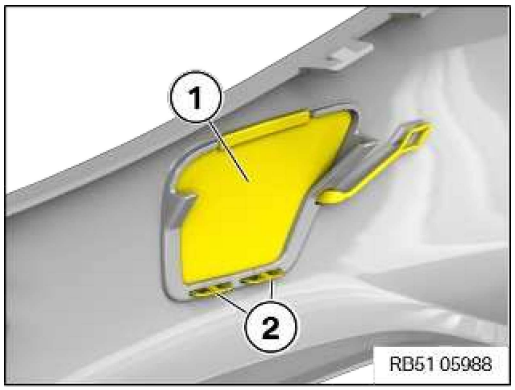


NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Unclip the cover of the towing eye (1) with the latch mechanisms (2).
- Feed out the tether and remove the cover of the towing eye (1).

15 – Installing the cover of the towing eye



NOTICE

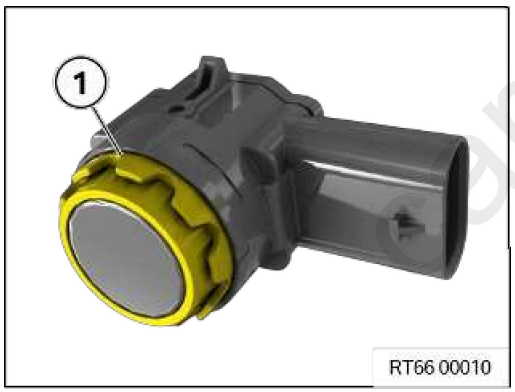
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Guide in tether.
- Insert the cover of the towing eye (1) and clip into place with the latch mechanisms (2).

16 – Installing ultrasonic sensor

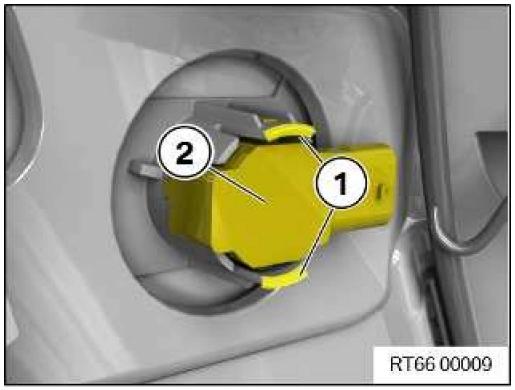
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check the decoupling ring (1) for damage and renew the decoupling ring as needed.

  The decoupling ring must not be missing.

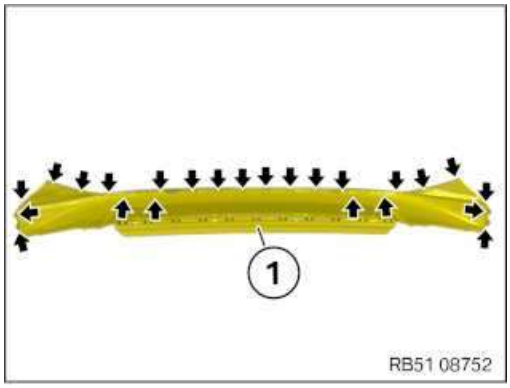


- Insert the ultrasonic sensor (2) and clip in to the latch mechanisms.(1)
- Perform the step on all the other ultrasonic sensors.

17 – Installing the bumper panel lower section

Check

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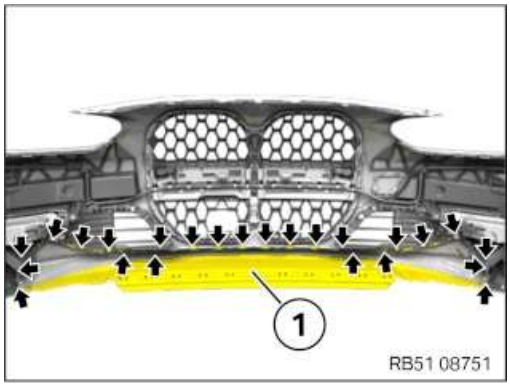
- Check the latch mechanisms (arrows) on the bumper panel lower section (1) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew bumper panel lower section (1).



- Position bumper panel lower section (1) and clip it into the latch mechanisms (arrows).

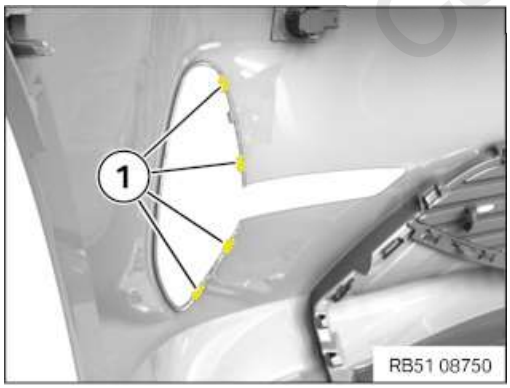
18 – Installing trim on front left and right bumper panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the trim on front bumper panel**

Check



- Check the latch mechanisms (1) at the bumper panel for damage.

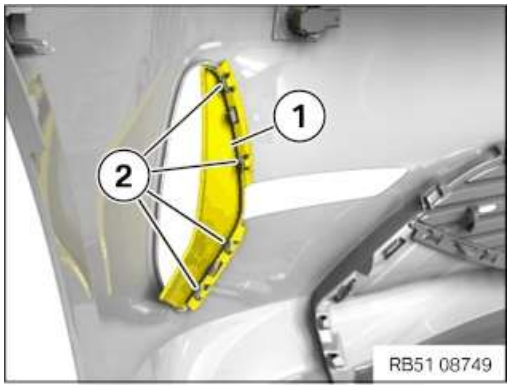
Result

» Latch mechanisms (1) are damaged.

Measure

- Renew the bumper panel.

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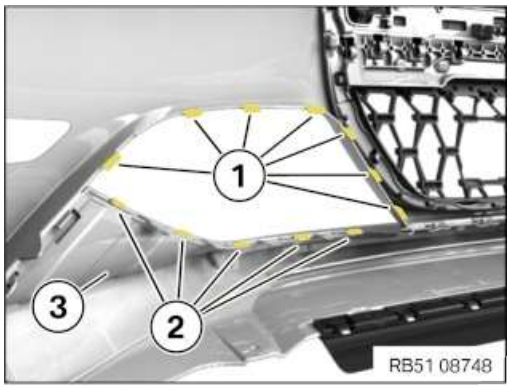
- Fix the trim (1) and clip it in the latch mechanisms (2).

19 – Installing the ornamental grille laterally in the bumper panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the ornamental grille in the bumper panel on the side**



Check

- Check the latch mechanisms (1) at the bumper panel for damage.
- Check the latch mechanisms (2) at the bumper panel lower section (3) for damage.

Result

» Latch mechanisms (1) are damaged.

Measure

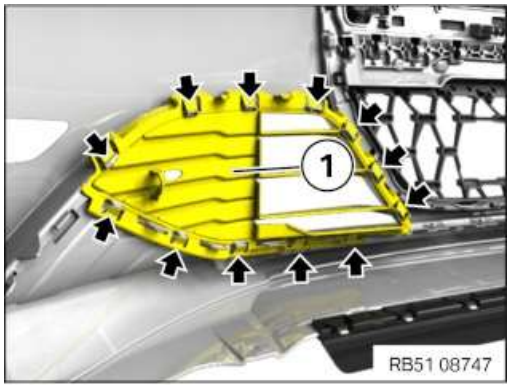
- Renew the bumper panel.

Result

» Latch mechanisms (2) are damaged.

Measure

- Renew bumper panel lower section (3).



- Position the ornamental grille (1) and clip it in the latch mechanisms (arrows).

20 – Installing left and right fog light support

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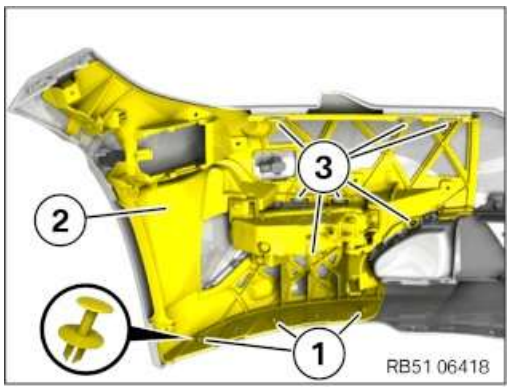
NOTICE

Description is for left component only. Procedure on the right side is identical.

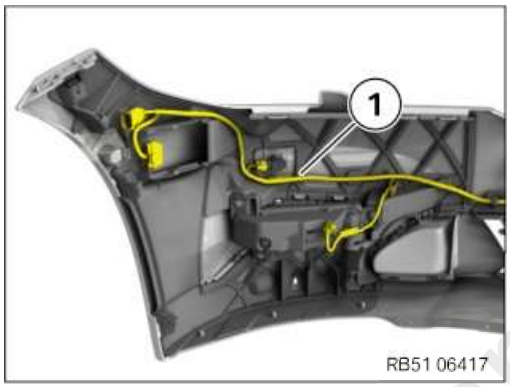
▸ **Install the fog light support**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Place and position the fog light support (2).
- Clip in the fog light support (2) in the latch mechanisms (3) .
- Secure expanding rivet (1).



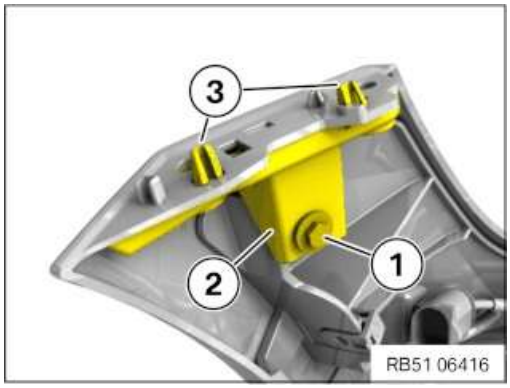
- Position wiring harness (1) and secure using all clips.
- Connect all connectors and lock.

21 – Partially installing the bumper mounting on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially installing the bumper mounting**



- Guide in bumper mounting (2) from down and clip it in with latch mechanisms (3) .
- Tighten down screw (1).

Bumper mounting, side front

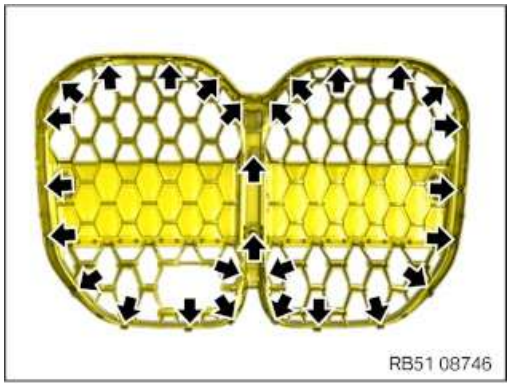
Screw		Tightening torque	3 Nm

22 – Install front ornamental grille

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

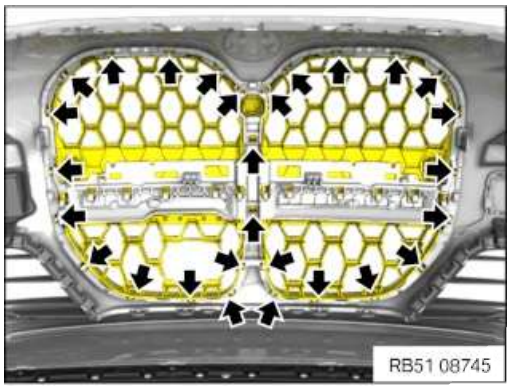
- Check latch mechanisms (arrowed) for damage.

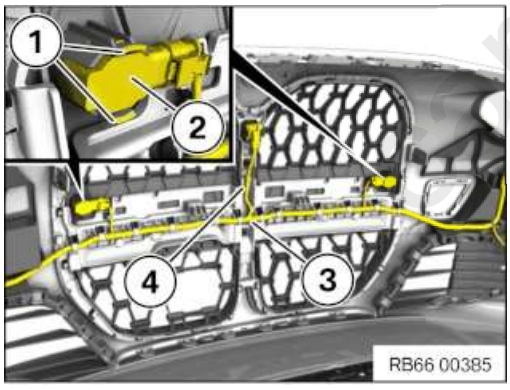
Result

» The latch mechanisms (arrows) are damaged.

Measure

- Renew the front ornamental grille, centre.
- Clip the front ornamental grille with latch mechanisms (arrows) into the bumper panel.

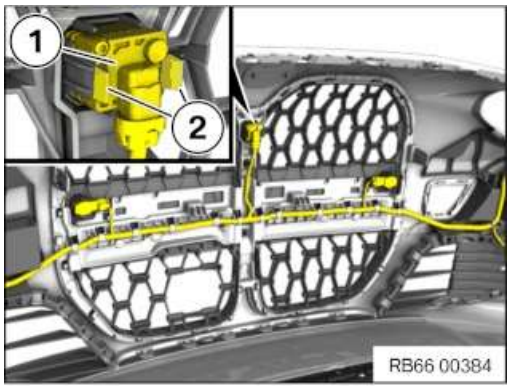




NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Attach the wiring harness (3) to all the holders on the front ornamental grille.
- Clip in the wiring harness (3) with the holder (4).
- Feed in the ultrasonic sensor (2) to the front ornamental grille and clip into the latch mechanisms (1).



NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

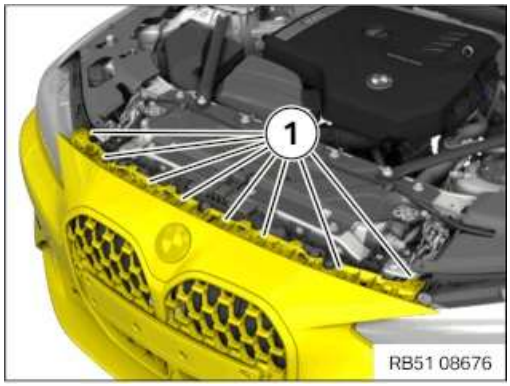
- Feed in the front camera (1) to the front ornamental grille and clip into the latch mechanisms (2).

POSTPROCESSES

23 – Install bumper panel, front

NOTICE

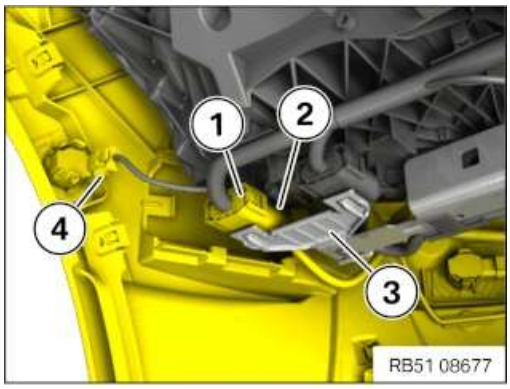
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

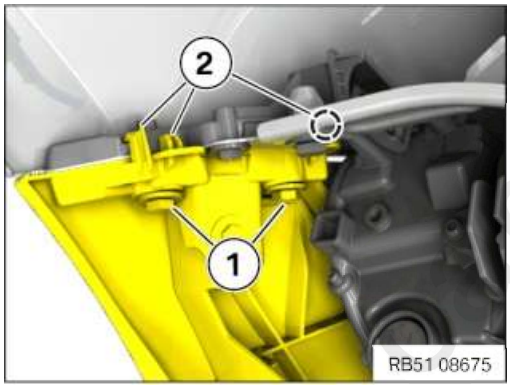
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

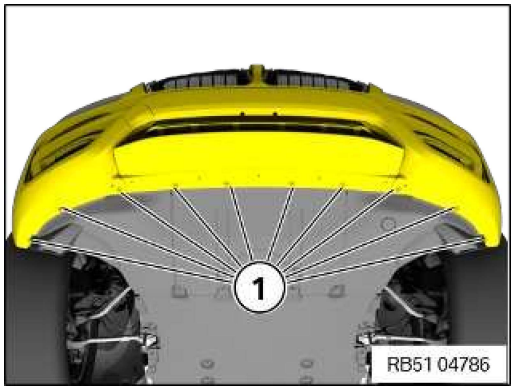
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

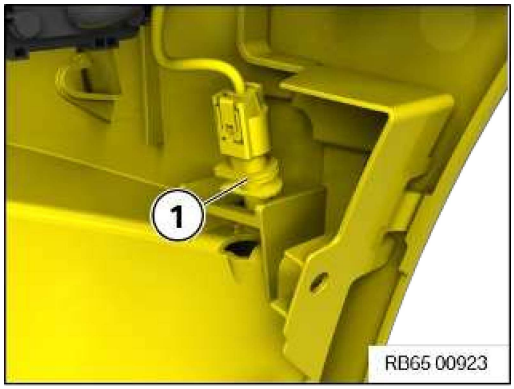


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

24 – Partially installing the temperature sensor



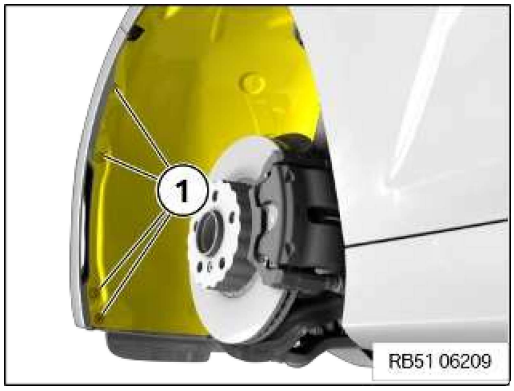
- Clip the temperature sensor (1) downwards into the front bumper panel.

25 – Partially installing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially installing front wheel arch trim panel**



NOTICE

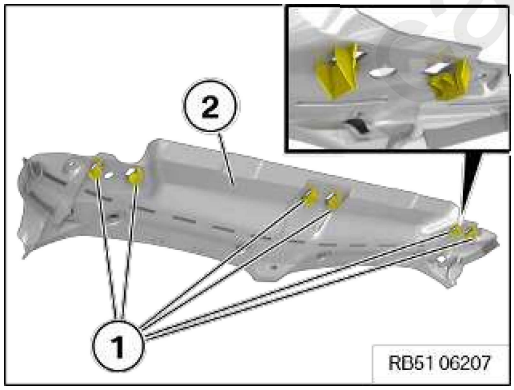
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

26 – Installing the cover for the centre engine compartment



Check

- Check the latch mechanisms (1) of the cover (2) for damage.

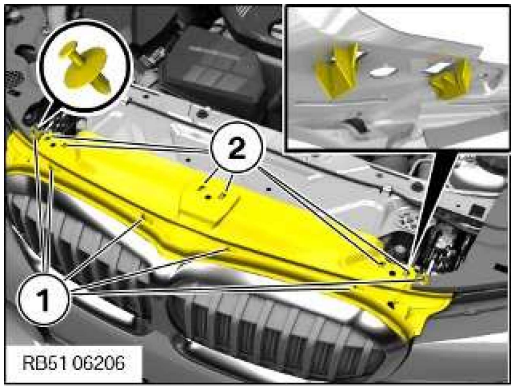
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

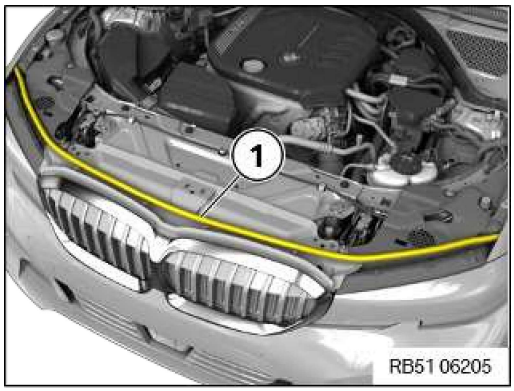


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

27 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



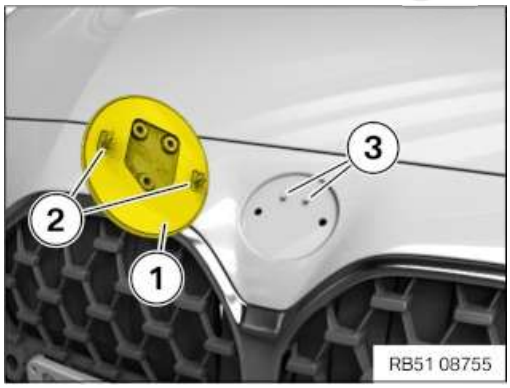
- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

28 – Installing the front badge

TECHNICAL INFORMATION

Notes on component bonding using adhesive tape form the basis for these repair instructions and must be observed without fail.

For more information see: 51 00 ... Notes on component bonding with adhesive tape



- If necessary, remove any adhesive residue from the bumper panel.
- Clean the adhesive area on the bumper panel with cleaning agent R2.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Adhere to the air drying time of 2 minutes.
- Thread in badge (1) with tethers (2), position it correctly on guides (3) and press it firmly.

29 – Installing the number plate baseplate for the front number plate

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WARNING

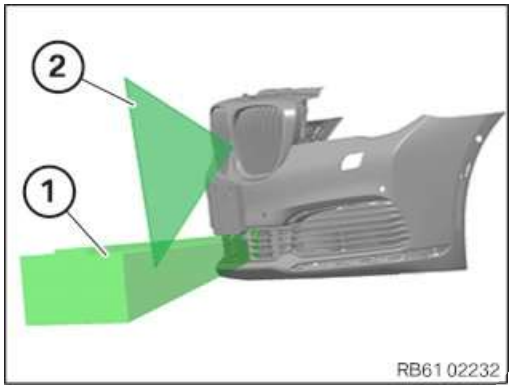
Malfunction of the sensors of the driver assistance systems.

Incorrect assembly of the number plate leads to a malfunction of the sensors of the driver assistance systems.

- Fix number plate and number plate baseplate only according to the dimensions specified in the repair instructions.
- Secure number plate and number plate baseplate on the bumper panel **without pre-drilling** , otherwise there is a risk of damage to the underlying cables.
- Only use number plate baseplates that have been approved for the vehicle type.

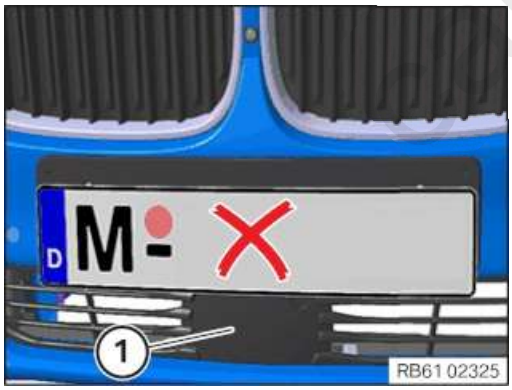
TECHNICAL INFORMATION

The number plate must be precisely mounted on the number plate baseplate and must not protrude on the underside.
The number plate carrier must not be installed on the front bumper.



▸ **Positioning the number plate**

- Position the number plate or number plate baseplate correctly.
- Make sure that the angle of radiation (1) of the ACC sensor is not obstructed.
- Make sure that the angle of radiation (2) of the front camera is not obstructed.



▹ **Detect possible fault pattern due to incorrect assembly and rectify**

Check

- Check number plate for correct position.

Result

» The number plate is positioned too low.

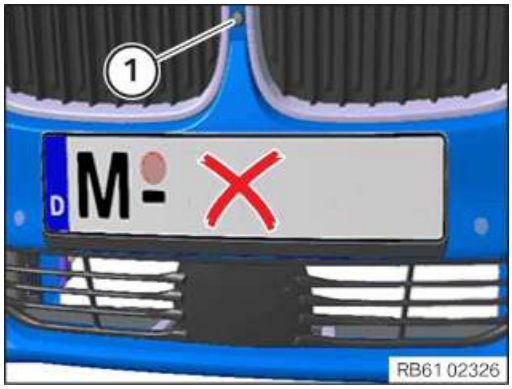
» The angle of radiation of the ACC sensor (1) is partially covered.

» Malfunction of the ACC sensor (1) is possible.

Measure

- Position the number plate correctly.

Check



- Check number plate for correct position.

Result

» The number plate is positioned too high.

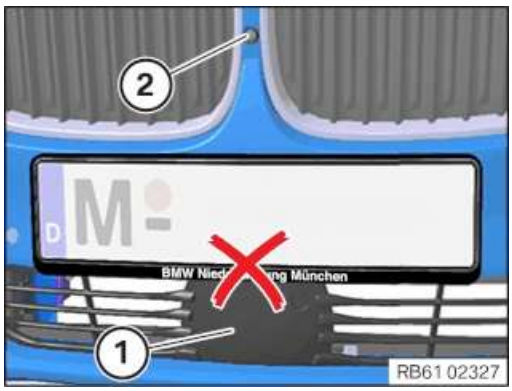
» The angle of radiation of the front camera (1) is partially covered.

Measure

- Position the number plate correctly.

Check

- Check number plate for correct position.



Result

» The angle of radiation of the ACC sensor (1) is partially covered.

» Malfunction of the ACC sensor (1) is possible.

» The angle of radiation of the front camera (2) is partially covered.

Measure

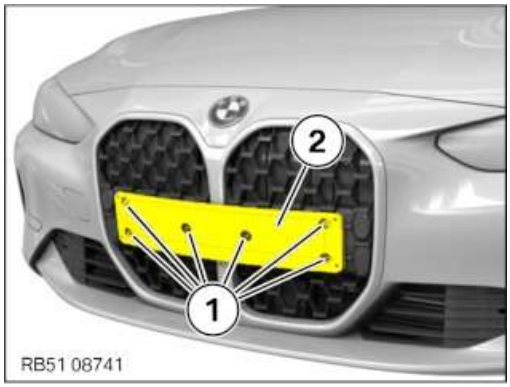
- Remove the number plate carrier.



- With Check Control messages due to incorrect assembly of the number plate or the number plate baseplate: Position the number plate or the number plate baseplate correctly.

◁

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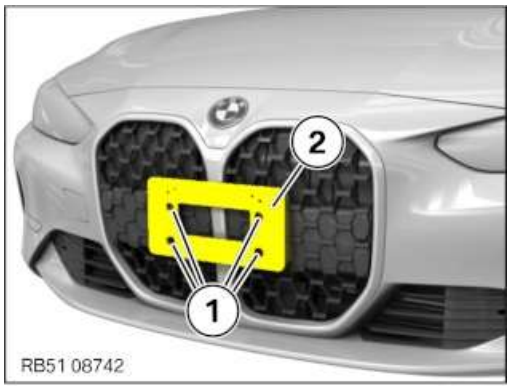
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- **For European version**
- Align the number plate baseplate (2) centrally in the embossed front ornamental grille.
- Screw in the screws (1) **without pre-drilling** and tighten.

License plate baseplate

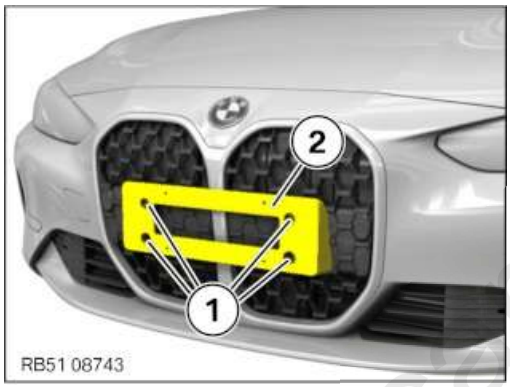
Oval-head screw		Tightening torque	2,5 Nm



- **For US version and Japanese version:**
- Align the number plate baseplate (2) centrally in the embossed front ornamental grille.
- Screw in the screws (1) **without pre-drilling** and tighten.

License plate baseplate

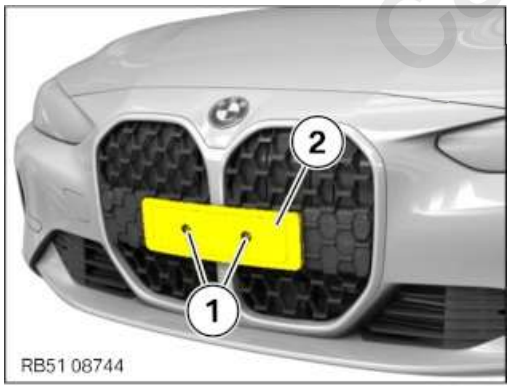
Oval-head screw		Tightening torque	2,5 Nm



- **For Chinese version:**
- Align the number plate baseplate (2) centrally in the embossed front ornamental grille.
- Screw in the screws (1) **without pre-drilling** and tighten.

License plate baseplate

Oval-head screw		Tightening torque	2,5 Nm



- **For Switzerland equipment specification:**
- Align the number plate baseplate (2) centrally in the embossed front ornamental grille.
- Screw in the screws (1) **without pre-drilling** and tighten.

License plate baseplate

Oval-head screw		Tightening torque	2,5 Nm

Additional Information

Overview of Tightening Torques

Bumper mounting, side front Used in step 21

Screw		Tightening torque	3 Nm

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Bumper panel, front top Used in step 23

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel Used in step 23

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection Used in step 23

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front Used in step 25

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

License plate baseplate Used in step 29

Oval-head screw		Tightening torque	2,5 Nm

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51 11 231 Replace front bumper panel lower section

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

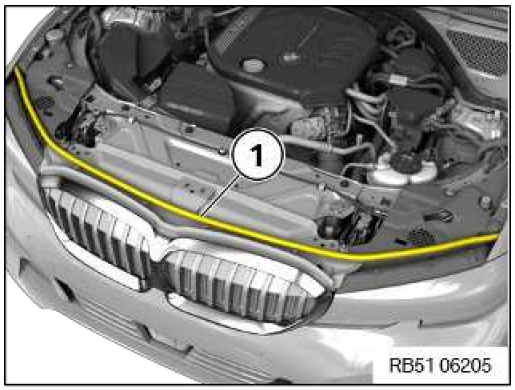
Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

NOTICE

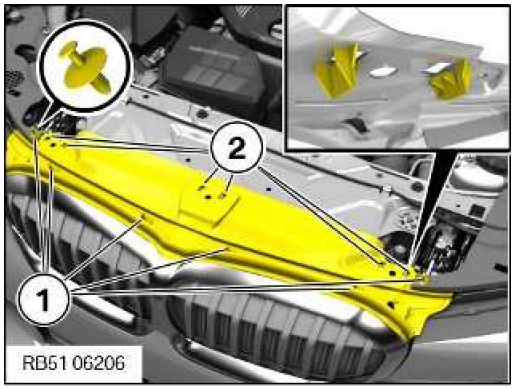
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover

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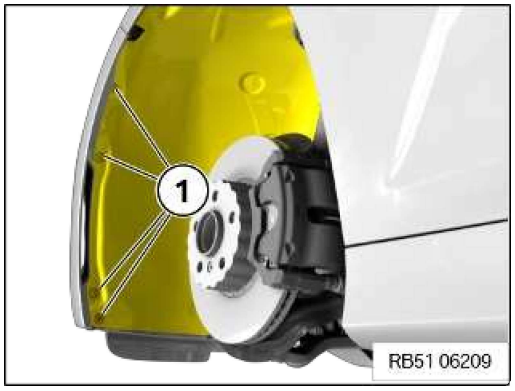
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

3 – Partially releasing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially removing front wheel arch trim panel**

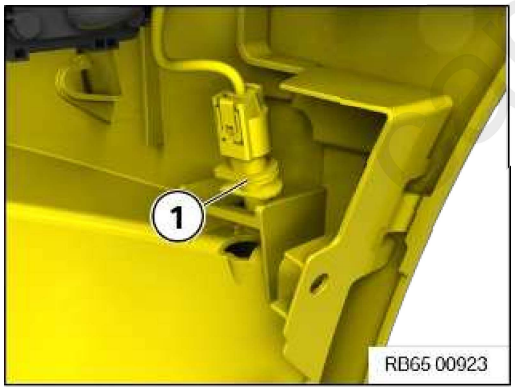


NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

4 – Partially removing the temperature sensor

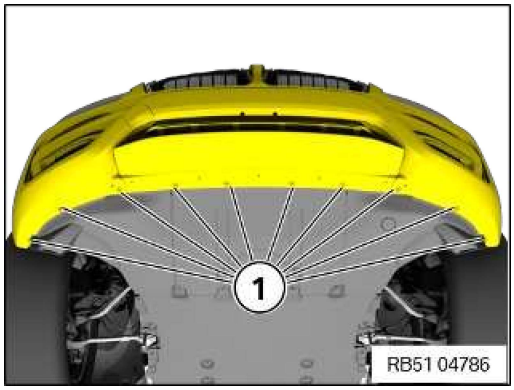


- Unclip temperature sensor (1) from the front bumper panel to the top.

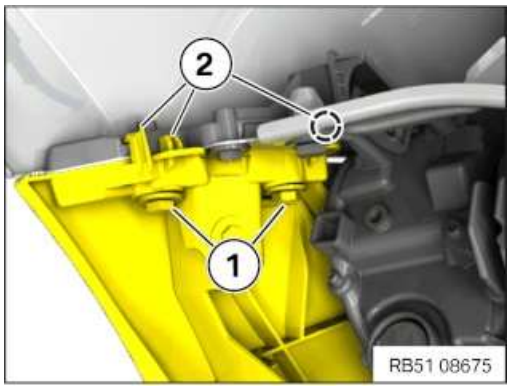
5 – Remove front bumper panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



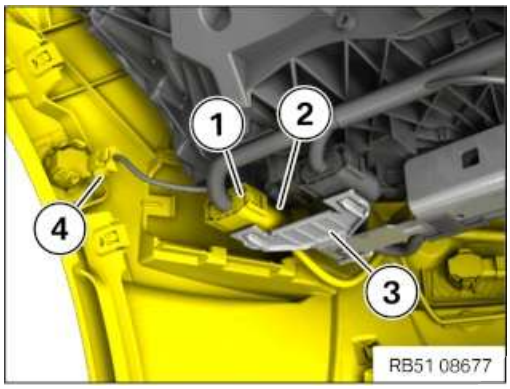
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

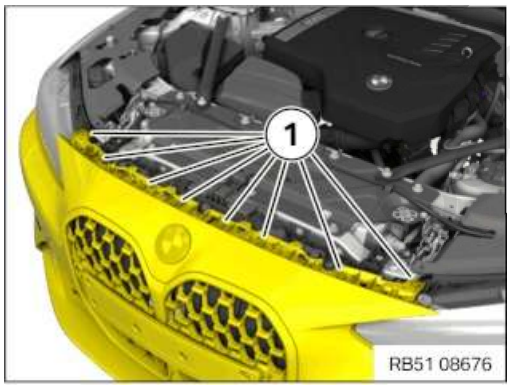
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

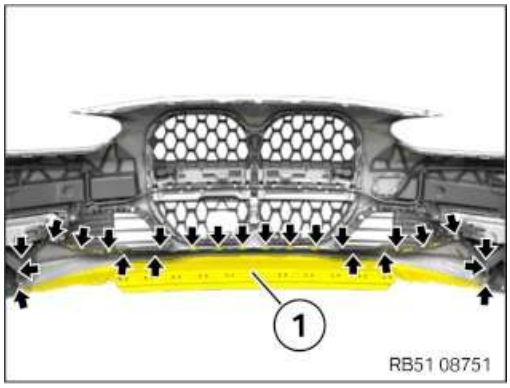
Perform the operations on the left and right side.

- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



- Loosen screws (1).
- Remove the bumper panel towards the front.

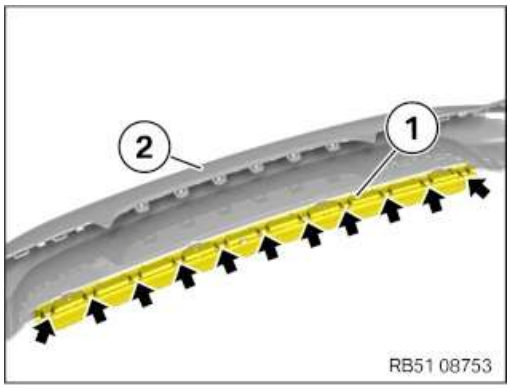
6 – Removing the bumper panel lower section



- Release the bumper panel lower section (1) from the latch mechanisms (arrows) and remove it.

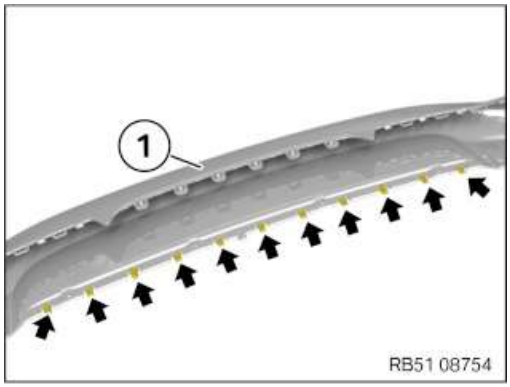
MAIN WORK

7 – Remounting the air guide



- Release the air guide (1) from the latch mechanisms (arrows) on the bumper panel lower section (2) and remove it.

Check



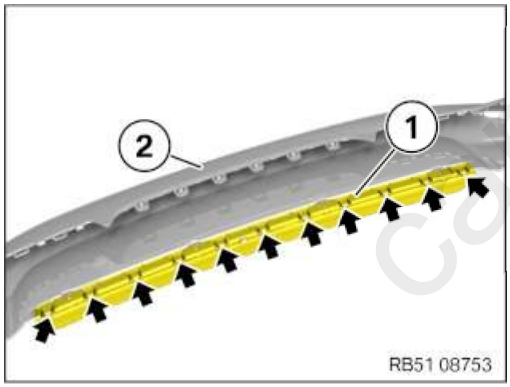
- Check the latch mechanisms (arrows) on the bumper panel lower section (1) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew bumper panel lower section (1).



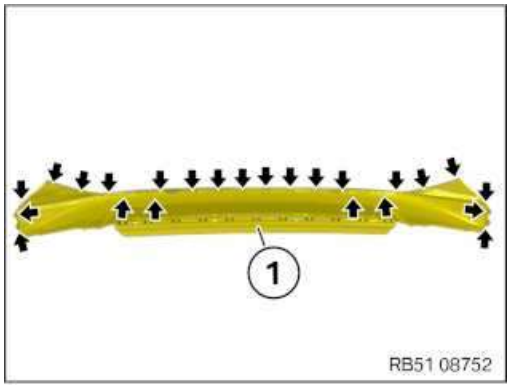
- Position air guide (1) and clip it into the latch mechanisms (arrows) on bumper panel lower section (2).

POSTPROCESSES

8 – Installing the bumper panel lower section

Check

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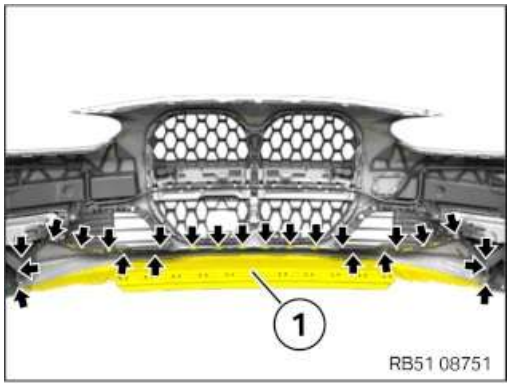
- Check the latch mechanisms (arrows) on the bumper panel lower section (1) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew bumper panel lower section (1).

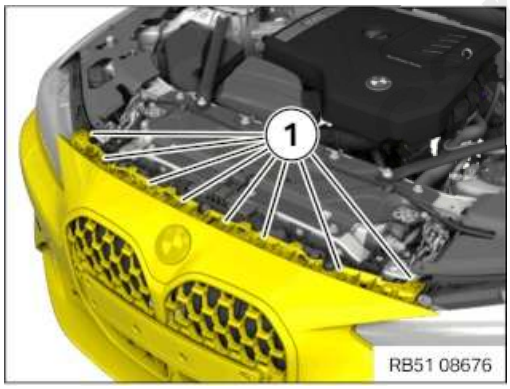


- Position bumper panel lower section (1) and clip it into the latch mechanisms (arrows).

9 – Install bumper panel, front

NOTICE

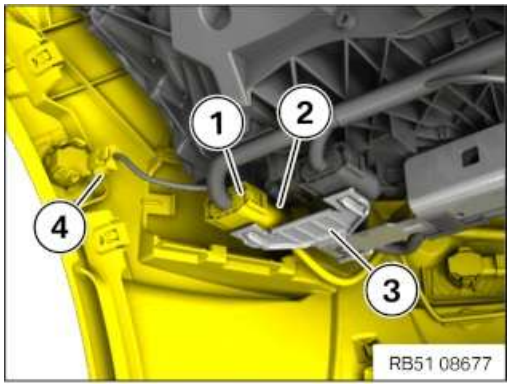
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

Oval-head screwM6		Tightening torque	4,6 Nm

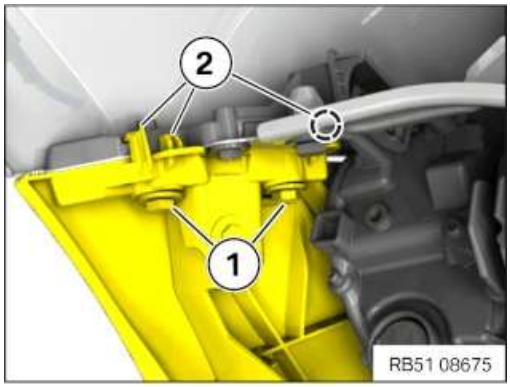


NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).

.com



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

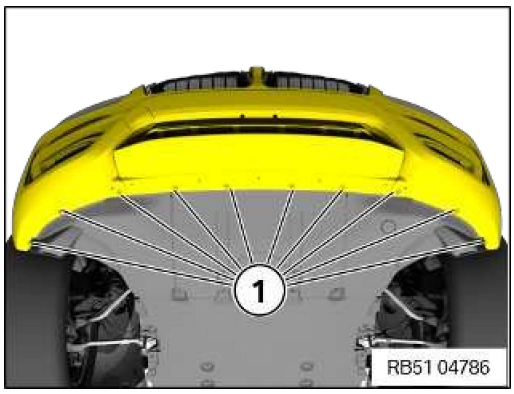
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

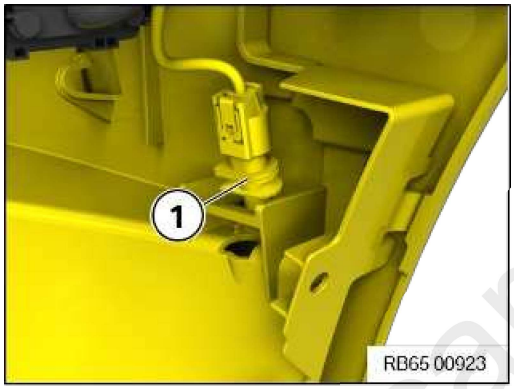


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

10 – Partially installing the temperature sensor



- Clip the temperature sensor (1) downwards into the front bumper panel.

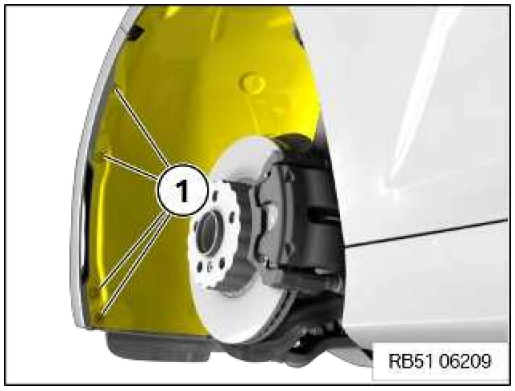
11 – Partially installing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially installing front wheel arch trim panel**

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NOTICE

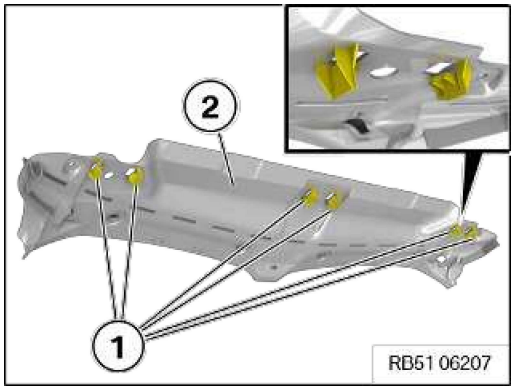
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

12 – Installing the cover for the centre engine compartment



Check

- Check the latch mechanisms (1) of the cover (2) for damage.

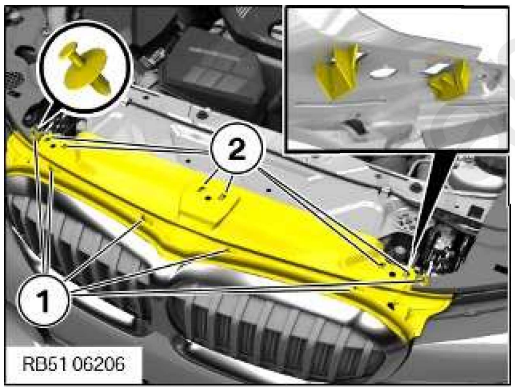
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

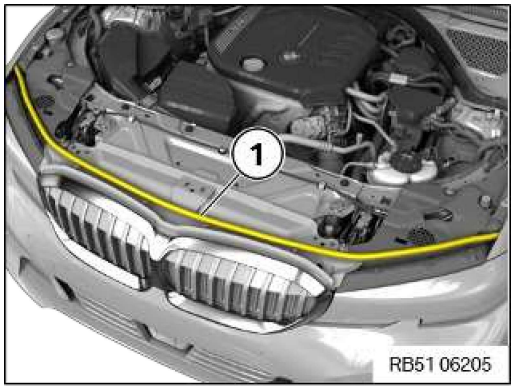


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

13 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

Additional Information

Overview of Tightening Torques

Bumper panel, front top			Used in step 9
Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel			Used in step 9
Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection			Used in step 9
Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front			Used in step 11
Thermoplastic hexagon screw		Tightening torque	2,6 Nm

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51 11 158 Replacing the number plate baseplate for the number plate

WARNING

Malfunction of the sensors of the driver assistance systems.

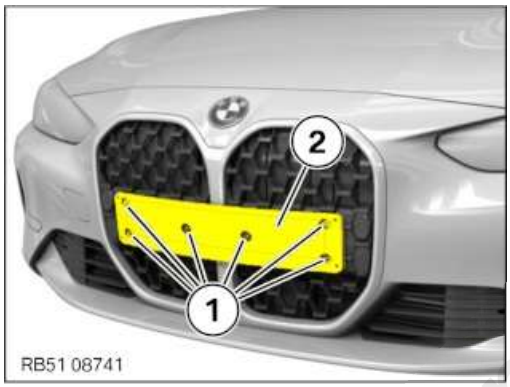
Incorrect assembly of the number plate leads to a malfunction of the sensors of the driver assistance systems.

- Fix number plate and number plate baseplate only according to the dimensions specified in the repair instructions.
- Secure number plate and number plate baseplate on the bumper panel **without pre-drilling** , otherwise there is a risk of damage to the underlying cables.
- Only use number plate baseplates that have been approved for the vehicle type.

TECHNICAL INFORMATION

The number plate must be precisely mounted on the number plate baseplate and must not protrude on the underside.
The number plate carrier must not be installed on the front bumper.

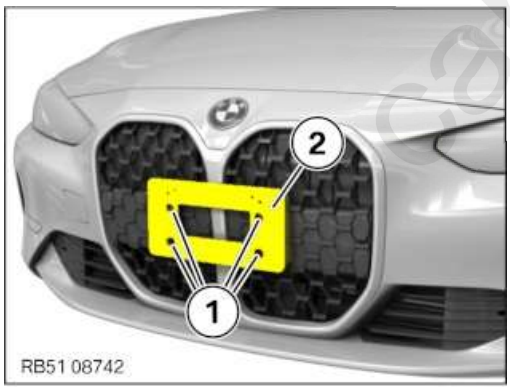
1 – Removing the number plate baseplate for number plate at front



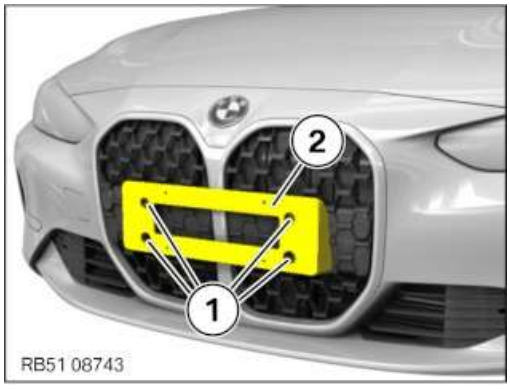
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

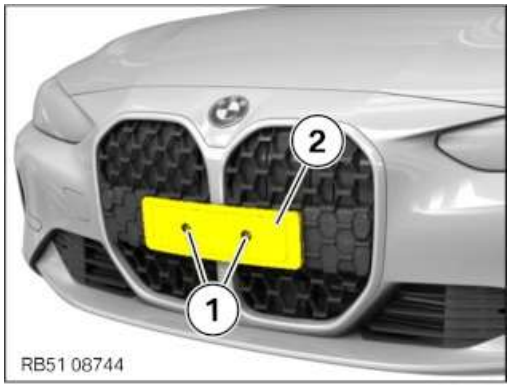
- **For European version**
- Loosen screws (1).
- Remove the number plate baseplate (2) to the front.



- **For US version and Japanese version:**
- Loosen screws (1).
- Remove the number plate baseplate (2) to the front.



- **For Chinese version:**
- Loosen screws (1).
- Remove the number plate baseplate (2) to the front.



- **For Switzerland equipment specification:**
- Loosen screws (1).
- Remove the number plate baseplate (2) to the front.

2 – Installing the number plate baseplate for the front number plate

WARNING

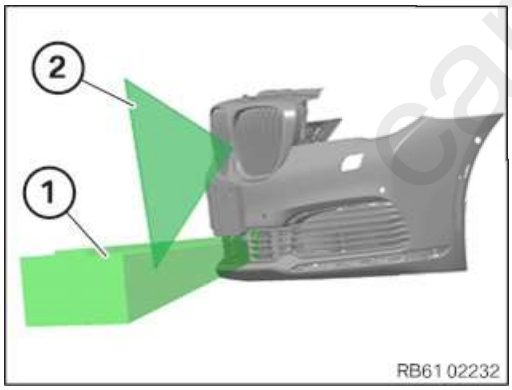
Malfunction of the sensors of the driver assistance systems.

Incorrect assembly of the number plate leads to a malfunction of the sensors of the driver assistance systems.

- Fix number plate and number plate baseplate only according to the dimensions specified in the repair instructions.
- Secure number plate and number plate baseplate on the bumper panel **without pre-drilling** , otherwise there is a risk of damage to the underlying cables.
- Only use number plate baseplates that have been approved for the vehicle type.

TECHNICAL INFORMATION

The number plate must be precisely mounted on the number plate baseplate and must not protrude on the underside.
The number plate carrier must not be installed on the front bumper.



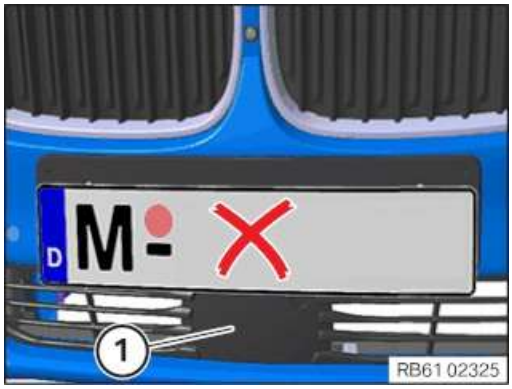
▸ **Positioning the number plate**

- Position the number plate or number plate baseplate correctly.
- Make sure that the angle of radiation (1) of the ACC sensor is not obstructed.
- Make sure that the angle of radiation (2) of the front camera is not obstructed.

▹ **Detect possible fault pattern due to incorrect assembly and rectify**

Check

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- Check number plate for correct position.

Result

» The number plate is positioned too low.

» The angle of radiation of the ACC sensor (1) is partially covered.

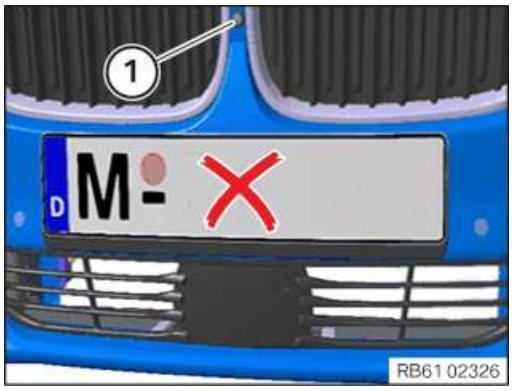
» Malfunction of the ACC sensor (1) is possible.

Measure

- Position the number plate correctly.

Check

- Check number plate for correct position.



Result

» The number plate is positioned too high.

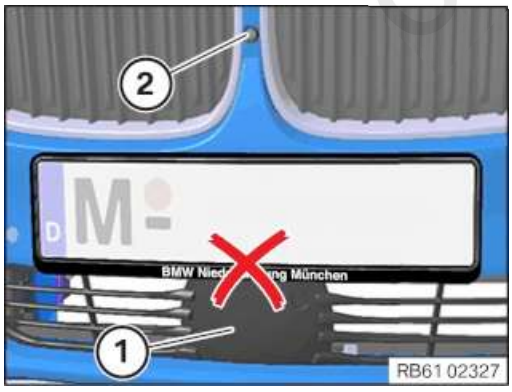
» The angle of radiation of the front camera (1) is partially covered.

Measure

- Position the number plate correctly.

Check

- Check number plate for correct position.



Result

» The angle of radiation of the ACC sensor (1) is partially covered.

» Malfunction of the ACC sensor (1) is possible.

» The angle of radiation of the front camera (2) is partially covered.

Measure

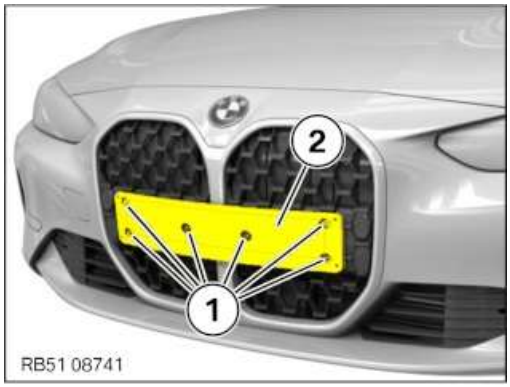
- Remove the number plate carrier.

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- With Check Control messages due to incorrect assembly of the number plate or the number plate baseplate: Position the number plate or the number plate baseplate correctly.

◁



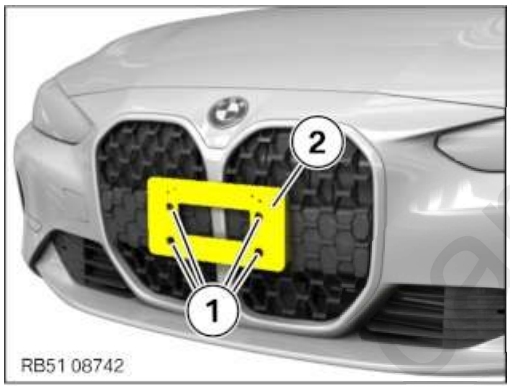
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- **For European version**
- Align the number plate baseplate (2) centrally in the embossed front ornamental grille.
- Screw in the screws (1) **without pre-drilling** and tighten.

License plate baseplate

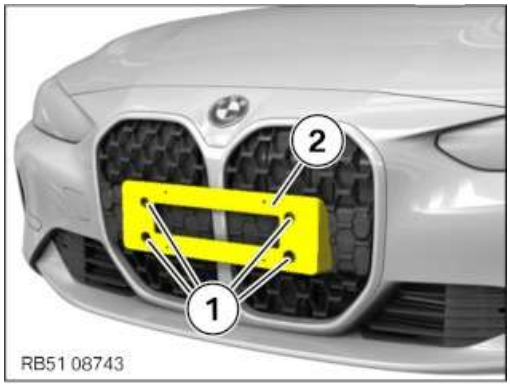
Oval-head screw		Tightening torque	2,5 Nm



- **For US version and Japanese version:**
- Align the number plate baseplate (2) centrally in the embossed front ornamental grille.
- Screw in the screws (1) **without pre-drilling** and tighten.

License plate baseplate

Oval-head screw		Tightening torque	2,5 Nm

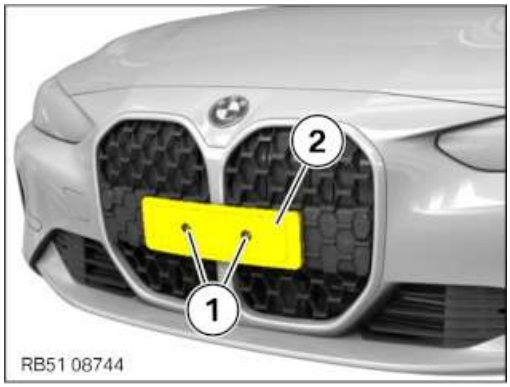


- **For Chinese version:**
- Align the number plate baseplate (2) centrally in the embossed front ornamental grille.
- Screw in the screws (1) **without pre-drilling** and tighten.

License plate baseplate

Oval-head screw		Tightening torque	2,5 Nm

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- **For Switzerland equipment specification:**
- Align the number plate baseplate (2) centrally in the embossed front ornamental grille.
- Screw in the screws (1) **without pre-drilling** and tighten.

License plate baseplate

Oval-head screw		Tightening torque	2,5 Nm

Additional Information

Overview of Tightening Torques

License plate baseplate Used in step 2

Oval-head screw		Tightening torque	2,5 Nm

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51 00 ... Overview of consumables (Electronic Parts Catalogue)

Designation, repair instructions	Designation, Electronic Parts Catalogue	Part number, Electronic Parts Catalogue	Remarks
Cleaning agent R2	Cleaning agent R2	83 19 0 417 324	500 ml
Lubricants G14	Lubricants G14	83 23 2 360 412	900 ml / Notes
Sika Activator 205	Aktivator 205	83 19 0 030 155	250 ml
Yellow plastic adhesive tape	Adhesive tape	83 19 9 410 979	A = 66 mm; B = 50 mm
Double-sided adhesive tape	Adhesive tape	54 11 2 290 978	L = 50 mm/W = 12 mm
Masking tape	Masking tape	81 22 9 400 181	L = 50 mm / W = 19 mm
Masking tape	Masking tape	81 22 9 400 388	L = 50 mm / W = 30 mm
Eraser disk	Scotch Brite eraser disk	51 91 0 402 946	with shaft
Cutting cord	Cutting cord	81 43 2 344 272	Notes
Adhesive set K6	Adhesive set K6	83 19 2 317 925	
Window glass adhesive	Window glass adhesive, cold, 1 hour	83 19 2 289 286	
Profile rubber adhesive		83 19 2 232 322	
Set of felt pads	Set of felt pads	51 45 2 353 024	

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51 12 156 Removing and installing rear bumper panel

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▶ **Removing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



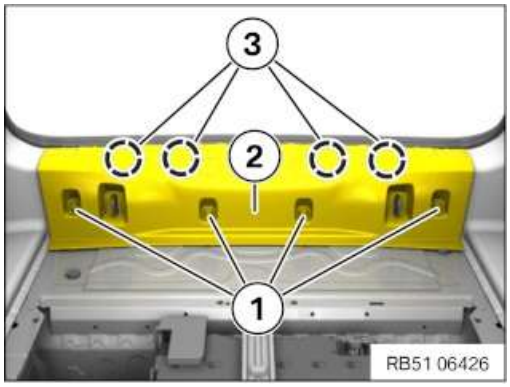
- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



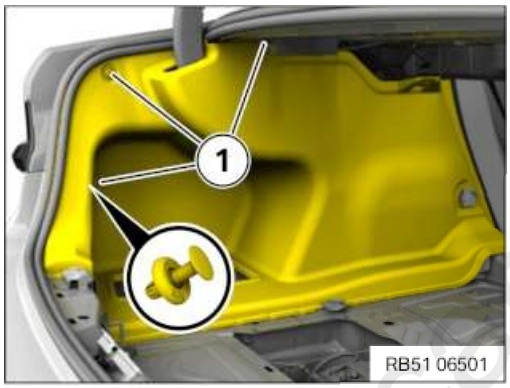
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

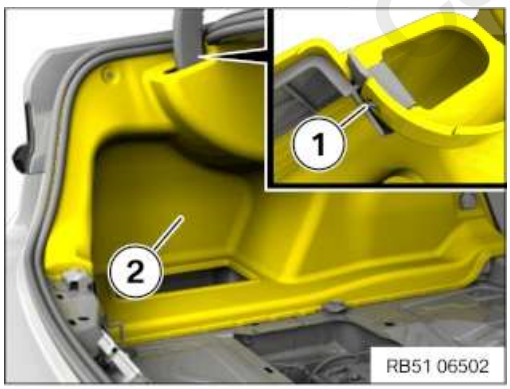
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen the expanding rivet (1).



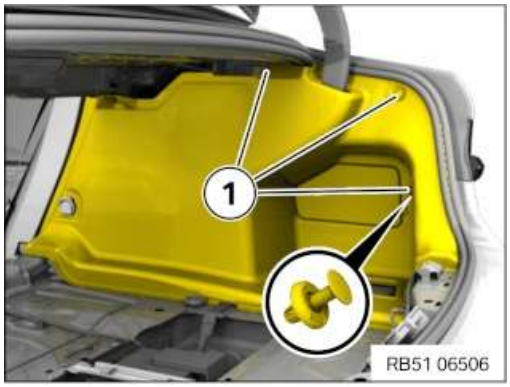
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

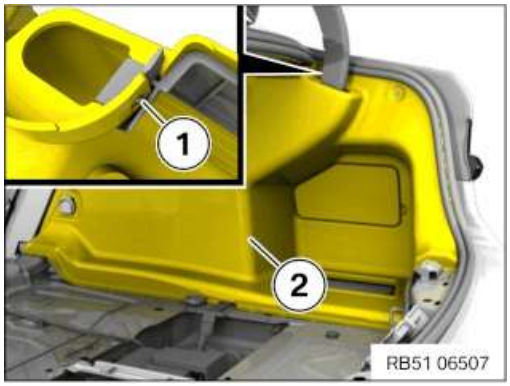
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

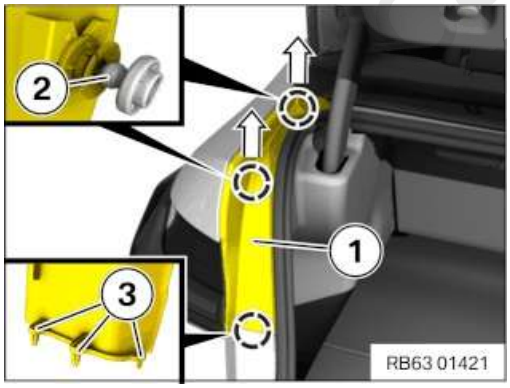
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing trim from water channel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

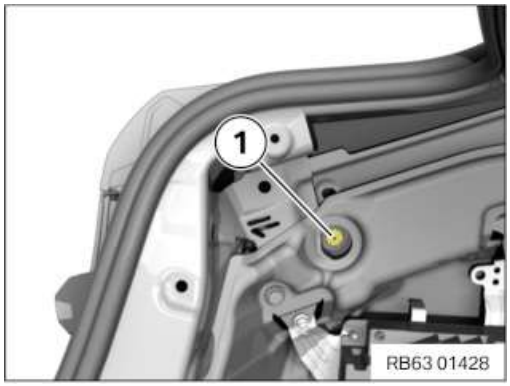
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

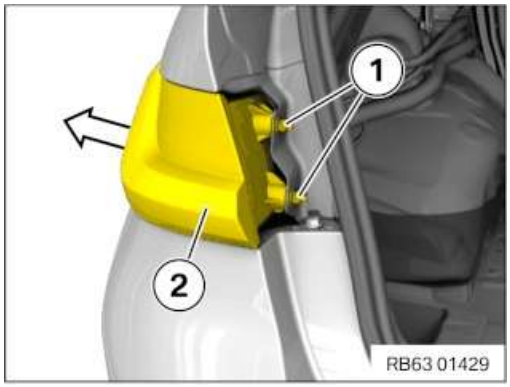
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NOTICE

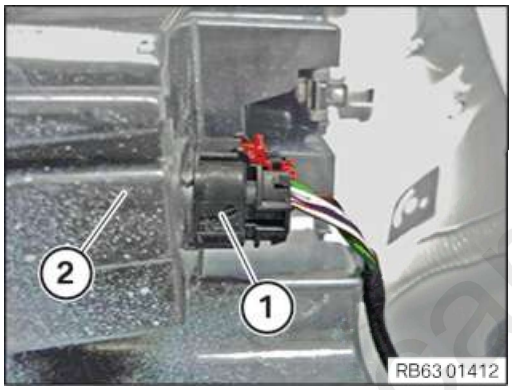
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



TECHNICAL INFORMATION

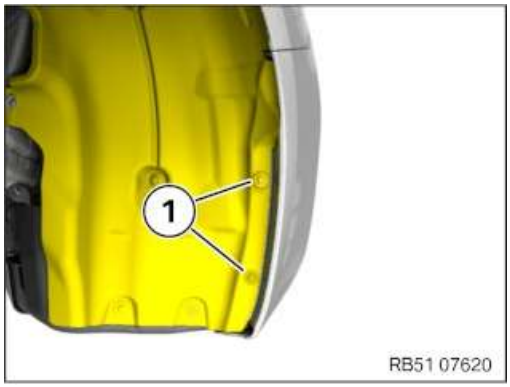
Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

MAIN WORK

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

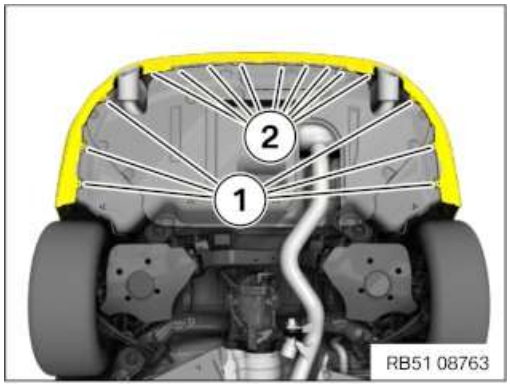
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

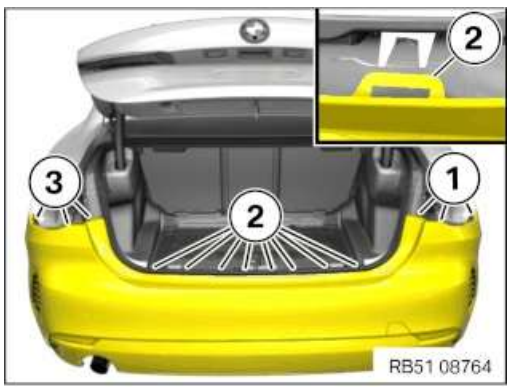
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).

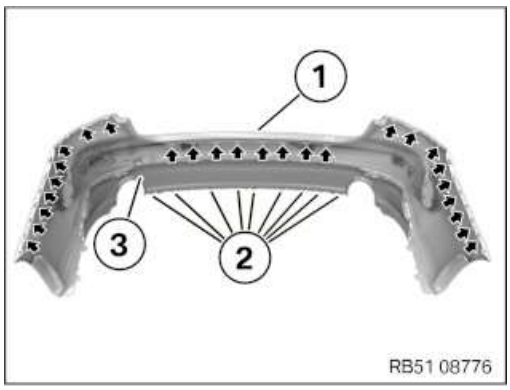


- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)



- Unlock plug connection and disconnect.
- Remove bumper panel.

7 – Install rear bumper panel



Check

- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew the bumper panel (1).

Result

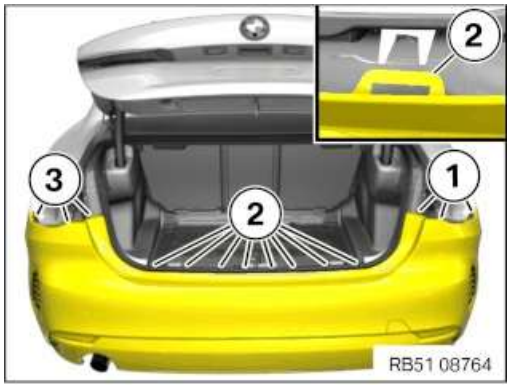
» Latch mechanisms (2) are damaged.

Measure

- Renew the bumper trim (3).



- Position the bumper panel.
- Connect connectors (1) and lock.



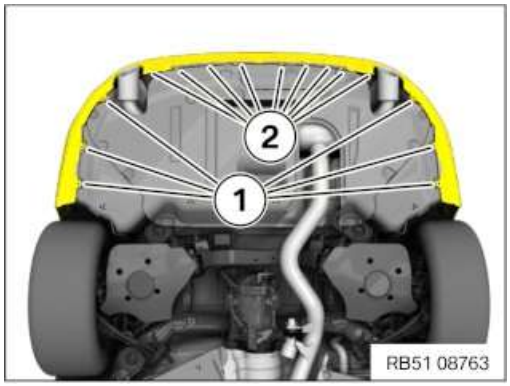
- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).



NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).



- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

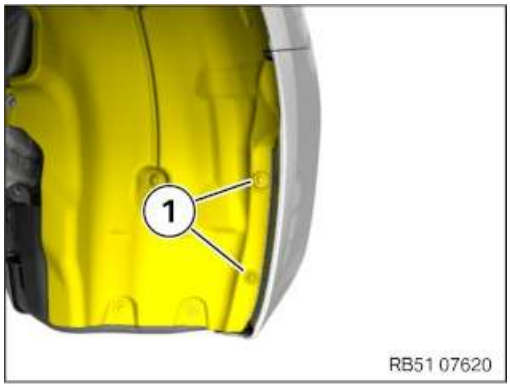
Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm

carmanuals.com



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

POSTPROCESSES

8 – Installing the rear light on the left and right side panels

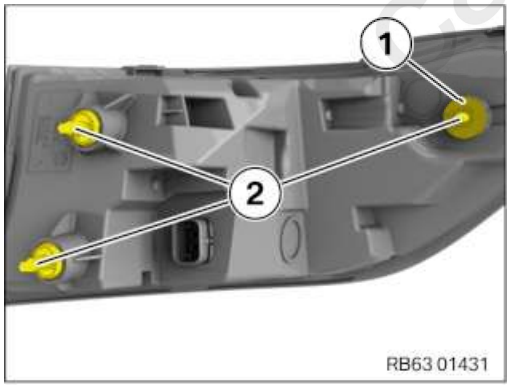
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install the rear light on the side panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

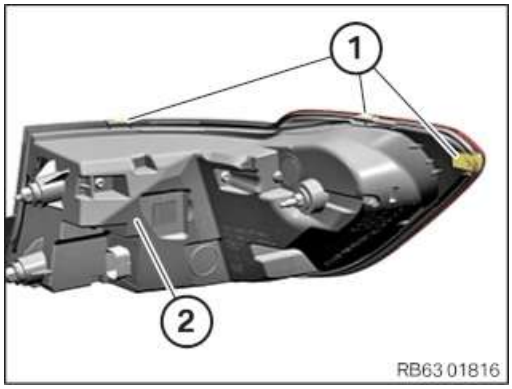
Result

» The threaded inserts are damaged.

Measure

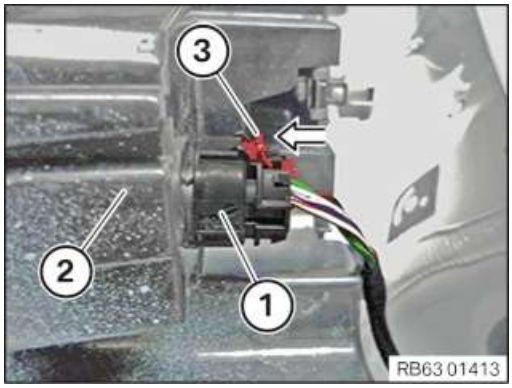
- Replace rear light.

carsdiagn.com



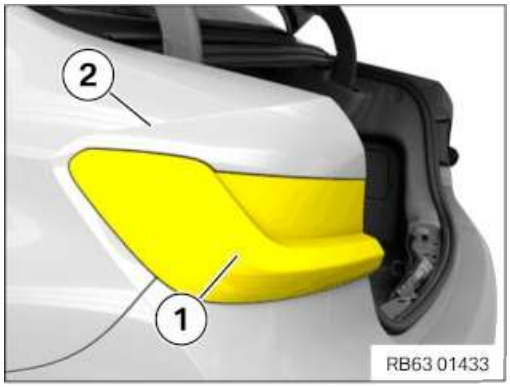
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.

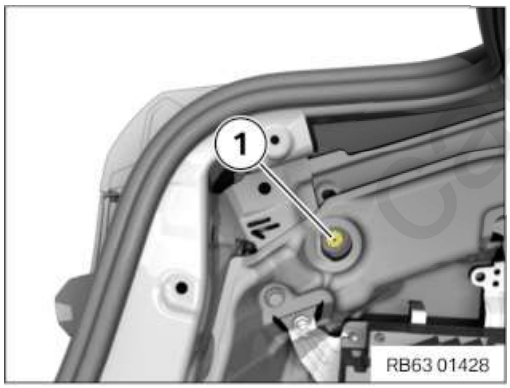


- Connect the connector (1) to the rear light on the side panel (2).

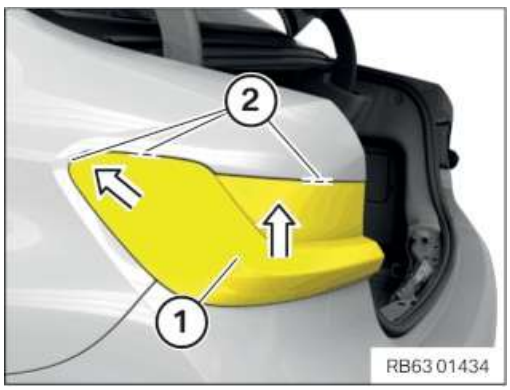
  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).



- Position the rear light on the side panel (1) on the side panel (2).

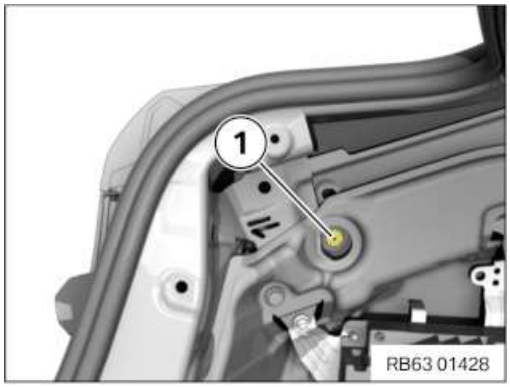


- Position the nut (1).



- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.

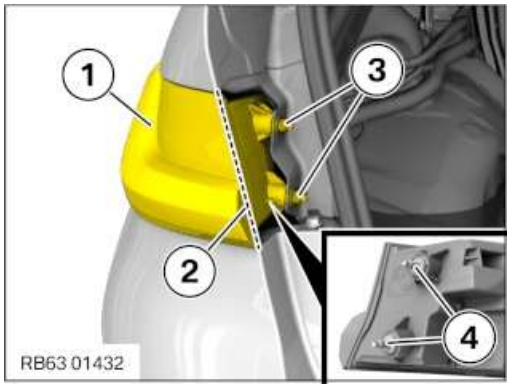
carldiagn.com



- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

9 – Installing trim in water channel on left and right

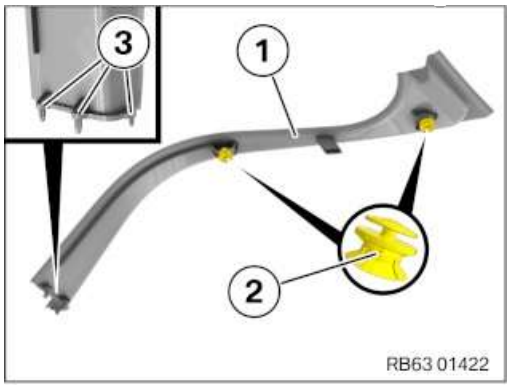
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ Installing trim in water channel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

Result

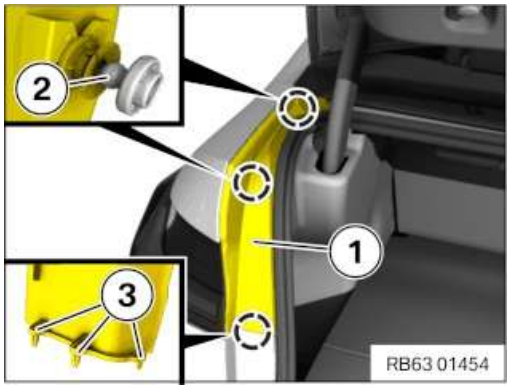
» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim

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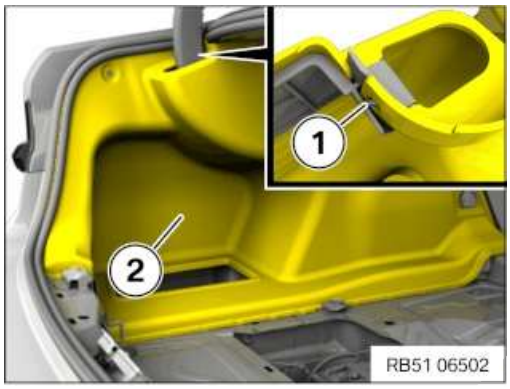
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

10 – Partially installing the luggage compartment wheel arch trim panel on the left and right

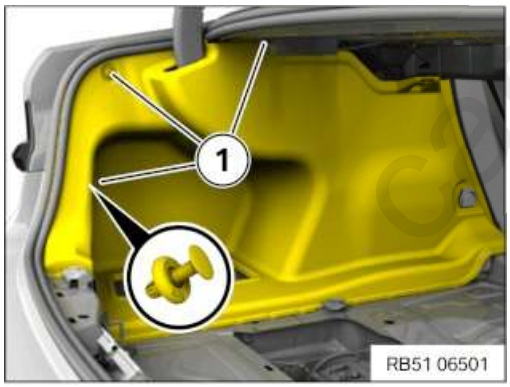
▸ Partially installing the left luggage compartment wheel arch trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



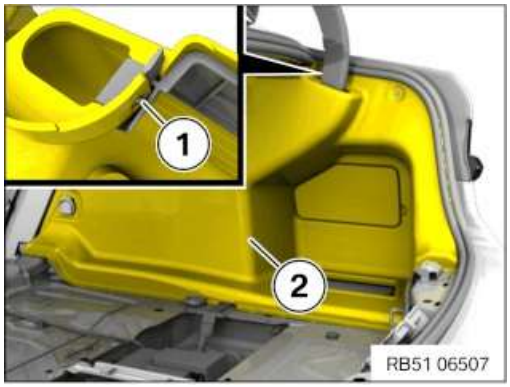
- Secure expanding rivet (1).

▸ Partially installing right luggage compartment wheel arch trim panel

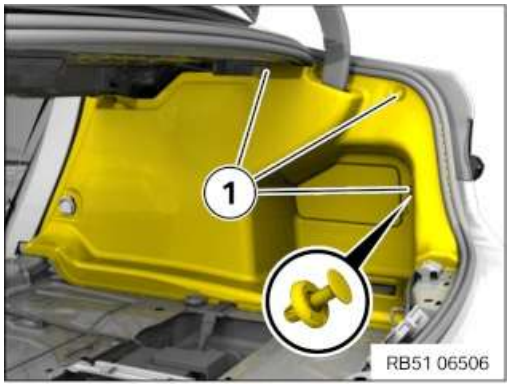
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

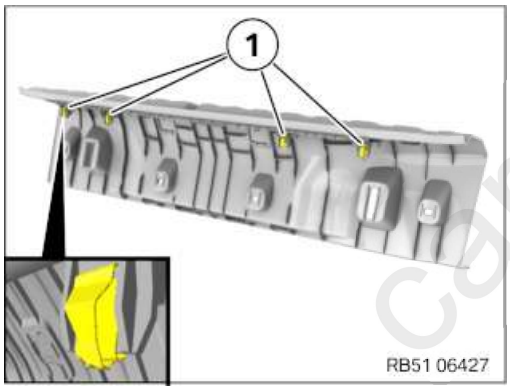


- Secure expanding rivet (1).

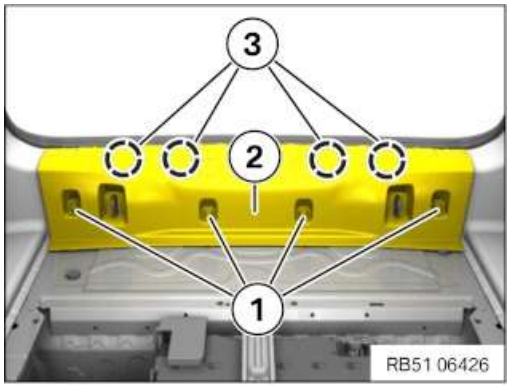
11 – Installing loading edge trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check the clamps (1) for damage and renew if necessary.



- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

12 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Rear bumper trim panel to guide			Used in step 7
Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body			Used in step 7
Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel			Used in step 7
Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 8
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	**Used in step**
61 13 ... Unlocking and disconnecting different plug connections	5

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51 12 080 Removing and installing/replacing cover on rear bumper panel

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▶ **Removing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



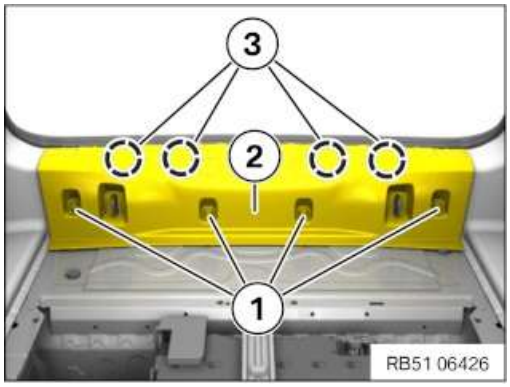
- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



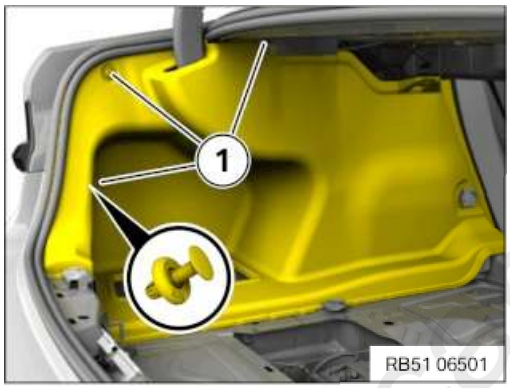
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

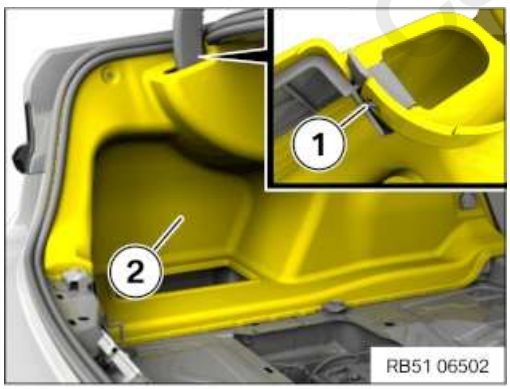
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen the expanding rivet (1).



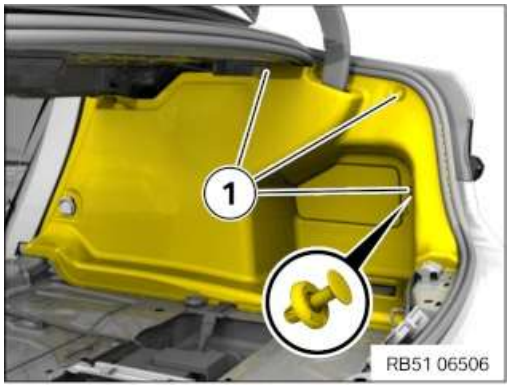
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

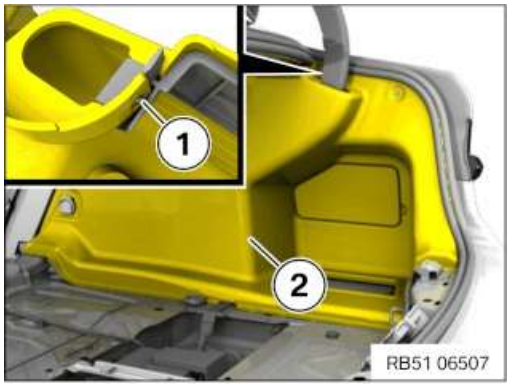
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

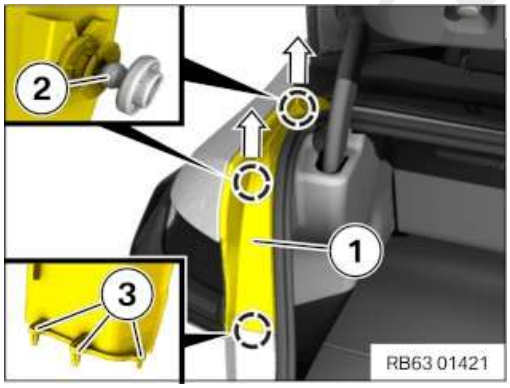
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing trim from water channel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

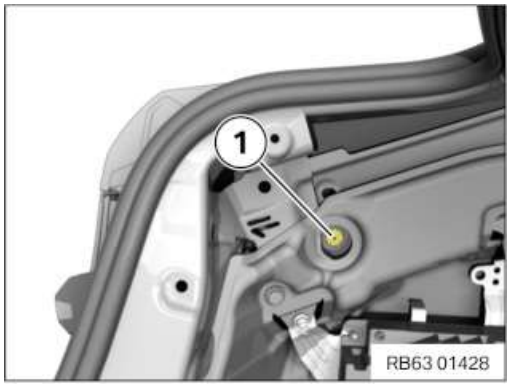
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

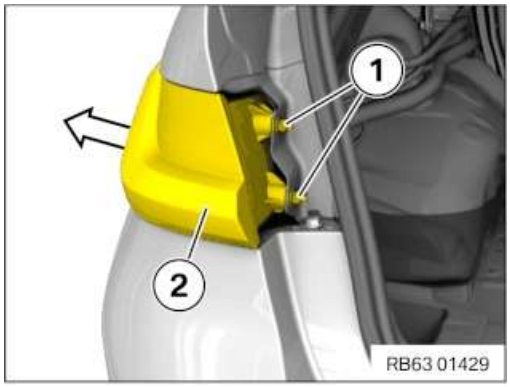
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NOTICE

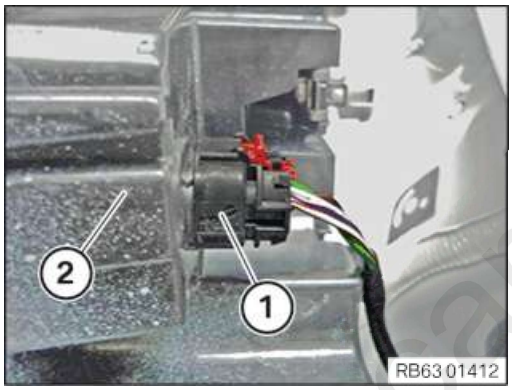
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



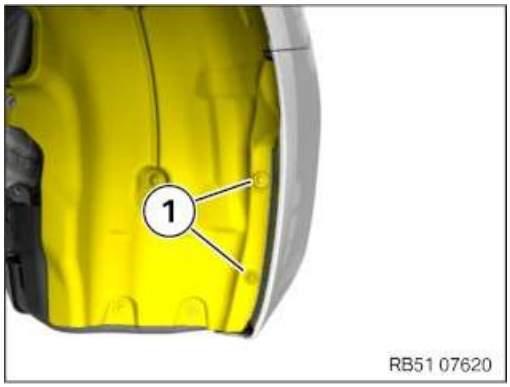
TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Loosen screws (1).

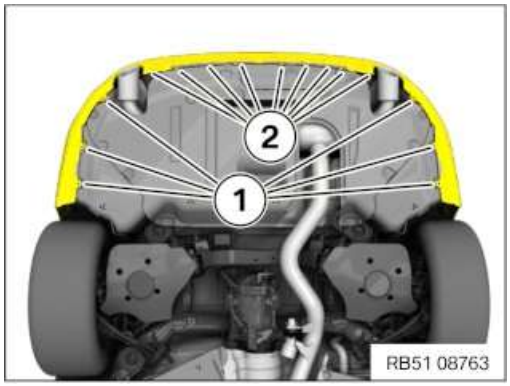
carlogn.com



NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

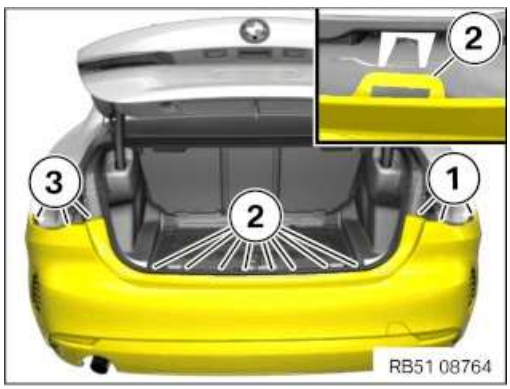
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).



- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)



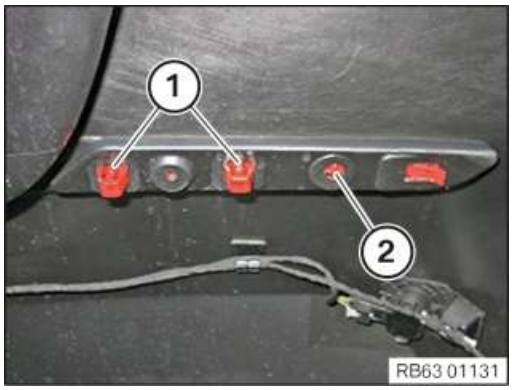
- Unlock plug connection and disconnect.
- Remove bumper panel.

7 – Removing rear reflector on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove rear reflector**



NOTICE

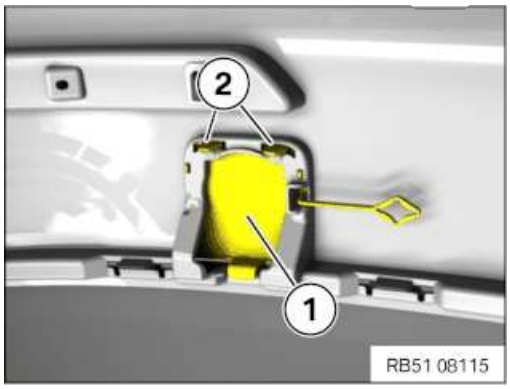
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Release the retaining lugs (1) and feed out the rear reflector (2) from the bumper panel.

8 – Removing towing eye cover

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Clip cover for towing eye (1) using latch mechanisms (2).
- Guide out the tether and remove cover for towing eye (1) .

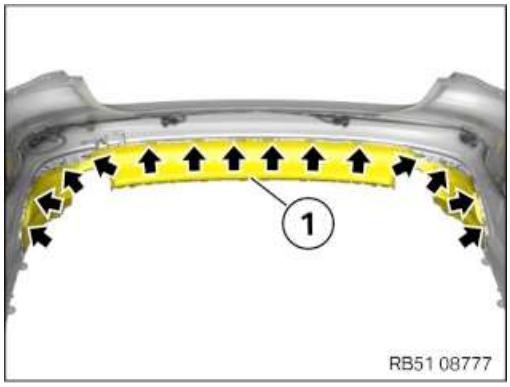
MAIN WORK

9 – Removing the trim on the rear bumper panel

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

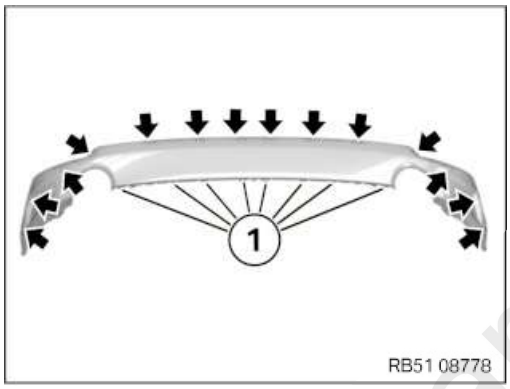


- Release the trim (1) with the latch mechanisms (arrows) and remove it from the bumper panel.

10 – Installing the trim on the rear bumper panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

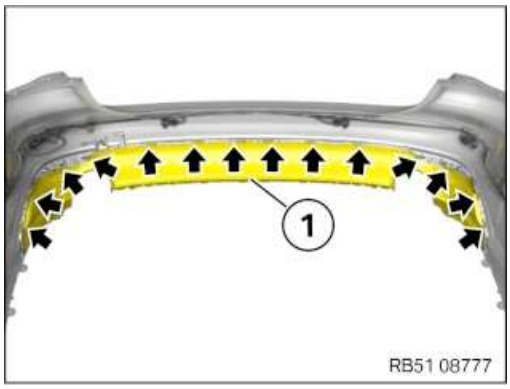
- Check the latch mechanisms (1) and the latch mechanisms (arrows) at the trim for damage.

Result

» The latch mechanisms (1) or the latch mechanisms (arrows) are damaged.

Measure

- Renew the trim .



- Position the trim (1) and clip it with the latch mechanisms (arrows) into the bumper panel.

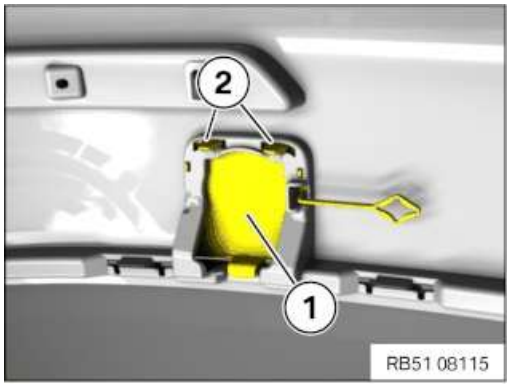
POSTPROCESSES

11 – Installing the cover of the towing eye

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Guide in tether.
- Insert the cover for towing eye (1) and clip it in with the latch mechanisms (2) .

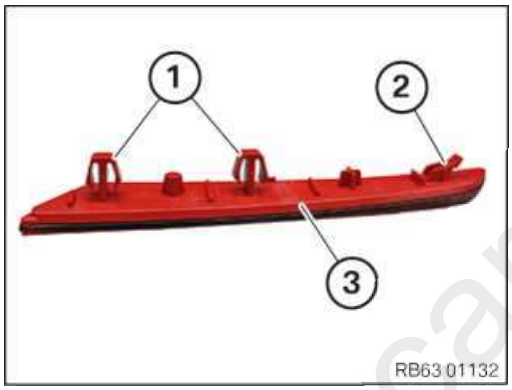
12 – Install the left and right rear reflector

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing rear reflector**

Check



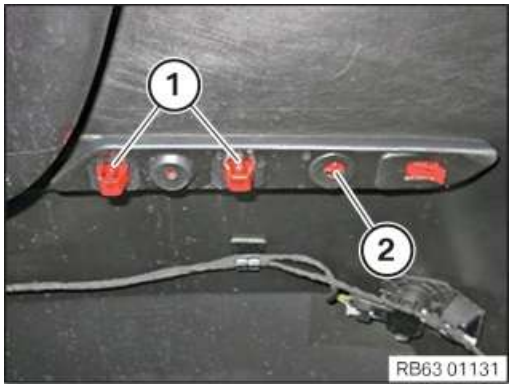
- Check retaining lugs (1) and guide (2) on rear reflector (3) for damage.

Result

» Latch mechanisms (1) or guide (2) are damaged.

Measure

- Renew rear reflector (3).



NOTICE

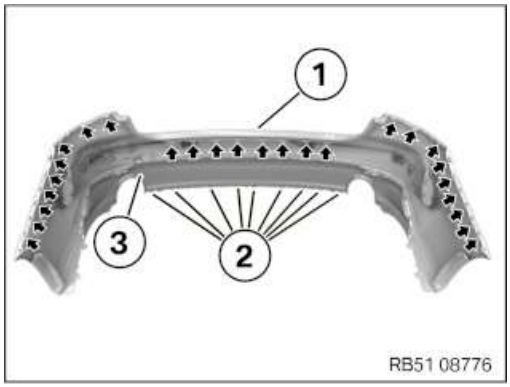
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Position rear reflector (2) in the bumper panel and clip it in with retaining lugs (1).

13 – Install rear bumper panel

Check

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- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew the bumper panel (1).

Result

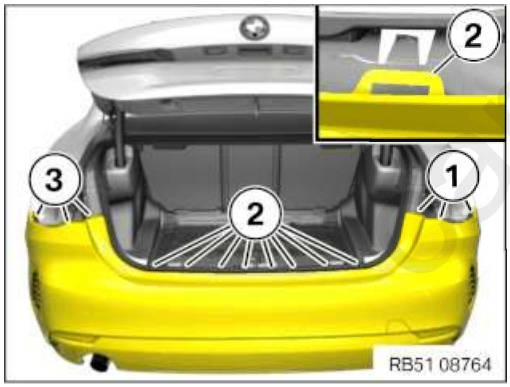
» Latch mechanisms (2) are damaged.

Measure

- Renew the bumper trim (3).



- Position the bumper panel.
- Connect connectors (1) and lock.



- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).

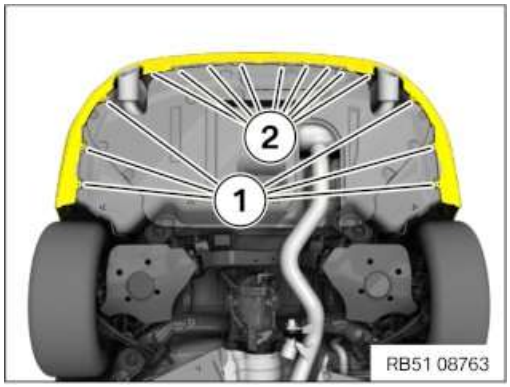


NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).

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- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



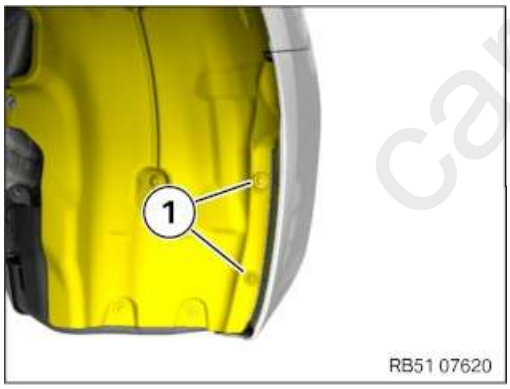
NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

14 – Installing the rear light on the left and right side panels

NOTICE

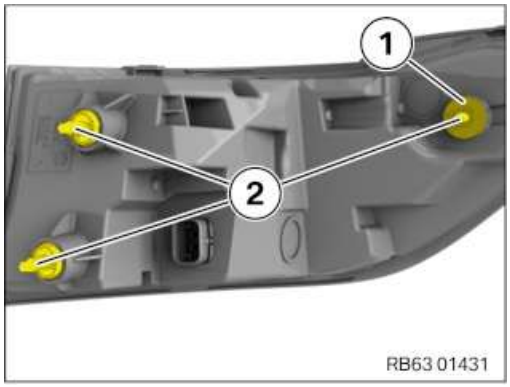
Description is for left component only. Procedure on the right side is identical.

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▸ **Install the rear light on the side panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

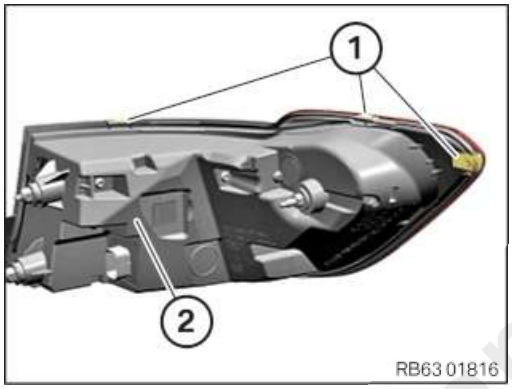
- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

Result

» The threaded inserts are damaged.

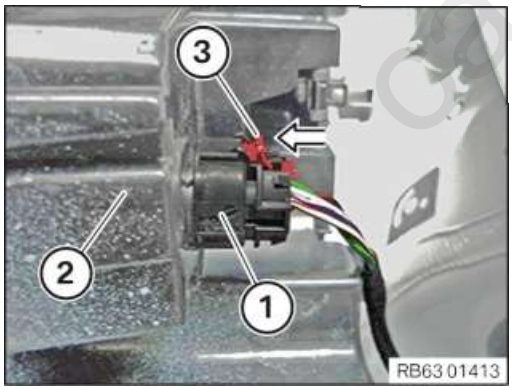
Measure

- Replace rear light.



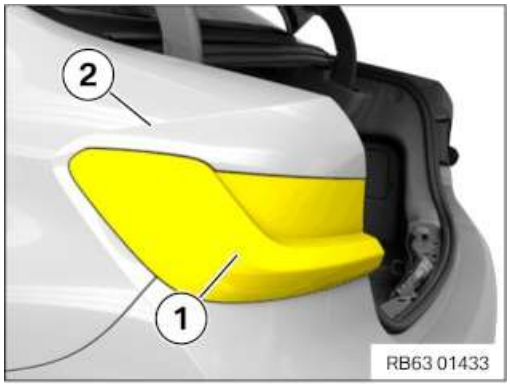
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.



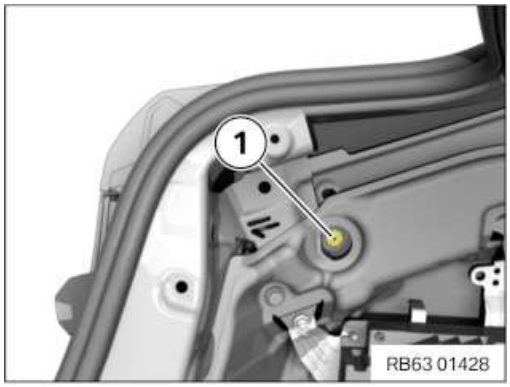
- Connect the connector (1) to the rear light on the side panel (2).

  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).

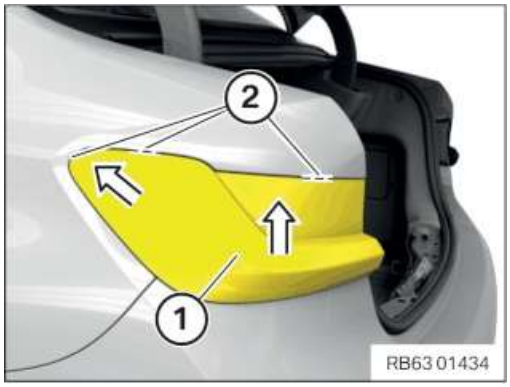


- Position the rear light on the side panel (1) on the side panel (2).

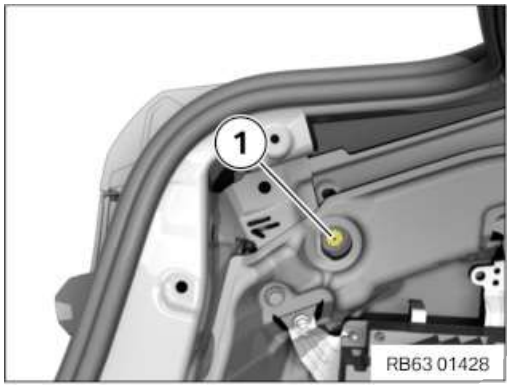
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- Position the nut (1).



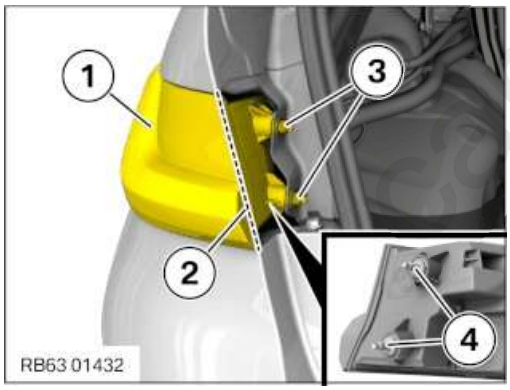
- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.



- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

15 – Installing trim in water channel on left and right

NOTICE

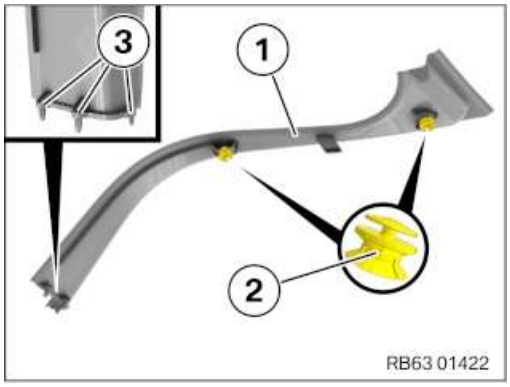
Description is for left component only. Procedure on the right side is identical.

▸ **Installing trim in water channel**

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

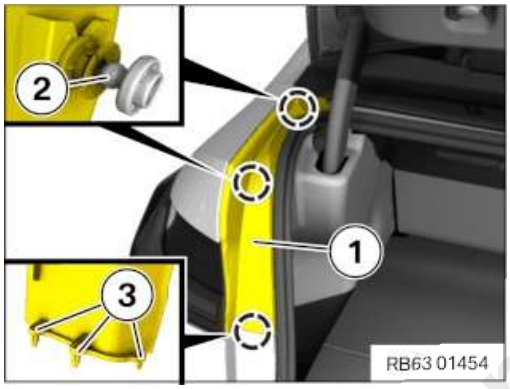
Result

» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim



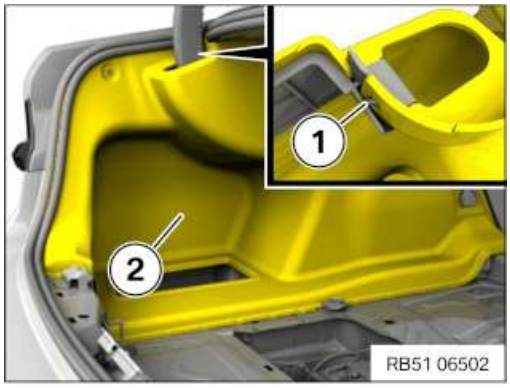
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

16 – Partially installing the luggage compartment wheel arch trim panel on the left and right

▸ Partially installing the left luggage compartment wheel arch trim panel

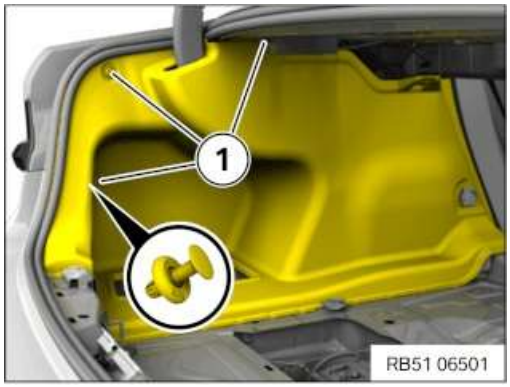
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

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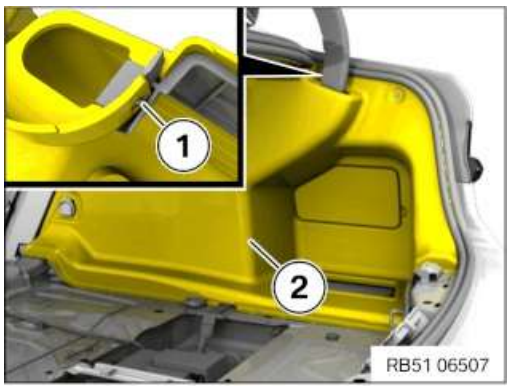


- Secure expanding rivet (1).

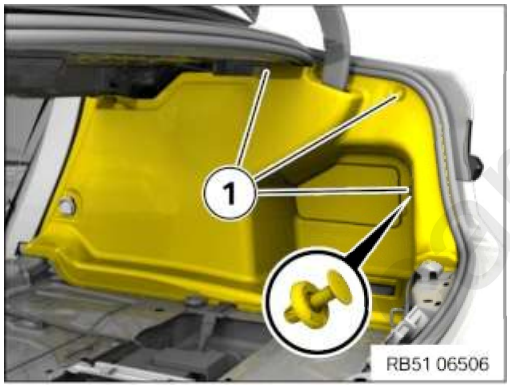
▸ **Partially installing right luggage compartment wheel arch trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

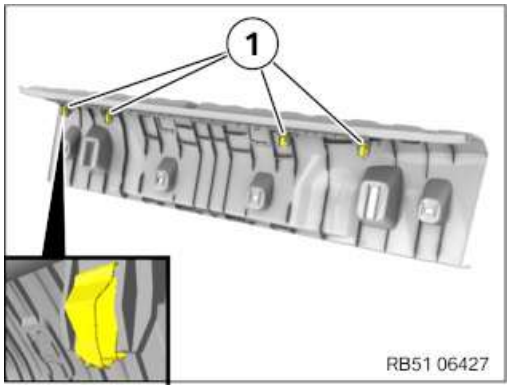


- Secure expanding rivet (1).

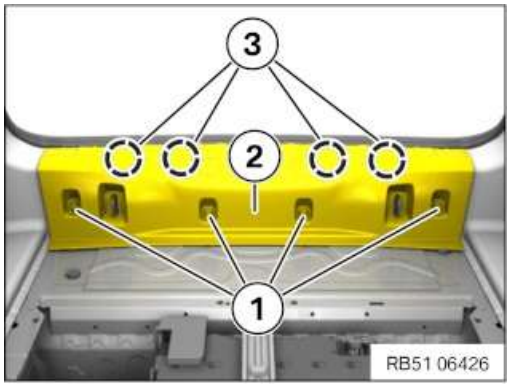
17 – Installing loading edge trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check the clamps (1) for damage and renew if necessary.



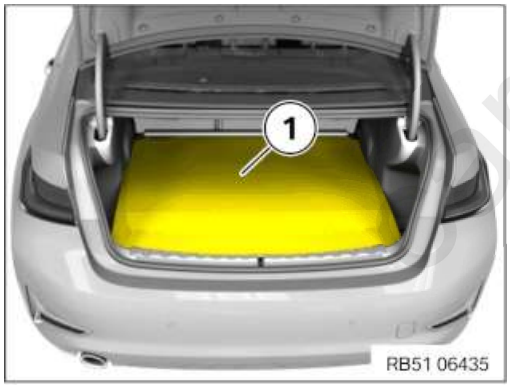
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

18 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Rear bumper trim panel to guide — Used in step 13

Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body — Used in step 13

Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel — Used in step 13

Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 14
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	Used in step
61 13 ... Unlocking and disconnecting different plug connections	5

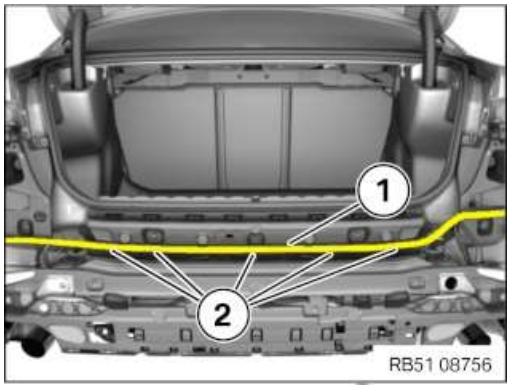
cardiagn.com

51 12 825 Removing and installing/replacing rear centre bumper guide

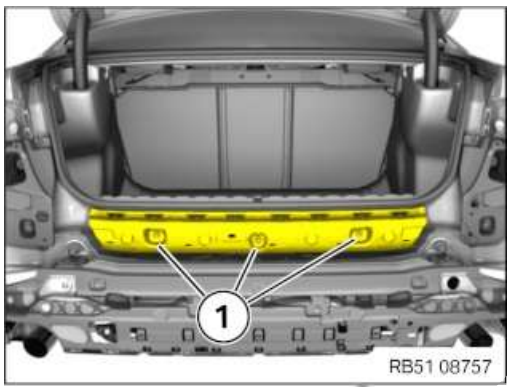
1 – Removing guide for the rear centre bumper panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Release the wiring harness (1) with the holders (2) .
- If necessary, unlock plug connections and disconnect.

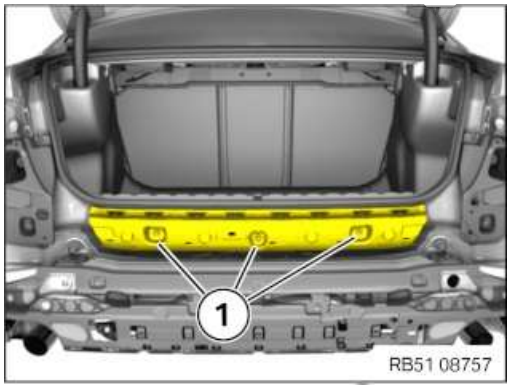


- Release nuts (1).
- Remove the guide for rear centre bumper panel.

2 – Installing the guide for the rear centre bumper panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

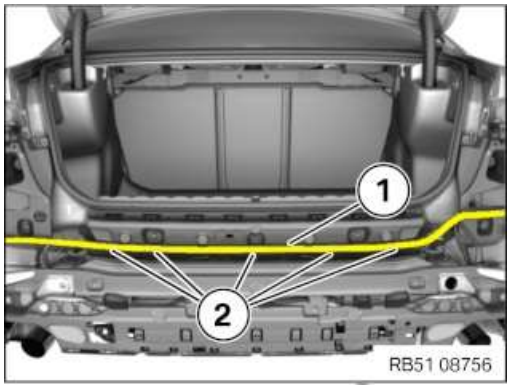


- Position the guide for the rear centre bumper panel.
- Tighten nuts (1).

Rear centre guide to body

Nut		4,6 Nm

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- Clip in the wiring harness (1) with the holders (2) .
- If necessary, connect the connector and lock it.

Additional Information

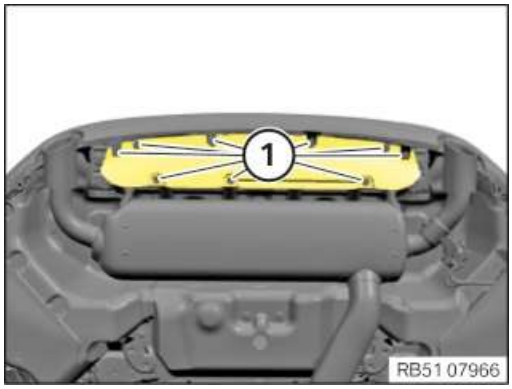
Overview of Tightening Torques

Rear centre guide to body		Used in step 2
Nut		4,6 Nm

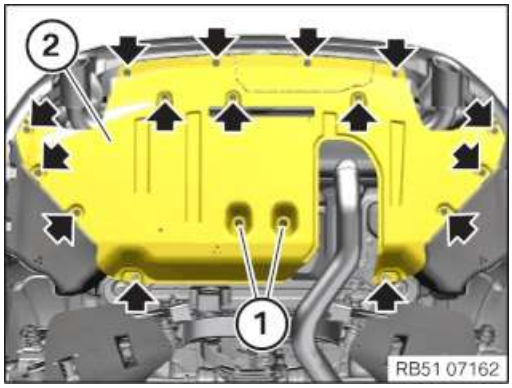
cardiagn.com

51 12 315 Removing and installing/replacing rear diffuser

1 – Removing the rear diffuser

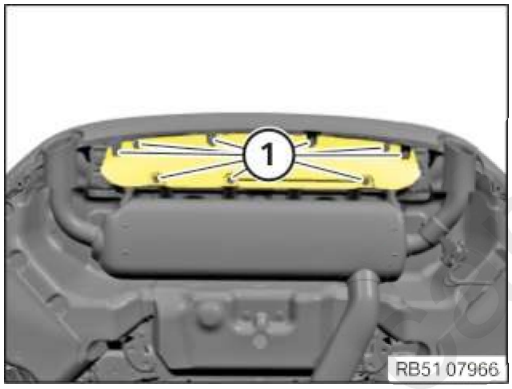


- **Version 1:**
- Release the screws and nuts (1).
- Remove the diffuser.



- **Version 2:**
- Loosen nuts (1).
- Remove screws (arrows).
- Guide out and remove rear diffuser (2).

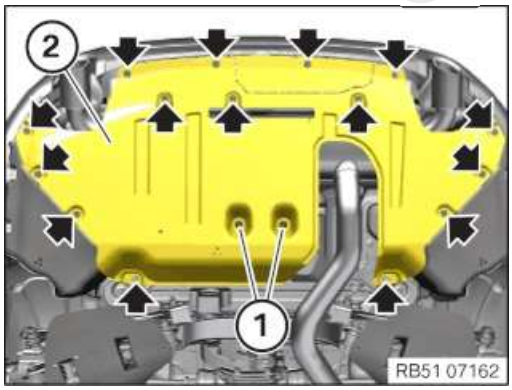
2 – Installing the rear diffuser



- **Version 1:**
- Install the diffuser and tighten the nuts (1).

Diffuser / underbody panelling

Nuts and screws		Tightening torque	3 Nm



- **Version 2:**
- Feed in and position the diffuser (2)
- Tighten screws (arrows).

Diffuser / underbody panelling

Nuts and screws		Tightening torque	3 Nm

- Tighten nuts (1).

Diffuser / underbody panelling

Nuts and screws		Tightening torque	3 Nm

Additional Information

Overview of Tightening Torques

.com

Nuts and screws		Tightening torque	3 Nm

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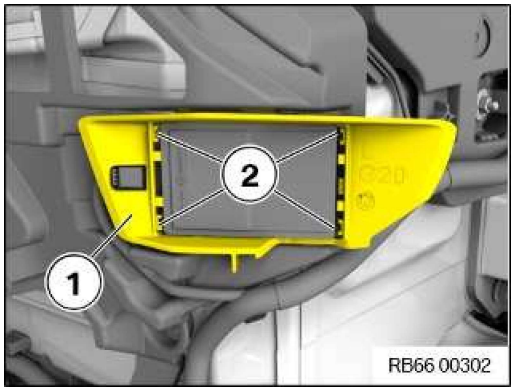
51 12 828 Removing and installing/replacing rear left or right bumper guide

PRELIMINARY WORK

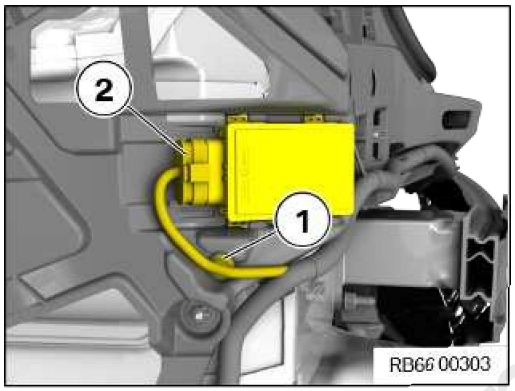
1 – If installed: Removing the lane change warning sensor

NOTICE

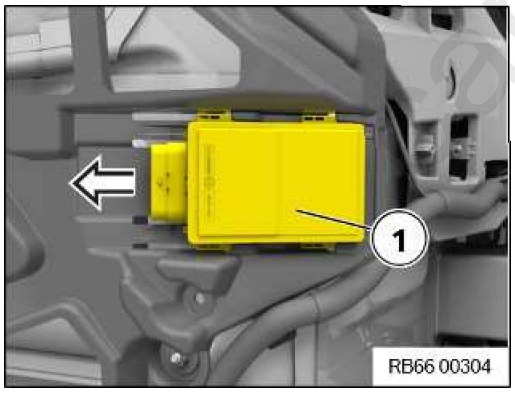
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Unlock and remove absorber (1) from the retaining lugs (2) .



- Unlock plug connection (2) and disconnect.
- Unclip clip (1).
- Place wiring harness to one side.



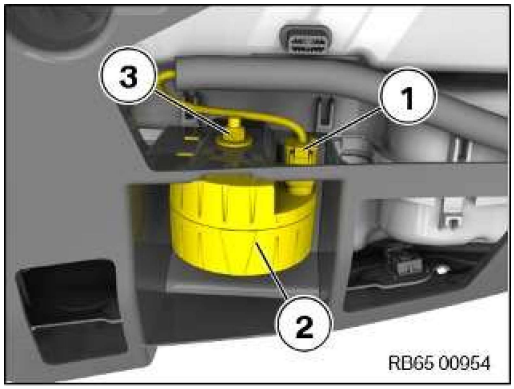
- Release the latch mechanisms and remove the lane change warning sensor (1) in the direction of arrow.

2 – If installed: Removing emergency power siren (additional work in alarm system)

▸ **Removing the emergency power siren with tilt sensor**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



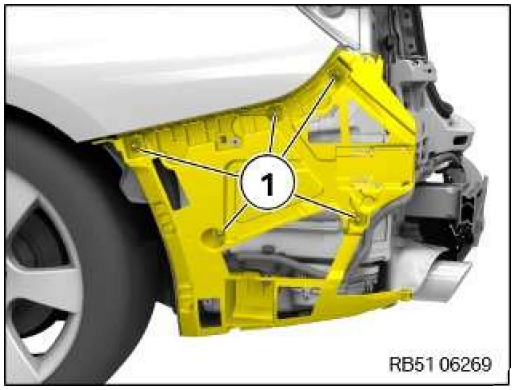
- Unlock plug connection (1) and disconnect.
- Loosen nut (3).
- Remove the emergency power siren with tilt alarm sensor (2).

MAIN WORK

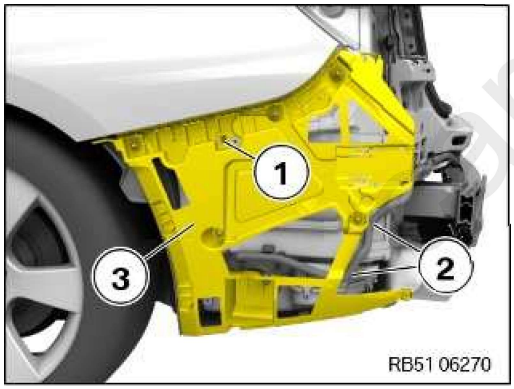
3 – Remove the guide for the rear bumper panel on the side

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nuts (1).



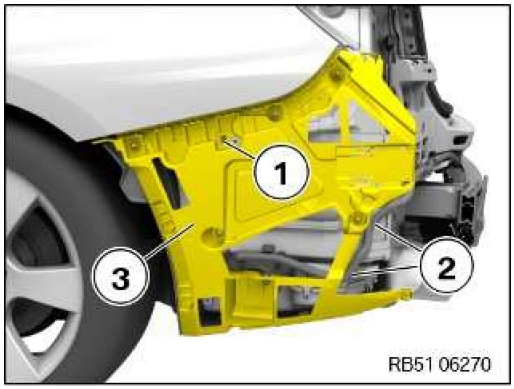
- Open lock (1).
- Release the clips (2) of the vehicle wiring harness and the place the wiring harness aside.
- Remove the guide (3) for the rear bumper panel on the side.

4 – Installing the guide for the rear bumper panel at the side

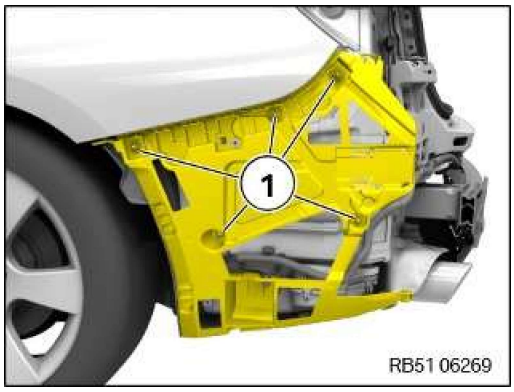
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Position the guide for rear side bumper panel (3).
- Lock (1) must engage audibly.
- Clip in clips (2) of the wiring harness.



- Tighten nuts (1).

Rear bumper panel guide on body at the side

Multi-purpose nut with paint scrape groove		Tightening torque	5 Nm

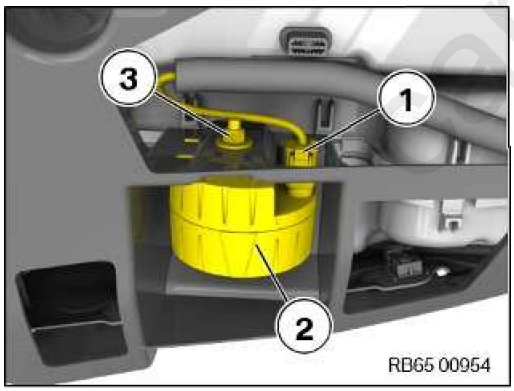
POSTPROCESSES

5 – If installed: Installing emergency power siren (additional work for alarm system)

▸ **Installing the emergency power siren with tilt sensor**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the emergency power siren with tilt alarm sensor (2).
- Renew nut (3).

  Part: Nut
- Tighten nut (3).

Emergency power siren with tilt sensor

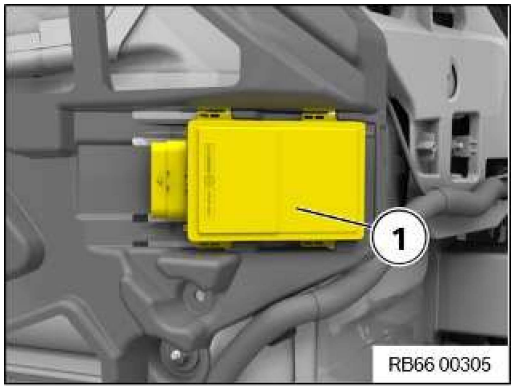
Hexagon nut M6x8	Renew nut.	Tightening torque	6 Nm

- Connect plug connection (1) and lock.

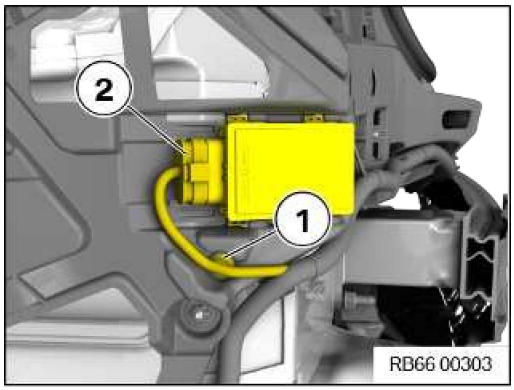
6 – If installed: Installing the lane change warning sensor

NOTICE

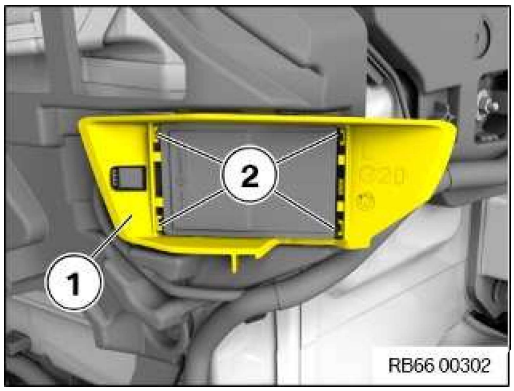
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Push in the lane change warning sensor (1) until the latch mechanism engages audibly.



- Connect connectors (2) and lock.
- Position the wiring harness and clip it in with clip (1).



- Position the absorber (1) and lock it with the retaining lugs (2).

Additional Information

Overview of Tightening Torques

Rear bumper panel guide on body at the side — Used in step 4

Multi-purpose nut with paint scrape groove		Tightening torque	5 Nm

Emergency power siren with tilt sensor — Used in step 5

Hexagon nut M6x8	Renew nut.	Tightening torque	6 Nm

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51 12 050 Removing and installing/replacing support for rear bumper panel

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

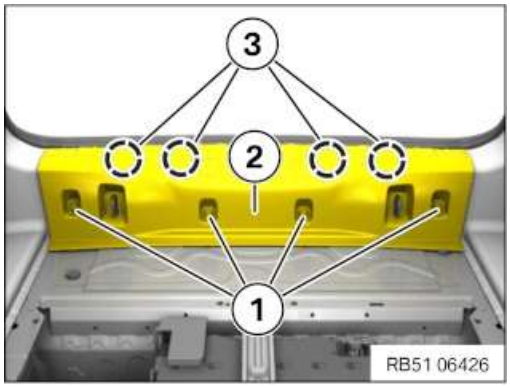


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



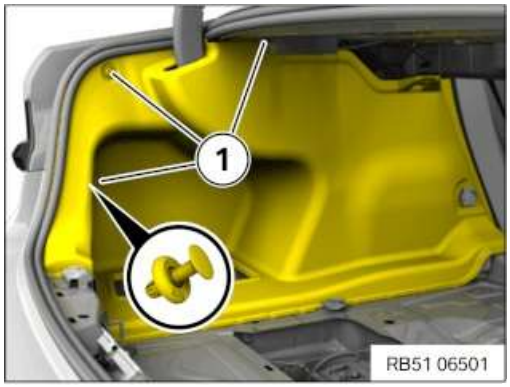
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

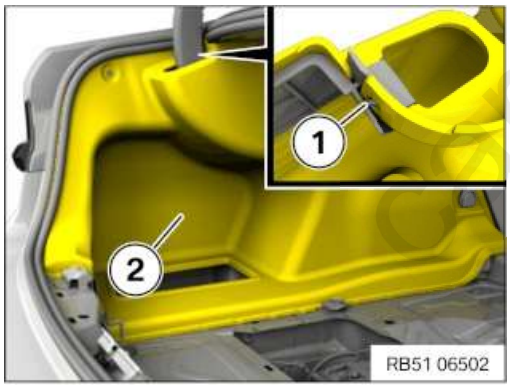
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen the expanding rivet (1).



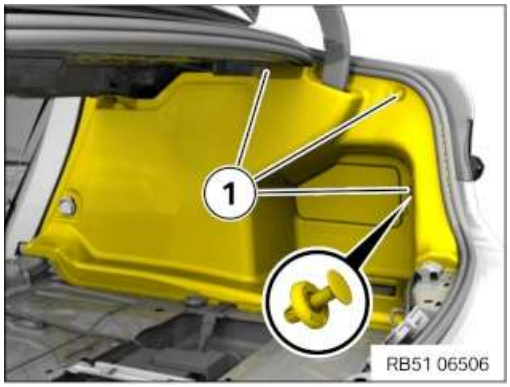
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

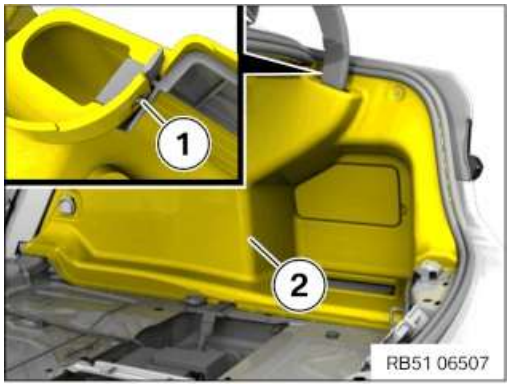
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

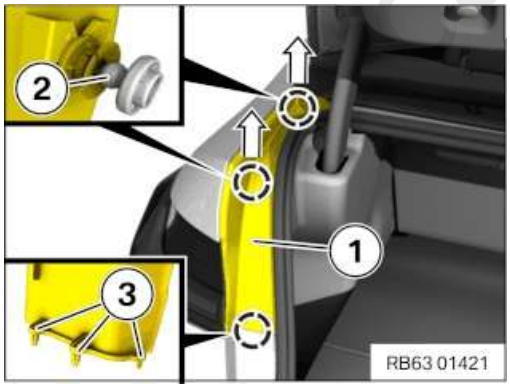
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing trim from water channel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

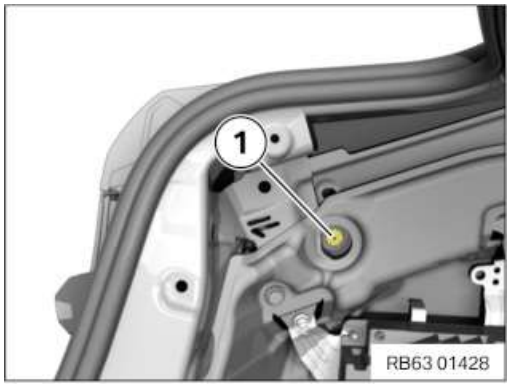
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

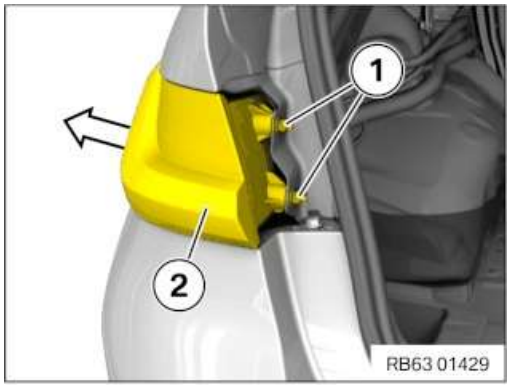
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NOTICE

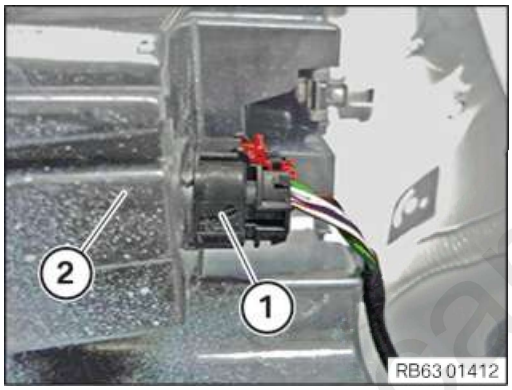
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



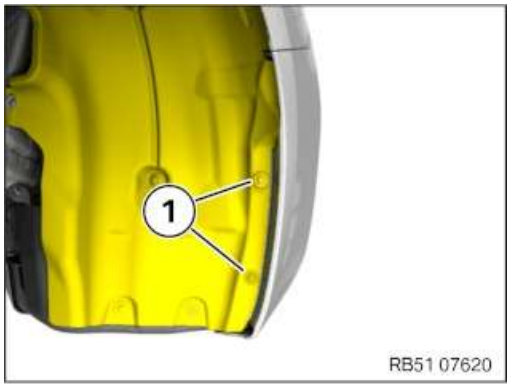
TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Loosen screws (1).

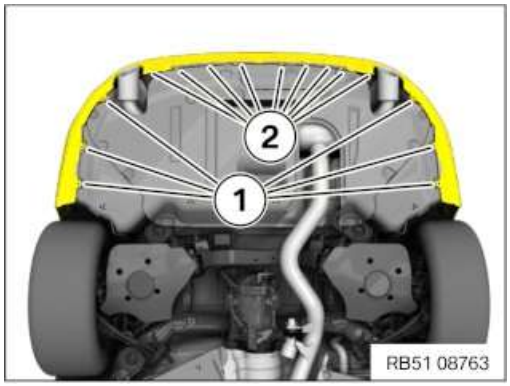
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NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

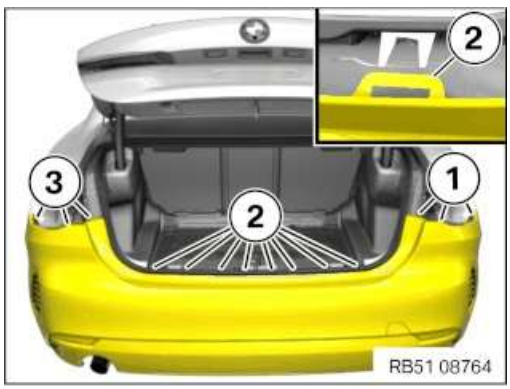
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).

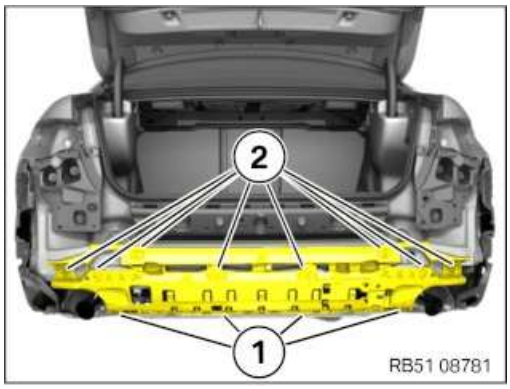


- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)

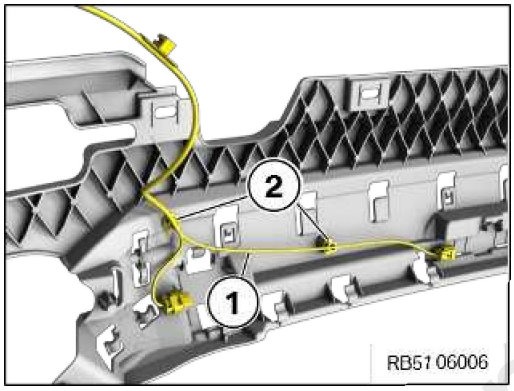


- Unlock plug connection and disconnect.
- Remove bumper panel.

7 – Removing the brace for the rear bumper panel



- Loosen screws (1).
- Release the expanding rivets (2) and remove the brace from the support.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

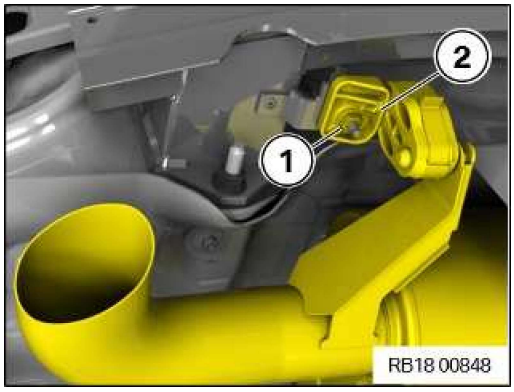
- Unlock and disconnect all plug connections, according to the equipment.
- Release the wiring harness (1) with the holders (2).
- Remove the brace.

MAIN WORK

8 – Removing rear bumper panel support

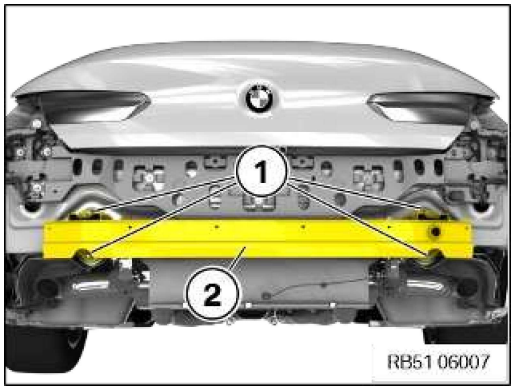
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **If installed:**
- Release the nut (1) on the left and right.
- Remove the rear silencer with the bracket (2) downwards from the support for the rear bumper panel.

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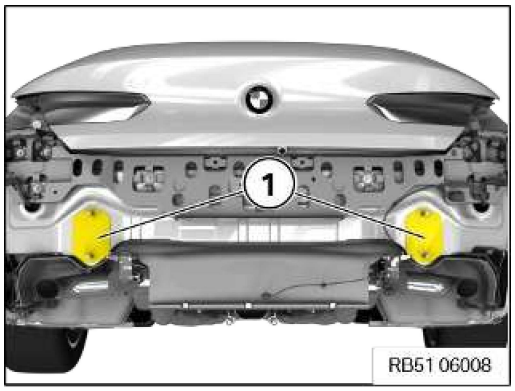


- Loosen nuts (1).
- Remove the support for rear bumper panel (2).

9 – Installing the support for the bumper panel at the rear

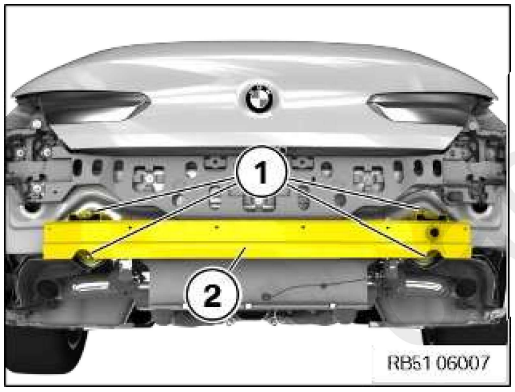
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Renew seals (1).

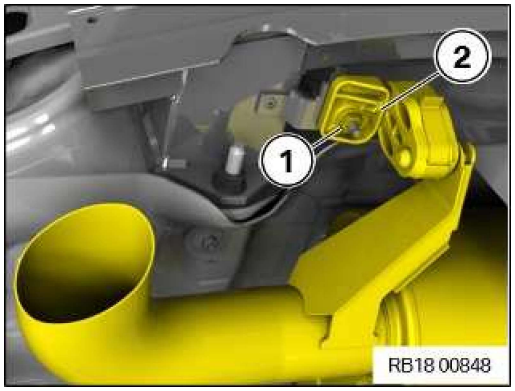
  Parts: Gasket



- Position the support for the rear bumper panel (2).
- Tighten nuts (1).

Support to impact plate

M12 hexagon nut		Tightening torque	108 Nm



- **If installed:**
- Position the rear silencer with the holder (2) on the left and right of the support for rear bumper panel.
- Renew nut (1).

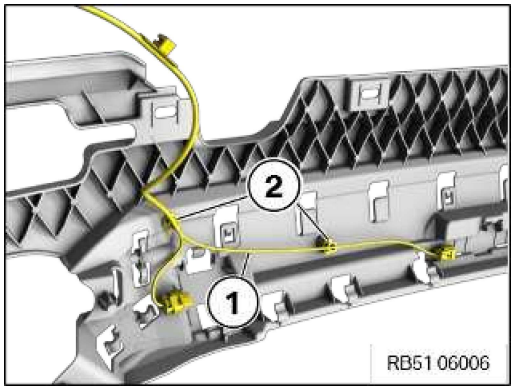
  Parts: Nut
- Tighten the nut (1) on the left and right.

Rear silencer to support

M8 hexagon nut		Tightening torque	19 Nm

POSTPROCESSES

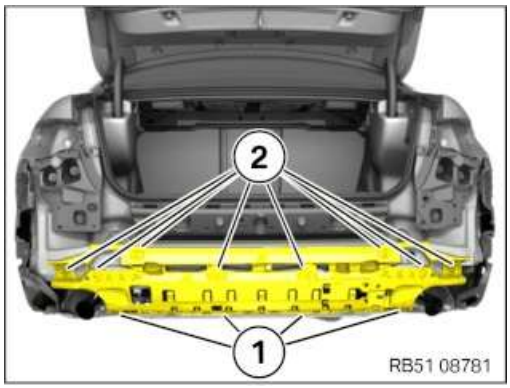
10 – Installing the brace for the rear bumper panel



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Position the brace.
- Clip in the wiring harness (1) with the holders (2).
- Depending on the equipment, connect and lock all connectors.

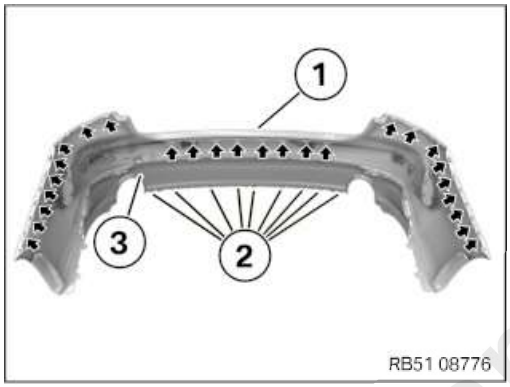


- Position the brace.
- Secure expanding rivet (2).
- Tighten the screws (1).

Diffuser, rear

Screw		Tightening torque	3 Nm

11 – Install rear bumper panel



Check

- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew the bumper panel (1).

Result

» Latch mechanisms (2) are damaged.

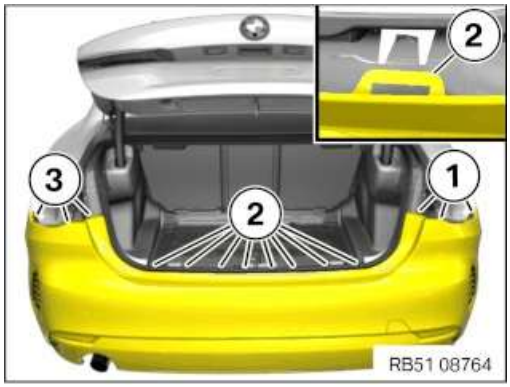
Measure

- Renew the bumper trim (3).



- Position the bumper panel.
- Connect connectors (1) and lock.

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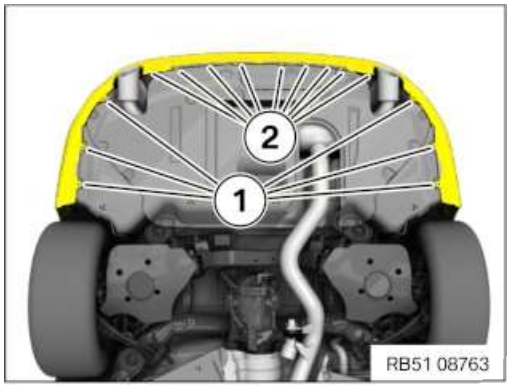
- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).



NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).



- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

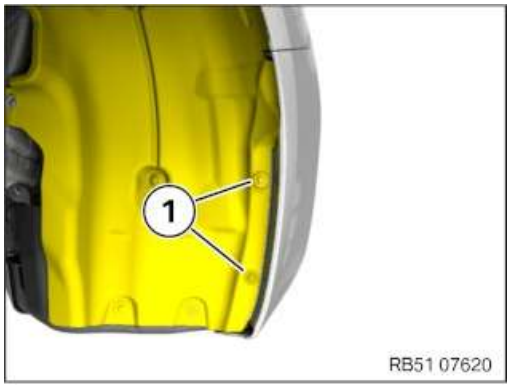
Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm

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NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

12 – Installing the rear light on the left and right side panels

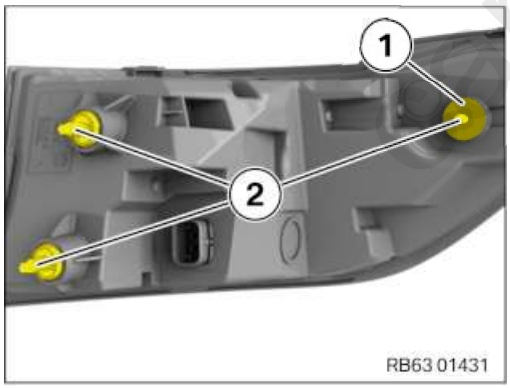
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install the rear light on the side panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

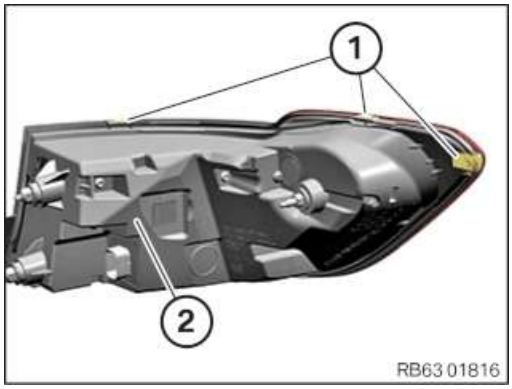
- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

Result

» The threaded inserts are damaged.

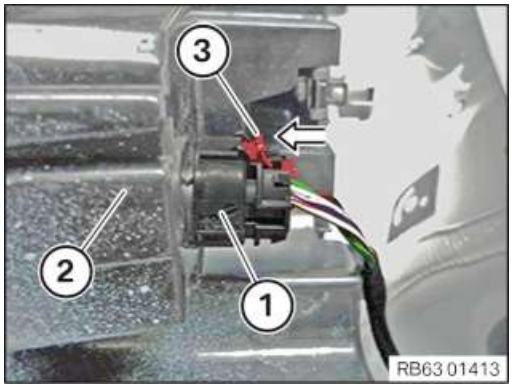
Measure

- Replace rear light.



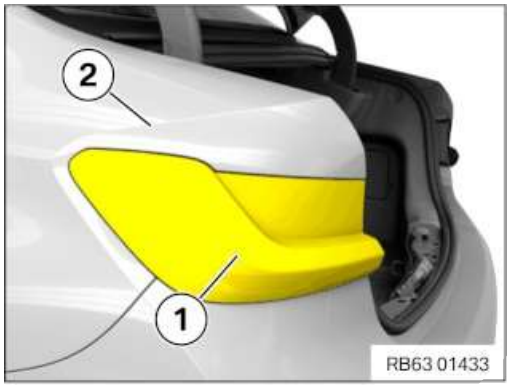
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.

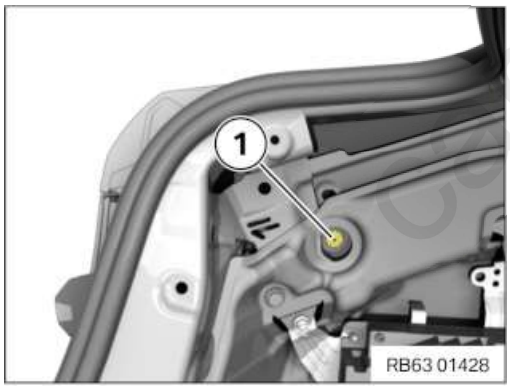


- Connect the connector (1) to the rear light on the side panel (2).

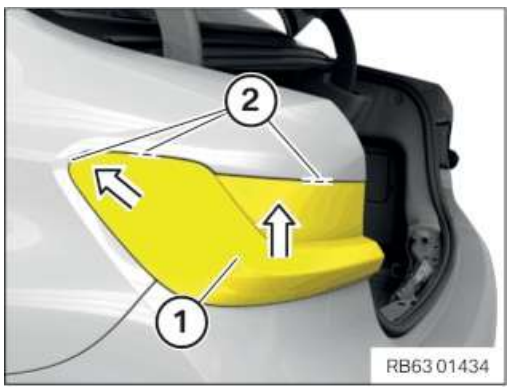
  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).



- Position the rear light on the side panel (1) on the side panel (2).

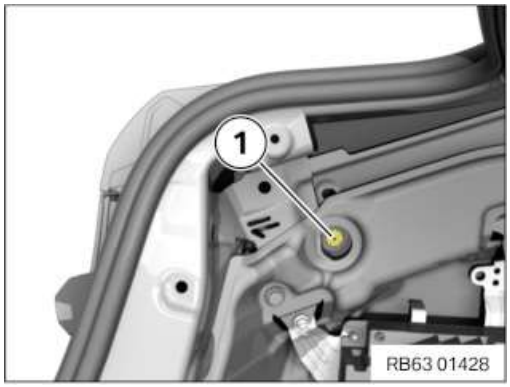


- Position the nut (1).



- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.

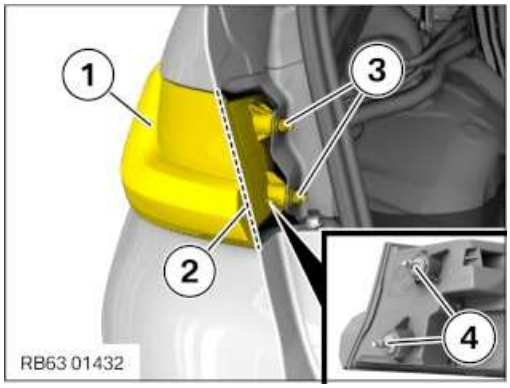
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- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

13 – Installing trim in water channel on left and right

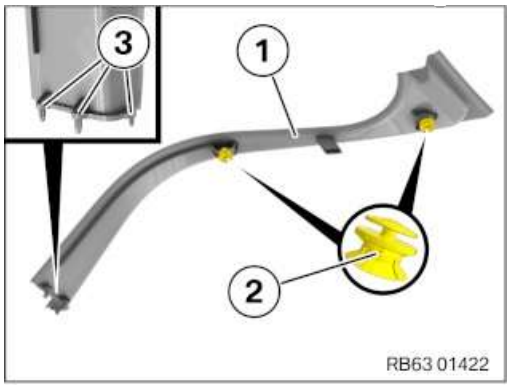
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing trim in water channel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

Result

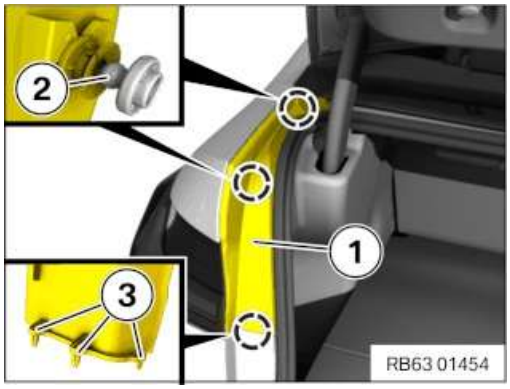
» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim

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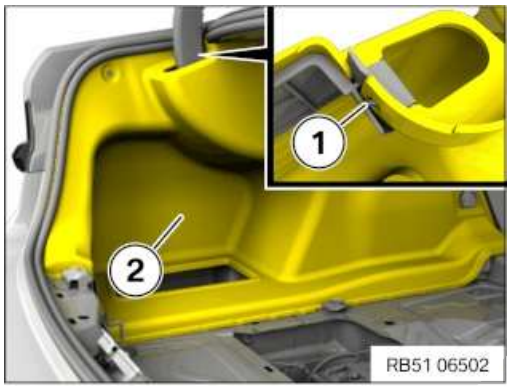
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

14 – Partially installing the luggage compartment wheel arch trim panel on the left and right

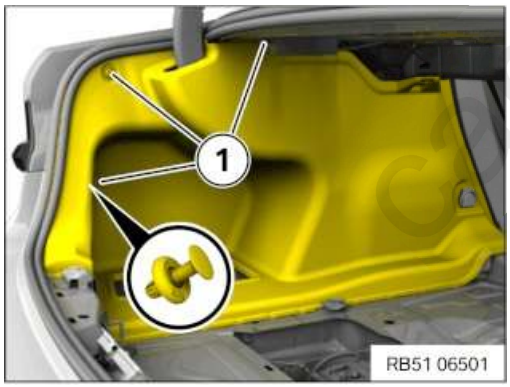
▸ Partially installing the left luggage compartment wheel arch trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



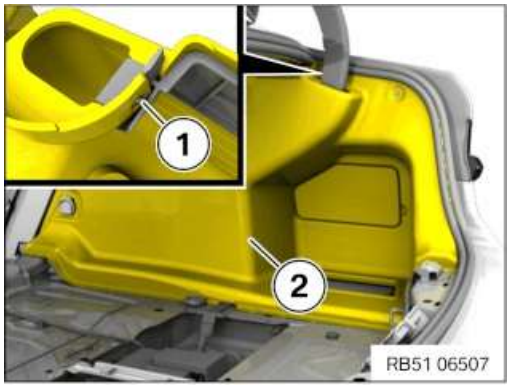
- Secure expanding rivet (1).

▸ Partially installing right luggage compartment wheel arch trim panel

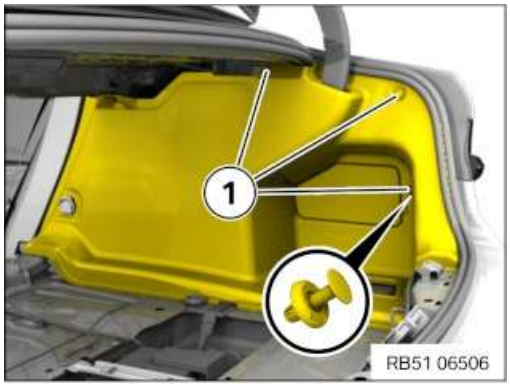
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

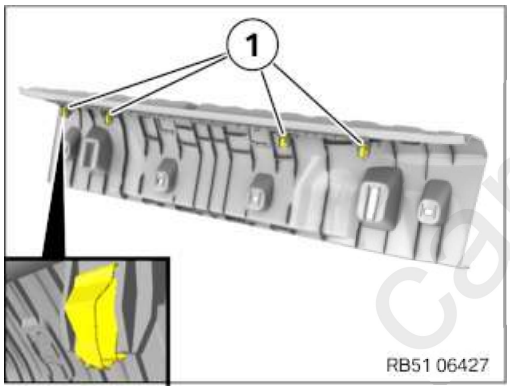


- Secure expanding rivet (1).

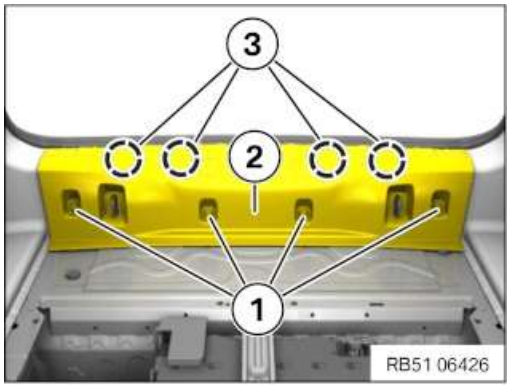
15 – Installing loading edge trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check the clamps (1) for damage and renew if necessary.



- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

16 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Support to impact plate			Used in step 9
M12 hexagon nut		Tightening torque	108 Nm

Rear silencer to support			Used in step 9
M8 hexagon nut		Tightening torque	19 Nm

Diffuser, rear			Used in step 10
Screw		Tightening torque	3 Nm

Rear bumper trim panel to guide			Used in step 11
Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body			Used in step 11
Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel			Used in step 11
Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 12
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	**Used in step**
61 13 ... Unlocking and disconnecting different plug connections	5

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51 12 157 Replace rear bumper panel

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



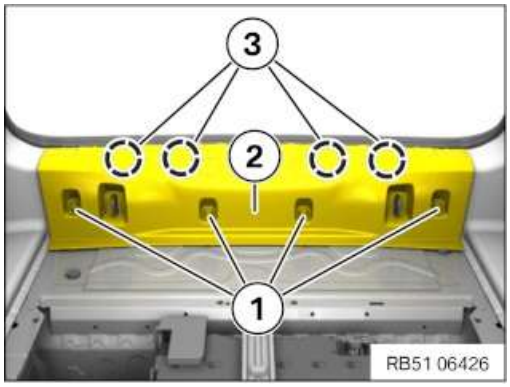
- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



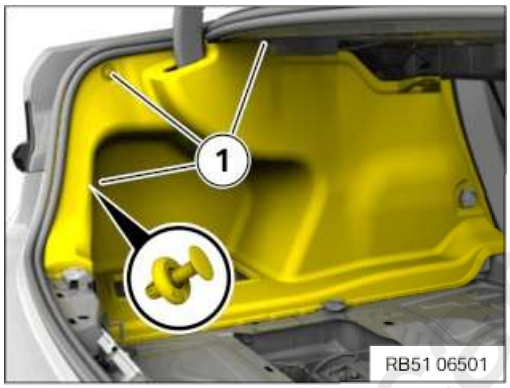
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing part of the luggage compartment wheel arch trim panel on the left and right

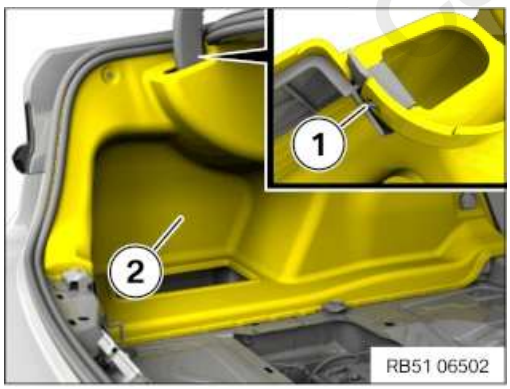
▸ **Partially remove luggage compartment wheel arch panel on left**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen the expanding rivet (1).



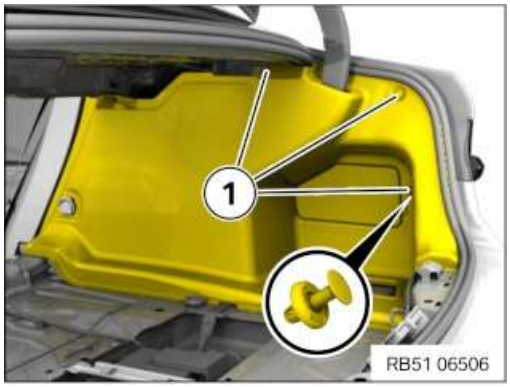
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

▸ **Partially remove luggage compartment wheel arch panel on right**

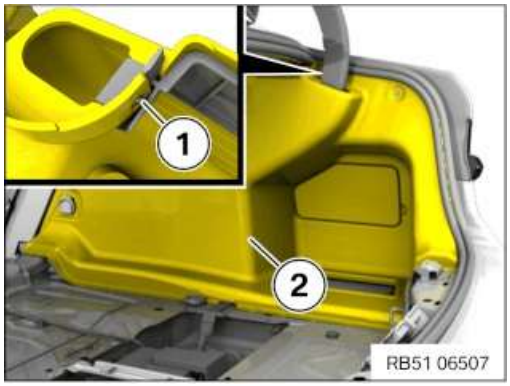
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Loosen the expanding rivet (1).



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip of the tailgate seal and release it in the rear area.

4 – Removing trim from water channel on left and right

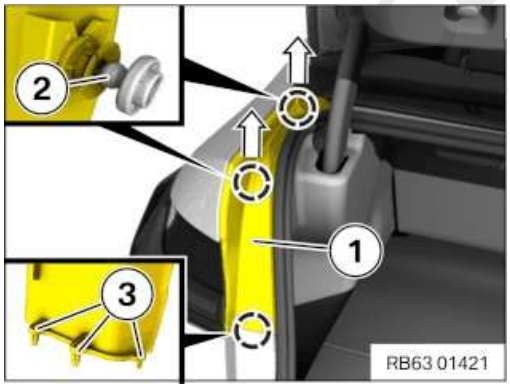
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing trim from water channel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Unclip trim (1) in upward direction from ball pins (2).
- Release trim (1) from guides (3) and remove.

5 – Removing the rear light on the left and right side panels

NOTICE

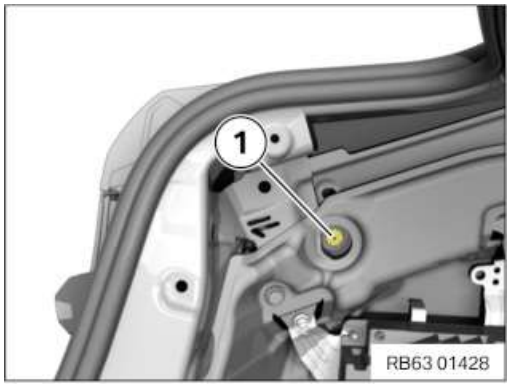
Description is for left component only. Procedure on the right side is identical.

▸ **Removing the rear light on the side panel**

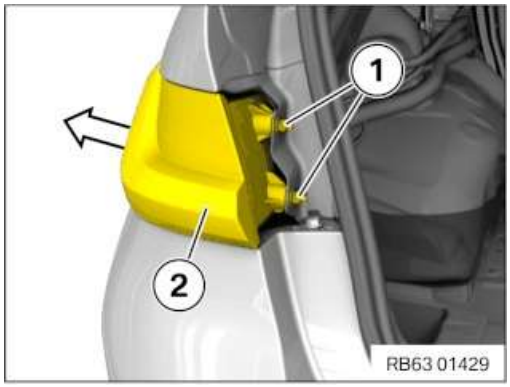
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NOTICE

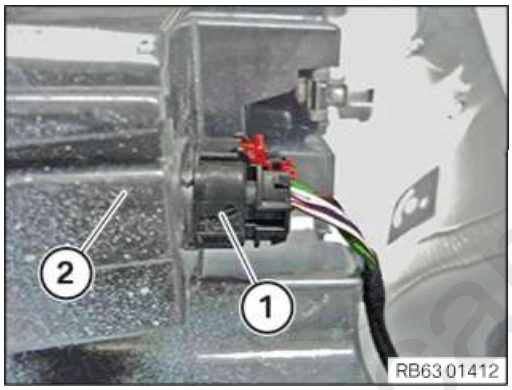
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen nut (1).



- Release the nuts (1) and feed out the rear light on the side panel (2) in the direction of arrow.



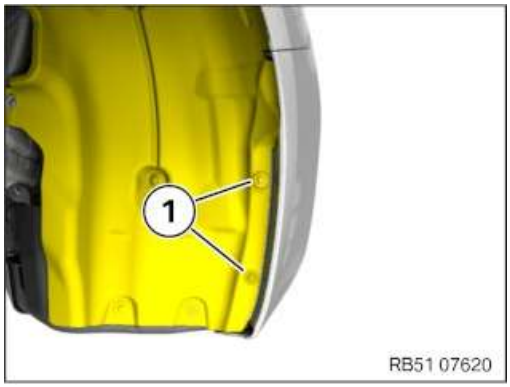
TECHNICAL INFORMATION

Observe note on unlocking and disconnecting plug connections.

For additional information see: 6113 ... Unlocking and disconnecting different plug connections

- Unlock plug connection (1) and disconnect.
- Remove the rear light on the side panel (2).

6 – Remove rear bumper panel



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Loosen screws (1).

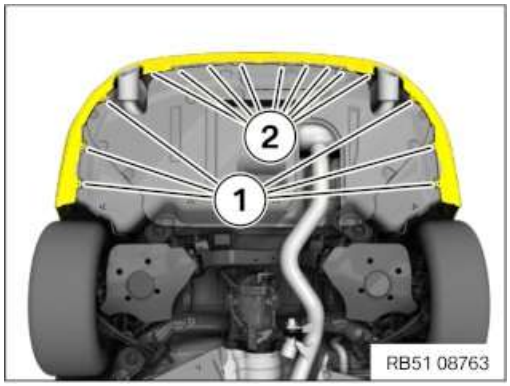
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NOTICE

Perform the operations on the left and right side.

- Release the screw (1).



- Loosen screws (1).
- Release the bumper panel at the latch mechanisms (2).



NOTICE

Perform the operations on the left and right side.

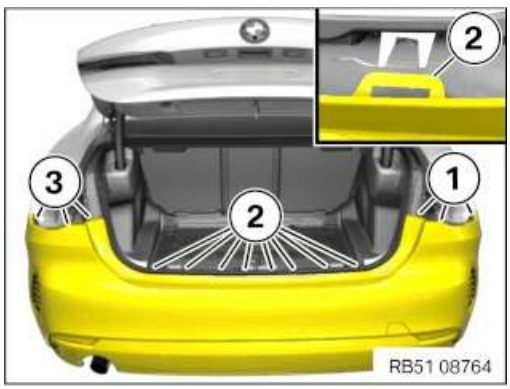
- Release the screw (1).



NOTICE

Perform the operations on the left and right side.

- Release the bumper panel with the latch mechanisms (1).



- Release the bumper panel with the latch mechanisms (1).
- Release the bumper panel from the latch mechanisms (2) starting from the right.
- Release the bumper panel from the latch mechanisms (3)



- Unlock plug connection and disconnect.
- Remove bumper panel.

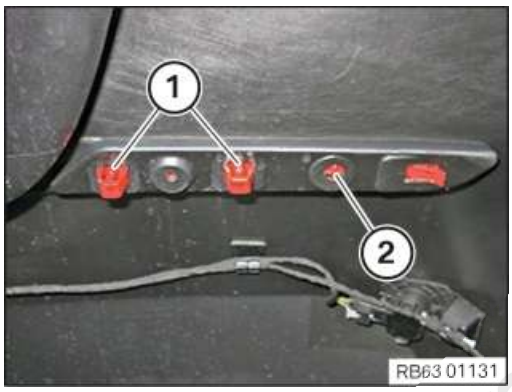
MAIN WORK

7 – Removing rear reflector on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove rear reflector**



NOTICE

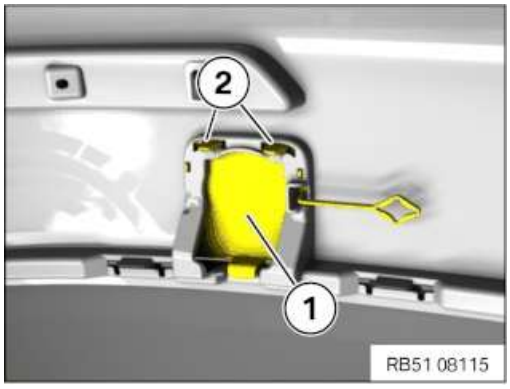
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Release the retaining lugs (1) and feed out the rear reflector (2) from the bumper panel.

8 – Removing towing eye cover

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



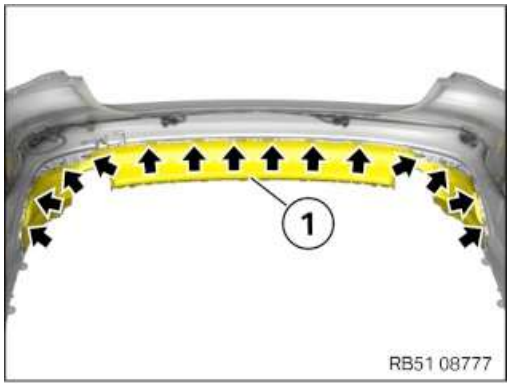
- Clip cover for towing eye (1) using latch mechanisms (2).
- Guide out the tether and remove cover for towing eye (1) .

9 – Removing the trim on the rear bumper panel

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

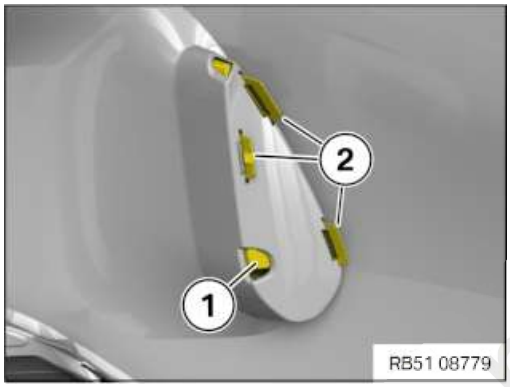


- Release the trim (1) with the latch mechanisms (arrows) and remove it from the bumper panel.

10 – Removing the grille of the left and right bumper panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

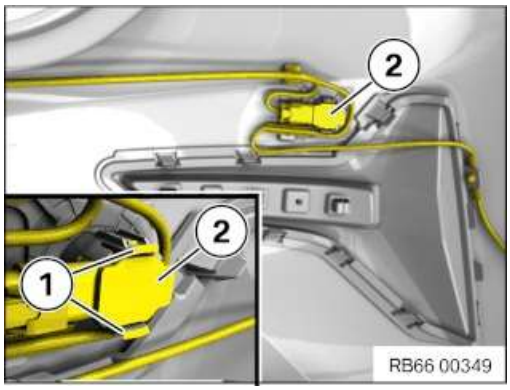


- Release the grille (1) with the latch mechanisms (2) and remove it.

11 – If installed: Partially remove ultrasonic sensors (additional work with Park Distance Control)

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Unlock latch mechanisms (1) and release ultrasonic sensor(2) from the bumper panel.

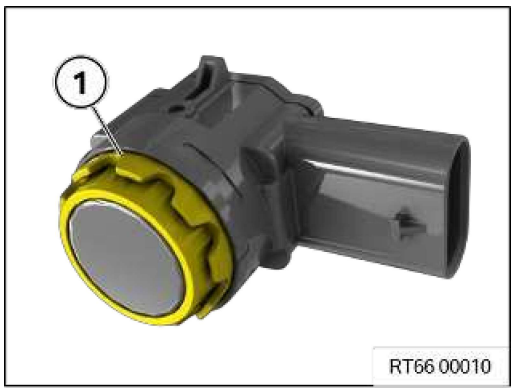
  The ultrasonic sensor (2) remains connected to the vehicle wiring harness.
- Perform the step on all the other ultrasonic sensors.
- Release the wiring harness with all holders from bumper panel.
- Remove the wiring harness with the connected ultrasonic sensors.

12 – If installed: Partially install ultrasonic sensors (additional work with Park Distance Control)

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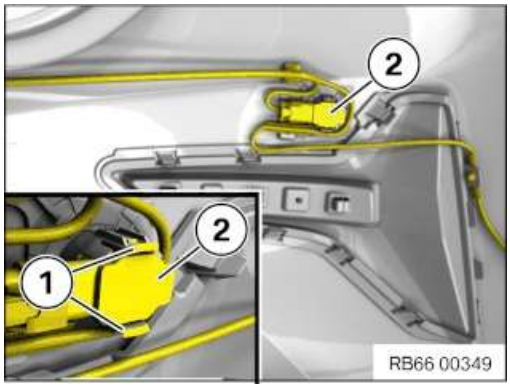
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check the decoupling ring (1) for damage and renew the decoupling ring as needed.

  The decoupling ring must not be missing.

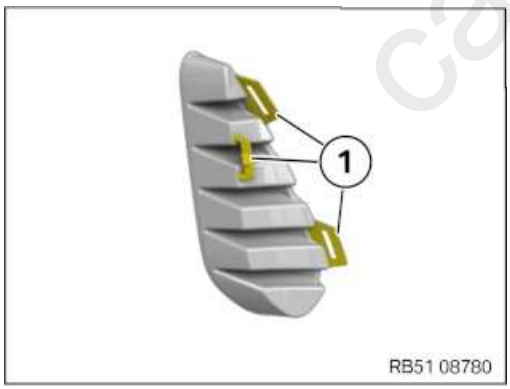


- Position the wiring harness with the associated ultrasonic sensors.
- Clip in the wiring harness with all holders in the bumper panel.
- Insert the ultrasonic sensor (2) and clip in to the latch mechanisms.(1)
- Perform the step on all the other ultrasonic sensors.

13 – Installing the grille in the left and right bumper panel

NOTICE

Description is for left component only. Procedure on the right side is identical.



Check

- Check the latch mechanisms (1) on the grille for damage.

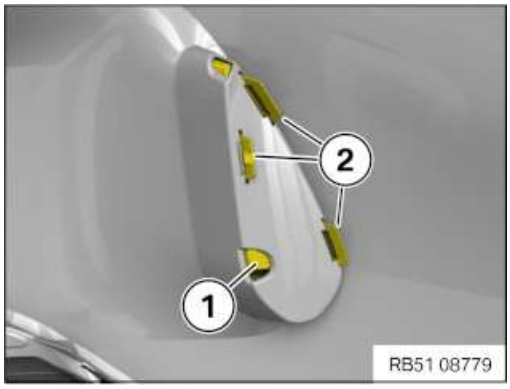
Result

» The latch mechanisms (1) are damaged.

Measure

- Renew grille.

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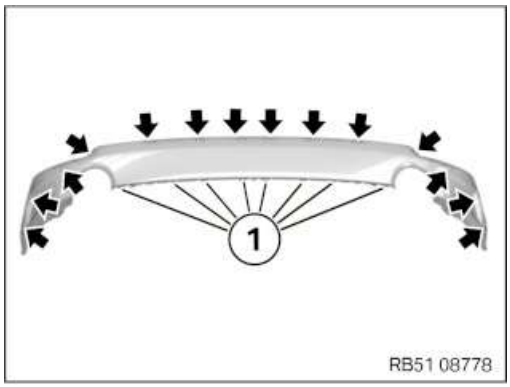


- Position the grille (1) and clip it in with the latch mechanisms (2).

14 – Installing the trim on the rear bumper panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

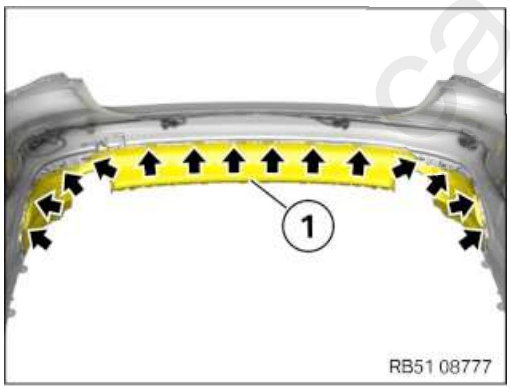
- Check the latch mechanisms (1) and the latch mechanisms (arrows) at the trim for damage.

Result

» The latch mechanisms (1) or the latch mechanisms (arrows) are damaged.

Measure

- Renew the trim .



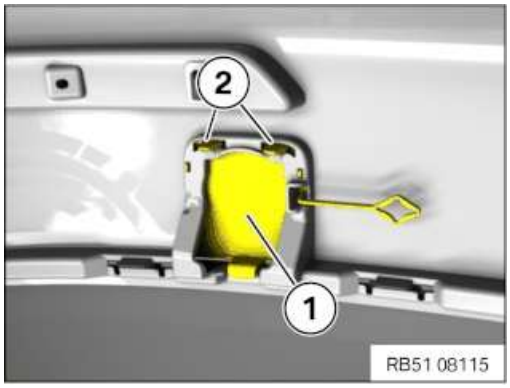
- Position the trim (1) and clip it with the latch mechanisms (arrows) into the bumper panel.

15 – Installing the cover of the towing eye

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Guide in tether.
- Insert the cover for towing eye (1) and clip it in with the latch mechanisms (2) .

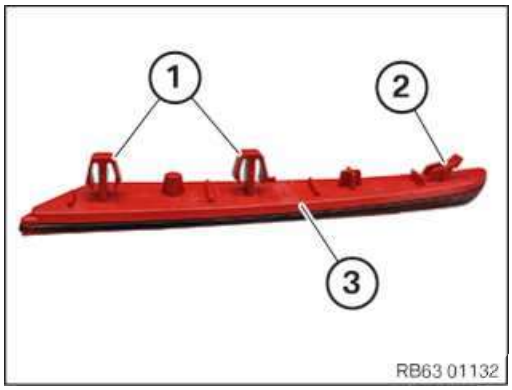
16 – Install the left and right rear reflector

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing rear reflector**

Check



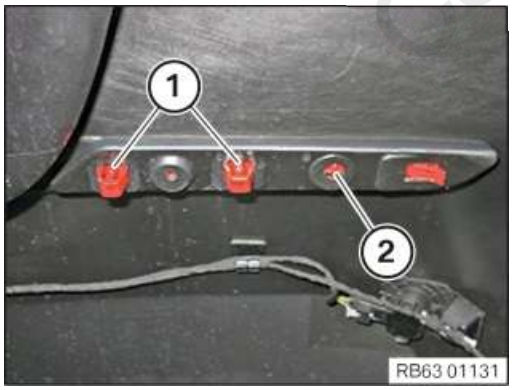
- Check retaining lugs (1) and guide (2) on rear reflector (3) for damage.

Result

» Latch mechanisms (1) or guide (2) are damaged.

Measure

- Renew rear reflector (3).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

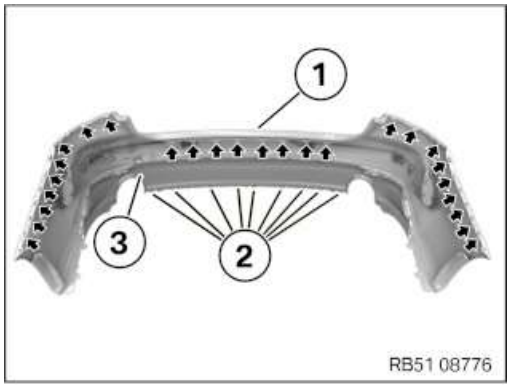
- Position rear reflector (2) in the bumper panel and clip it in with retaining lugs (1).

POSTPROCESSES

17 – Install rear bumper panel

Check

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- Check the latch mechanisms (arrows) on the bumper panel (1) for damage.

  Check the latch mechanisms (2) on the bumper trim (3) for damage.

Result

» Latch mechanisms (arrows) are damaged.

Measure

- Renew the bumper panel (1).

Result

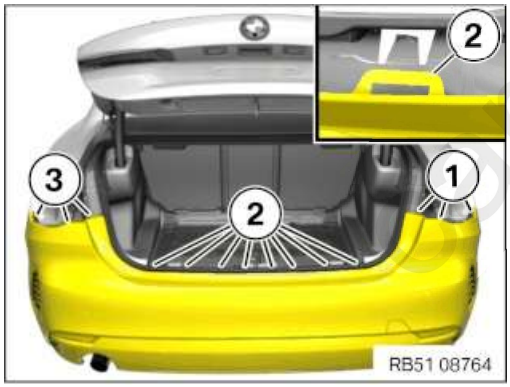
» Latch mechanisms (2) are damaged.

Measure

- Renew the bumper trim (3).



- Position the bumper panel.
- Connect connectors (1) and lock.



- Clip in the bumper panel with the latch mechanisms (1),(2) and (3).

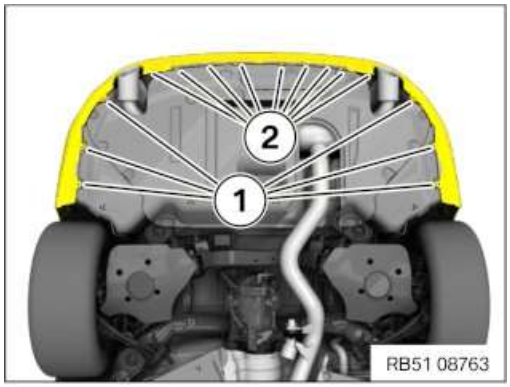


NOTICE

Perform the operations on the left and right side.

- Clip in the bumper panel with latch mechanisms (1).

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- Clip in the bumper panel with latch mechanisms (2).
- Tighten the screws (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Rear bumper trim panel to guide

Hexagon screw		Tightening torque	2.5 Nm



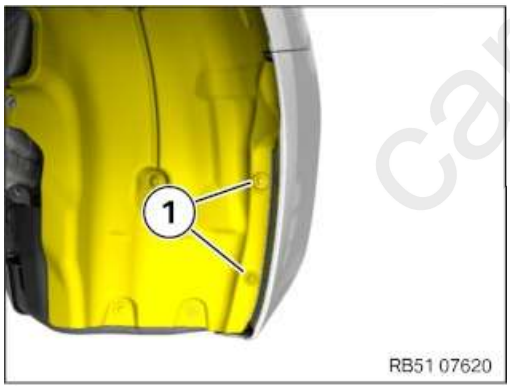
NOTICE

Perform the operations on the left and right side.

- Tighten down screw (1).

Lower bumper panel to body

Oval-head screw		Tightening torque	2.5 Nm



NOTICE

Perform the operations on the left and right side.

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Tighten the screws (1).

Rear wheel arch cover to bumper trim panel

Hexagon screw		Tightening torque	2,6 Nm

18 – Installing the rear light on the left and right side panels

NOTICE

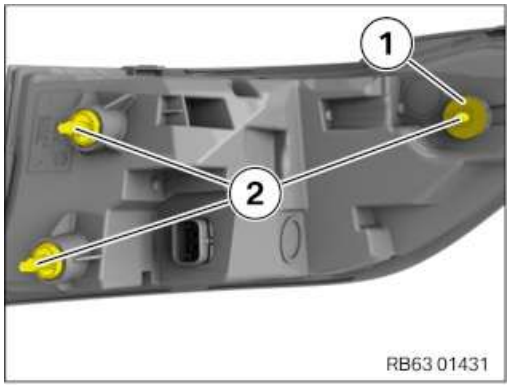
Description is for left component only. Procedure on the right side is identical.

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▸ **Install the rear light on the side panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

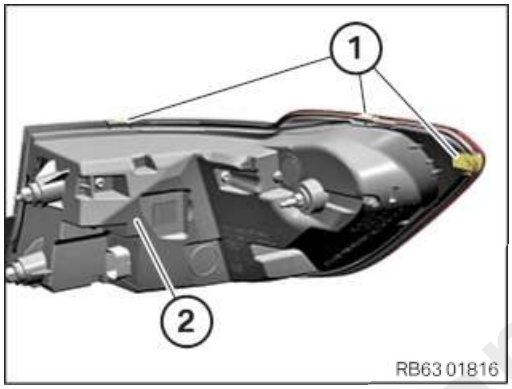
- Check the seal (1) for damage and renew if necessary.
- Check the threaded inserts (2) for damage.

Result

» The threaded inserts are damaged.

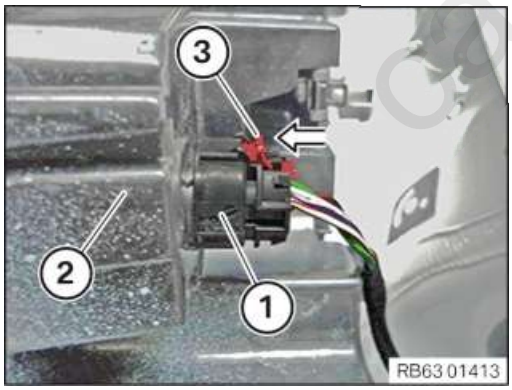
Measure

- Replace rear light.



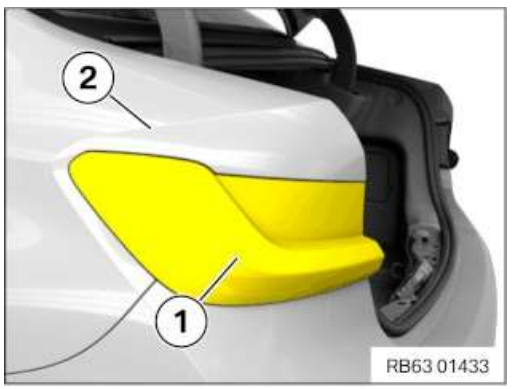
- Contact surfaces (1) on rear light (2) must not be damaged or missing.

  Missing contact surfaces (1) could cause paintwork damage.



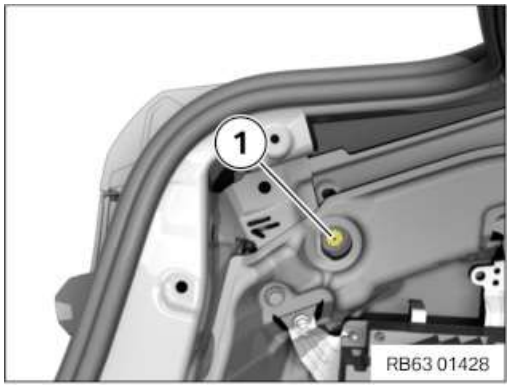
- Connect the connector (1) to the rear light on the side panel (2).

  The connector (1) must engage audibly.
- Lock the lock in direction of arrow (3).

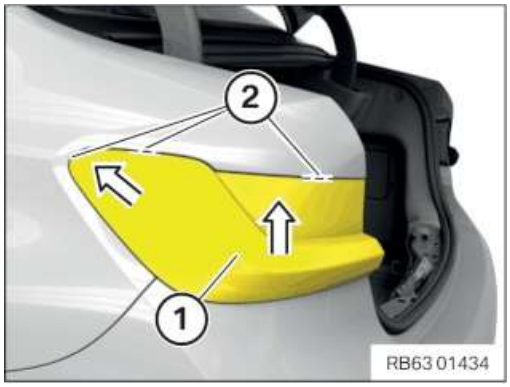


- Position the rear light on the side panel (1) on the side panel (2).

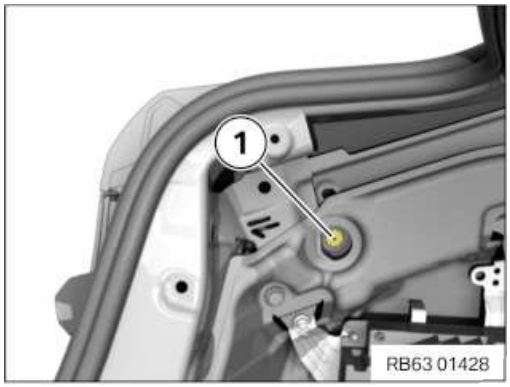
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- Position the nut (1).



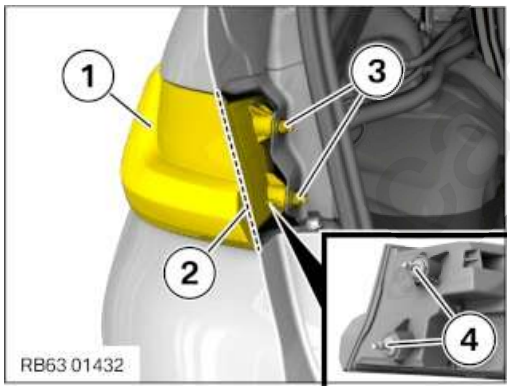
- Position the rear light on the side panel (1) to the front at the top.
- Move the contact surfaces (2) of the rear light on the side panel (1) upwards (arrow) so that they are in place.
- Hold the rear light on the side panel (1) in position.



- Tighten nut (1).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm



- Position nuts (3).
- Align rear light on the side panel (1) with the connecting line (2).

  The alignment is done through threaded inserts (4) on the rear light on the side panel (2).
- If necessary, correct the position of the rear light on the side panel (1) by twisting threaded inserts (4).
- Tighten nuts (3).

Rear light to side panel to body

Combination hexagon nut		Tightening torque	4 Nm

19 – Installing trim in water channel on left and right

NOTICE

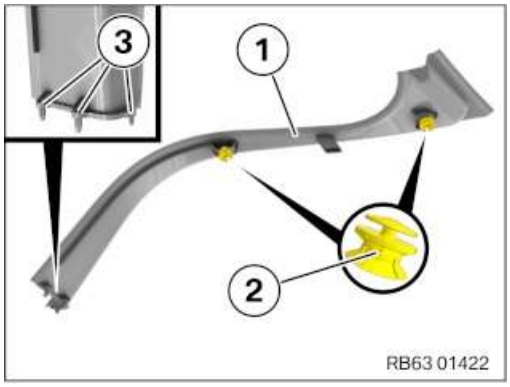
Description is for left component only. Procedure on the right side is identical.

▸ **Installing trim in water channel**

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

- Check clips (2) for damage and renew if necessary.
- Check guides (3) for damage.

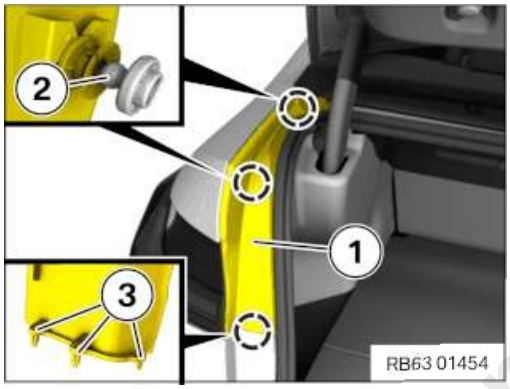
Result

» The guides are damaged.

Measure

- Renew the trim .

  Parts: trim



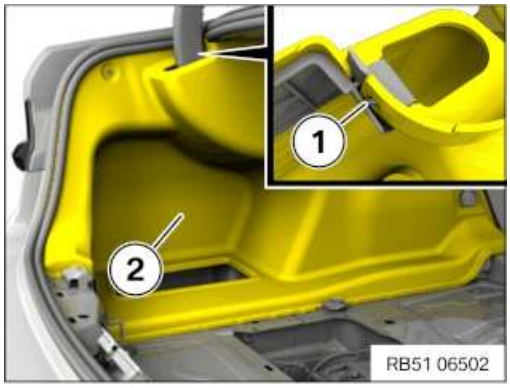
- Insert trim (1) in guides (3).
- Clip trim (1) from above into ball pins (2).

20 – Partially installing the luggage compartment wheel arch trim panel on the left and right

▸ Partially installing the left luggage compartment wheel arch trim panel

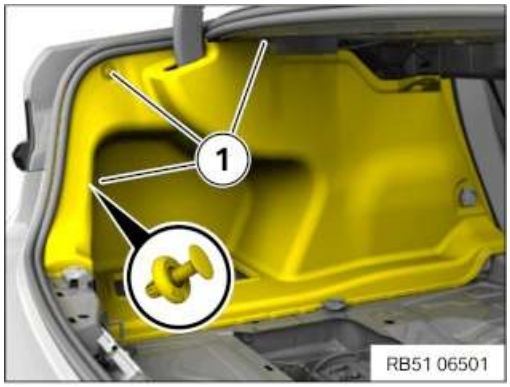
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Feed the luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).

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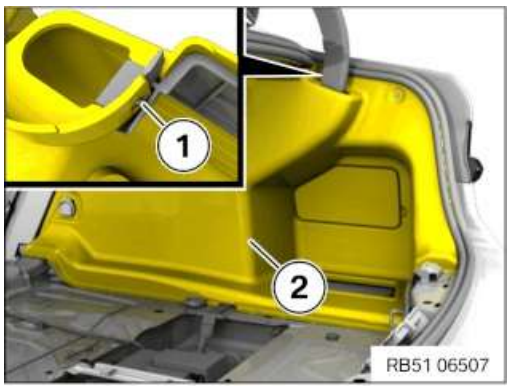


- Secure expanding rivet (1).

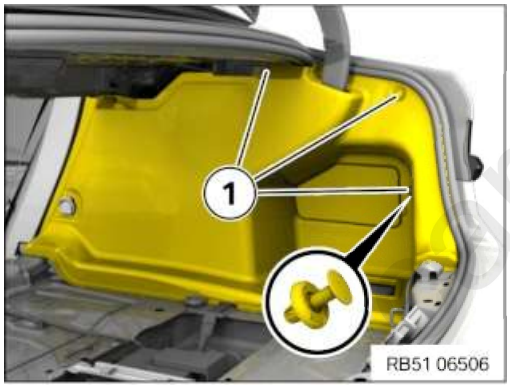
▸ **Partially installing right luggage compartment wheel arch trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Guide luggage compartment wheel arch trim panel (2) into the rear area under the sealing lip of the tailgate seal.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



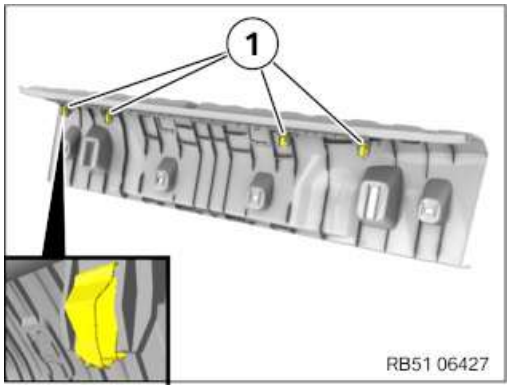
- Secure expanding rivet (1).

21 – Installing loading edge trim

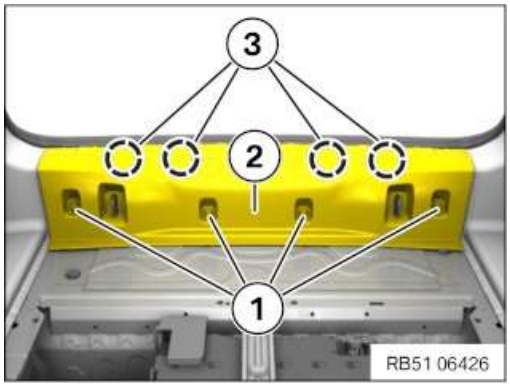
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Check the clamps (1) for damage and renew if necessary.



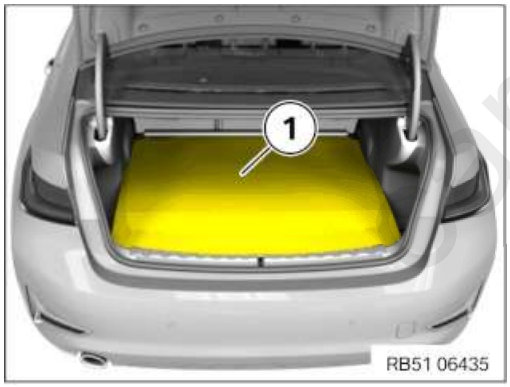
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

22 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Rear bumper trim panel to guide — Used in step 17

Hexagon screw		Tightening torque	2.5 Nm

Lower bumper panel to body — Used in step 17

Oval-head screw		Tightening torque	2.5 Nm

Rear wheel arch cover to bumper trim panel — Used in step 17

Hexagon screw		Tightening torque	2,6 Nm

Rear light to side panel to body			Used in step 18
Combination hexagon nut		Tightening torque	4 Nm

Links

Repair instructions	Used in step
61 13 ... Unlocking and disconnecting different plug connections	5

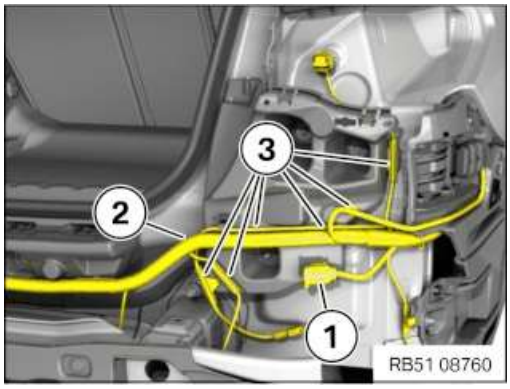
cardiagn.com

51 12 841 Replacing corner section of right bumper guide

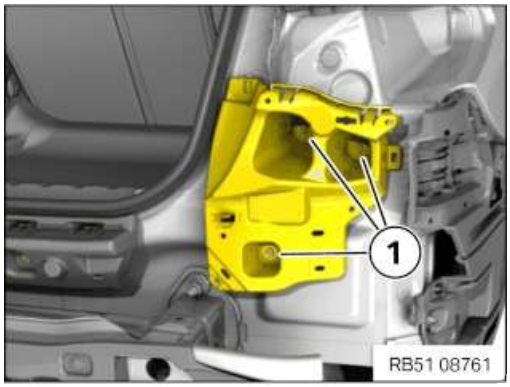
1 – Removing corner section of right bumper guide

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Unclip the connector (1) with the holder.
- Release the wiring harness (2) with the holders (3).

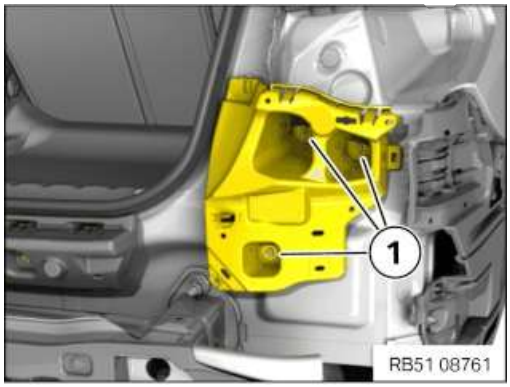


- Release nuts (1).
- Remove the corner section of the bumper guide on the right.

2 – Installing the corner section of the right bumper guide

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

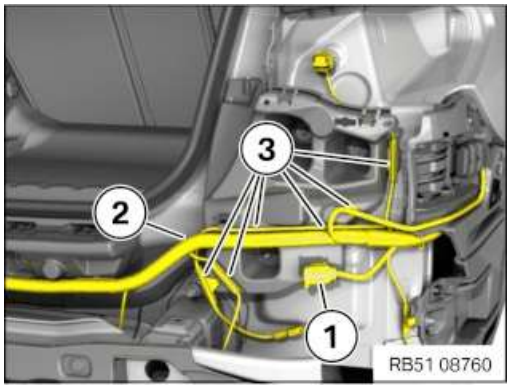


- Position the corner section of right bumper guide.
- Tighten nuts (1).

Guide, side, to body

Combination hexagon nut		Tightening torque	4,6 Nm

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- Clip in the connector (1) in the holder.
- Clip in the wiring harness (2) with the holders (3).

Additional Information

Overview of Tightening Torques

Guide, side, to body — Used in step 2

Combination hexagon nut		Tightening torque	4,6 Nm

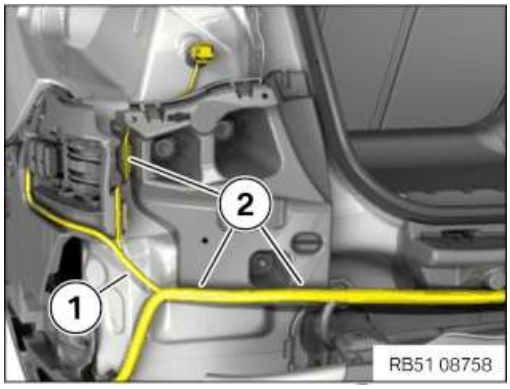
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51 12 840 Replacing the corner section of the left bumper guide

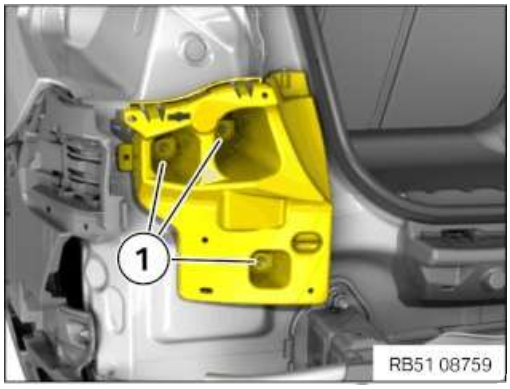
1 – Removing the corner section of the bumper guide

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Release the wiring harness (1) with the holders (2).

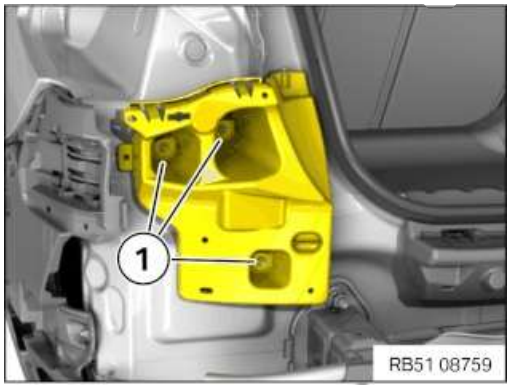


- Release nuts (1).
- Remove the corner section of the bumper guide.

2 – Installing the corner section of the bumper guide

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

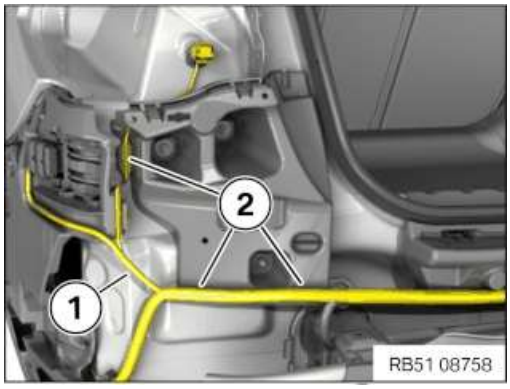


- Position the corner section of the bumper guide.
- Tighten nuts (1).

Guide, side, to body

Combination hexagon nut		Tightening torque	4,6 Nm

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- Clip in the wiring harness (1) with the holders (2).

Additional Information

Overview of Tightening Torques

Guide, side, to body			Used in step 2
Combination hexagon nut		Tightening torque	4,6 Nm

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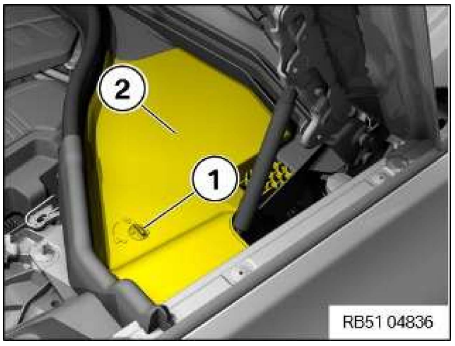
51 13 116 Remove and install cowl panel cover

TECHNICAL INFORMATION

Before installing the cowl panel cover it is **mandatory** to check that the 48 V line is routed correctly and fitted tightly.
An incorrectly laid or attached 48 V line can be damaged by the wiper kinematics.

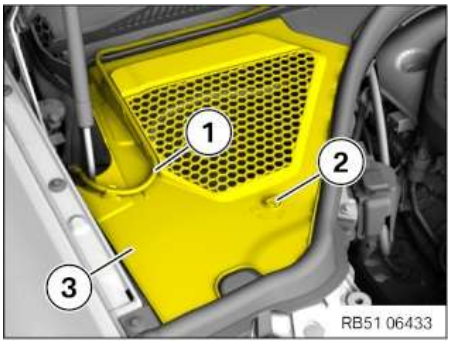
PRELIMINARY WORK

1 – Remove the cover of the engine compartment at the rear left



- Loosen the lock (1).
- Remove the cover (2) of the rear left engine compartment.

2 – Remove the cover of the rear right engine compartment



- Release washer fluid hose (1) from the guides.
- Loosen the lock (2).
- Remove the cover (3) of the rear right engine compartment.

3 – Removing the wiper arm on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the wiper arm**

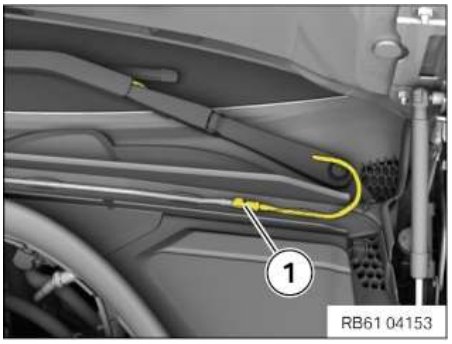
RISK OF DAMAGE

Damage to wiper console.

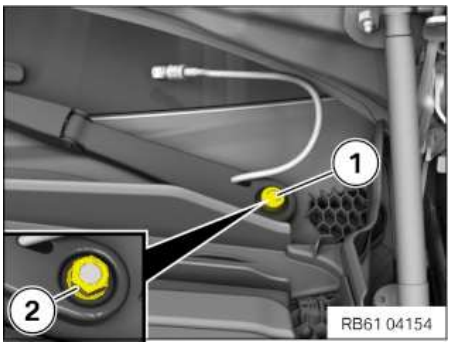
While removing the wiper arms without using special tool, the wiper console can break.

- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.

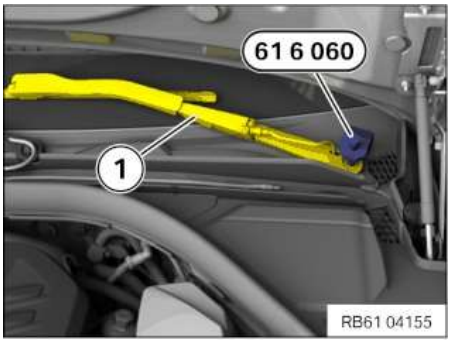
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- Disconnect the washer fluid hose (1) at the separation point and feed out from the cowl panel guide.



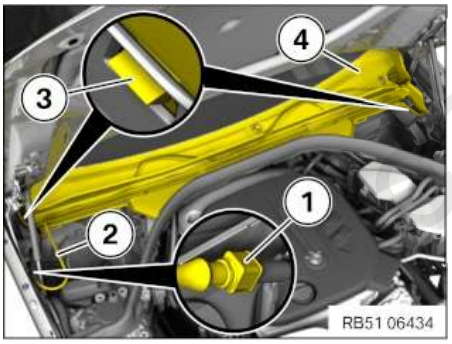
- Remove the protective cap (1).
- Loosen nut (2).



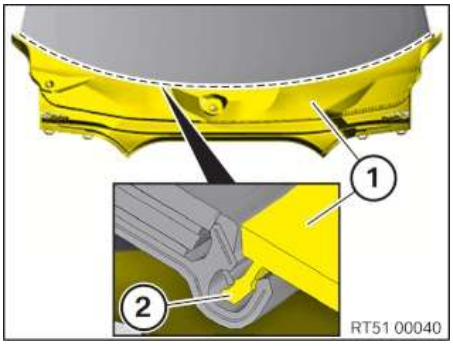
- Pull off the wiper arm (1) using special tool .

MAIN WORK

4 – Remove cowl panel cover



- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).



- Pull the cowl panel cover (1) upward out of the latch mechanism (2) beginning on the side.

5 – Installing cowl panel cover

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RISK OF DAMAGE

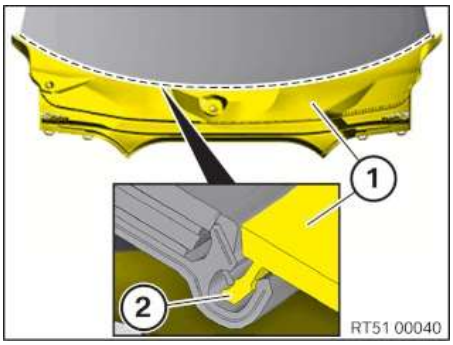
Damage caused by water ingress into the vehicle.

Water ingress into the vehicle may result in damage to components, malfunctions and corrosion.

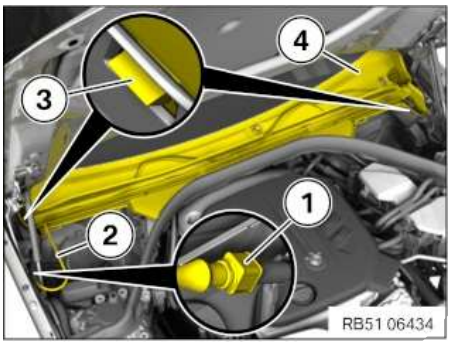
- Ensure correct installation of the components.
- Only use undamaged components.

TECHNICAL INFORMATION

Before installing the cowl panel cover it is **mandatory** to check that the 48 V line is routed correctly and fitted tightly.
An incorrectly laid or attached 48 V line can be damaged by the wiper kinematics.



- Push the cowl panel cover (1) into the latch mechanism (2) beginning on the side.



- Clip cowl panel cover (4)in by means of the latch mechanisms (3).
- Position windscreen wash hose (2) and connect windscreen wash hose (1)quick lock.

POSTPROCESSES

6 – Install left and right wiper arm

NOTICE

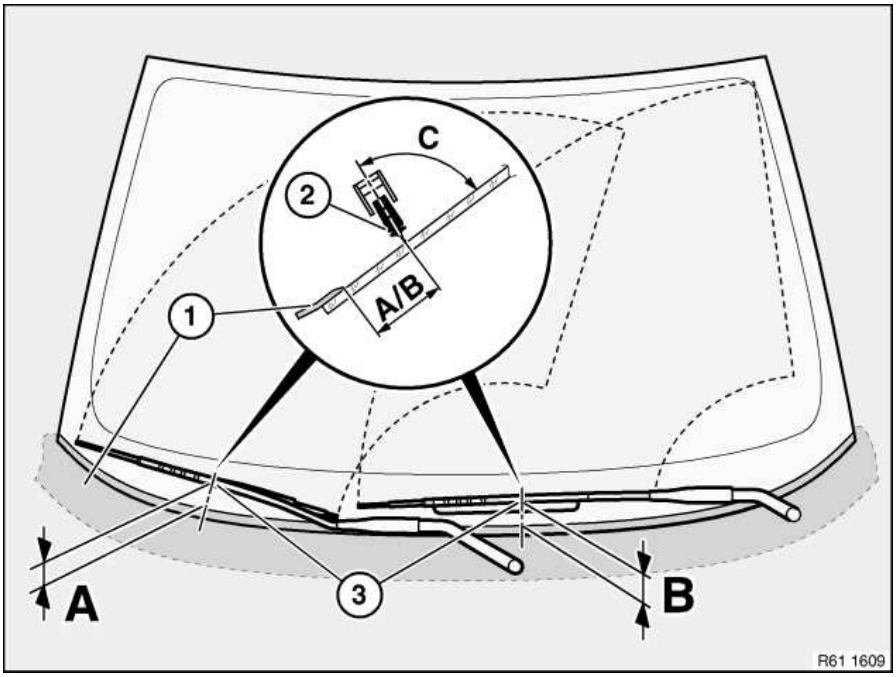
Description is for left component only. Procedure on the right side is identical.

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

The wiper system must be in zero position.
After installing the cowl panel cover and before fitting the wiper arm:
Activate the wiper system once to ensure that it has the correct installation position.

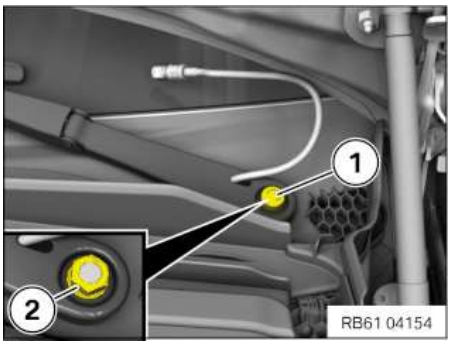
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- Connect the wiper arm (3).
- Correctly position the wiper arm (2) in relation to the window edge (1).

Distance from window pane edge to wiper blade

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

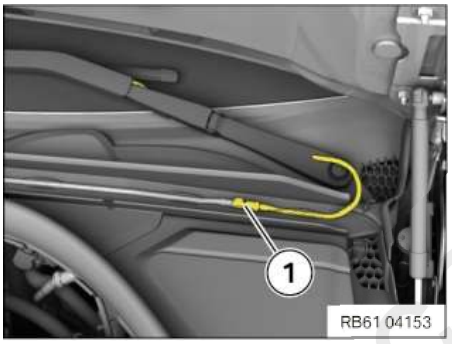


- Tighten nut (2).

Windscreen wiper arm

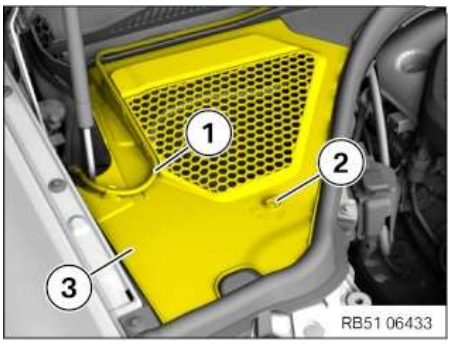
Combination hexagon nut		Tightening torque	35 Nm

- Connect the protective cap (1).



- Feed washer fluid hose (1) into the cowl panel guide and connect at the separation point.

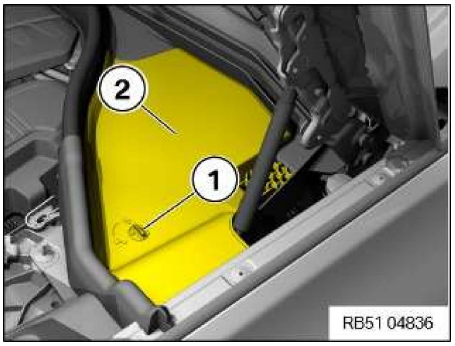
7 – Install the rear right engine compartment cover



- Position the cover of the engine compartment on the rear right (3).
- Close lock (2).
- Insert washer fluid hose (1) into the guides.

8 – Install the cover of the engine compartment on the rear left

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- Position the engine compartment cover at the rear left (2) .
- Close lock (1).

Additional Information

Overview of Tightening Torques

Windscreen wiper arm Used in step 6

Combination hexagon nut		Tightening torque	35 Nm

Overview of Special Tools

Overview Technical Data

Distance from window pane edge to wiper blade Used in step 6

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

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51 13 280 Removing and installing left or right roof trim strip

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

NOTICE

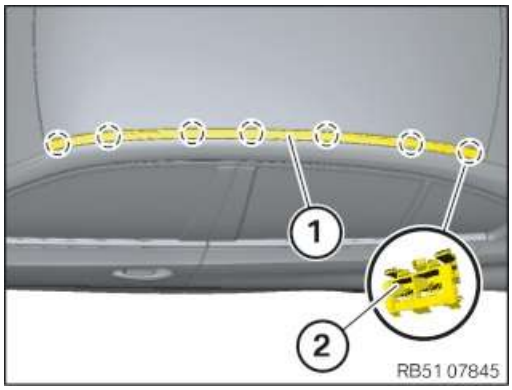
Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

Description is for left component only. Procedure on the right side is identical.

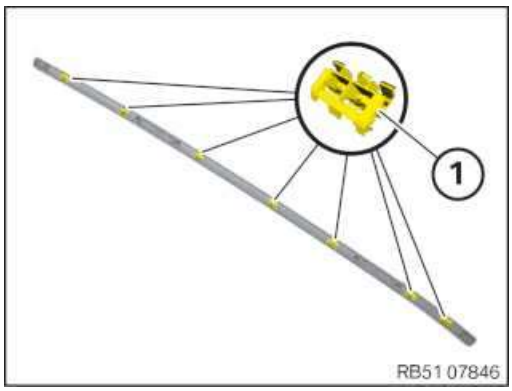
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1 – Remove the roof trim strip



- Starting from the rear, lever out the roof trim strip (1) on the roof frame from the clamps (2) to the top with the special tool 0 496 569 (00 9 325).
- Remove the roof trim strip (1).
- Remove the clips remaining on the roof (2) and assemble on the roof trim strip.

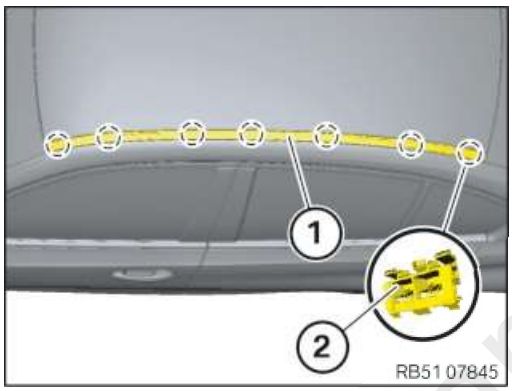
2 – Installing the roof trim strip



- Check the clamps (1) for damage and that they are present.

  Defective or missing clamps (1) need to be renewed.
- Position the roof trim strip on the roof.

  The position of the clamps (1) must agree with the corresponding holder on the roof.
- If necessary, move clamps on the roof trim strip.



- Engage the roof trim strip (1) in the clamps (2) on the roof frame, starting from the front.

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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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51 13 319 Removing and installing or replacing trim strip on gutter strip at rear left or right

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

NOTICE

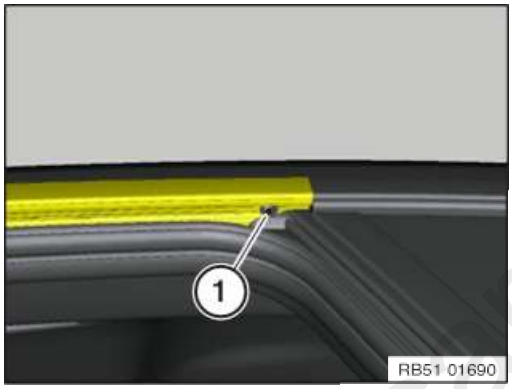
Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

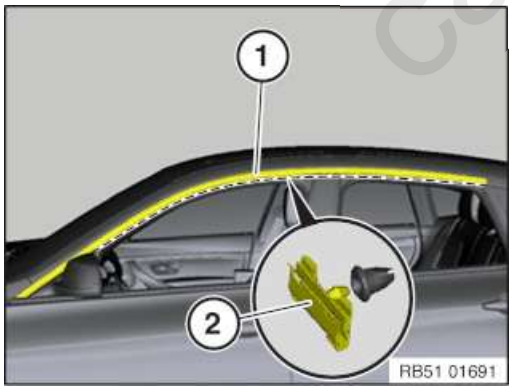
1 – Removing trim strip

Prerequisite

Front door is open.



- Release the screw (1) in the area of the B-pillar through the opening of the seal.



- Carefully release the trim strip (1) starting from the front with the special tool 0 496 569 (00 9 325) downwards at the clips (2).
- Carefully guide the trim strip (1) forward out of the trim strip on the side window and remove.

MAIN WORK

2 – Removing the trim strip on the rear side window

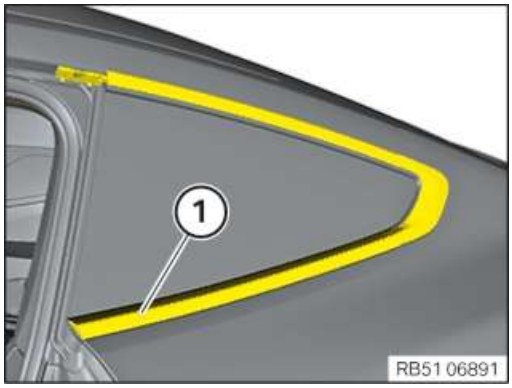
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RISK OF DAMAGE

Mechanical effects.

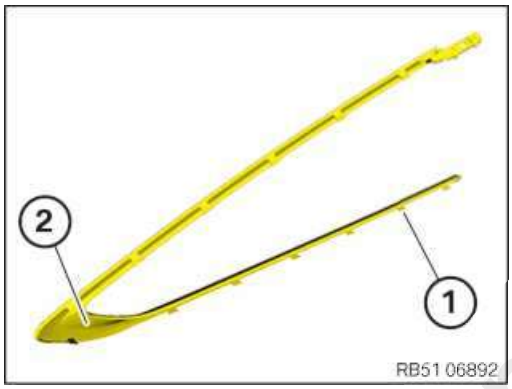
Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.



- Carefully lever the trim strip on the read side window (1) outwards using the special tool 0 496 569 (00 9 325), starting at the front.

3 – Install trim strip on the rear side window



Check

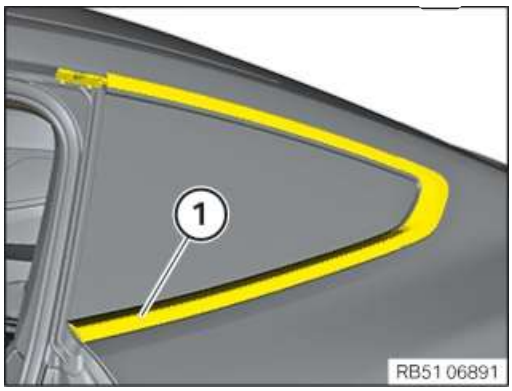
- Check tabs (1) on the trim strip on the rear side window (2) for damage.

Result

» Tabs (1) are damaged.

Measure

- Renew trim strip on the rear side window (2).



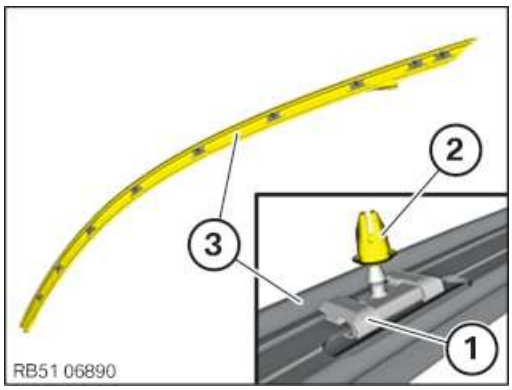
- Clip in the trim strip on the rear side window (1) on the body and clip onto the side window glass.

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4 – Installing the trim strip

Prerequisite

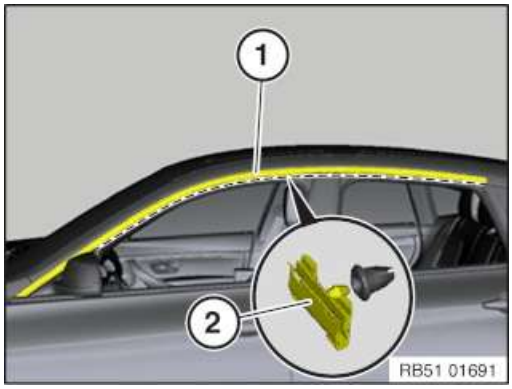
Front door is open.



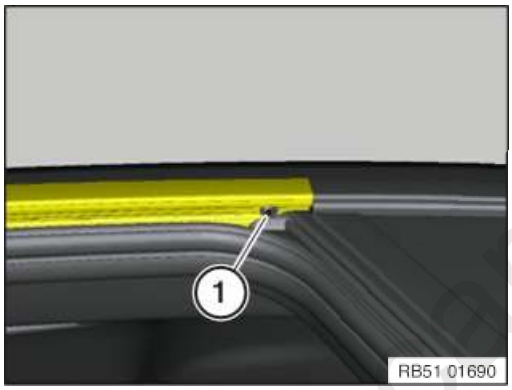
- Checks clamps (1) for damage.

  Defective or missing clamps (1) need to be renewed.
- If required, release the grommets (2) from the clamps (1) and mount on the body.

  Faults or missing grommets (2) must be renewed.
- Correctly position clamps (1) on trim panel (3).



- Carefully attach trim strip (1) and feed in at the trim strip on the side window.
- Carefully clip in the trim strip (1) starting from the rear at the clips (2).



- Tighten down screw (1).

Additional Information

Overview of Tightening Torques

Overview of Special Tools

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0 496 569 (00 9 325) Wedge



Common Used in step 12

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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51 13 316 Removing and installing or replacing trim strip on roof gutter at left or right

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

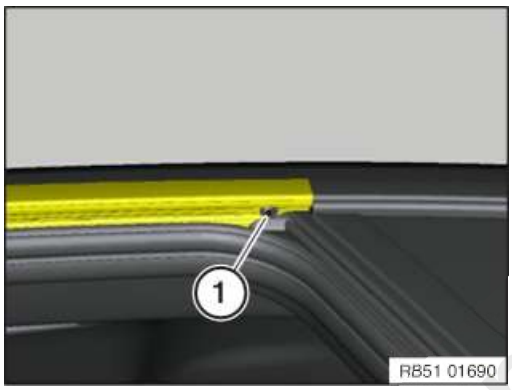
NOTICE

Description is for left component only. Procedure on the right side is identical.

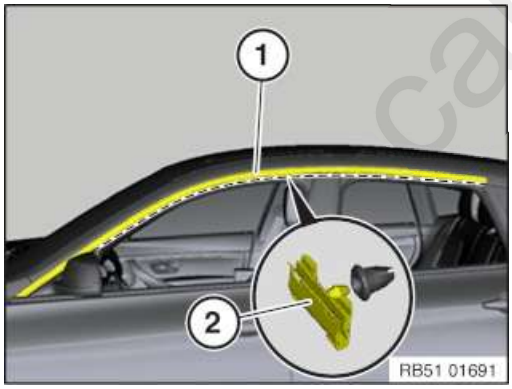
1 – Removing trim strip

Prerequisite

Front door is open.



- Release the screw (1) in the area of the B-pillar through the opening of the seal.



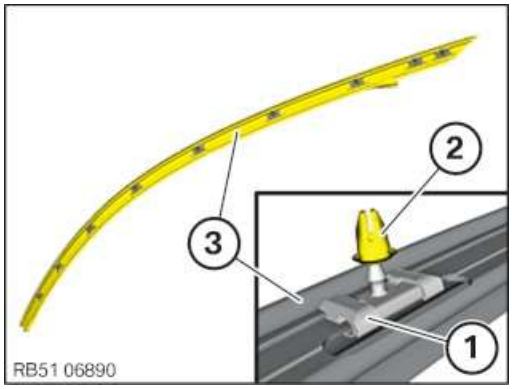
- Carefully release the trim strip (1) starting from the front with the special tool 0 496 569 (00 9 325) downwards at the clips (2).
- Carefully guide the trim strip (1) forward out of the trim strip on the side window and remove.

2 – Installing the trim strip

Prerequisite

Front door is open.

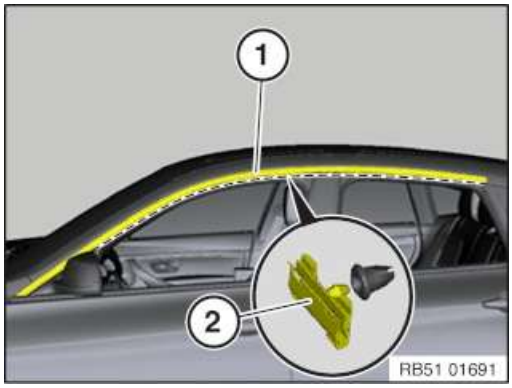
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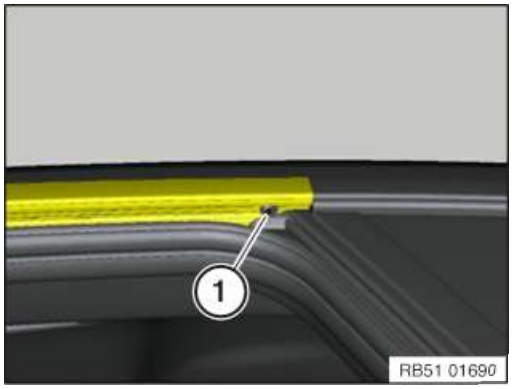
- Checks clamps (1) for damage.

  Defective or missing clamps (1) need to be renewed.
- If required, release the grommets (2) from the clamps (1) and mount on the body.

  Faults or missing grommets (2) must be renewed.
- Correctly position clamps (1) on trim panel (3).



- Carefully attach trim strip (1) and feed in at the trim strip on the side window.
- Carefully clip in the trim strip (1) starting from the rear at the clips (2).



- Tighten down screw (1).

Additional Information

Overview of Tightening Torques

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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51 13 000 Removing and installing/replacing front grill centre section

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

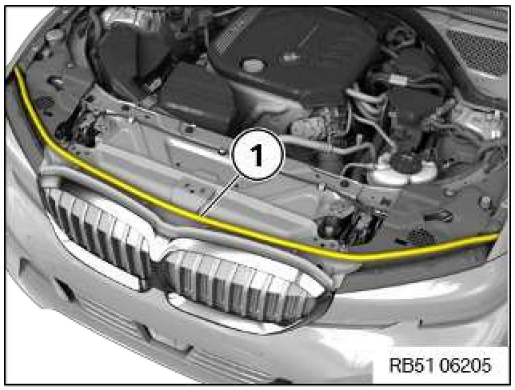
Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

NOTICE

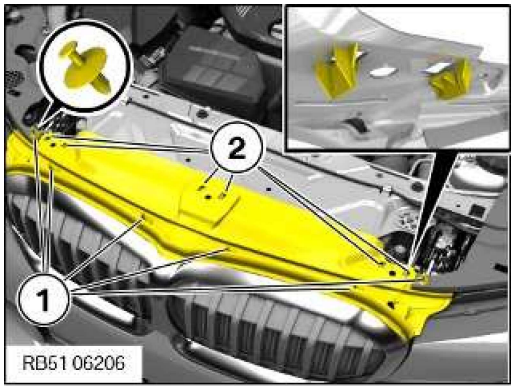
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover

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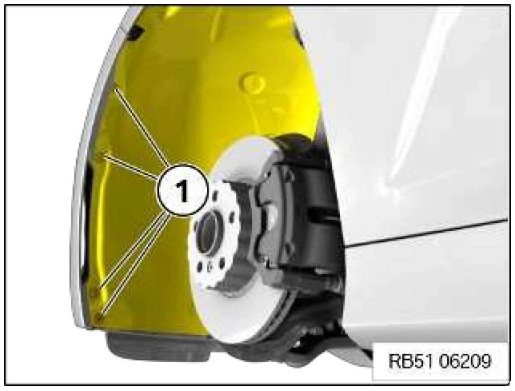
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

3 – Partially releasing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially removing front wheel arch trim panel**

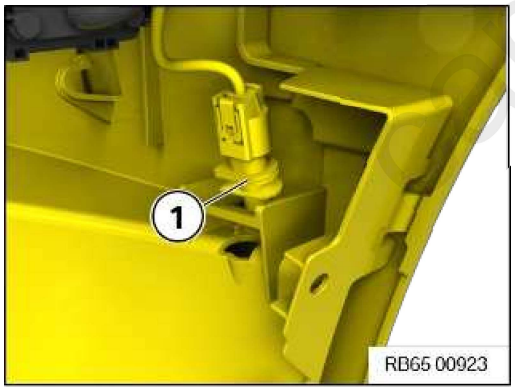


NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

4 – Partially removing the temperature sensor

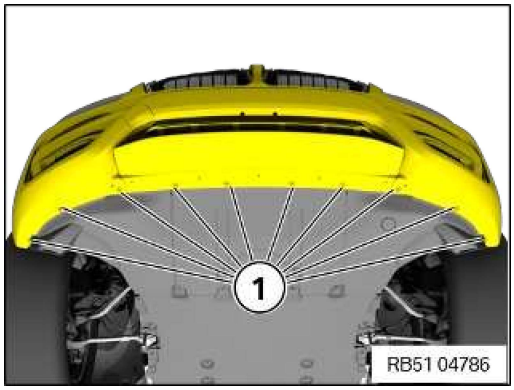


- Unclip temperature sensor (1) from the front bumper panel to the top.

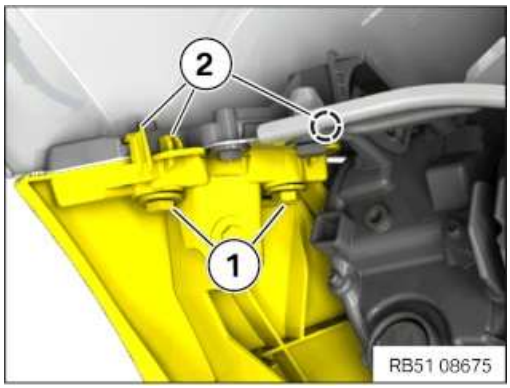
5 – Remove front bumper panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



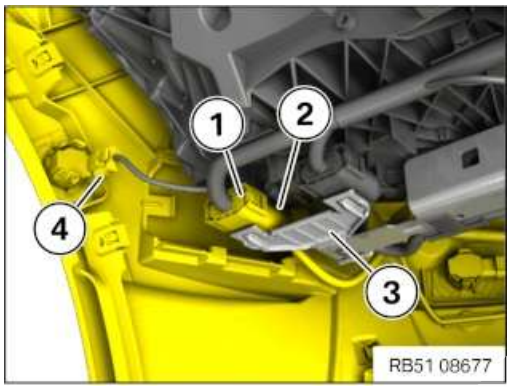
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

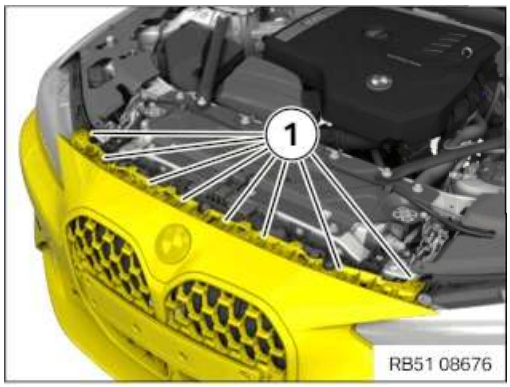
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

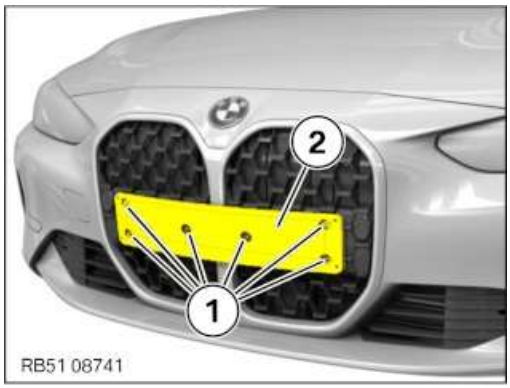
Perform the operations on the left and right side.

- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



- Loosen screws (1).
- Remove the bumper panel towards the front.

6 – Removing the number plate baseplate for number plate at front

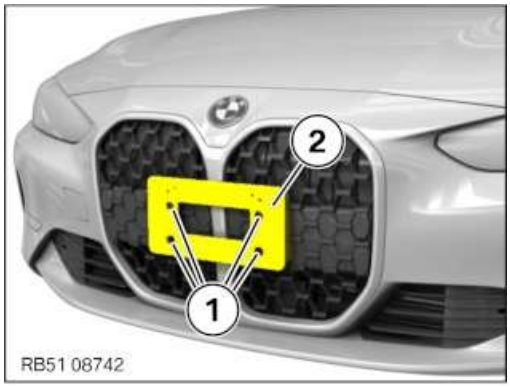


NOTICE

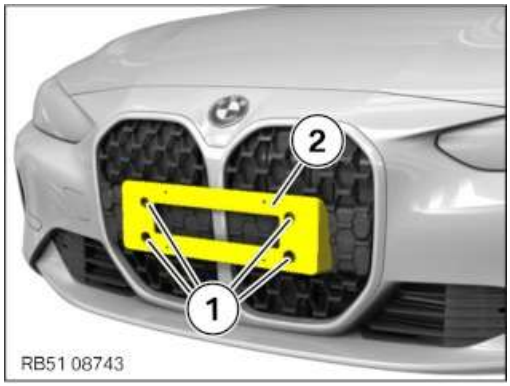
Schematic diagram is for example purposes. Some parts may differ in certain details.

- **For European version**
- Loosen screws (1).
- Remove the number plate baseplate (2) to the front.

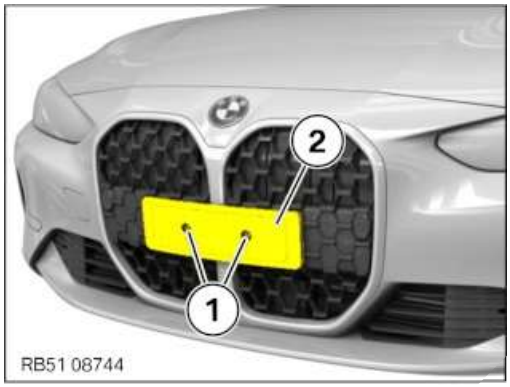
rdiagn.com



- **For US version and Japanese version:**
- Loosen screws (1).
- Remove the number plate baseplate (2) to the front.



- **For Chinese version:**
- Loosen screws (1).
- Remove the number plate baseplate (2) to the front.



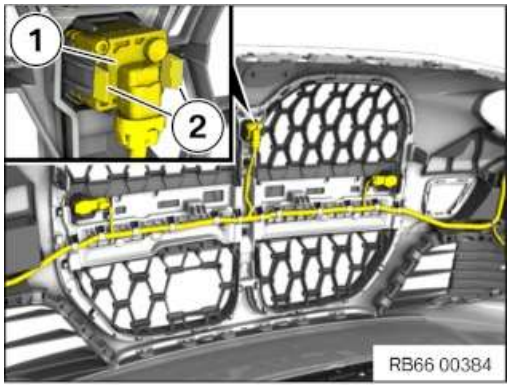
- **For Switzerland equipment specification:**
- Loosen screws (1).
- Remove the number plate baseplate (2) to the front.

MAIN WORK

7 – Remove front ornamental grille

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



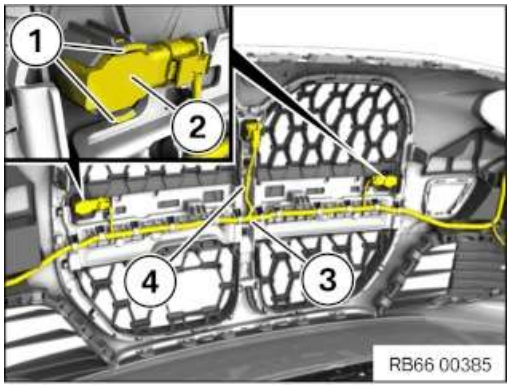
NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Release the front camera (1) from the latch mechanisms (2) and feed out from the front ornamental grille.

  The front camera (1) remains connected to the wiring harness.

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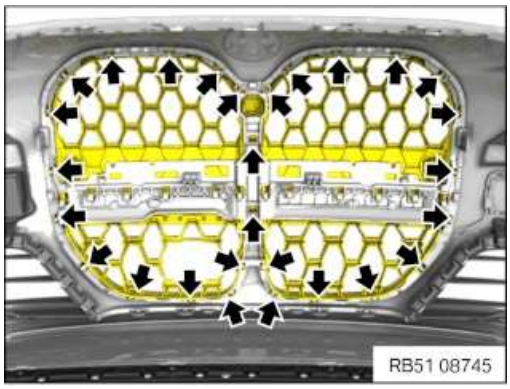


NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Unlock the latch mechanisms (1) and feed out the ultrasonic sensors (2) out of the front ornamental grille.

  The ultrasonic sensors (2) remain connected to the wiring harness.
- Release the wiring harness (3) with the holder (4).
- Detach the wiring harness (3) from the holders on the front ornamental grille.

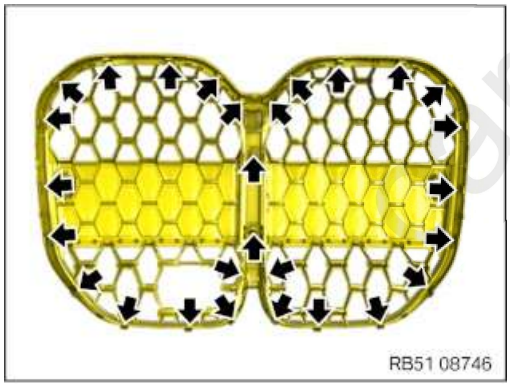


- Release the front ornamental grille from the latch mechanisms (arrows) and remove it.

8 – Install front ornamental grille

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

- Check latch mechanisms (arrowed) for damage.

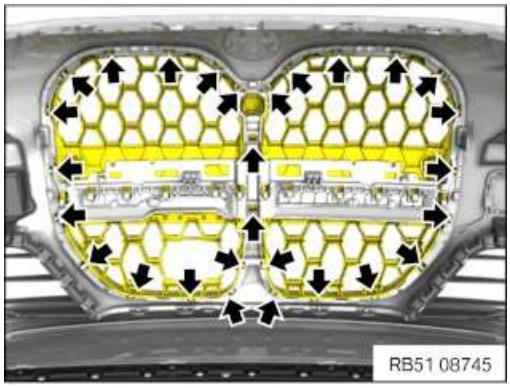
Result

» The latch mechanisms (arrows) are damaged.

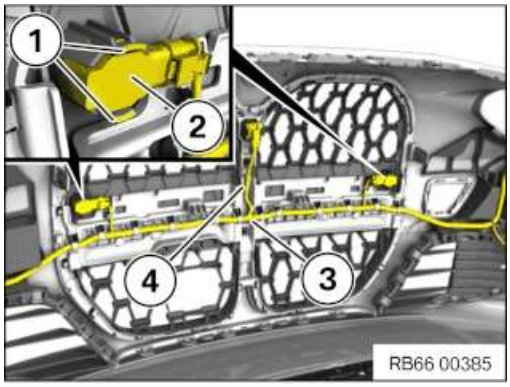
Measure

- Renew the front ornamental grille, centre.

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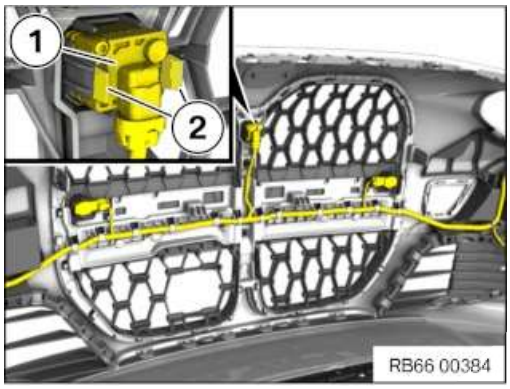
- Clip the front ornamental grille with latch mechanisms (arrows) into the bumper panel.



NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Attach the wiring harness (3) to all the holders on the front ornamental grille.
- Clip in the wiring harness (3) with the holder (4).
- Feed in the ultrasonic sensor (2) to the front ornamental grille and clip into the latch mechanisms (1).



NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

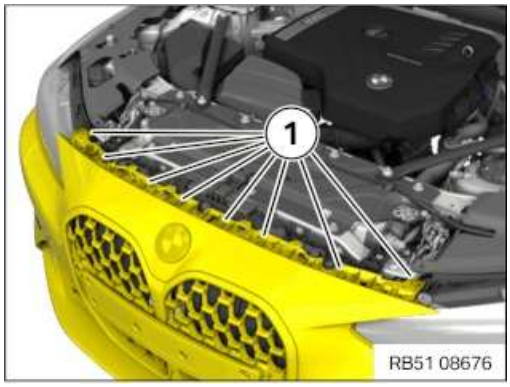
- Feed in the front camera (1) to the front ornamental grille and clip into the latch mechanisms (2).

POSTPROCESSES

9 – Install bumper panel, front

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

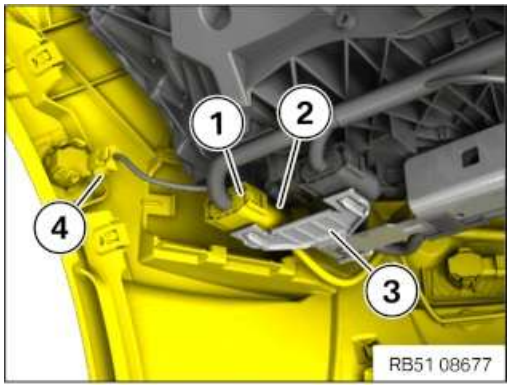


- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

Oval-head screwM6		Tightening torque	4,6 Nm

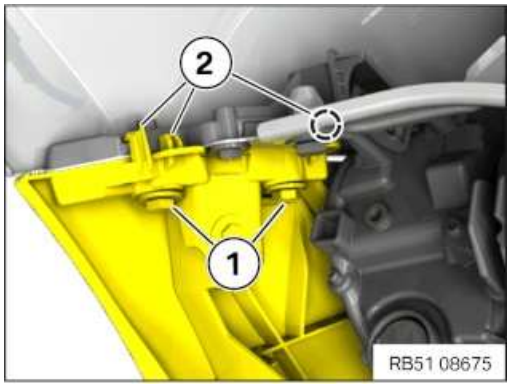
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NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

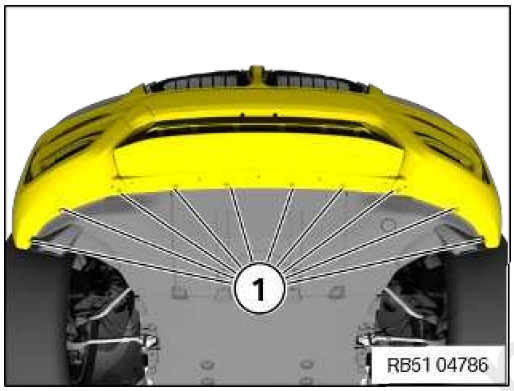
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

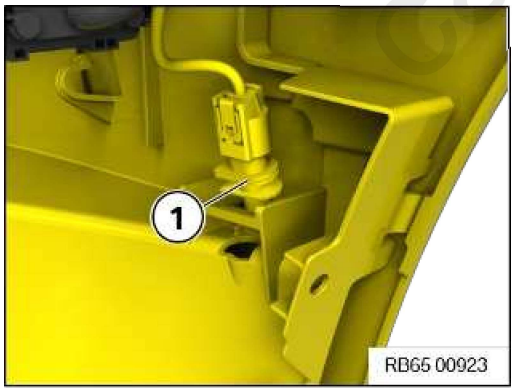


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

10 – Partially installing the temperature sensor



- Clip the temperature sensor (1) downwards into the front bumper panel.

11 – Partially installing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially installing front wheel arch trim panel**

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NOTICE

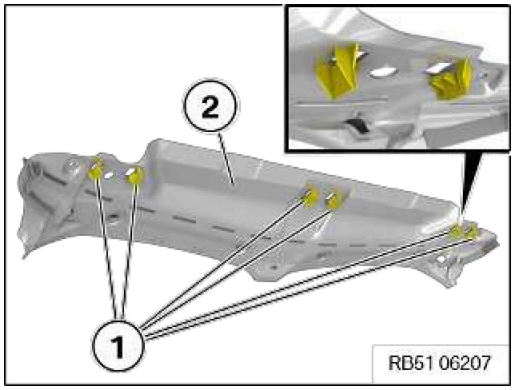
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

12 – Installing the cover for the centre engine compartment



Check

- Check the latch mechanisms (1) of the cover (2) for damage.

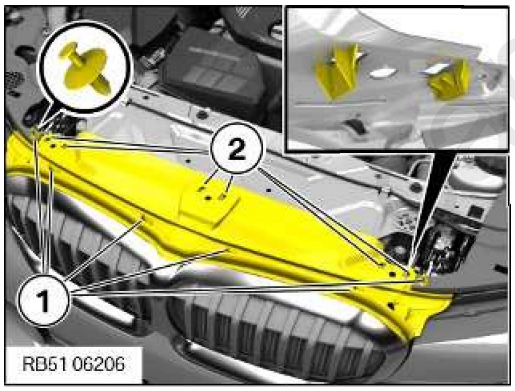
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

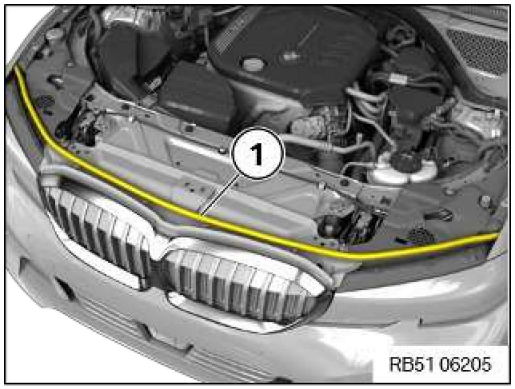


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

13 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

14 – Installing the number plate baseplate for the front number plate

WARNING

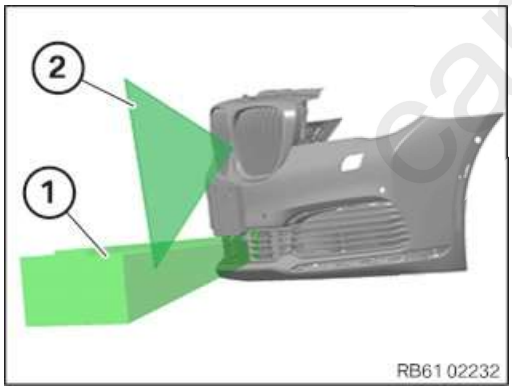
Malfunction of the sensors of the driver assistance systems.

Incorrect assembly of the number plate leads to a malfunction of the sensors of the driver assistance systems.

- Fix number plate and number plate baseplate only according to the dimensions specified in the repair instructions.
- Secure number plate and number plate baseplate on the bumper panel **without pre-drilling** , otherwise there is a risk of damage to the underlying cables.
- Only use number plate baseplates that have been approved for the vehicle type.

TECHNICAL INFORMATION

The number plate must be precisely mounted on the number plate baseplate and must not protrude on the underside.
The number plate carrier must not be installed on the front bumper.



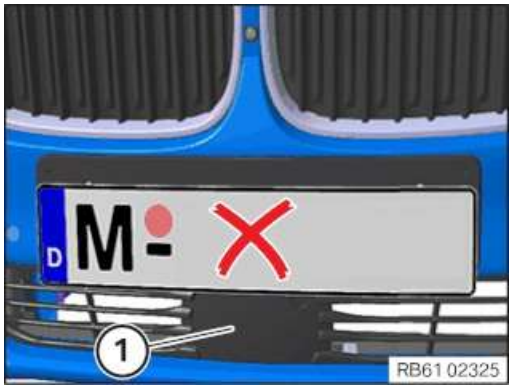
▸ **Positioning the number plate**

- Position the number plate or number plate baseplate correctly.
- Make sure that the angle of radiation (1) of the ACC sensor is not obstructed.
- Make sure that the angle of radiation (2) of the front camera is not obstructed.

▹ **Detect possible fault pattern due to incorrect assembly and rectify**

Check

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- Check number plate for correct position.

Result

» The number plate is positioned too low.

» The angle of radiation of the ACC sensor (1) is partially covered.

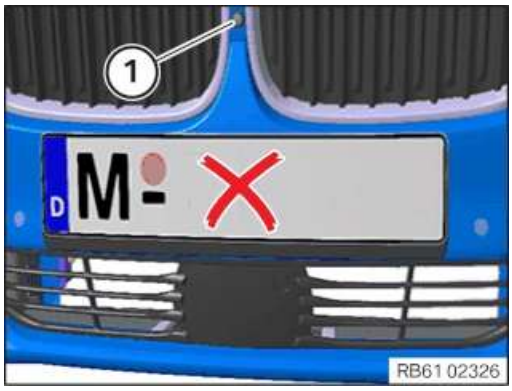
» Malfunction of the ACC sensor (1) is possible.

Measure

- Position the number plate correctly.

Check

- Check number plate for correct position.



Result

» The number plate is positioned too high.

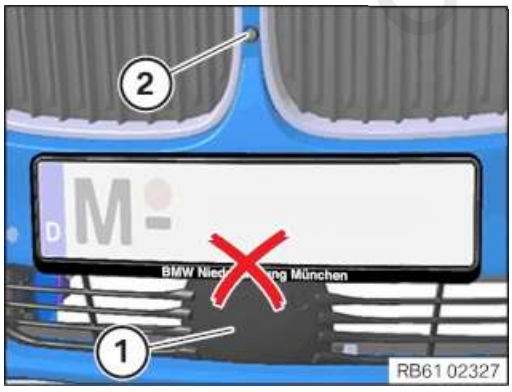
» The angle of radiation of the front camera (1) is partially covered.

Measure

- Position the number plate correctly.

Check

- Check number plate for correct position.



Result

» The angle of radiation of the ACC sensor (1) is partially covered.

» Malfunction of the ACC sensor (1) is possible.

» The angle of radiation of the front camera (2) is partially covered.

Measure

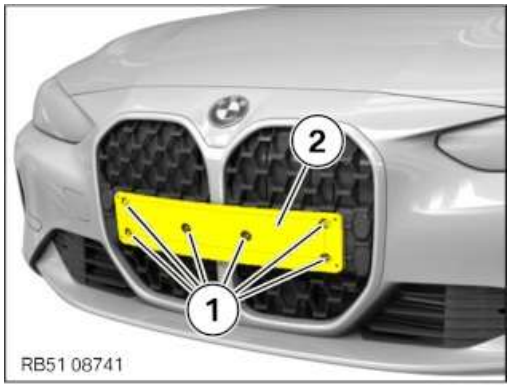
- Remove the number plate carrier.

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- With Check Control messages due to incorrect assembly of the number plate or the number plate baseplate: Position the number plate or the number plate baseplate correctly.

◁



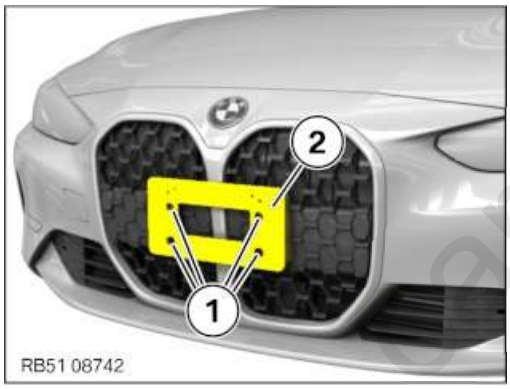
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- **For European version**
- Align the number plate baseplate (2) centrally in the embossed front ornamental grille.
- Screw in the screws (1) **without pre-drilling** and tighten.

License plate baseplate

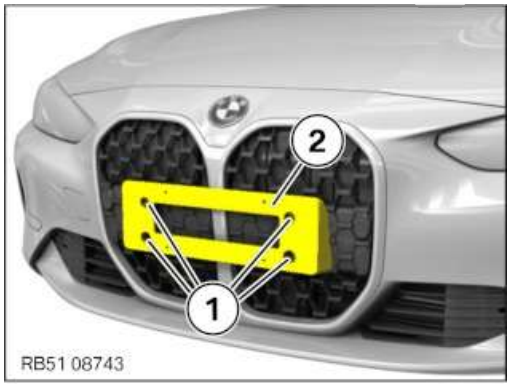
Oval-head screw		Tightening torque	2,5 Nm



- **For US version and Japanese version:**
- Align the number plate baseplate (2) centrally in the embossed front ornamental grille.
- Screw in the screws (1) **without pre-drilling** and tighten.

License plate baseplate

Oval-head screw		Tightening torque	2,5 Nm

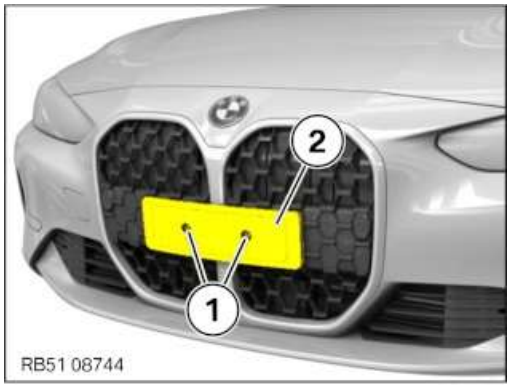


- **For Chinese version:**
- Align the number plate baseplate (2) centrally in the embossed front ornamental grille.
- Screw in the screws (1) **without pre-drilling** and tighten.

License plate baseplate

Oval-head screw		Tightening torque	2,5 Nm

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- **For Switzerland equipment specification:**
- Align the number plate baseplate (2) centrally in the embossed front ornamental grille.
- Screw in the screws (1) **without pre-drilling** and tighten.

License plate baseplate

Oval-head screw		Tightening torque	2,5 Nm

Additional Information

Overview of Tightening Torques

Bumper panel, front top — Used in step 9

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 9

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection — Used in step 9

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front — Used in step 11

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

License plate baseplate — Used in step 14

Oval-head screw		Tightening torque	2,5 Nm

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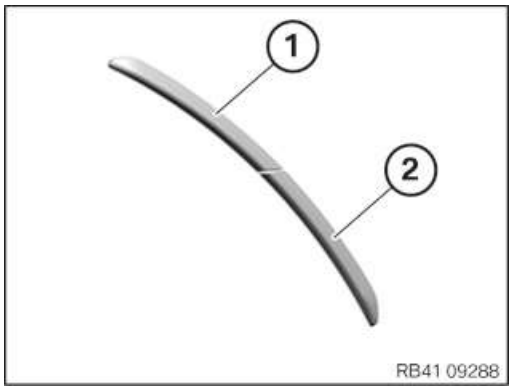
51 13 063 Replacing the wheel arch widening of the rear side panel on the left or right

TECHNICAL INFORMATION

Notes on component bonding using adhesive tape form the basis for these repair instructions and must be observed without fail.

For more information see: 51 00 ... Notes on component bonding with adhesive tape

1 – Supplying the new parts required



- Supply the following new parts (see Electronic Parts Catalogue EPC):

  Top wheel arch trim (1)

  Bottom wheel arch trim (2)

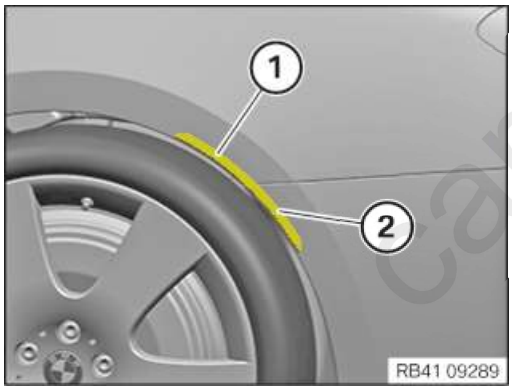
TECHNICAL INFORMATION

For more information see: 41 00 ... Overview of consumables in Electronic Parts Catalogue

- Supply the following consumables:

Material	Quantity
Cleaner R2	1

2 – Removing rear wheel arch trim



- Carefully heat the wheel arch trims (1) and (2) with a hot air blower and remove them.

Heating using hot air blower

Surface temperature	40 °C ... 50 °C

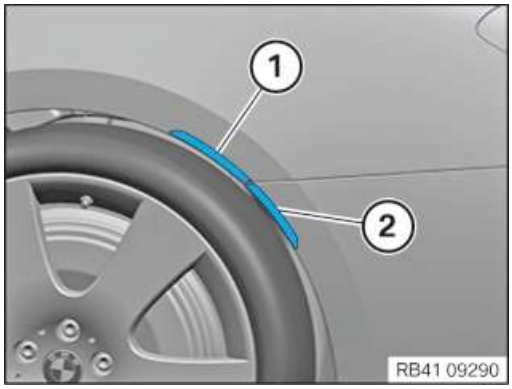
3 – Installing the rear wheel arch trim

TECHNICAL INFORMATION

For reasons of optimal adhesion, painting of bonding surfaces on the inside of the wheel arch trim is prohibited!

The adhesive pad (double-sided adhesive tape) must be applied to the wheel arch trim prior to painting the wheel arch trim.

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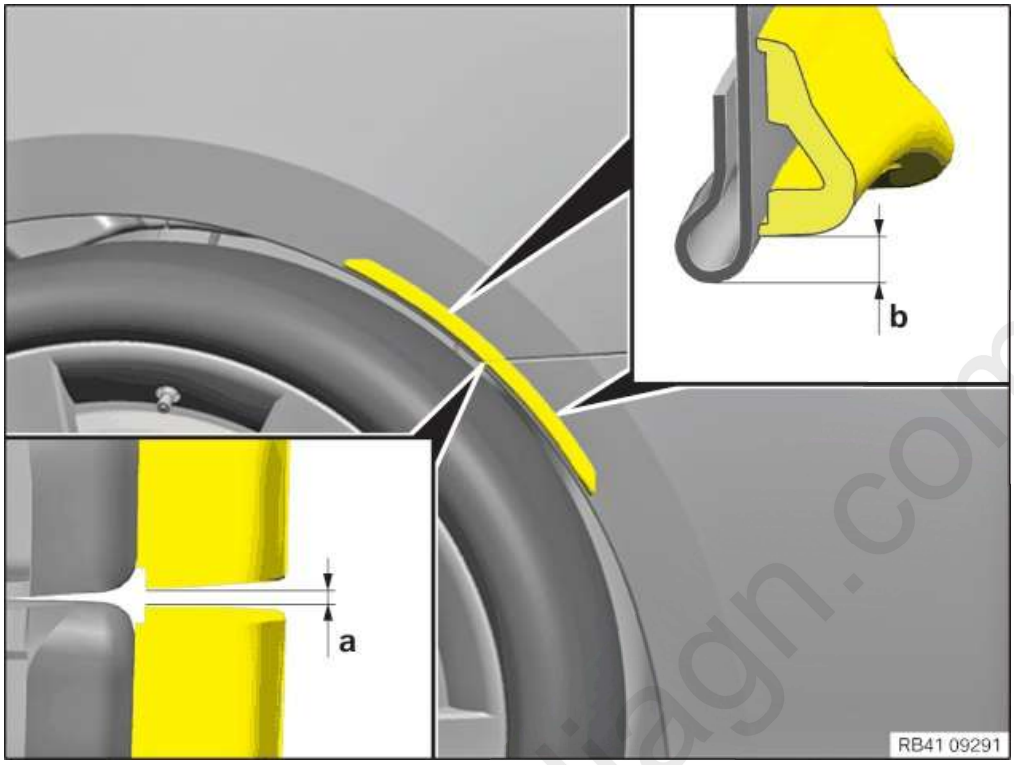


- Remove adhesive residues on the bonding surfaces (1) and (2) .
- Clean bonding surfaces (1) and (2) with the solvent cleaner R2.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Adhere to the air drying time of 2 minutes.



- Pull protective films off the adhesive pads (double-sided adhesive tape).
- Position wheel arch trims (1) and (2) according to specified dimensions and firmly press against them.

  Dimension a = approx. 1.0 mm.

  Dimension b = approx. 3.0 mm.

Additional Information

Overview Technical Data

Heating using hot air blower	Used in step 2
Surface temperature	40 °C ... 50 °C

Links

General repair instructions	**Used in step**
41 00 ... Overview of consumables (Electronic Parts Catalogue)	1
51 00 ... Notes on component bonding with adhesive tape	

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51 14 ... General notes for labelling with adhesive films

In the event of a repair the adhesive films must be partially or completely replaced. The basic procedure for all areas of the vehicle is described below.

In addition, vehicle-specific repair instructions are available.

1. Preparation:

Wash and dry vehicle. Rework with compressed air as required in area of joints.

Clean complete component surface with glass cleaner (BMW part number 83 12 0 396 775). Also clean the inside of the component in areas, in which adhesive films are applied.

Only carry out repair work with clean hands!

Important!

Labels can only be applied to recently painted components after a waiting period of **2 weeks**. The paint hardening is only fully completed after this time.

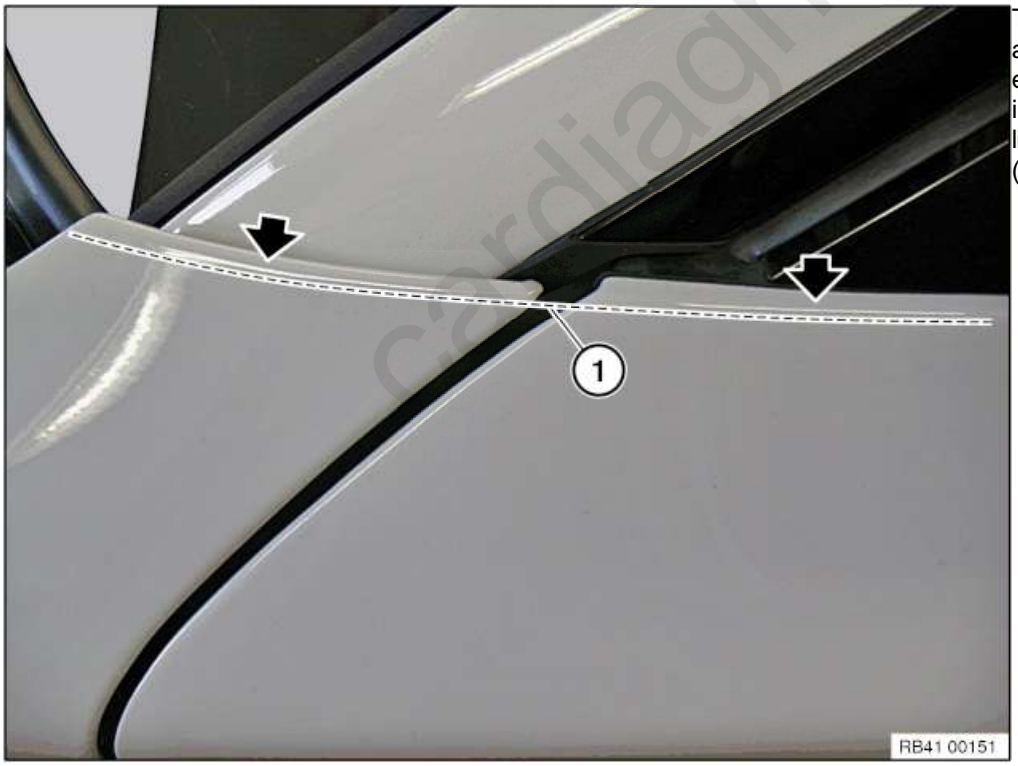
2. Procedure for applying labels:

All adhesive films in the repair kit are marked with numbers. Prepare the required plastic films prior to start of repairs.

The templates included in the repair kit assist orientation. A straight line running over the different components is the top priority.

Pull off the templates positioning of the adhesive films.

Only throw away templates after completion of all repair work, as some templates are used several times.



Templates are always applied along the light edge (1). The light edge is the reflection of the light source in radius (see arrow).

Roughly align the adhesive film using a template.

For large adhesive films, pull off the first 20 cm of protective film and fold back the edge.

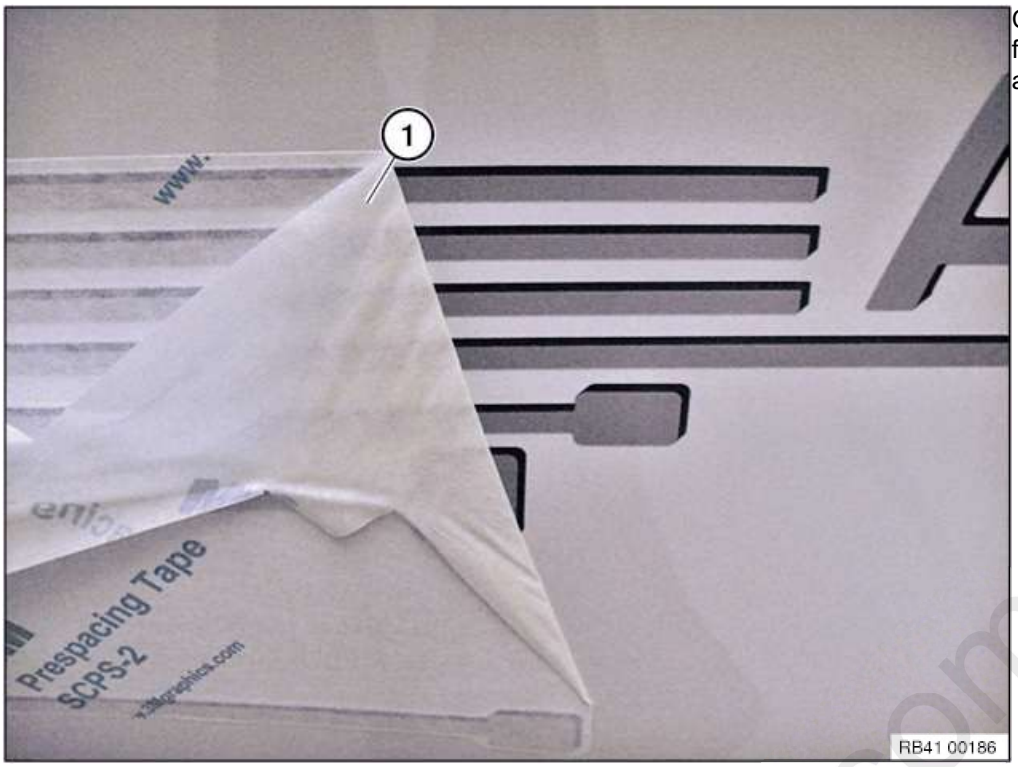
Align and lightly press down the adhesive film. Use only one finger for this and not the entire hand so that air pockets are unable to form under the adhesive film.

Pull off the remaining protective film and press down the adhesive film from front to rear and from inside to outside.

If faults are made in applying the adhesive film, it can be pulled off and repositioned several times. When no further

corrections have to be made, use a squeegee to press down the adhesive film firmly from inside to outside.

Lay protruding ends of the adhesive film around the component edge and press down firmly.

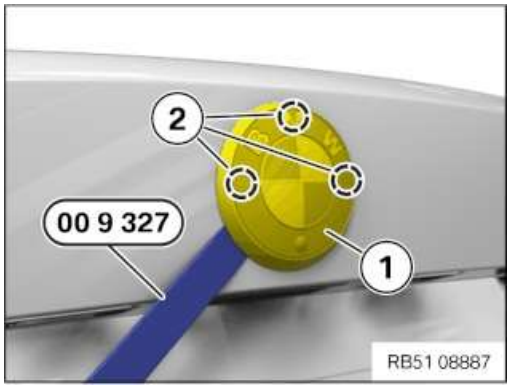


Carefully pull off backing film (1) at an acute angle.

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51 14 010 Removing and installing/replacing rear BMW badge

1 – Removing the badge at the rear



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

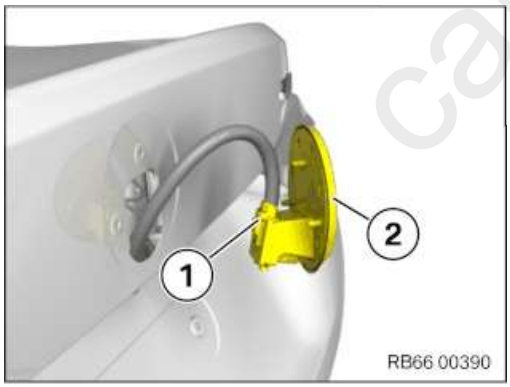
- **To prevent paint damage:** Mask off working area with plastic adhesive tape.
- Heat the badge (1) carefully with a hot air blower and release it from the adhesive strip with the special tool 0 496 571 (00 9 327).

Heating using hot air blower

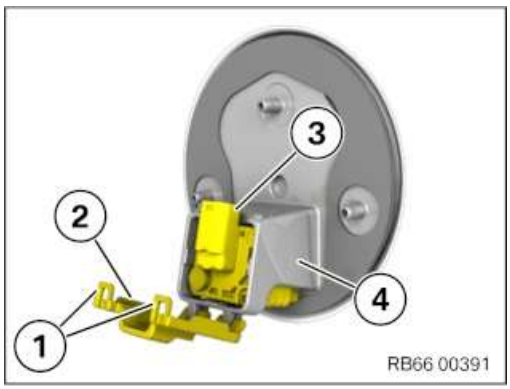
Surface temperature	40 °C ... 50 °C

- Carefully lever out and remove badge (1) from guide pins (2).
- It is mandatory to renew the badge (1) after the removal.
- Remove adhesive residue from the tailgate.

▸ **If installed: Removing the Reversing Assist camera (RFK)**



- Unlock the plug connection (1), disconnect it and remove the badge (2) with the Reversing Assist Camera (RFK).



- Loosen the latch mechanisms (1).
- Open the lid (2).
- Feed out the Reversing Assist Camera (RFK) (3) from the base of the badge (4) and remove it.

2 – Installing the rear emblem

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TECHNICAL INFORMATION

Notes on component bonding using adhesive tape form the basis for these repair instructions and must be observed without fail.

For more information see: 51 00 ... Notes on component bonding with adhesive tape



- Renew the badge.

  Parts: Emblem
- Remove adhesive residue from the tailgate, if necessary.
- Clean the bonding surface (1).

Expendable materials

Cleaning agent R2	500 ml	83190417324

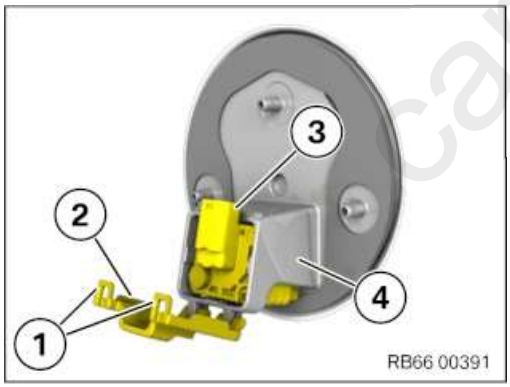
- Adhere to the air drying time of 2 minutes.
- Check the guide pins (2).

  The guide pins (2) must not be damaged or missing.

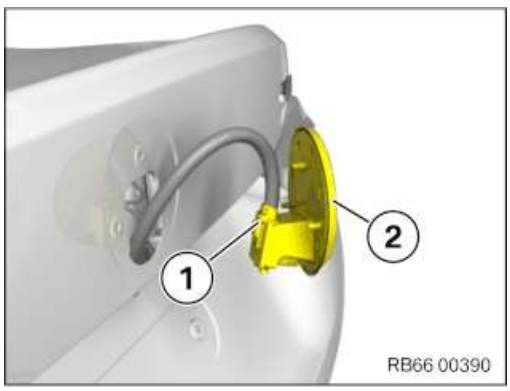
▸ **If installed: Installing the Reversing Assist Camera (RFK)**



- Check the sealing ring (1) for accuracy of fit.

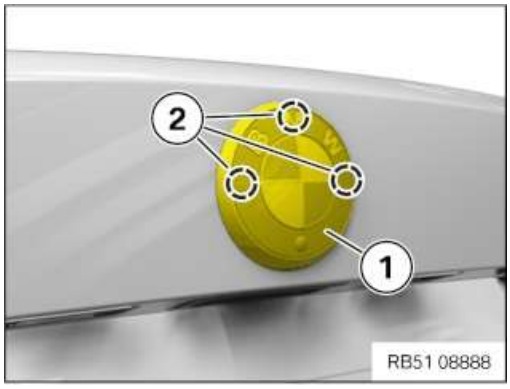


- Set the Reversing Assist Camera (RFK) (3) in the badge socket (4).
- Fold the lid (2) and clip into the latch mechanisms (1).



- Set the badge (2) with the Reversing Assist Camera (RFK).
- Connect connectors (1) and lock.

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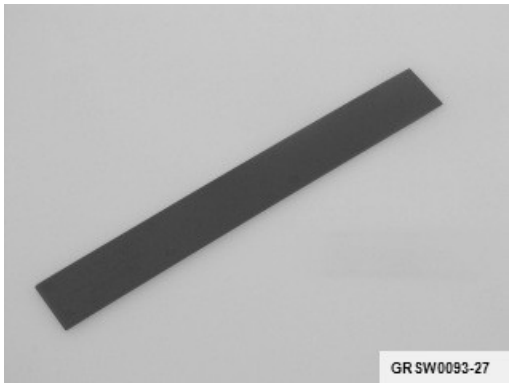


- Pull off the liner from the adhesive tape of the badge (1).
- Correctly position the badge (1) with the guide pins (2) and press firmly.

Additional Information

Overview of Special Tools

0 496 571 (00 9 327) Wedge



Common	Used in step 1
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Overview Technical Data

Heating using hot air blower	Used in step 1
Surface temperature	40 °C ... 50 °C

Links

General repair instructions	Used in step
51 00 ... Notes on component bonding with adhesive tape	2

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51 14 001 Replacing front BMW badge

1 – Removing the front emblem

RISK OF DAMAGE

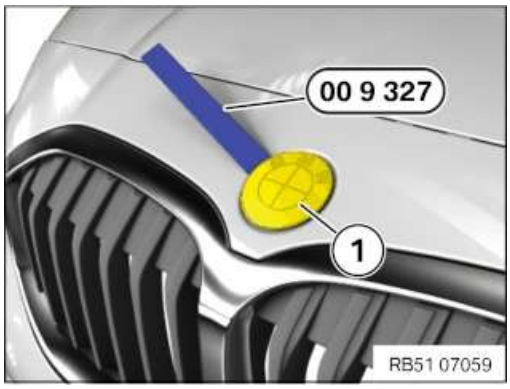
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



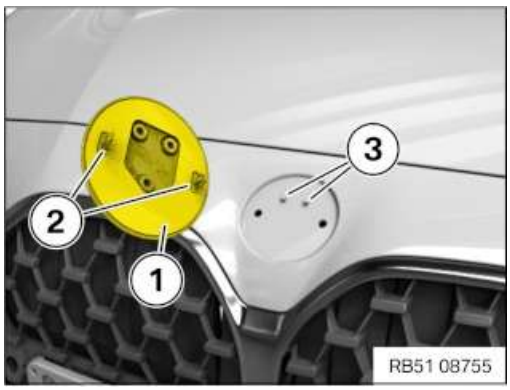
- Tape off the working area around the emblem (1) with adhesive tape.
- Carefully heat the emblem (1) with a hot air blower (temperature approx. 40-55 °C) and lever it out with the special tool 0 496 571 (00 9 327).

2 – Installing the front badge

TECHNICAL INFORMATION

Notes on component bonding using adhesive tape form the basis for these repair instructions and must be observed without fail.

For more information see: 51 00 ... Notes on component bonding with adhesive tape



- If necessary, remove any adhesive residue from the bumper panel.
- Clean the adhesive area on the bumper panel with cleaning agent R2.

Expendable materials

Cleaning agent R2	500 ml	83190417324

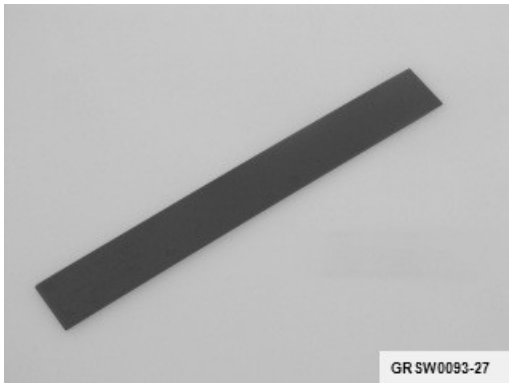
- Adhere to the air drying time of 2 minutes.
- Thread in badge (1) with tethers (2), position it correctly on guides (3) and press it firmly.

Additional Information

Overview of Special Tools

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0 496 571 (00 9 327) Wedge



Common	Used in step 1
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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51 14 111 Replacing model name plate, rear

Note:
This document describes a general procedure for replacement and new bonding of model designations/lettering using the 335i (F30) as an example.

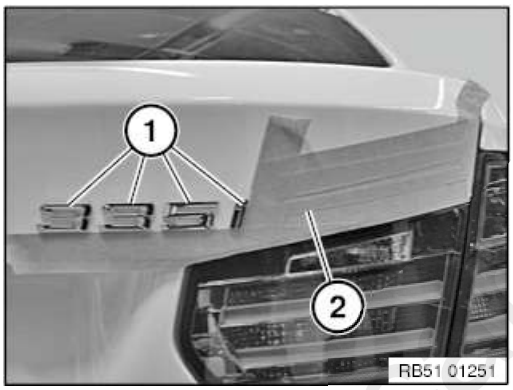
The procedure can be used for all models, positions and installation locations.

The model designation is attached with adhesive and can not be reused.

Refer to instructions for securing components with adhesive tape!

Consumables:

Cutting cord
Masking tape 19 mm or 30 mm
Yellow plastic adhesive tape
Eraser disk
Cleaning agent R2



Replacing model designation (new or newly painted tailgate):

Note:
Transfer position of model designation (1) from old tailgate by making an adhesive tape template.

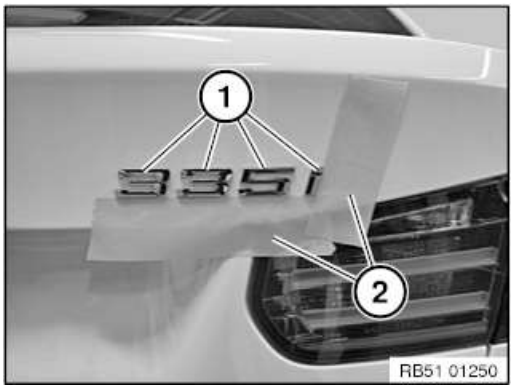
For paintwork, keep adhesive tape template up to installation.

Stick masking tape (2) to nearby reference edges of tailgate and therefore determine position of model designation (1).

Pull off masking tape (2) completely and stick to same reference edges of new/painted tailgate.

Check position, realign if required.

Refer to "**Installation**" operation for further procedure.



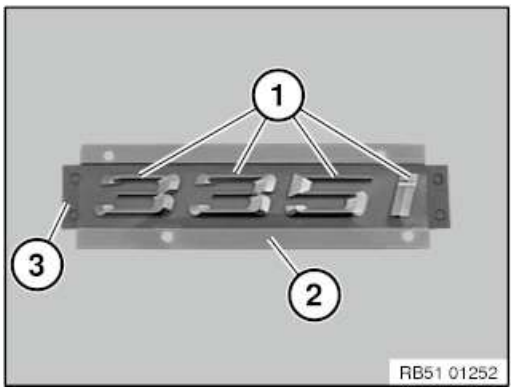
Replacing model designation:

Mark position of model designation (1) with yellow plastic adhesive tape (2).

Coat separating string or strong yarn with tensides (e.g. washing-up liquid).

Cut through adhesive layer and remove model designation (1).

Refer to "**Installation**" operation for further procedure.



Installation:

If required, remove adhesive layer residues with grinding wheel and/or cleaning agent R2.

Clean the adhesive area.

Number and letter combinations (1) of the model designation are not connected to each other and are supplied on a backing film (2).

Remove liner (3) (protective film for bonding surface).

Place model designation at marked position and press down firmly.

Remove backing film (2) and template.

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51 14 111 Replacing the model inscription, rear

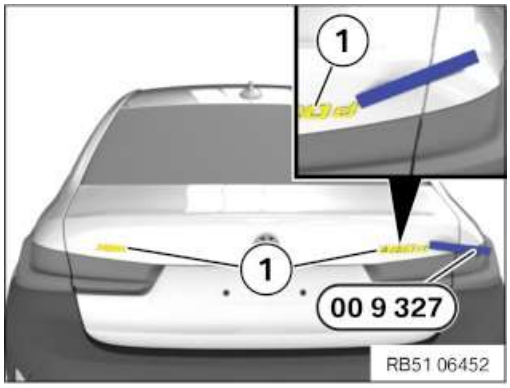
1 – Removing the rear model inscription

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Tape off working area with adhesive tape.
- Carefully heat the model inscription at the rear (1) with a hot air blower and rear with the special tool 0 496 571 (00 9 327) from the tailgate.

Heating using hot air blower

Surface temperature	40 °C ... 50 °C

- Remove the adhesive residues on the tailgate and clean the adhesive area with a cleaning agent.

Expendable materials

Cleaning agent R2	500 ml	83190417324

2 – Installing rear model inscription

CAUTION

Laser beam.

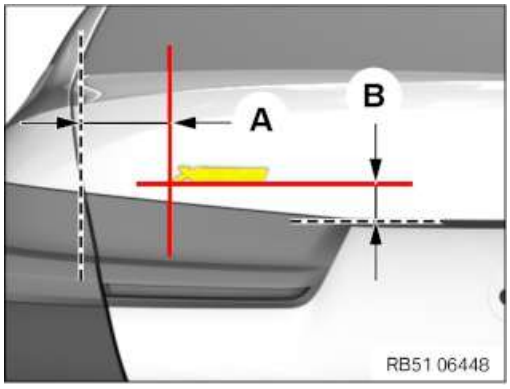
Danger of injury!

- Do not look into the laser beam.



- Park the vehicle and the special tool 2 407 566 on a flat and even surface.
- Mount the laser on the tripod.
- Switch on laser (Position without automatic level).
- Activate laser horizontally and vertically.

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- Position and centre align the special tool behind the vehicle.
- Align the vertical laser beam (A) as per specified dimensions.

Model inscription on the left side of the tailgate

Dimension **A** from corner of tailgate	69 mm

- Align the horizontal laser beam (B) as per predefined dimensions.

Model inscription on the left side of the tailgate

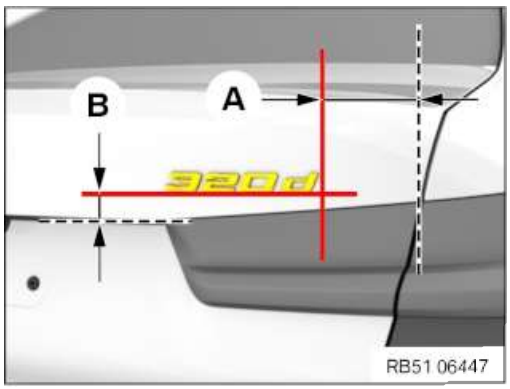
Dimension **B** from horizontal lower edge of tailgate	47 mm

- Clean the adhesive area with cleaning agent R2.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Adhere to the air drying time of 2 minutes.
- Pull off the liner from adhesive strip of the model inscription on the left.
- Align the left model inscription with the laser beams as shown, position it on the tailgate and press on it.



- Position the special tool behind the vehicle.
- Align the vertical laser beam (A) as per specified dimensions.

Model inscription on the right side of the tailgate

Dimension **A** from corner of tailgate	75 mm

- Align the horizontal laser beam (B) as per predefined dimensions.

Model inscription on the right side of the tailgate

Dimension **B** from horizontal lower edge of tailgate	45 mm

- Pull off the liner from the adhesive strip of the right model inscription.
- Clean the adhesive area with cleaning agent R2.

Expendable materials

Cleaning agent R2	500 ml	83190417324

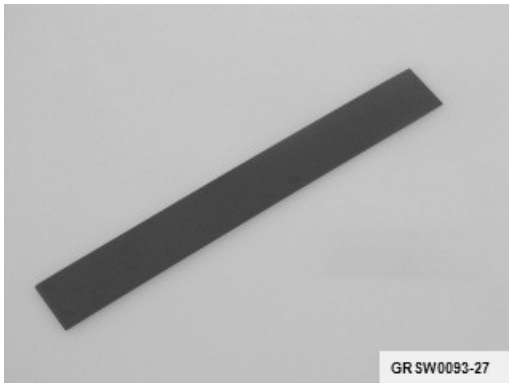
- Adhere to the air drying time of 2 minutes.
- Align the right model inscription with the laser beams as shown, position it on the tailgate and press on it.

Additional Information

Overview of Special Tools

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0 496 571 (00 9 327) Wedge



Common	Used in step 1
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 407 566 Laser



Common	Used in step 2
Usage	For aligning a number plate or a support for a number plate on the vehicle (front bumper). Delivery specification 1 x Kreuz-laser and 1 x tripod.
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	01 05 15 (235)

Overview Technical Data

Heating using hot air blower	Used in step 1
Surface temperature	40 °C ... 50 °C

Model inscription on the left side of the tailgate	Used in step 2
Dimension **A** from corner of tailgate	69 mm

Model inscription on the left side of the tailgate	Used in step 2
Dimension **B** from horizontal lower edge of tailgate	47 mm

Model inscription on the right side of the tailgate	Used in step 2
Dimension **A** from corner of tailgate	75 mm

Model inscription on the right side of the tailgate Used in step 2

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Dimension **B** from horizontal lower edge of tailgate	45 mm

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51 16 150 Remove and install the front storage compartment

PRELIMINARY WORK

1 – Remove cupholder

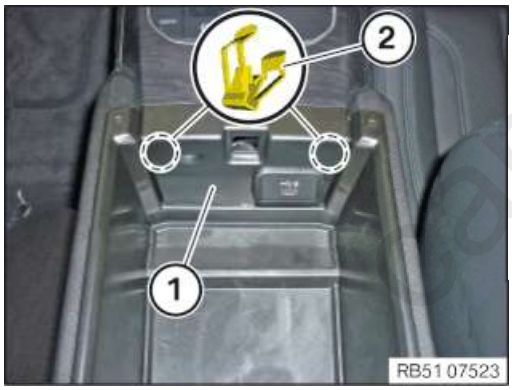


- Remove the insert (1).

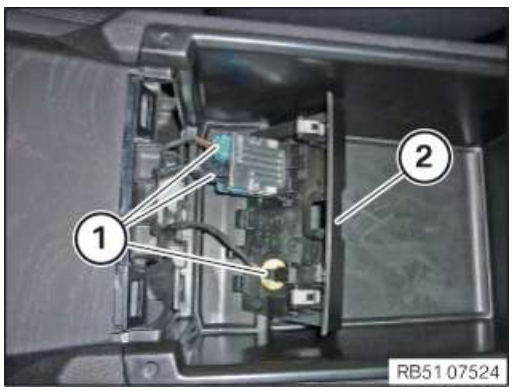


- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

2 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

3 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



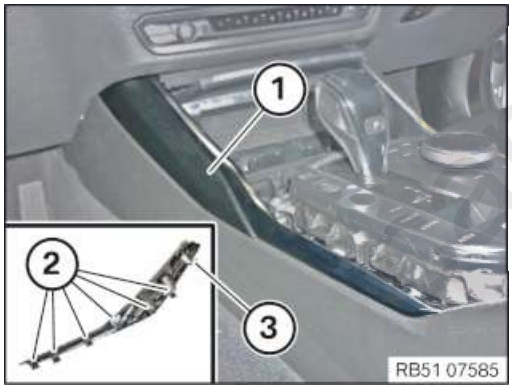
- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

4 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

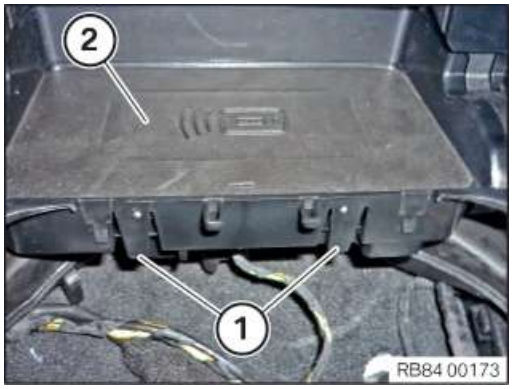
NOTICE

Description is for left component only. Procedure on the right side is identical.

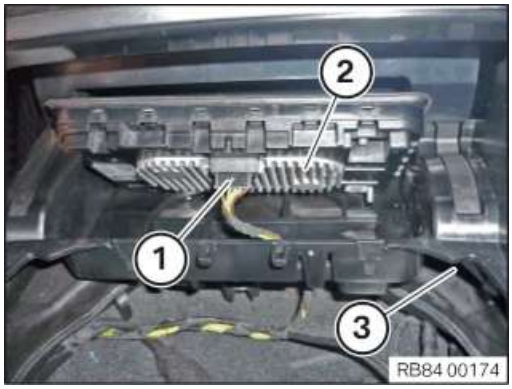


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

5 – Removing the wireless charging station



- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

6 – Remove the operating facility in the centre console

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

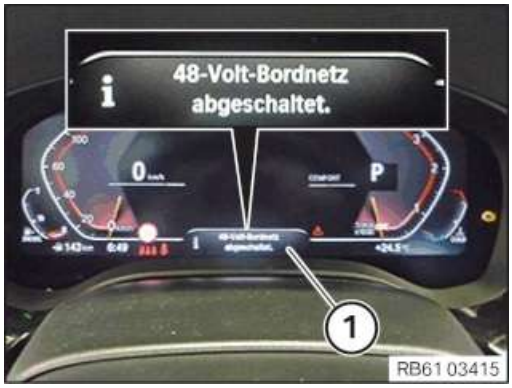
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

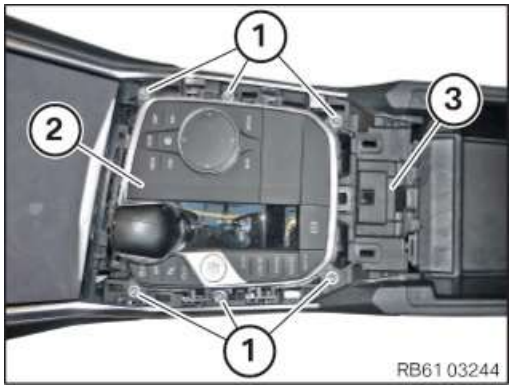
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**

- See additional information.



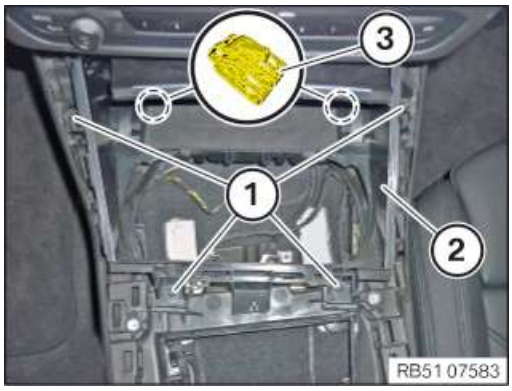


- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

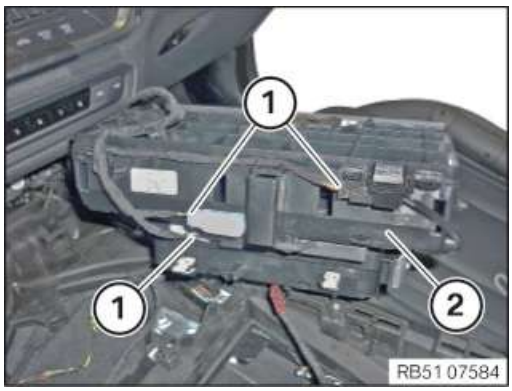
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MAIN WORK

7 – Removing the storage compartment in the front centre console

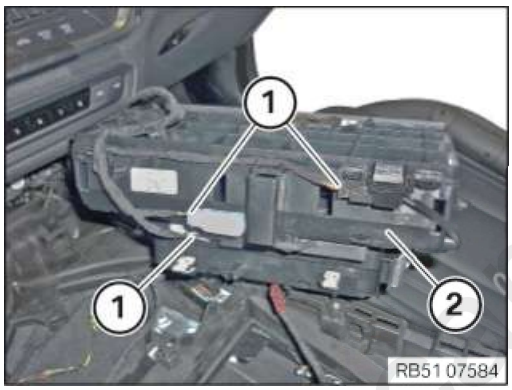


- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).

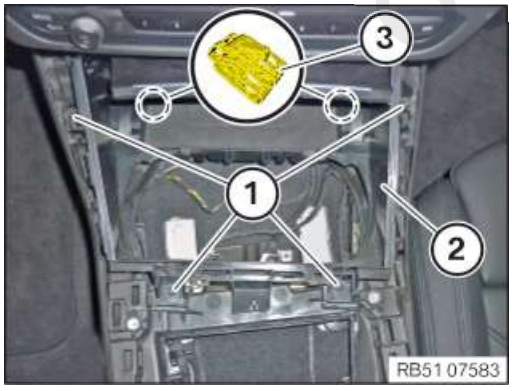


- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

8 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).



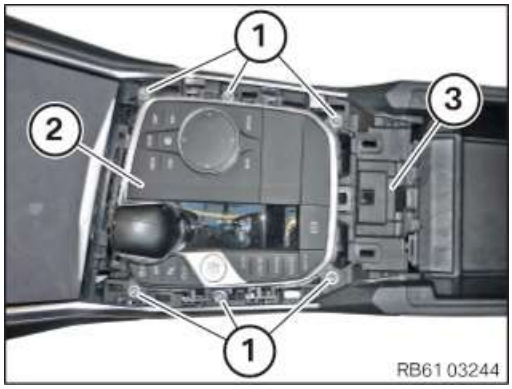
- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

POSTPROCESSES

9 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw		Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**



- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .

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- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



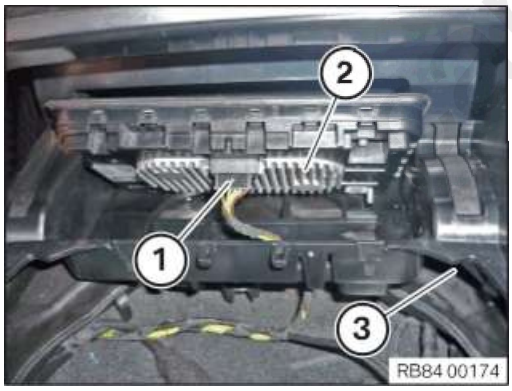
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



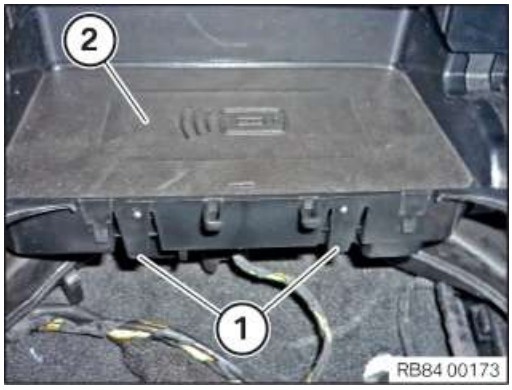
- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

10 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.

  The latch mechanisms (1) must engage correctly.

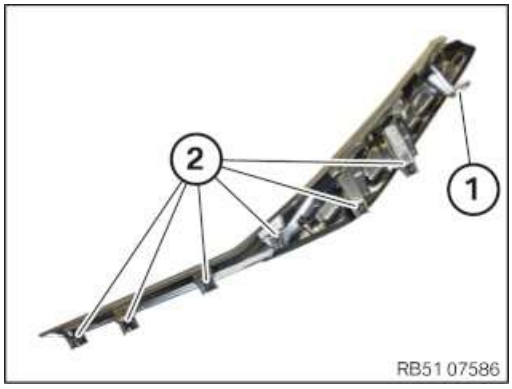
11 – Installing the decorative trim on the centre console on the left and right

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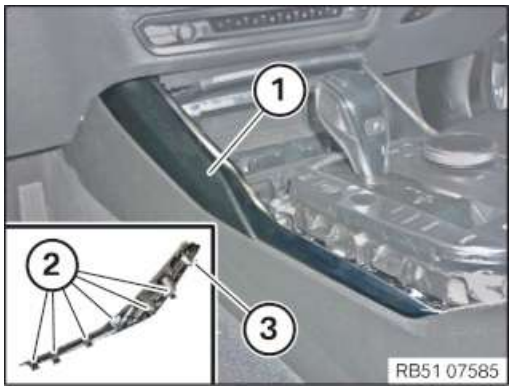
▸ **Installing the decorative trim on the centre console**

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

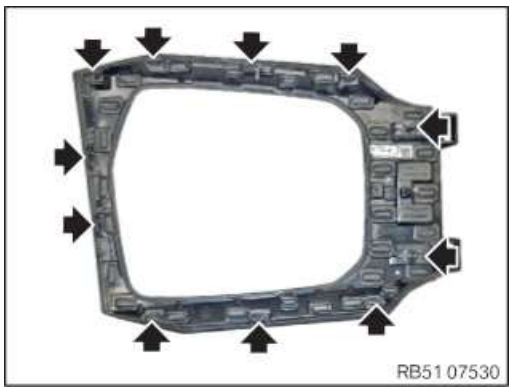
12 – Installing the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



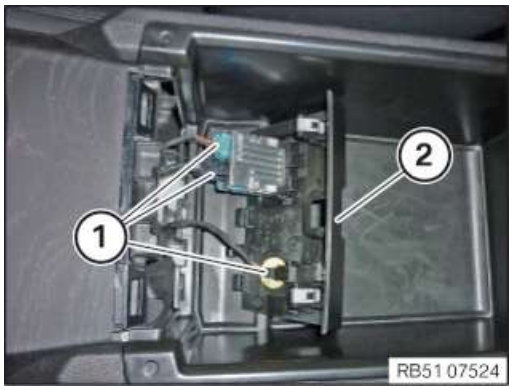
- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

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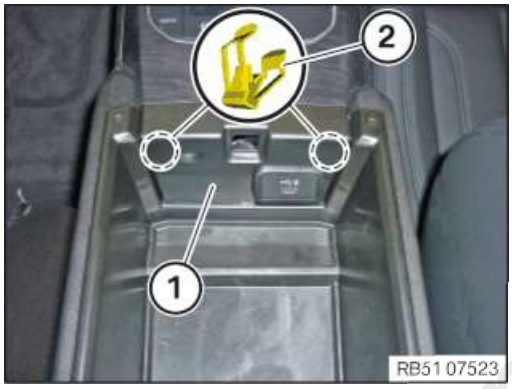


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

13 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

14 – Install the cup holder



- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm



- Insert the insert (1).

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Additional Information

Overview of Tightening Torques

Storage compartment in centre console			Used in step 8
Oval-head screw		Tightening torque	1,8 Nm

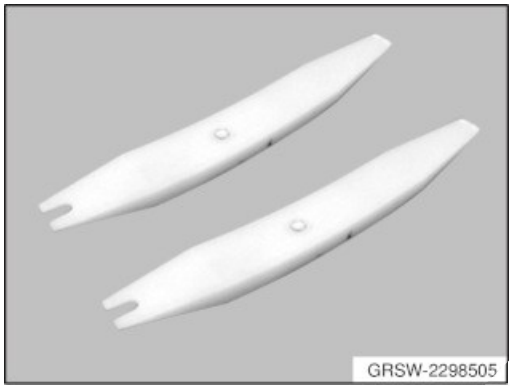
Gear selector switch to centre console trim			Used in step 9
Screw		Tightening torque	1,8 Nm

Negative battery cable to 48-V battery			Used in step 9
Nut M8		Tightening torque	19 Nm

Cup holder to centre console			Used in step 14
Oval-head screw		Tightening torque	1,8 Nm

Overview of Special Tools

2 298 505 Wedge



Common		Used in step 23
Usage	Set (delivery of 2 pieces)	
Included in the tool or work		
Storage location	C34	
Replaced by		
In connection with		
SI-Number	01 03 12 (792)	

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	69

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	69
61 20 900 Disconnecting and connecting battery earth lead	69
61 20 900 Disconnecting and connecting battery earth lead	69
61 20 900 Disconnecting and connecting battery earth lead	69
61 20 900 Disconnecting and connecting battery earth lead	69
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	69
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	69
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	69
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	69
61 20 900 Disconnecting and connecting battery earth lead	69
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	69
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	69
61 20 900 Disconnecting and connecting battery earth lead	69
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61 20 900 Disconnecting and connecting battery earth lead	69
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	69
61 20 900 Disconnecting and connecting battery earth lead	69
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61 20 900 Disconnecting and connecting battery earth lead	69

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51 16 163 Remove and install the rear centre console trim

1 – Removing the rear centre console trim

RISK OF DAMAGE

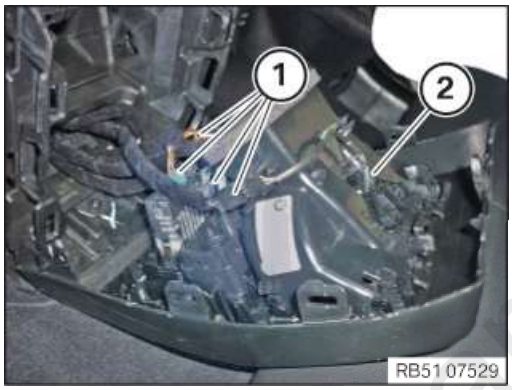
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

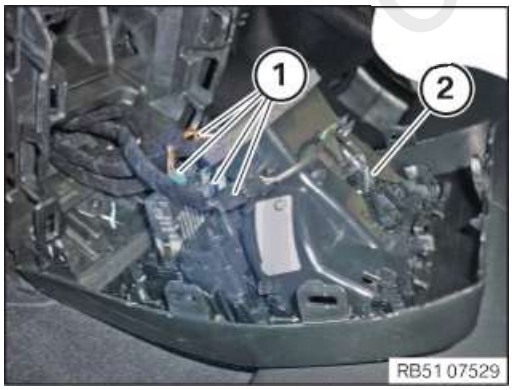


- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.



- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

2 – Installing the rear centre console trim



- Install the centre console trim (2).
- Connect connectors (1) and lock.

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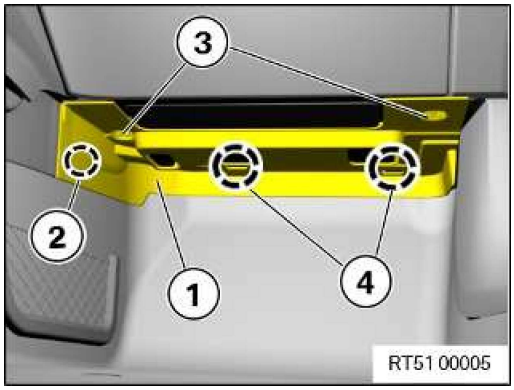
- Position centre console trim (1) and engage at the latch mechanisms at the side.

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51 16 341 Remove and install/replace lock barrel for glove box

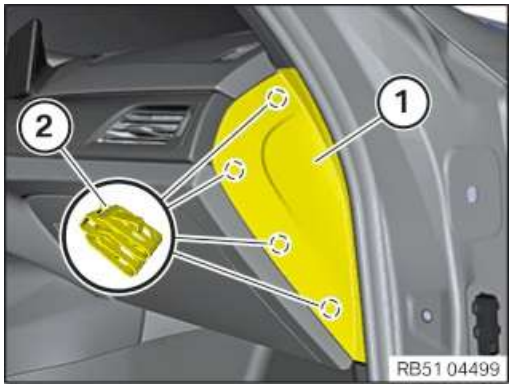
PRELIMINARY WORK

1 – Remove the right footwell trim



- Turn the locks (3) by 90°.
- Feed the footwell trim (1) out of the guide (2).
- Detach the footwell trim (1) inward out of the guides (4).
- Unlock associated plug connection and disconnect.

2 – Remove the side panel on the right instrument panel

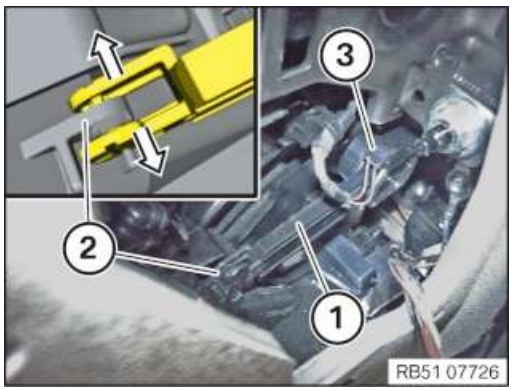


- Unclip and remove the side panel (1) towards the outside from the clamps (2).
- If necessary, unlock associated plug connection and disconnect.

3 – Remove glove box damper



- Release plug connection (1) from the instrument panel and pull to the outside.



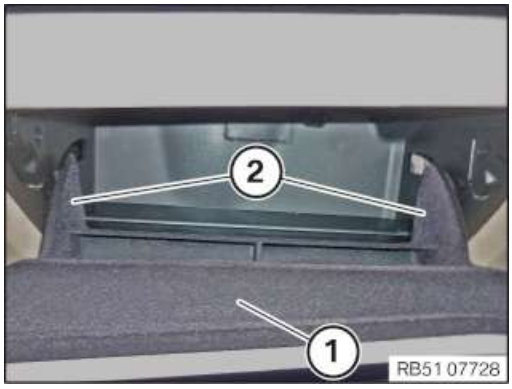
- Release damper (1) from retaining bracket (2) (spread slightly in the direction of the arrow).
- Open glove box cover.
- Twist damper (1) slightly in the clockwise direction and remove it outwards.
- Feed damper (1) out of the instrument panel.
- Disconnect plug connection (3).

4 – Remove glove box lid

Prerequisite

The glove box lid is open.

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- Raise the glove box lid (1) slightly.
- Carefully bend the side section (2)of glove box lid (1) inside so that the glove box lid (1) can be fed out of the instrument panel .
- Swivel the glove box lid (1) further down until it feeds out of the hinges.

MAIN WORK

5 – Replacing lock barrel

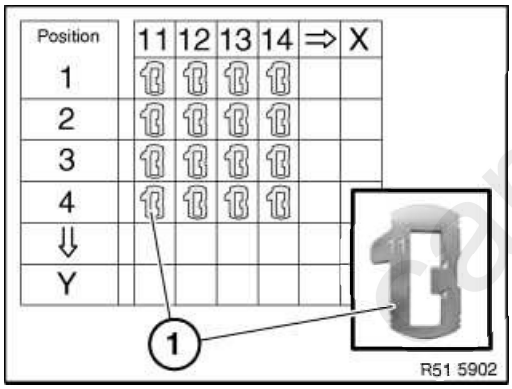
TECHNICAL INFORMATION

The lock cylinder and the opener must always be replaced as they cannot be removed from the glove box lid.

▸ **Assembling the lock barrel**

NOTICE

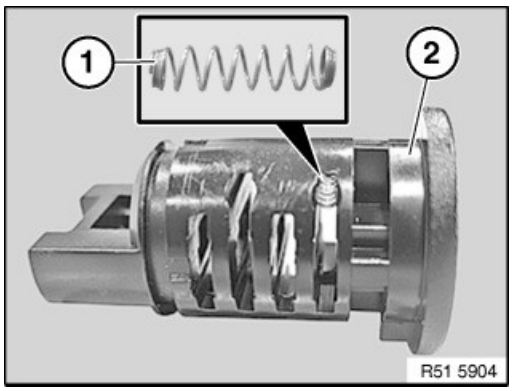
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Sort the enclosed retainers (1) as per the graphic.

  X = number embossed on the retainer (1)

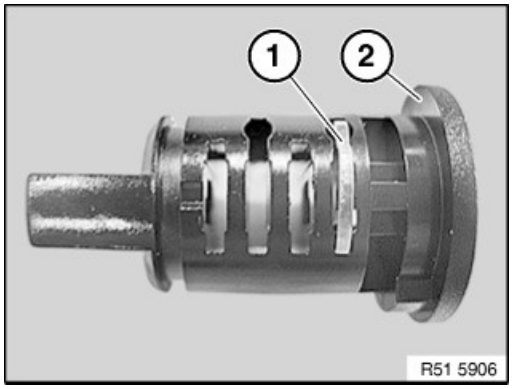
  Y = installation position in the lock barrel



NOTICE

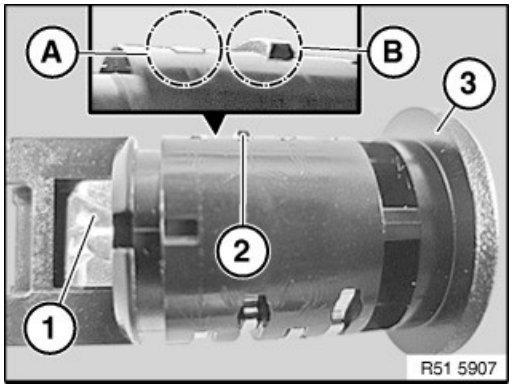
The description is for one component only. The procedure is identical for all further components.

- Insert the spring (1) into the lock barrel (2).



- Insert and engage the retainer (1) with the lowest embossed number **X** into position **Y** of the lock barrel (2).

  The retainer engages audibly.



Check

- Insert the ignition key (1) into the lock barrel (3).
- Check whether the retainer (2) is flush with the housing.

Result

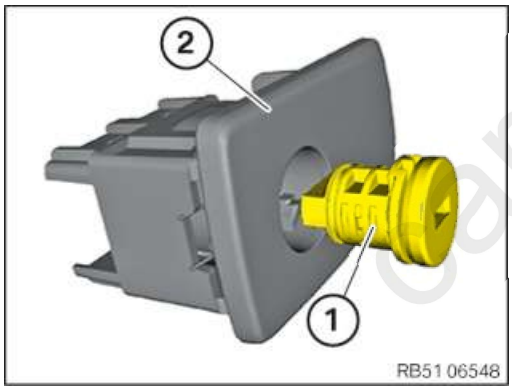
» The retainer (2) is not flush with the housing (B).

Measure

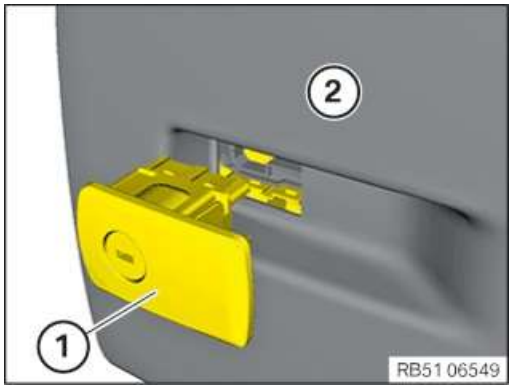
- Press out the retainer (2) from the lock barrel (3) using a suitable tool.

Measure

- Repeat the operations using the retainer with the next higher number **X**, until the retainer is flush with the housing (A).



- Insert the lock barrel (1) with the ignition key in the glove box lock (2) and engage via pressure.



- Carefully insert the glove box lock (1) in the glove box lid (2) and lock.

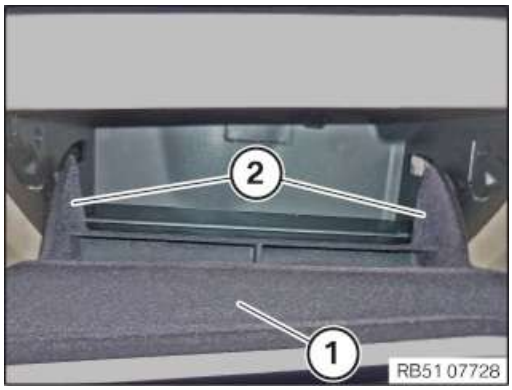
POSTPROCESSES

6 – Install glovebox cover

Prerequisite

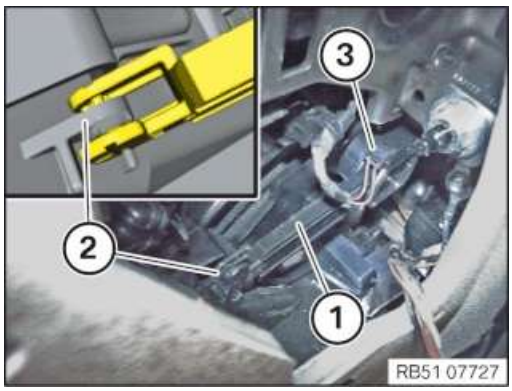
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The glove box lid is open.



- Insert glove box lid (1) on the hinges and swivel to the top.
- Bend the side section (2) of the glove box lid (1) carefully inward and feed in at the instrument panel.

7 – Installing glove box damper

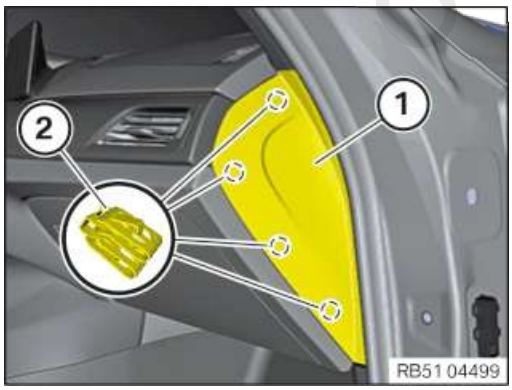


- Connect connector (3).
- Insert damper (1) in instrument panel.
- Open glove box cover.
- Install damper (1) and twist it slightly in the anticlockwise direction.
- Engage the damper (1) in the retaining bracket (2).



- Install connector (1) and mount on the instrument panel.

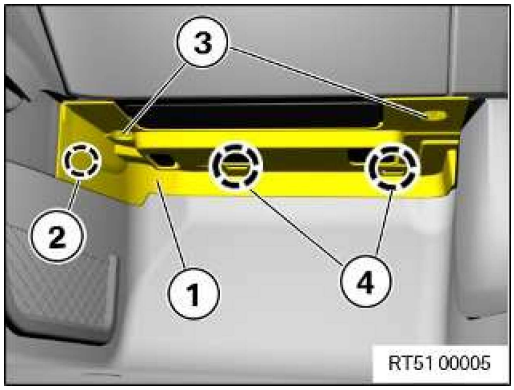
8 – Install the side panel on instrument panel on the right



- If required, connect the associated connector.
- Feed in the side panel (1) and clip it in at the clamps (2).

9 – Install the right footwell trim panel

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- Connect associated connector.
- Attach the footwell trim (1) to the guides (4) and fold up.
- Guide the footwell trim (1) into the guide (2) of the centre console.
- Position the locks (3) correctly and turn by 90°.

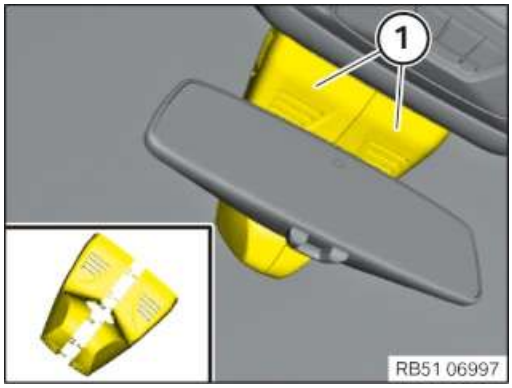
cardiagn.com

51 16 063 Remove and install/replace the interior mirror

PRELIMINARY WORK

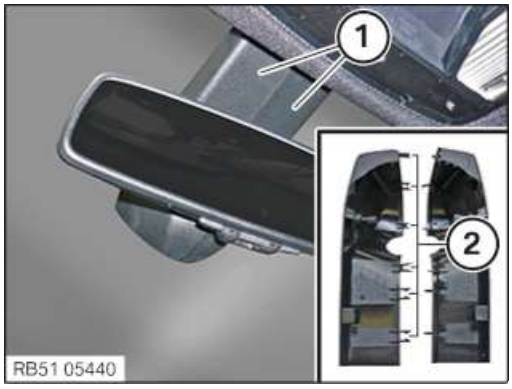
1 – Removing the covers for the interior mirror

- **Version A:**



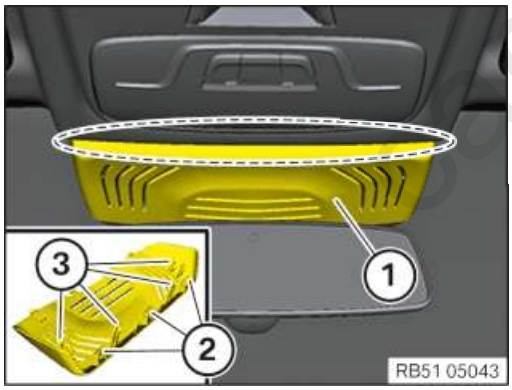
- Release cover (1) in the middle with a suitable plastic wedge from the latch mechanisms and remove.

- **Version B:**

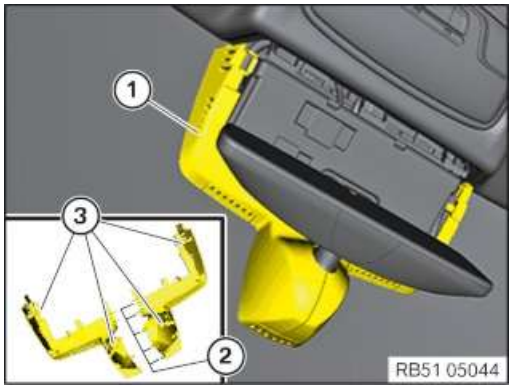


- Release the cover (1) from the latch mechanisms (2) with a suitable plastic wedge and remove sideways.

- **Version C:**



- Detach cover (1) from the clamps (2) in the marked area using a suitable plastic wedge and pull down a certain distance.
- Release cover (1) at the retaining lugs (3) and remove from the guides to the rear.



- Release cover (1) from the latch mechanisms (2) and (3) and remove sideways.
- Remove cover (1) from mirror base (2).

- **Version D:**

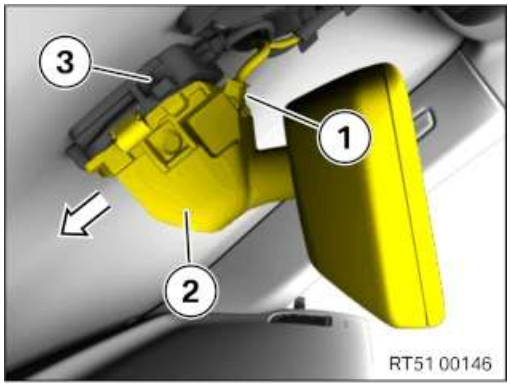
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- Release covers (1) and (2) using a suitable plastic wedge at the separation point (3) and remove from the side.

MAIN WORK

2 – Remove inside mirror



TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.

- Unlock plug connection (1) and disconnect.

RISK OF DAMAGE

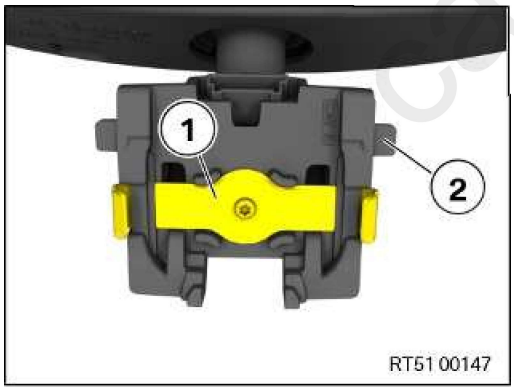
Damage to the component.

Excessive force may damage the component.

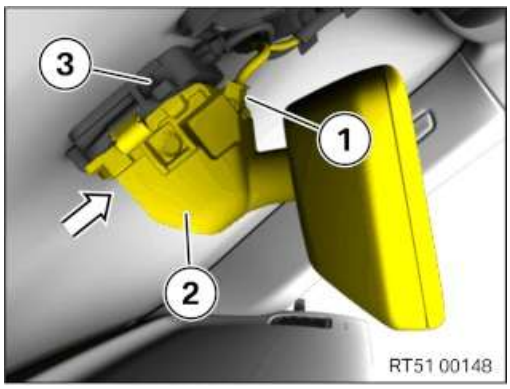
- Handle component carefully.

- Jerk and pull off the interior mirror (2) in the direction of the arrow from the mirror base (3).

3 – Install interior mirror



- Check the clamp (1) on both sides of the mirror base (2) for damage and renew as needed.



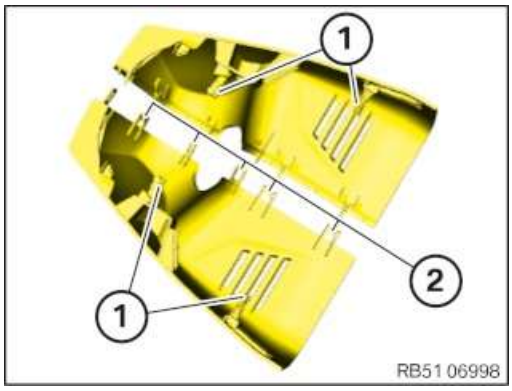
TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.

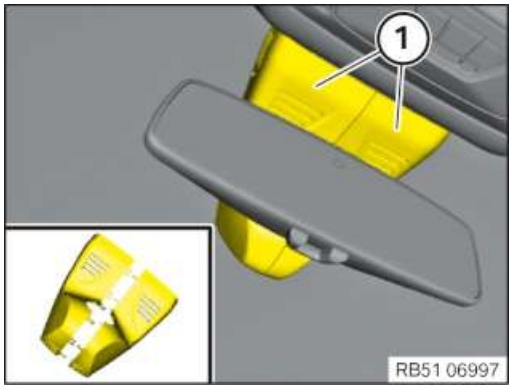
- Position the interior mirror (2) at the mirror base and slide it on in direction of the arrow.
- Check the correct installation position of the interior mirror (2) at the mirror base (3).
- Connect connectors (1) and lock.

4 – Installing the covers for the interior mirror

- **Version A:**

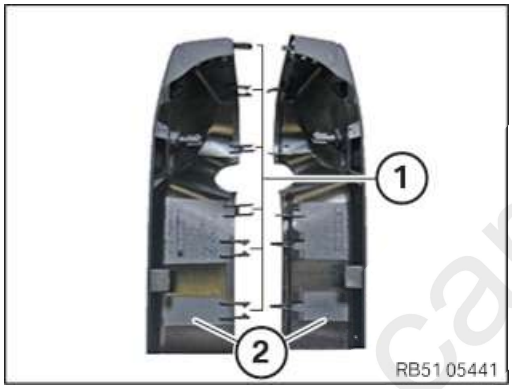


- Check latch mechanisms (1) and (2).
- If the latch mechanisms (1) or (2) are faulty, renew the covers.



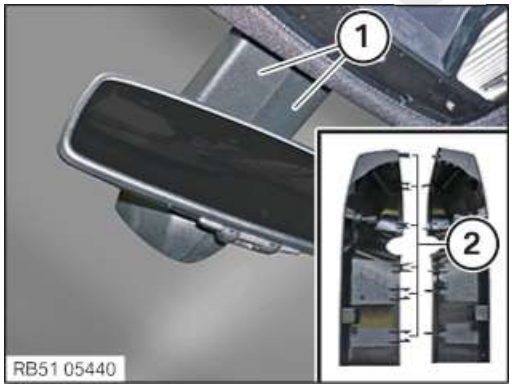
- Feed cover (1) in and lock.

- **Version B:**



- Check the latch mechanisms (1) on the two covers (2) for damage, renew the covers (2) if necessary.

  The covers (2) must not be damaged or missing.

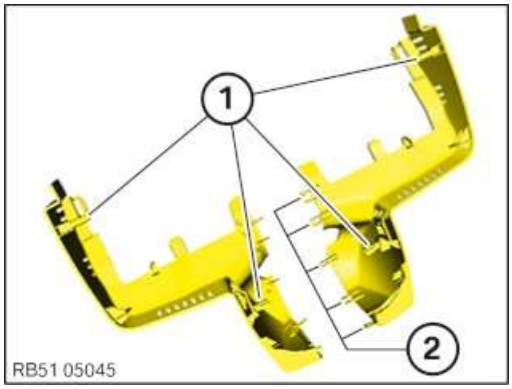


- Position the covers (1) correctly on the mirror and engage with the latch mechanisms (2).

- **Version C:**

Check

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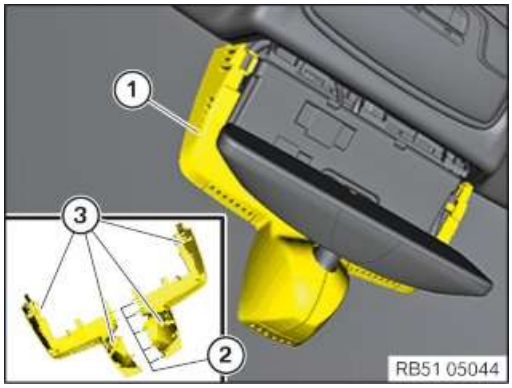
- Check the latch mechanisms (1) and (2) of the covers for damage.

Result

» The latch mechanism is damaged.

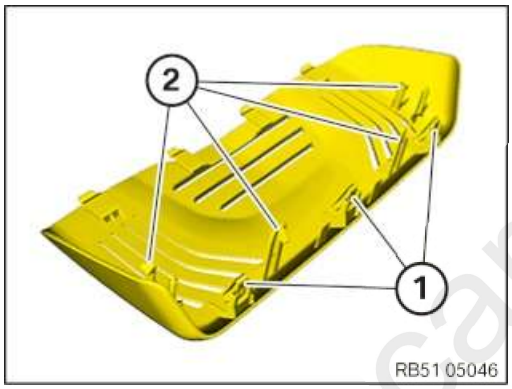
Measure

- Renew the cover.



- Guide in cover (1) on left and right and engage using latch mechanisms (2) and (3).

Check



- Check clamps (1) for damage; renew if necessary.
- Check latch mechanisms (2) for damage.

Result

» The latch mechanism is damaged.

Measure

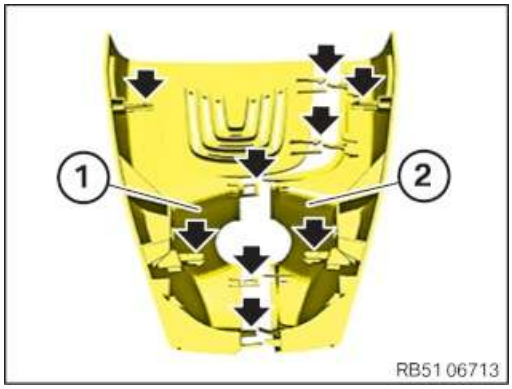
- Renew the cover.



- Guide cover (1) into front guides and engage using retaining lugs (3) and clamps (2).

- **Version D:**

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- Check the latch mechanisms (arrows) on covers (1) and (2) for damage and, if necessary, renew covers (1) and (2).



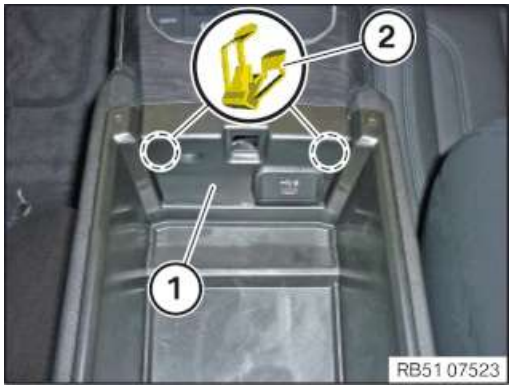
- Position covers (1) and (2) correctly on the mirror and engage at the separation point (3).

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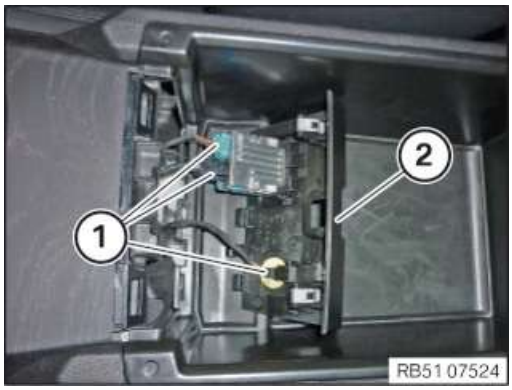
51 16 160 Removing and installing center console trim

PRELIMINARY WORK

1 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

MAIN WORK

2 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

3 – Installing the centre console trim

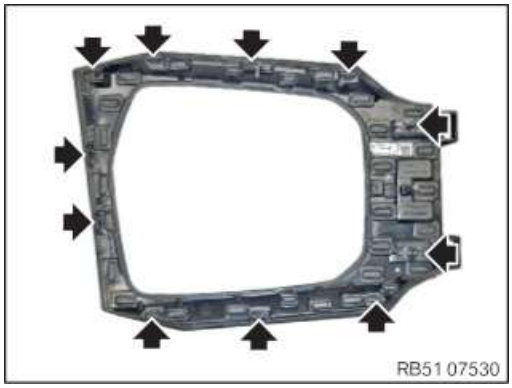
cardiagn.com

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



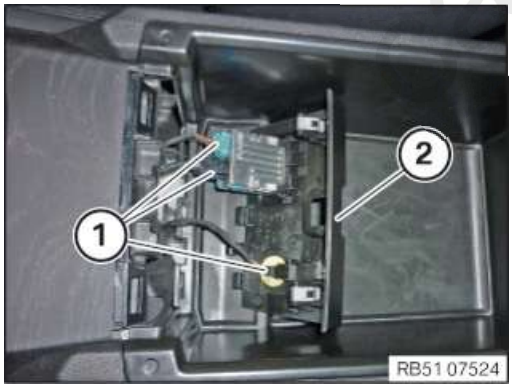
- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .



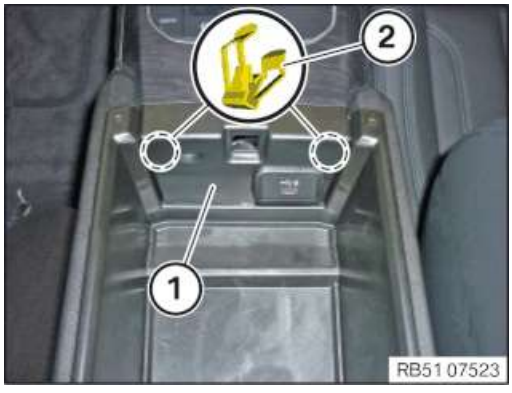
- Correctly position the centre console trim (1) and engage at the latch mechanisms.

POSTPROCESSES

4 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



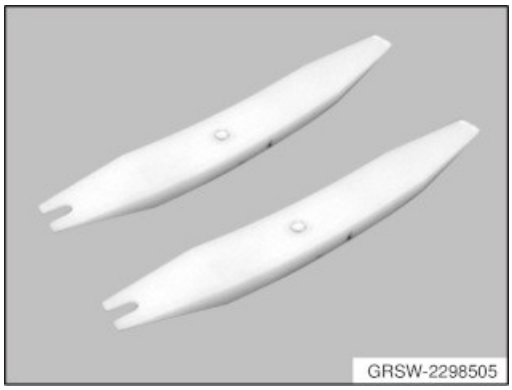
- Correctly position trim (1) and snap into the clamps (2).

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Additional Information

Overview of Special Tools

2 298 505 Wedge



Common	Used in step 12
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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51 16 165 Removing and installing complete centre console

PRELIMINARY WORK

1 – Remove cupholder

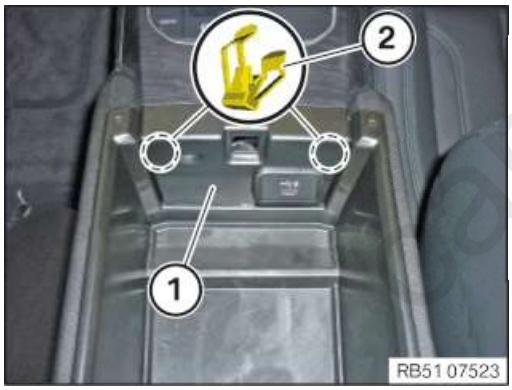


- Remove the insert (1).

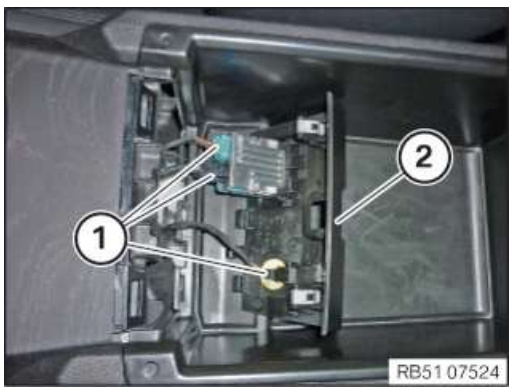


- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

2 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

3 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



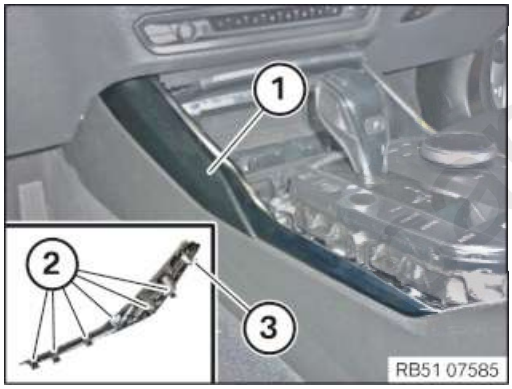
- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

4 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

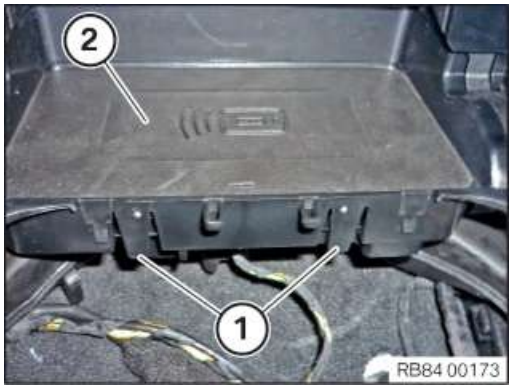
NOTICE

Description is for left component only. Procedure on the right side is identical.

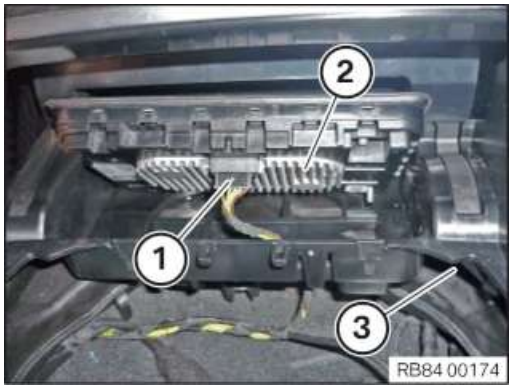


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

5 – Removing the wireless charging station



- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

6 – Remove the operating facility in the centre console

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

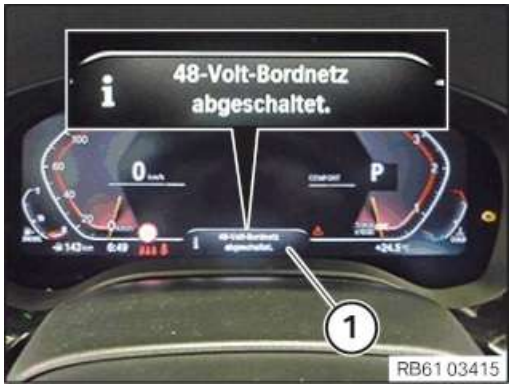
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

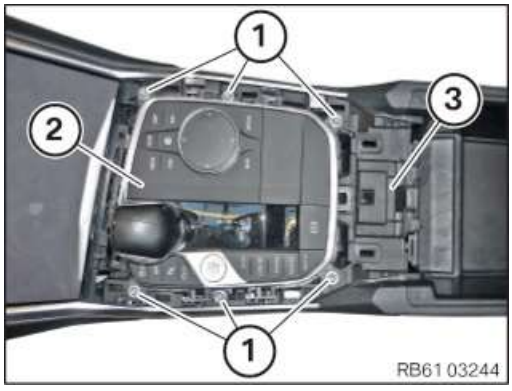
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**

- See additional information.

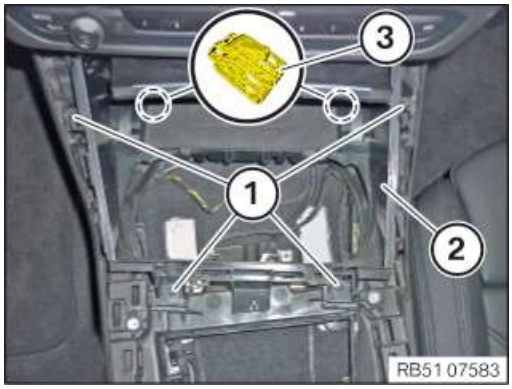




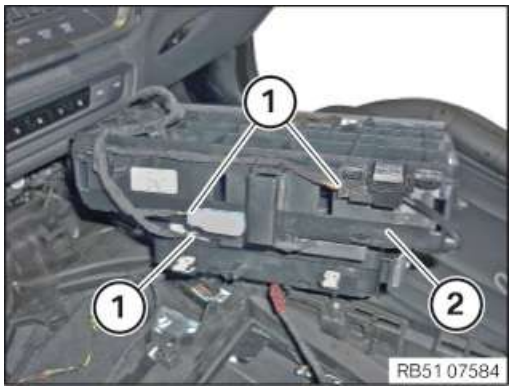
- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

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7 – Removing the storage compartment in the front centre console



- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).



- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

8 – Removing the rear centre console trim

RISK OF DAMAGE

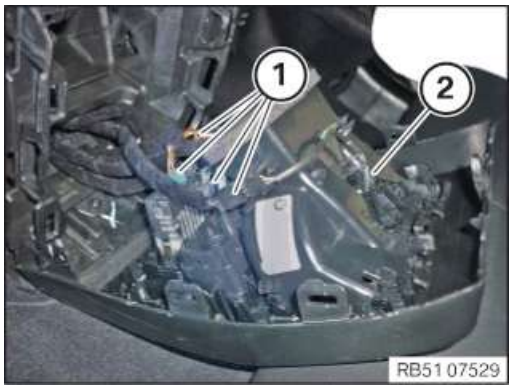
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.



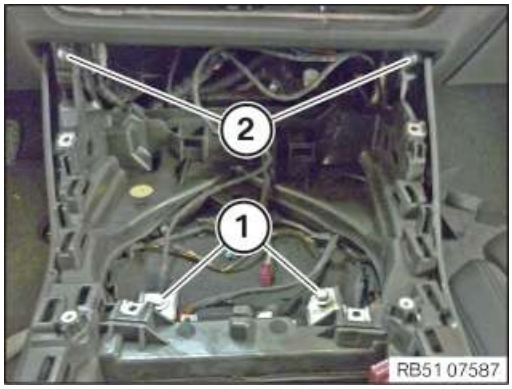
- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

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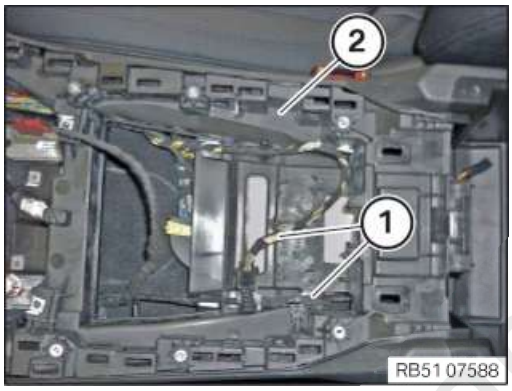
9 – Removing the centre console



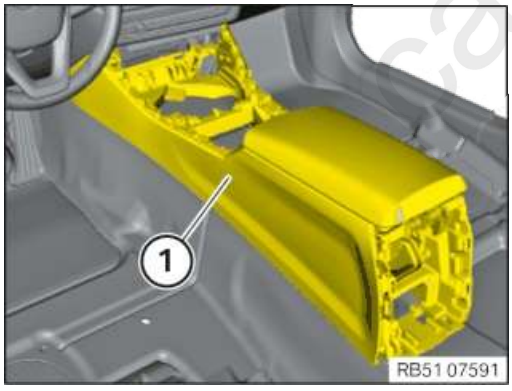
- Loosen screws (1).



- Loosen screws (1) and (2).



- Release the wiring harness (1) from the centre console (2).



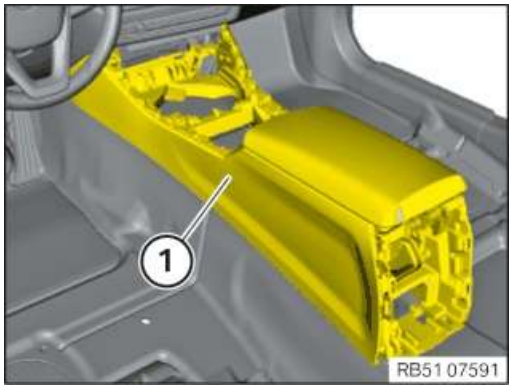
NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Carefully raise rear centre console (1).
- Feed out wiring harness from the centre console (1) and unlock and disconnect existing plug connections, if required.
- Feed out and remove the centre console (1) on the instrument panel .

10 – Installing the centre console

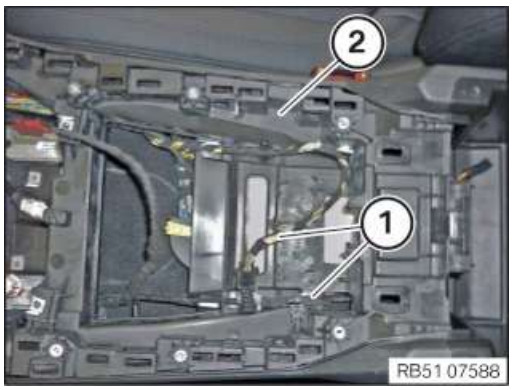
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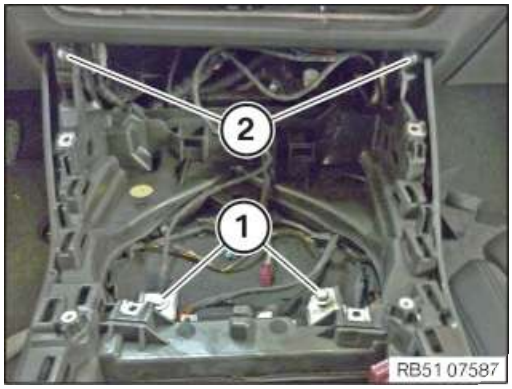
NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Install centre console (1) and thereby feed in the wiring harness.
- Feed in the centre console (1) to the instrument panel and position correctly.



- Secure the wiring harness to the centre console (1) and connect and lock the existing plug connections.



- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

- Tighten the screws (2).

Centre console to instrument panel

Oval-head screw		Tightening torque	1,8 Nm



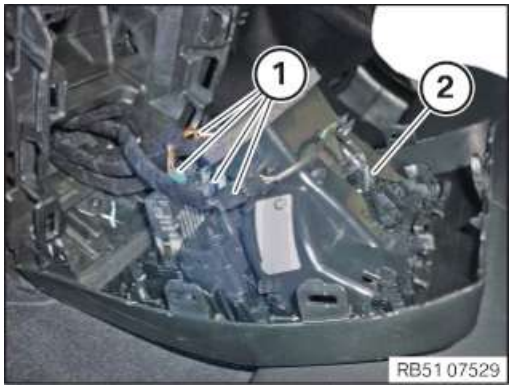
- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

POSTPROCESSES

11 – Installing the rear centre console trim

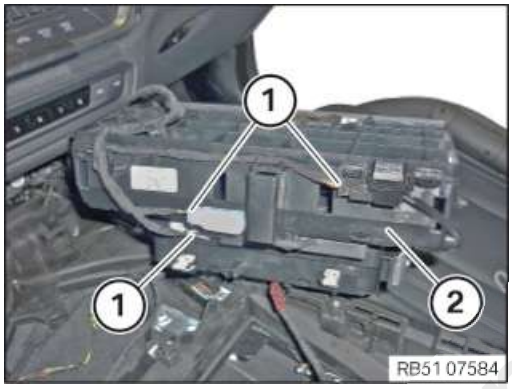


- Install the centre console trim (2).
- Connect connectors (1) and lock.

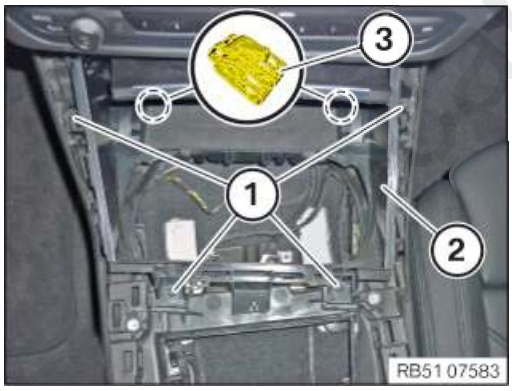


- Position centre console trim (1) and engage at the latch mechanisms at the side.

12 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).

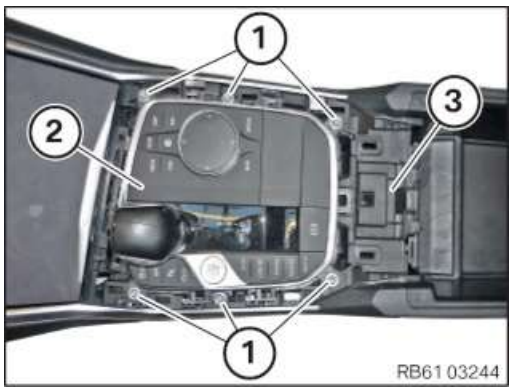


- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

13 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw		Tightening torque	1,8 Nm

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▶ **Connecting all battery earth leads**



- See additional information.

▶ **Activating the 48 V electrical system**

Prerequisite

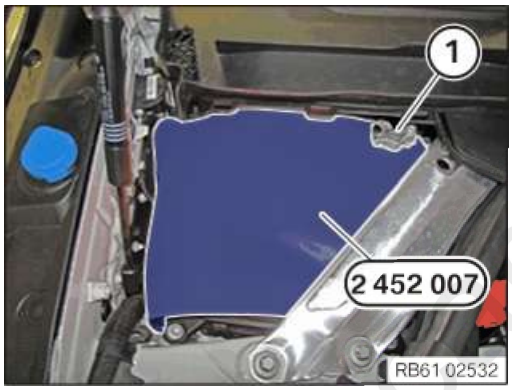
Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

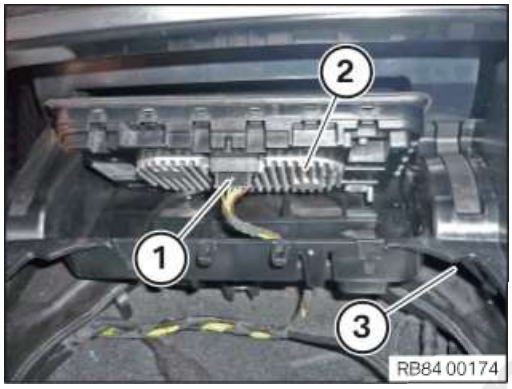


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).

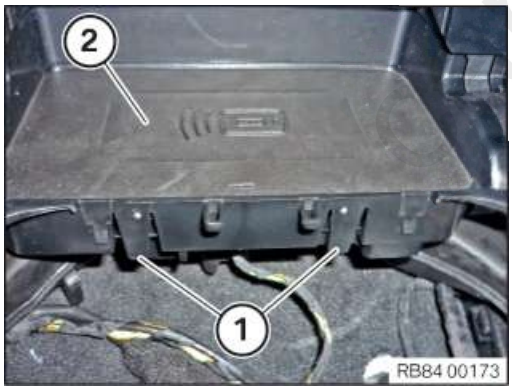


- Activate the 48V electrical system by closing the bonnet.
  The activation takes place automatically.

14 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.
  The latch mechanisms (1) must engage correctly.

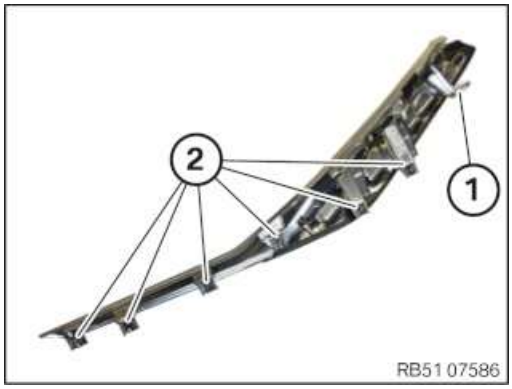
15 – Installing the decorative trim on the centre console on the left and right

▸ **Installing the decorative trim on the centre console**

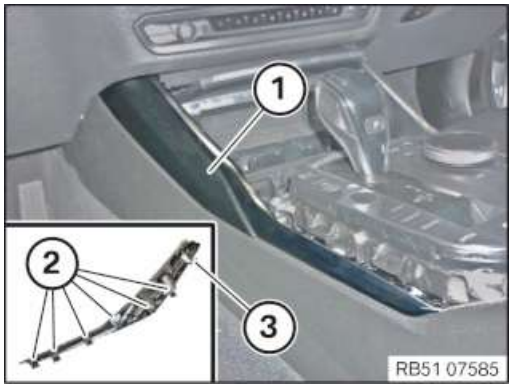
NOTICE

Description is for left component only. Procedure on the right side is identical.

.com



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

16 – Installing the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



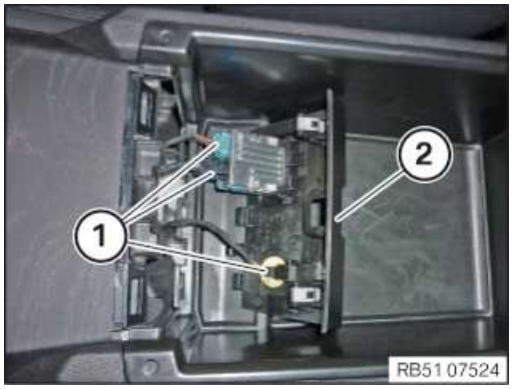
- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .



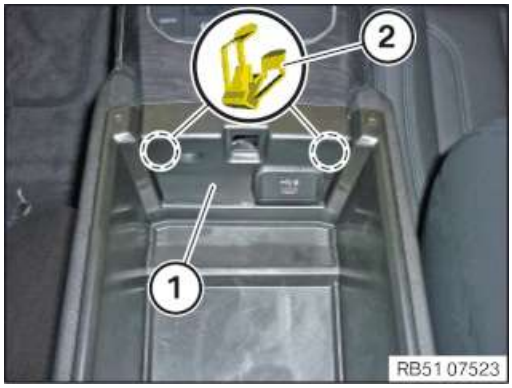
- Correctly position the centre console trim (1) and engage at the latch mechanisms.

17 – Installing the trim in the storage compartment of the centre armrest

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- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

18 – Install the cup holder



- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm



- Insert the insert (1).

Additional Information

Overview of Tightening Torques

Centre console on tunnel — Used in step 10

M6x18 Hexagon screw		Tightening torque	4,6 Nm

Centre console to instrument panel — Used in step 10

Oval-head screw		Tightening torque	1,8 Nm

Storage compartment in centre console			Used in step 12
Oval-head screw		Tightening torque	1,8 Nm

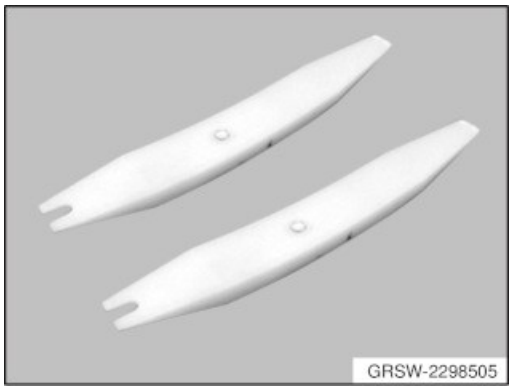
Gear selector switch to centre console trim			Used in step 13
Screw		Tightening torque	1,8 Nm

Negative battery cable to 48-V battery			Used in step 13
Nut M8		Tightening torque	19 Nm

Cup holder to centre console			Used in step 18
Oval-head screw		Tightening torque	1,8 Nm

Overview of Special Tools

2 298 505 Wedge



Common	Used in step 23
Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	613

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	613
61 20 900 Disconnecting and connecting battery earth lead	613
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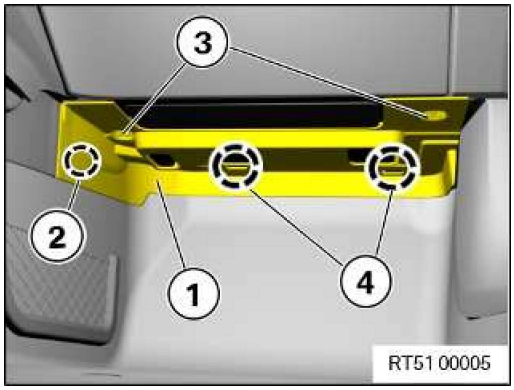
61 20 900 Disconnecting and connecting battery earth lead	613
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	613
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51 16 376 Removing and installing glove box lid

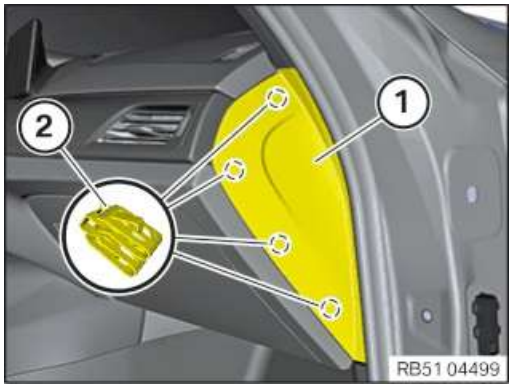
PRELIMINARY WORK

1 – Remove the right footwell trim



- Turn the locks (3) by 90°.
- Feed the footwell trim (1) out of the guide (2).
- Detach the footwell trim (1) inward out of the guides (4).
- Unlock associated plug connection and disconnect.

2 – Remove the side panel on the right instrument panel

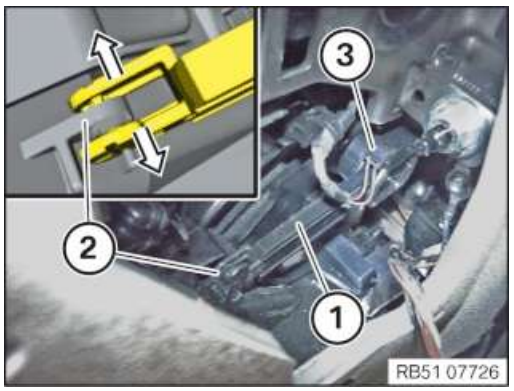


- Unclip and remove the side panel (1) towards the outside from the clamps (2).
- If necessary, unlock associated plug connection and disconnect.

3 – Remove glove box damper



- Release plug connection (1) from the instrument panel and pull to the outside.



- Release damper (1) from retaining bracket (2) (spread slightly in the direction of the arrow).
- Open glove box cover.
- Twist damper (1) slightly in the clockwise direction and remove it outwards.
- Feed damper (1) out of the instrument panel.
- Disconnect plug connection (3).

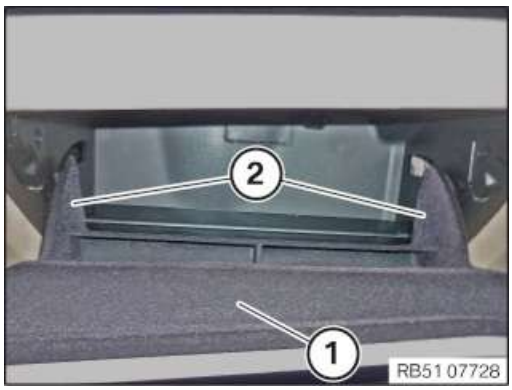
rdiagn.com

MAIN WORK

4 – Remove glove box lid

Prerequisite

The glove box lid is open.

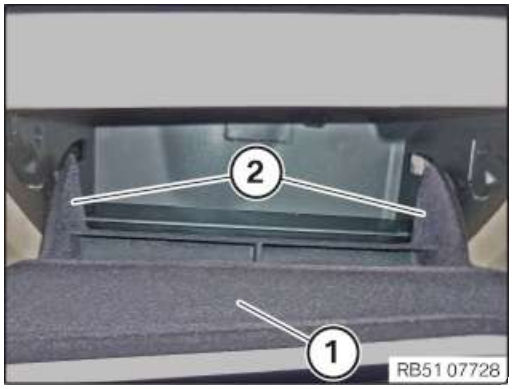


- Raise the glove box lid (1) slightly.
- Carefully bend the side section (2)of glove box lid (1) inside so that the glove box lid (1) can be fed out of the instrument panel .
- Swivel the glove box lid (1) further down until it feeds out of the hinges.

5 – Install glovebox cover

Prerequisite

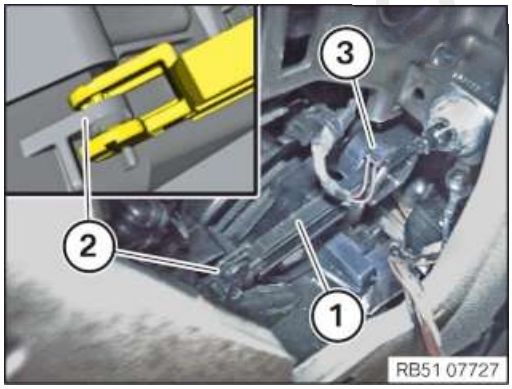
The glove box lid is open.



- Insert glove box lid (1) on the hinges and swivel to the top.
- Bend the side section (2) of the glove box lid (1) carefully inward and feed in at the instrument panel.

POSTPROCESSES

6 – Installing glove box damper



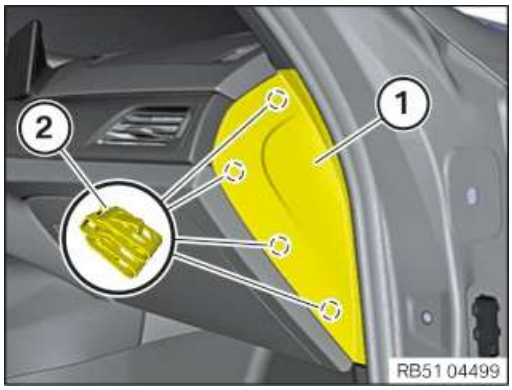
- Connect connector (3).
- Insert damper (1) in instrument panel.
- Open glove box cover.
- Install damper (1) and twist it slightly in the anticlockwise direction.
- Engage the damper (1) in the retaining bracket (2).

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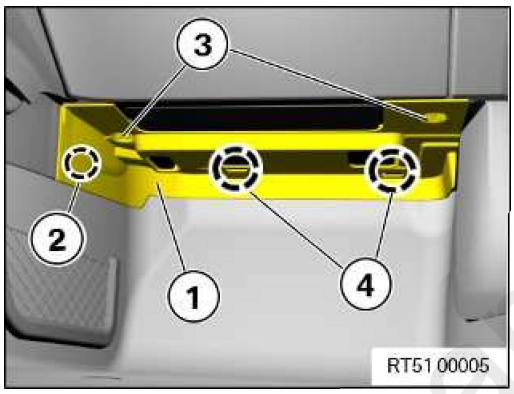
- Install connector (1) and mount on the instrument panel.

7 – Install the side panel on instrument panel on the right



- If required, connect the associated connector.
- Feed in the side panel (1) and clip it in at the clamps (2).

8 – Install the right footwell trim panel



- Connect associated connector.
- Attach the footwell trim (1) to the guides (4) and fold up.
- Guide the footwell trim (1) into the guide (2) of the centre console.
- Position the locks (3) correctly and turn by 90°.

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51 16 045 Removing and installing or replacing retaining ring on left or right exterior mirror

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Removing the mirror glass

CAUTION

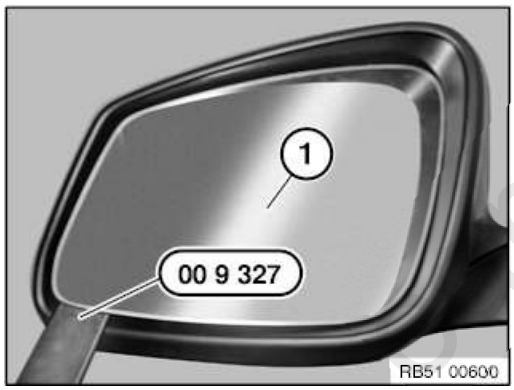
Glass splinters.

Danger of injury!

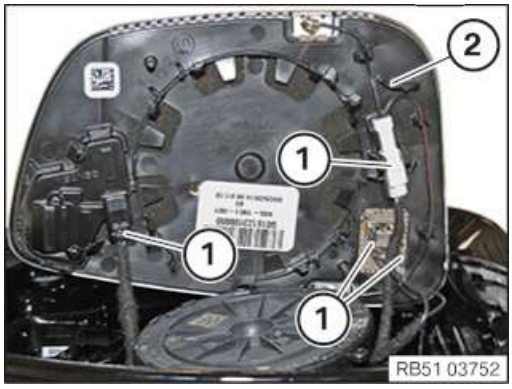
- If the mirror glass is damaged, wear safety goggles and protective gloves.

TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.



- Manually press the mirror glass (1) on the side of vehicle up to the end stop.
- Unclip the mirror glass (1) using special tool 0 496 571 (00 9 327) all the way around, starting with the outer side.



- Disconnect plug connection (1).
- Remove mirror glass (2).

2 – Removing the protective cap of the exterior mirror



- Spread and release the latch mechanisms (1) of the protective cap on the exterior mirror.



- Remove the protective cap (1) in the direction of the arrow.
- Disconnect associated plug connection.

3 – Removing the drive for exterior mirror adjustment



- **Version A:**
- Release the screws (1) and pull out the drive for exterior mirror adjustment (2) a little.



- **Version B**
- Loosen screw (1).
- Pull off the drive for exterior mirror adjustment (2).

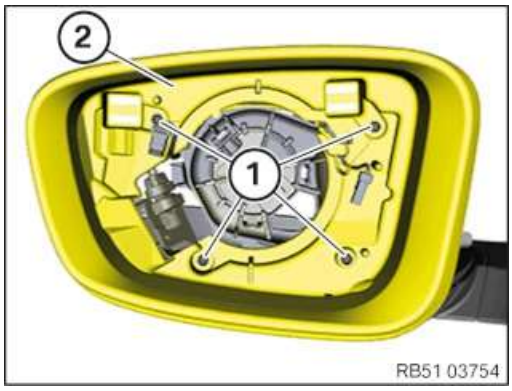


- Unlock plug connection (1) and disconnect and remove the drive for exterior mirror adjustment (2) .

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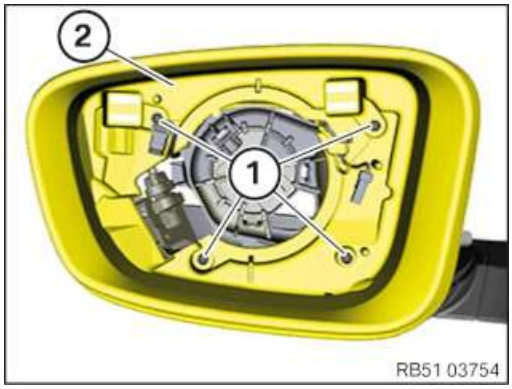
MAIN WORK

4 – Removing retaining ring from exterior rearview mirror



- Loosen screws (1).
- If necessary, feed out cable.
- Guide out retaining ring of exterior rearview mirror (2) in forward direction.

5 – Installing the retaining ring on the exterior rearview mirror



- Feed in the retaining ring on the exterior rearview mirror (2).
- If necessary, feed in cable.
- Tighten the screws (1).

Retaining ring to exterior mirror

Screw		Tightening torque	0,85 Nm

POSTPROCESSES

6 – Installing the drive for exterior mirror adjustment



- Position drive for exterior mirror adjustment (2).
- Connect connectors (1) and lock.



- **Version A:**
- Position drive for exterior mirror adjustment (2) correctly.
- Tighten the screws (1).

Drive for exterior mirror adjustment

Screw		Tightening torque	1.2 Nm

mdiagn.com



- **Version B:**
- Correctly position the drive for exterior mirror adjustment (2) and press it in.
- Tighten down screw (1).

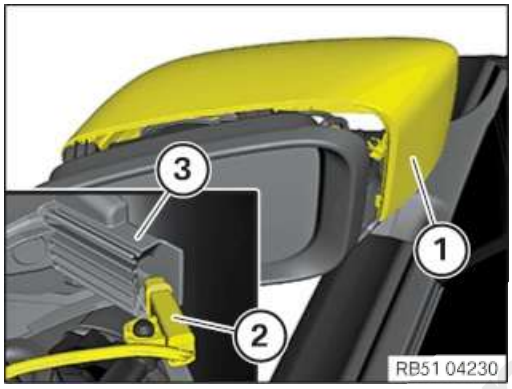
Drive for exterior mirror adjustment

Screw		Tightening torque	1.2 Nm

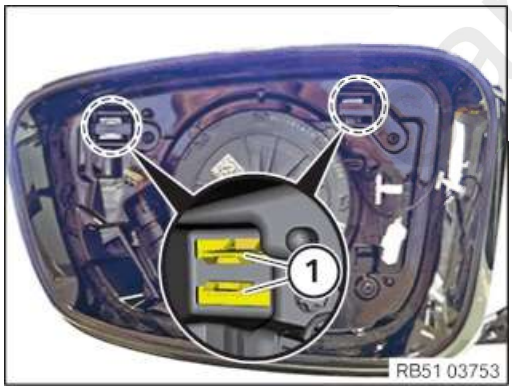
7 – Installing the protective cap of the exterior mirror



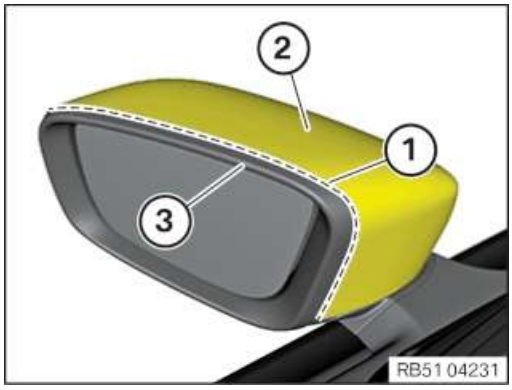
- Position the connector (1) on the mounting (2).
- Position connector (1) as shown.



- Position the protective cap (1) on the exterior mirror.
- Feed in the connector (2) for the side repeater (3).
- Push protective cap (1) on exterior mirror and lock.

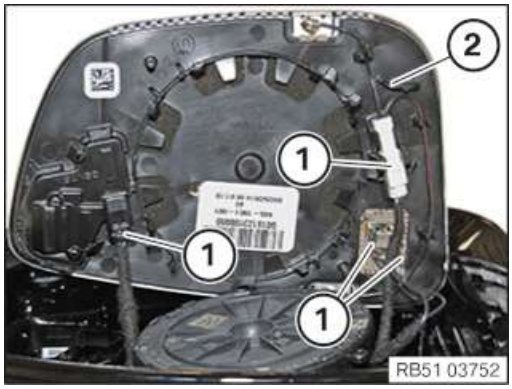


- Make sure that the latch mechanisms (1) are correctly fitted.

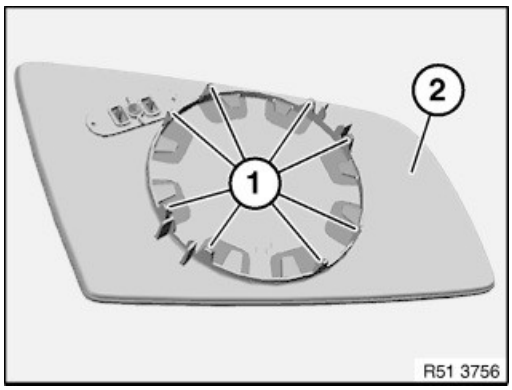


- Check the correct seating of the protective cap (2) on retaining ring (3) around (1).

8 – Installing the mirror glass



- Position mirror glass (2).
- Connect plug connections (1).



- Check whether retaining lugs (1) are missing or damaged and, if required, renew the mirror glass.
- Position the mirror glass (2) with the retaining lugs (1) flush with the drive for exterior mirror adjustment and clip in.
- Ensure correct locking.
- Check if the drive for exterior mirror adjustment is functioning correctly.

Additional Information

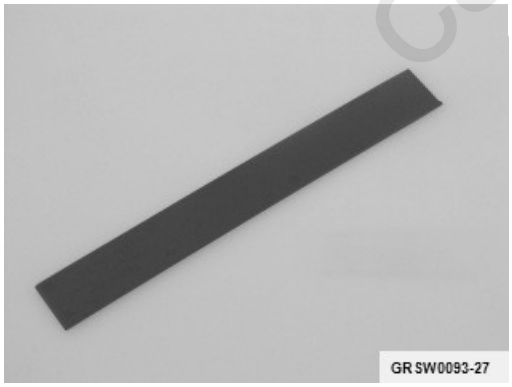
Overview of Tightening Torques

Retaining ring to exterior mirror			Used in step 5
Screw		Tightening torque	0,85 Nm

Drive for exterior mirror adjustment			Used in step 6
Screw		Tightening torque	1.2 Nm

Overview of Special Tools

0 496 571 (00 9 327) Wedge



Common	Used in step 1
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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51 16 080 Removing and installing or replacing sun visor and left or right counter support

NOTICE

Description is for left component only. Procedure on the right side is identical.

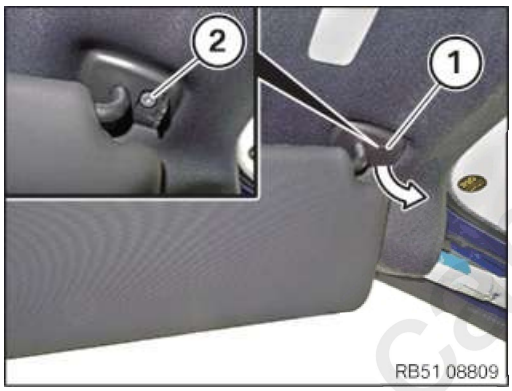
1 – Remove the sun visor and the counter support

NOTICE

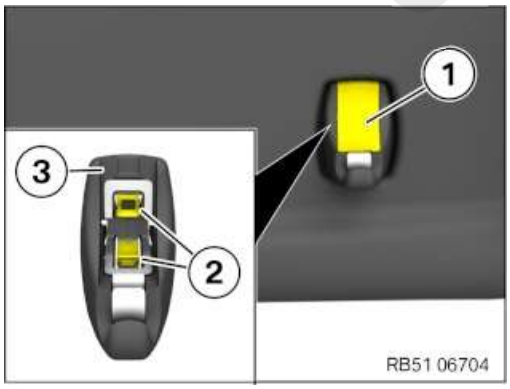
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Detach sun visors (1) from end support (2) and swivel to the side.



- Fold open cover (1).
- Loosen screw (2).
- Remove sun visors and unlock and disconnect the associated plug connection.



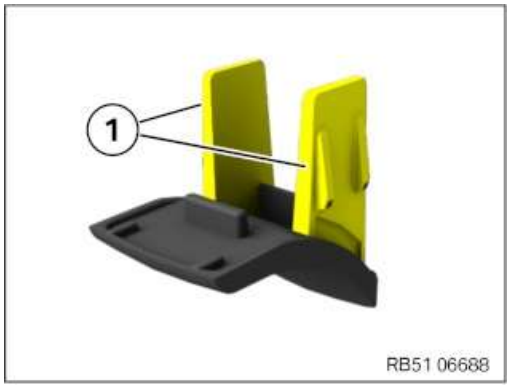
- Unclip cover (1) using a suitable tool.
- Push the clamps (2) together and pull the counter support (3) out of the headlining.

2 – Install the sun visor and the counter support

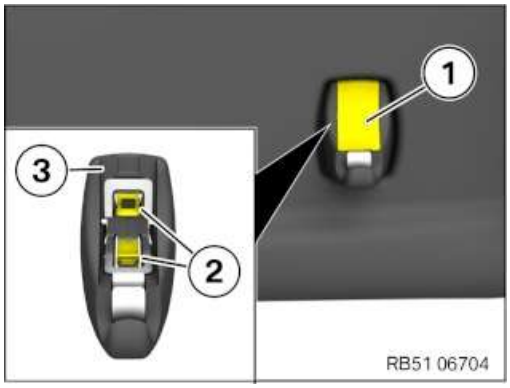
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

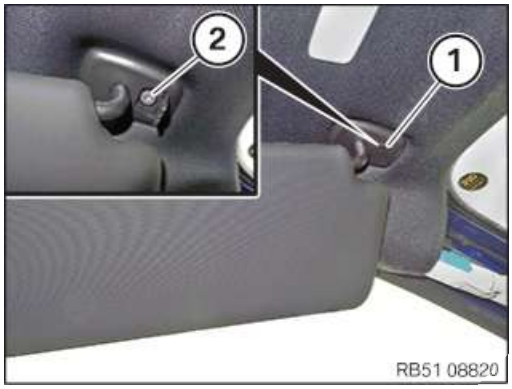
carldiagn.com



- Check the guides (1) on the cover of the end support for damage, renew if necessary.



- Clip in the counter support (3) to the headlining.
- Make sure the clamps (2) are engaged correctly.
- Clip in the cover (1).

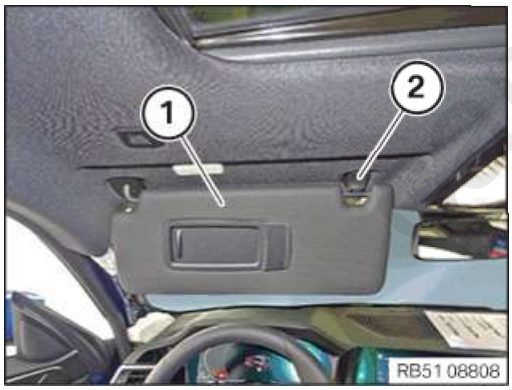


- Connect and lock corresponding connectors.
- Install the sun visors.
- Tighten down screw (2).

Sun visor to body

Screw		Tightening torque	3.3 Nm

- Close the cover (1).



- Hook the sun visors (1) to the end support (2).

Additional Information

Overview of Tightening Torques

Sun visor to body Used in step 2

Screw		Tightening torque	3.3 Nm

erdiagn.com

51 16 172 Removing and installing the centre armrest storage compartment

PRELIMINARY WORK

1 – Removing the rear centre console trim

RISK OF DAMAGE

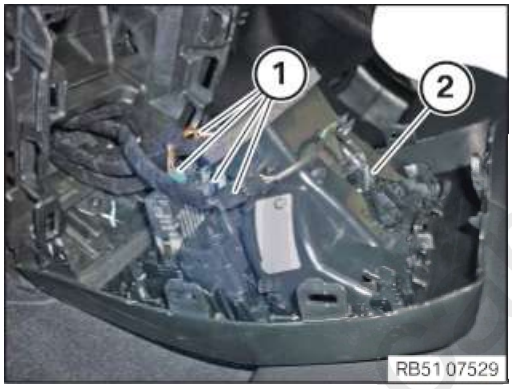
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

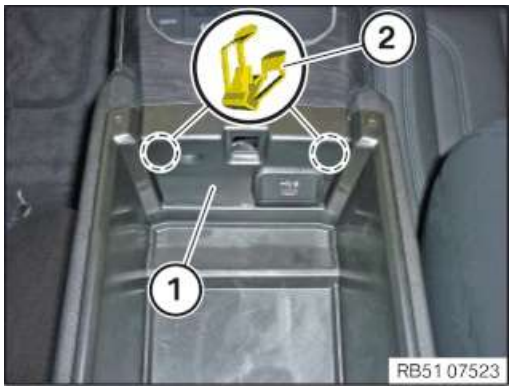


- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.

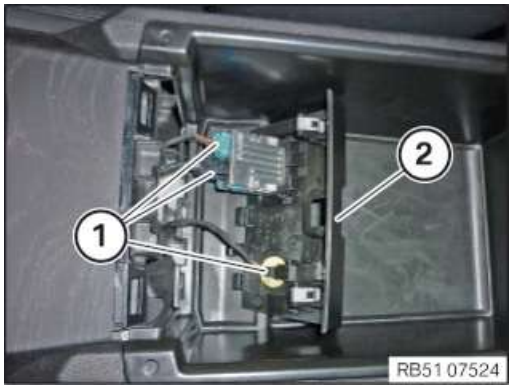


- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

2 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



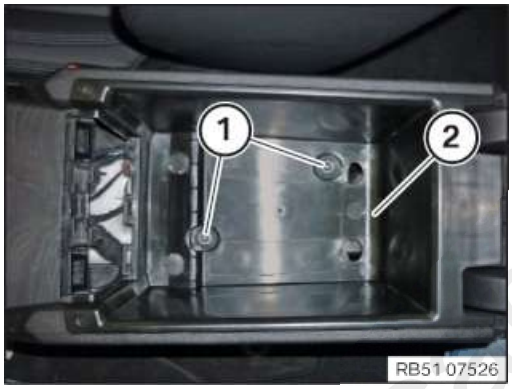
- Unlock and disconnect the plug connections (1) and remove the trim (2) .

MAIN WORK

3 – Removing the centre armrest storage compartment



- Remove the insert (1) forward out of the storage compartment .



- Loosen screws (1).
- Lever out storage compartment (2) using special tool 2 298 505 to the top and remove.

4 – Installing the centre armrest storage compartment



- Install the storage compartment (2).
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

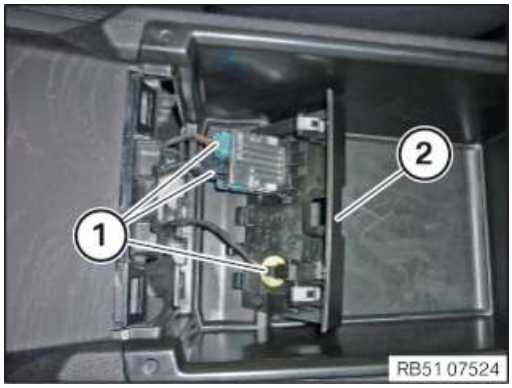
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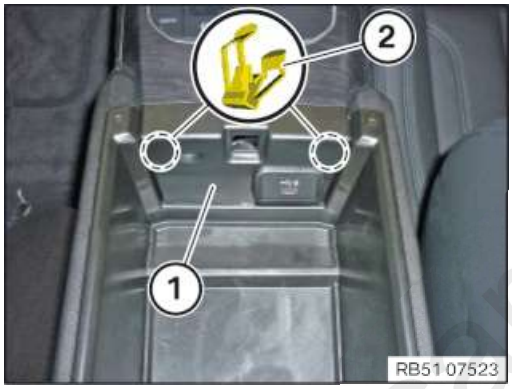
- Install insert (1) in storage compartment.

POSTPROCESSES

5 – Installing the trim in the storage compartment of the centre armrest

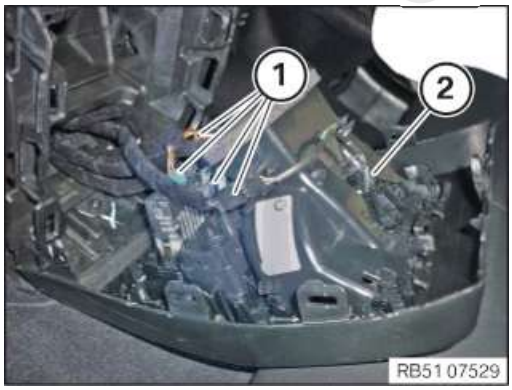


- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

6 – Installing the rear centre console trim



- Install the centre console trim (2).
- Connect connectors (1) and lock.

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- Position centre console trim (1) and engage at the latch mechanisms at the side.

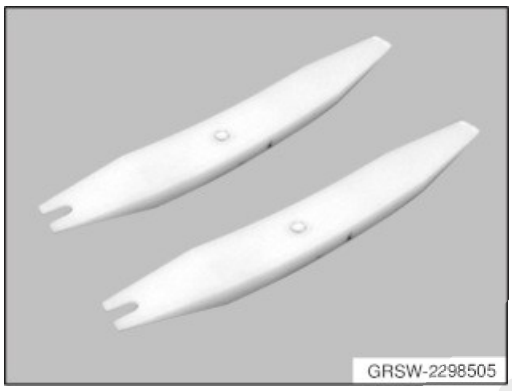
Additional Information

Overview of Tightening Torques

Storage compartment in centre console			Used in step 4
Oval-head screw		Tightening torque	1,8 Nm

Overview of Special Tools

2 298 505 Wedge



Common		Used in step 23
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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51 16 001 Removing and installing the exterior mirror on left or right front door

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

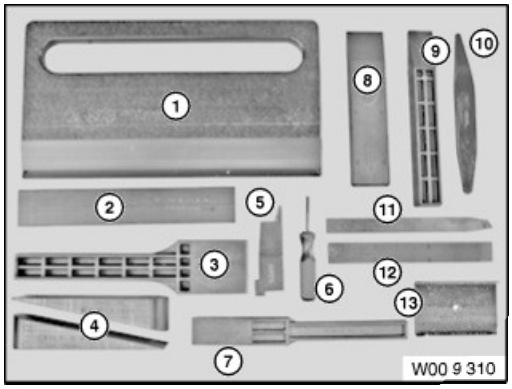
1 – Remove front door trim panel

RISK OF DAMAGE

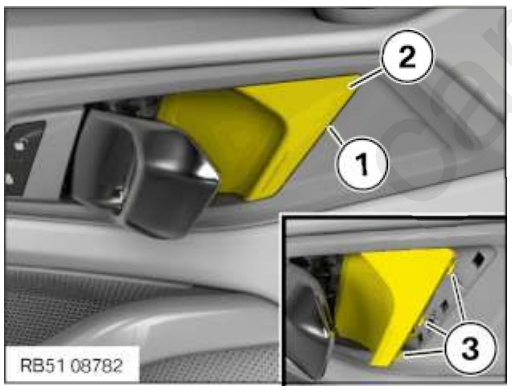
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

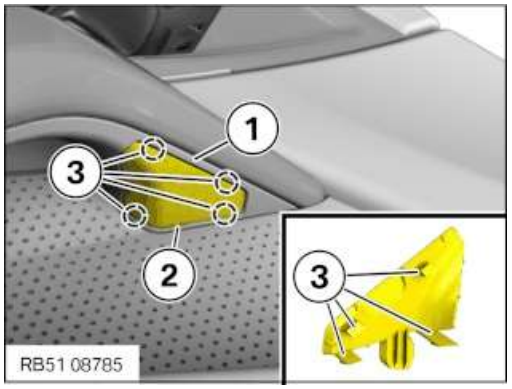
- Protect surfaces from damage.



- Have the set of special tools 0 493 752 (00 9 329) ready.

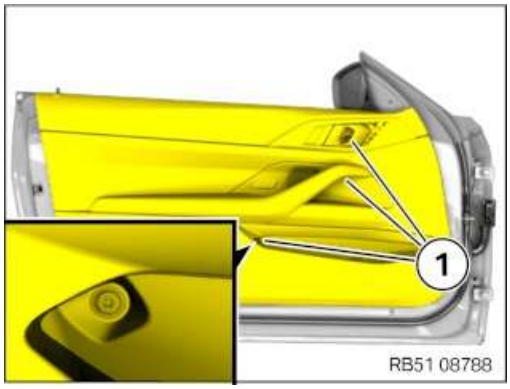


- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.

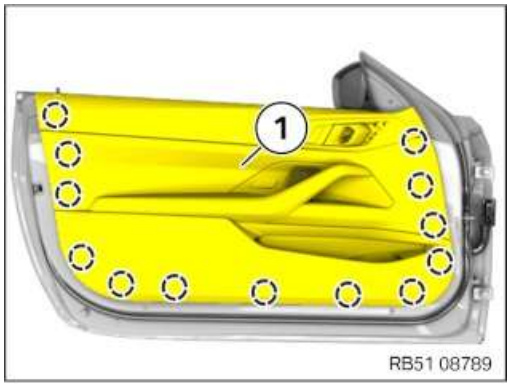


- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

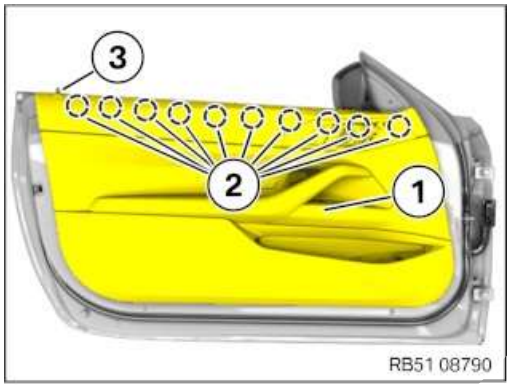
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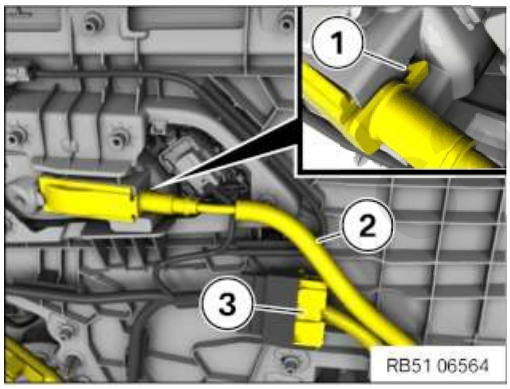
- Loosen screws (1).



- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

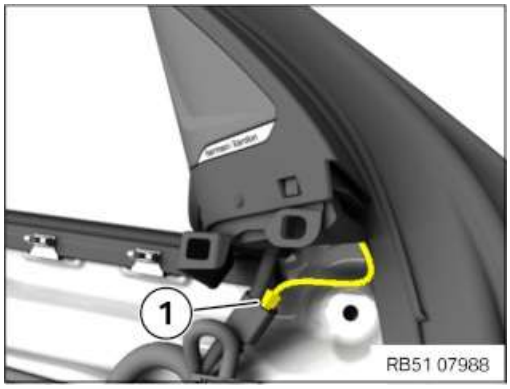
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

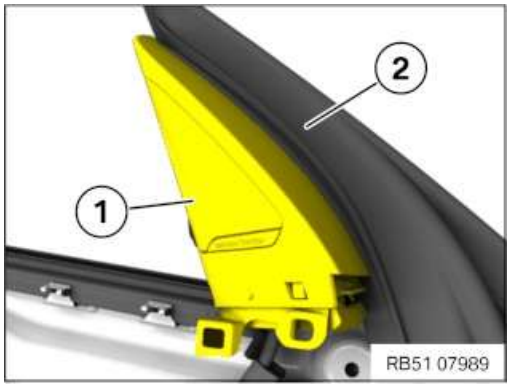
2 – Removing mirror triangle

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **For equipment specification with tweeter.**
- Unlock plug connection (1) and disconnect.



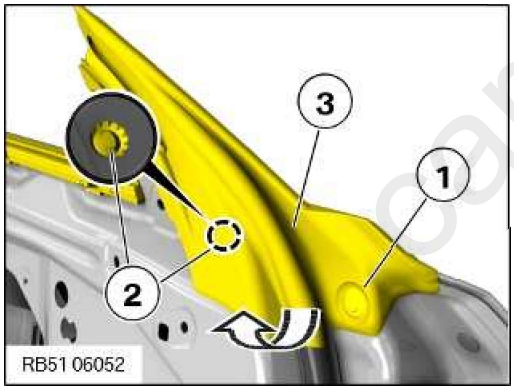
- Feed out the mirror triangle (1) from the inner window recess finisher strip (2) .

MAIN WORK

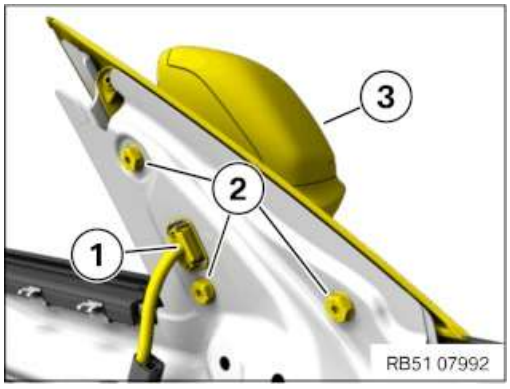
3 – Remove exterior mirror

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Unclip clip (1) with suitable tool.
- Unclip clip (2).
- Partially release the inner window recess finisher strip at the front (3) in the direction of arrow.



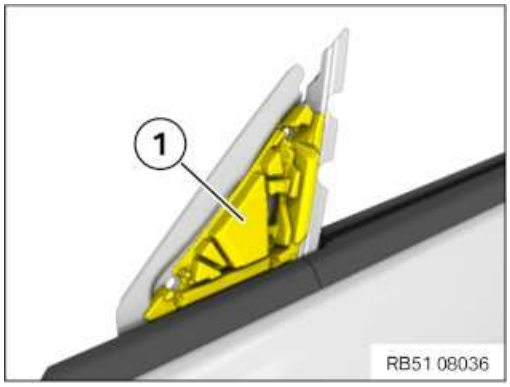
- Unlock plug connection (1) and disconnect.
- Release screws (2) and remove the exterior mirror of the front door (3) .

4 – Fit exterior mirror

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

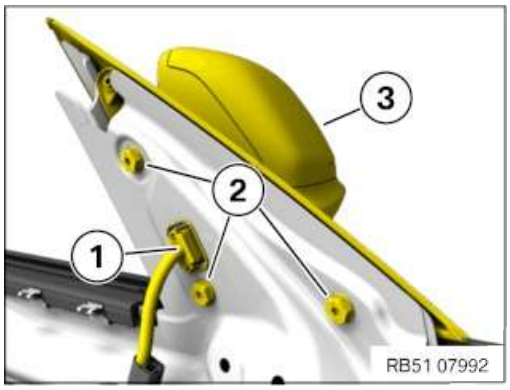
- Check the sealing (1) for the mirror triangle for damage and position it correctly.

Result

» The mirror triangle sealing is damaged.

Measure

- Renew the sealing for the mirror triangle.

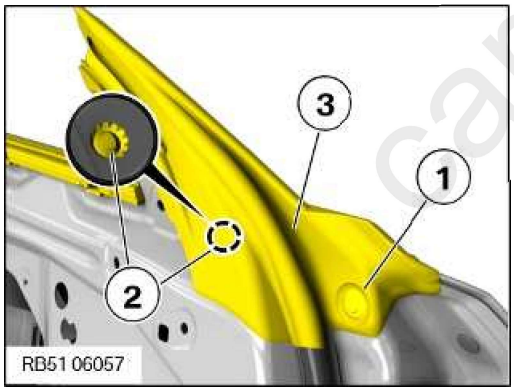


- Position the exterior mirror (3) on the door and tighten the screws (2).

Exterior mirror to door

Screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.



- Position the inner window recess finisher strip at the front (3).
- Clip in clip (1).
- Clip in clip (2).

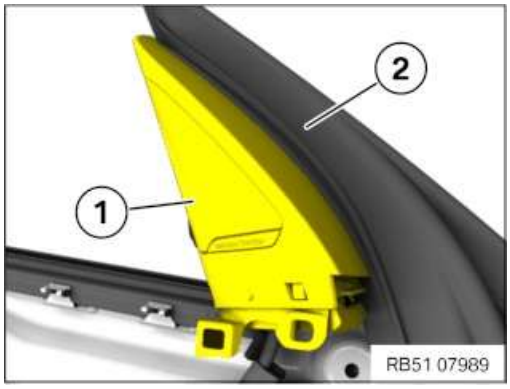
POSTPROCESSES

5 – Installing mirror triangle

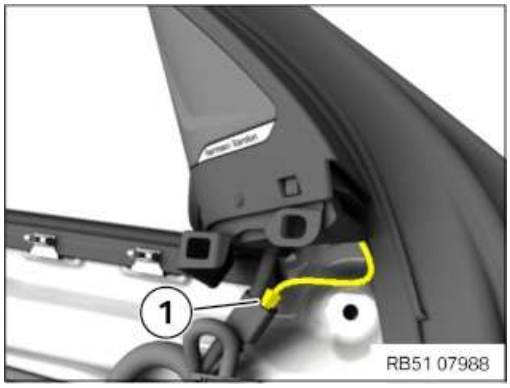
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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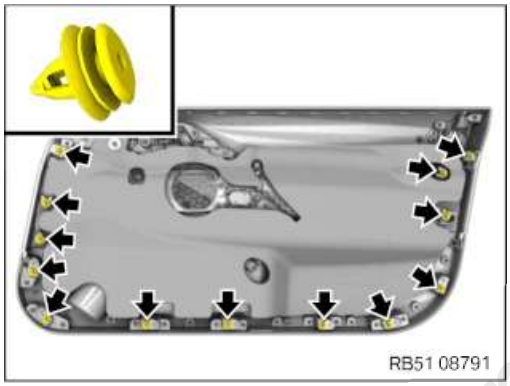


- Insert the mirror triangle (1) into the inner window recess finisher strip (2) and position it correctly.

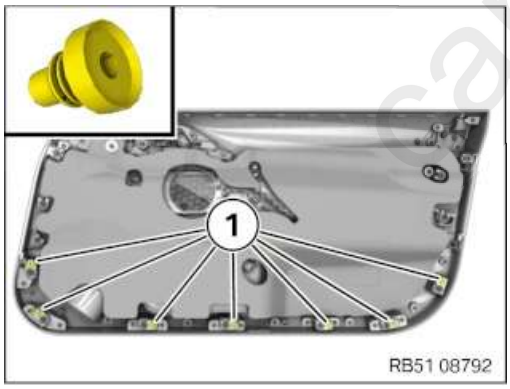


- **For equipment specification with tweeter.**
- Connect connectors (1) and lock.

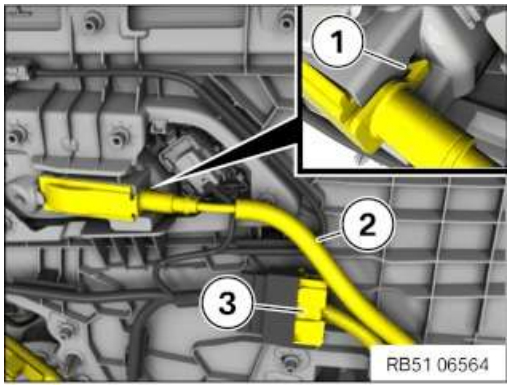
6 – Install front door trim panel



- Check clips (arrows) for damage and, if necessary, renew them.



- Check the stop pad (1) for damage, renew if necessary.

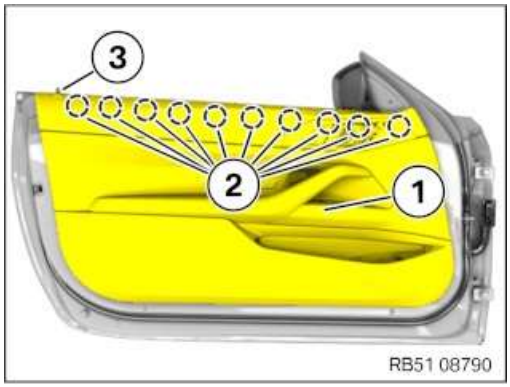


NOTICE

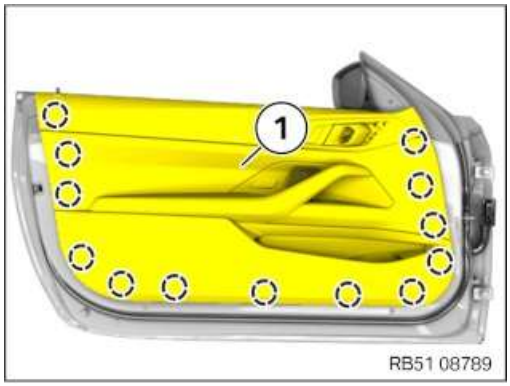
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.

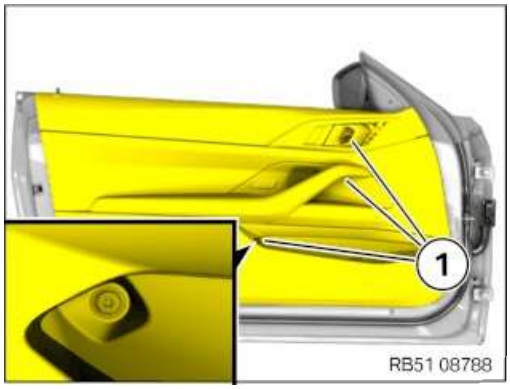
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- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

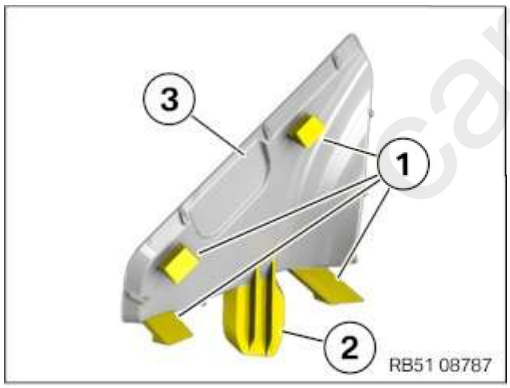


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

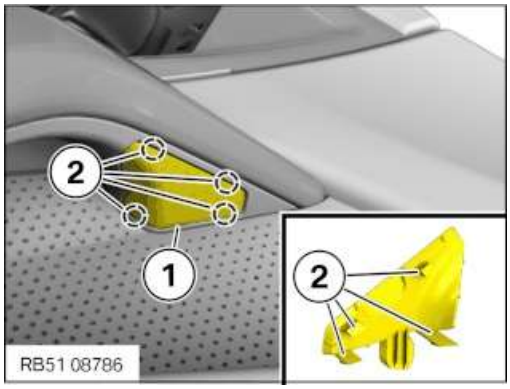
Result

» The latch mechanisms (1) or the guides (2) are damaged.

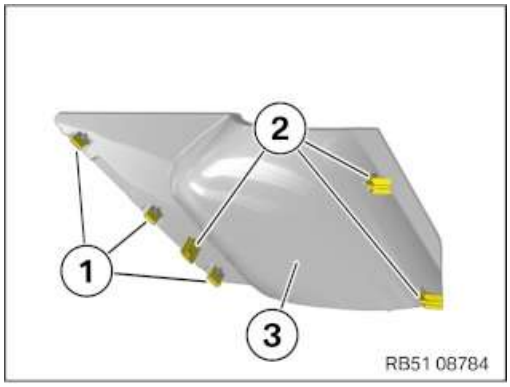
Measure

- Replace the cover (3).

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- Position the cover (1) and clip it in with the latch mechanisms (2) .



Check

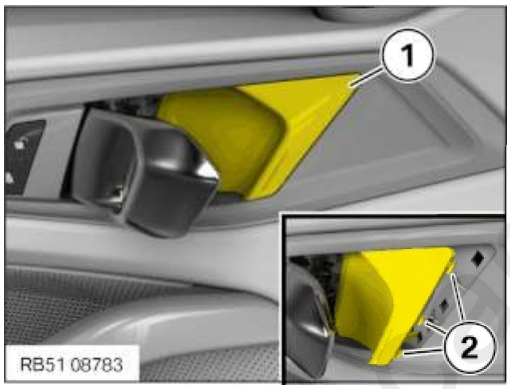
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

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Additional Information

Overview of Tightening Torques

Exterior mirror to door — Used in step 4

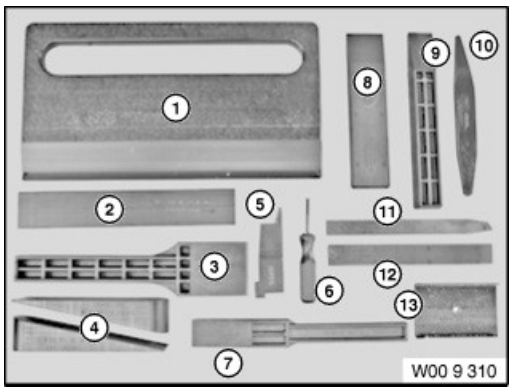
Screw		Tightening torque	8 Nm

Door trim panel — Used in step 6

Oval-head screw		Tightening torque	3 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 1
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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51 16 206 Removing and installing/replacing centre armrest

PRELIMINARY WORK

1 – Removing the rear centre console trim

RISK OF DAMAGE

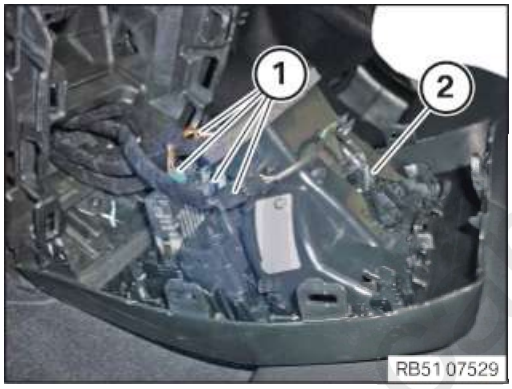
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.



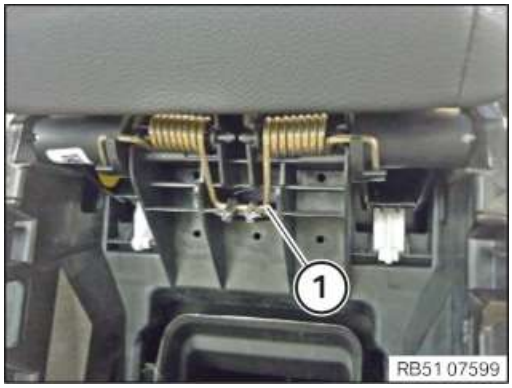
- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

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2 – Removing the centre armrest

Prerequisite

Centre armrest is open.

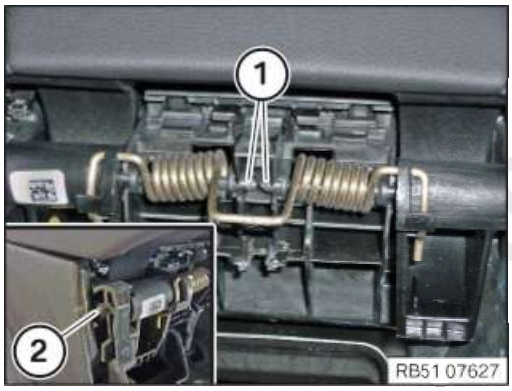


- Open the centre-armrest so that the spring is relaxed (1).
- Lift the spring (1) with long-nose pliers above the retaining lugs and detach.

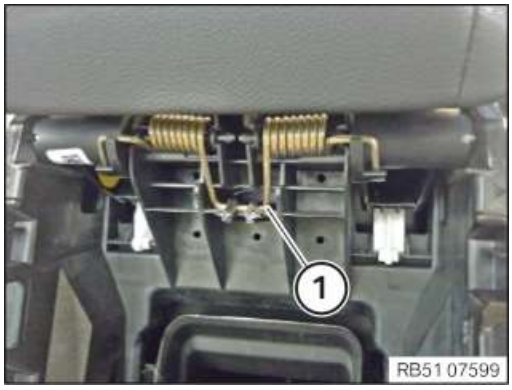


- Press pins (1) with a screwdriver outwards.
- Pull out the pins (1) with long-nose pliers at the gearing (2) completely from the centre console.
- Feed out the centre armrest towards rear from the centre console and remove.

3 – Installing the centre armrest



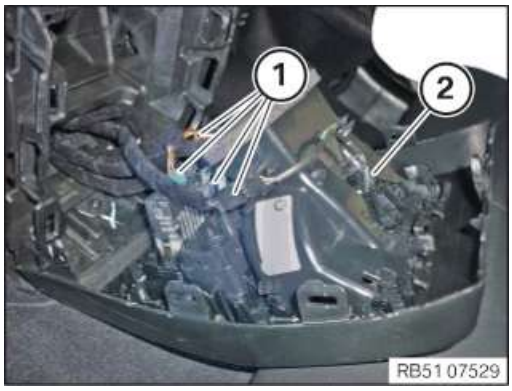
- Feed the centre-armrest into the centre console and position correctly.
- Insert pins (1) and insert into the centre console using gearing (2).



- Open the centre-armrest (1) so that the spring is relaxed.
- Lift and mount spring (1) with long-nose pliers above the retaining lugs.

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4 – Installing the rear centre console trim



- Install the centre console trim (2).
- Connect connectors (1) and lock.



- Position centre console trim (1) and engage at the latch mechanisms at the side.

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51 16 041 Removing and installing/replacing cover cap on left or right exterior mirror

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Removing the mirror glass

CAUTION

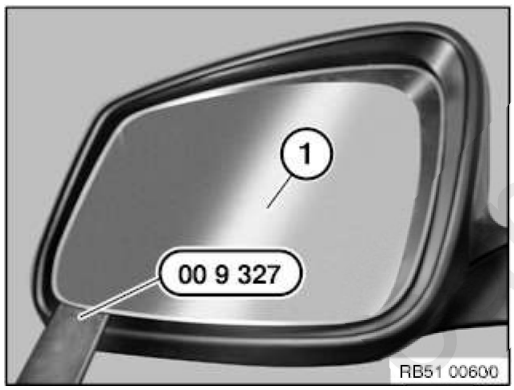
Glass splinters.

Danger of injury!

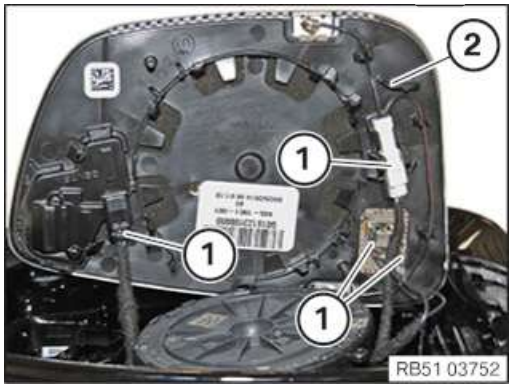
- If the mirror glass is damaged, wear safety goggles and protective gloves.

TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.



- Manually press the mirror glass (1) on the side of vehicle up to the end stop.
- Unclip the mirror glass (1) using special tool 0 496 571 (00 9 327) all the way around, starting with the outer side.



- Disconnect plug connection (1).
- Remove mirror glass (2).

MAIN WORK

2 – Removing the protective cap of the exterior mirror



- Spread and release the latch mechanisms (1) of the protective cap on the exterior mirror.

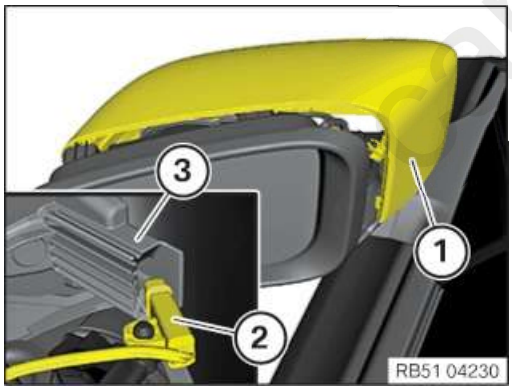


- Remove the protective cap (1) in the direction of the arrow.
- Disconnect associated plug connection.

3 – Installing the protective cap of the exterior mirror



- Position the connector (1) on the mounting (2).
- Position connector (1) as shown.

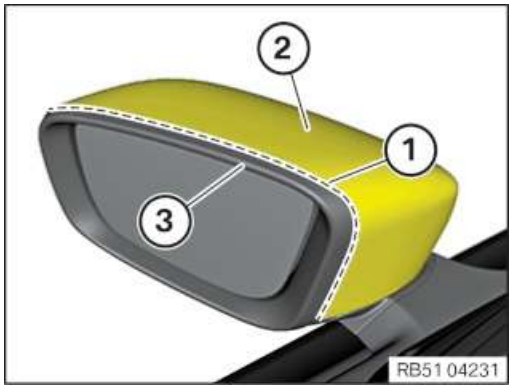


- Position the protective cap (1) on the exterior mirror.
- Feed in the connector (2) for the side repeater (3).
- Push protective cap (1) on exterior mirror and lock.



- Make sure that the latch mechanisms (1) are correctly fitted.

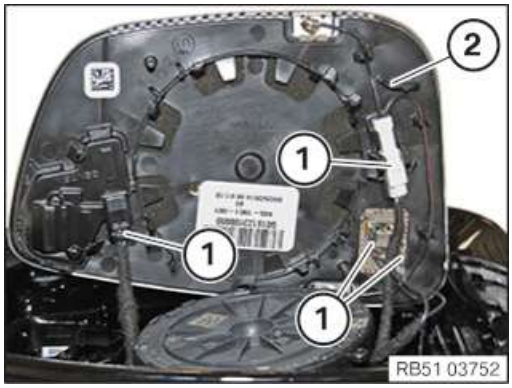
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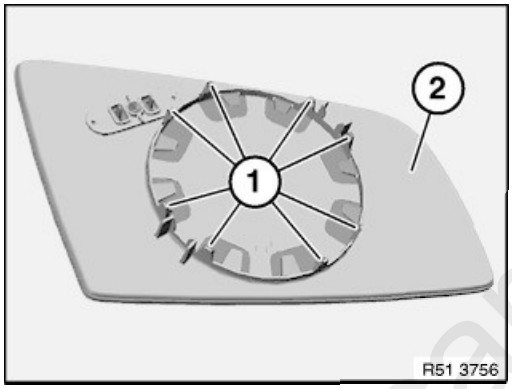
- Check the correct seating of the protective cap (2) on retaining ring (3) around (1).

POSTPROCESSES

4 – Installing the mirror glass



- Position mirror glass (2).
- Connect plug connections (1).



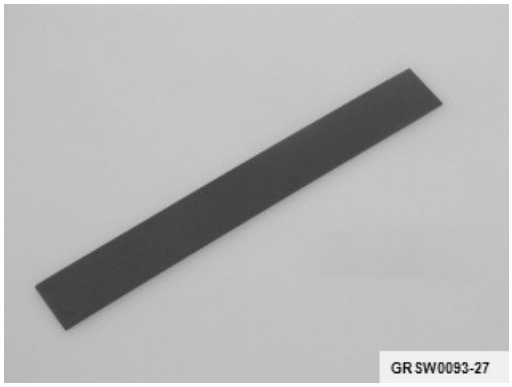
- Check whether retaining lugs (1) are missing or damaged and, if required, renew the mirror glass.
- Position the mirror glass (2) with the retaining lugs (1) flush with the drive for exterior mirror adjustment and clip in.
- Ensure correct locking.
- Check if the drive for exterior mirror adjustment is functioning correctly.

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Additional Information

Overview of Special Tools

0 496 571 (00 9 327) Wedge

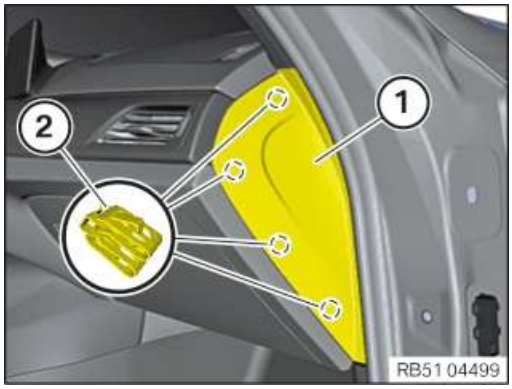


Common	Used in step 1
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

51 16 383 Removing and installing/replacing damper for glove box

PRELIMINARY WORK

1 – Remove the side panel on the right instrument panel



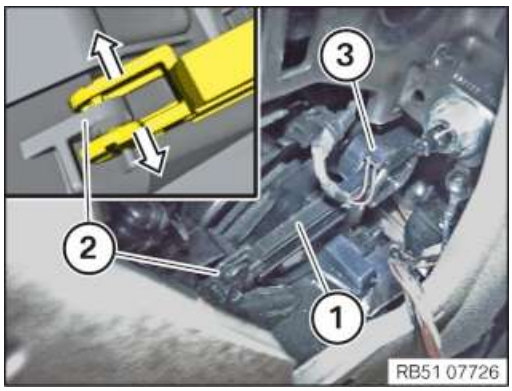
- Unclip and remove the side panel (1) towards the outside from the clamps (2).
- If necessary, unlock associated plug connection and disconnect.

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2 – Remove glove box damper

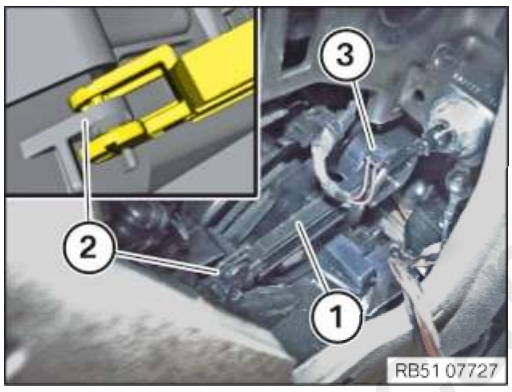


- Release plug connection (1) from the instrument panel and pull to the outside.



- Release damper (1) from retaining bracket (2) (spread slightly in the direction of the arrow).
- Open glove box cover.
- Twist damper (1) slightly in the clockwise direction and remove it outwards.
- Feed damper (1) out of the instrument panel.
- Disconnect plug connection (3).

3 – Installing glove box damper



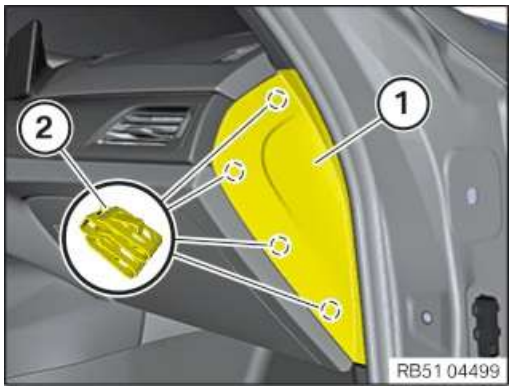
- Connect connector (3).
- Insert damper (1) in instrument panel.
- Open glove box cover.
- Install damper (1) and twist it slightly in the anticlockwise direction.
- Engage the damper (1) in the retaining bracket (2).



- Install connector (1) and mount on the instrument panel.

.com

4 – Install the side panel on instrument panel on the right



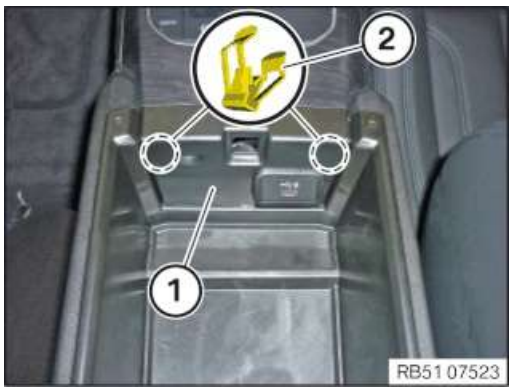
- If required, connect the associated connector.
- Feed in the side panel (1) and clip it in at the clamps (2).

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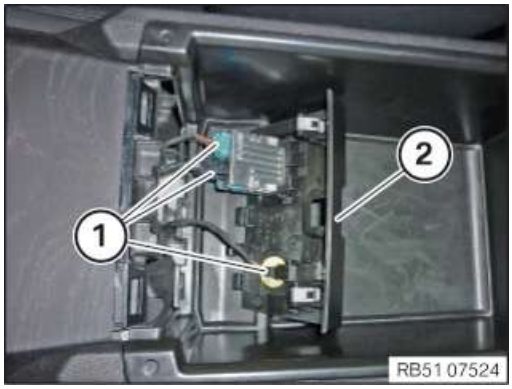
51 16 225 Removing and installing/replacing decorative trim on centre console on left or right

PRELIMINARY WORK

1 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

2 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

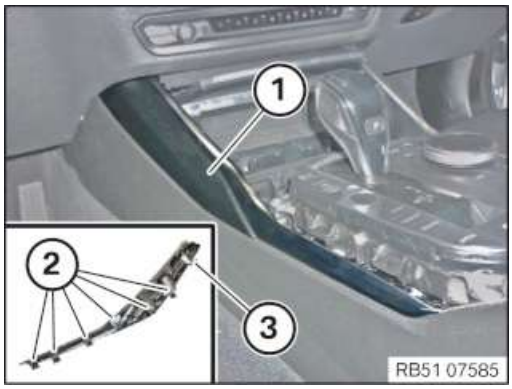
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MAIN WORK

3 – Remove the decorative trim from the centre console

NOTICE

Description is for left component only. Procedure on the right side is identical.

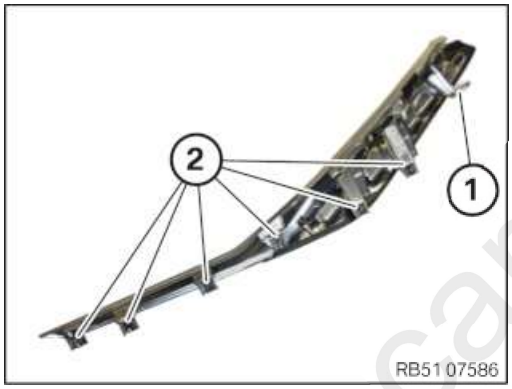


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

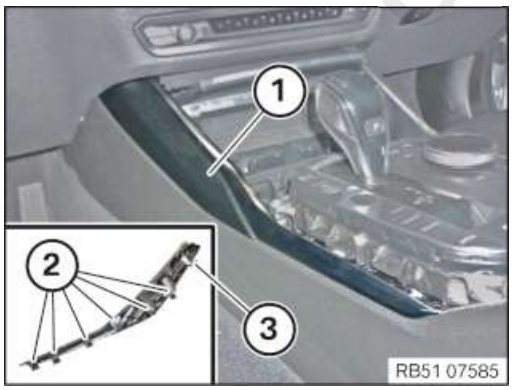
4 – Installing the decorative trim on the centre console

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

POSTPROCESSES

5 – Installing the centre console trim

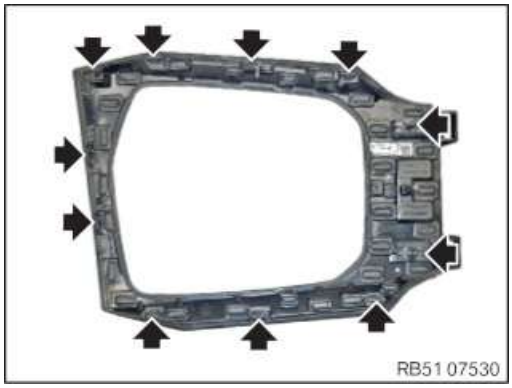
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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

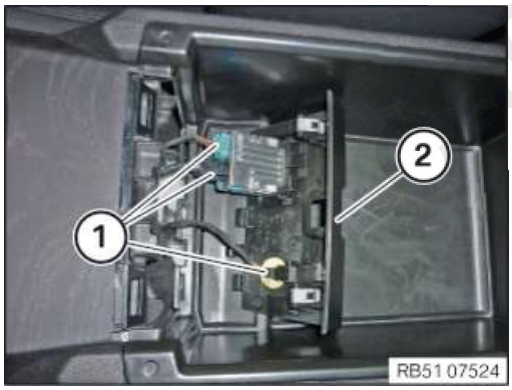


- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

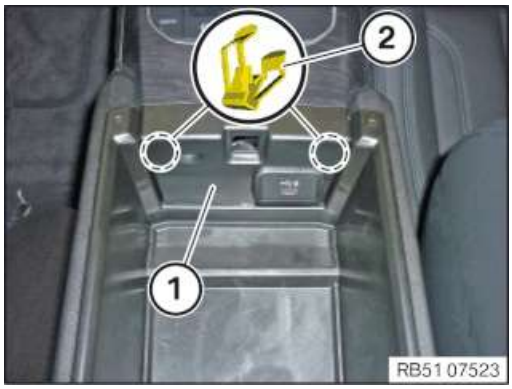


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

6 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



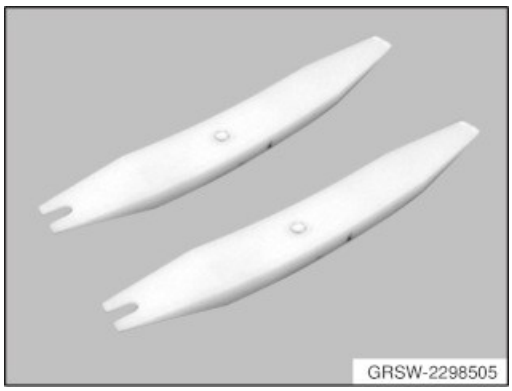
- Correctly position trim (1) and snap into the clamps (2).

Additional Information

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Overview of Special Tools

2 298 505 Wedge



Common Used in step 12

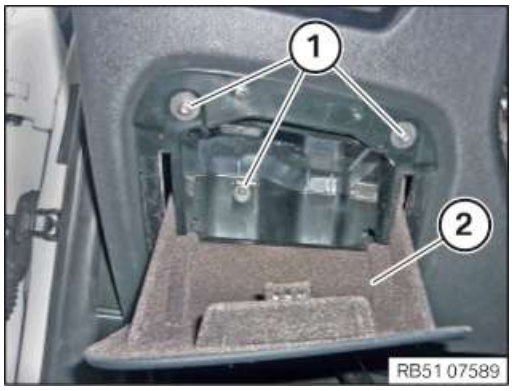
Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

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51 16 355 Removing and installing/replacing driver's side fold-down compartment

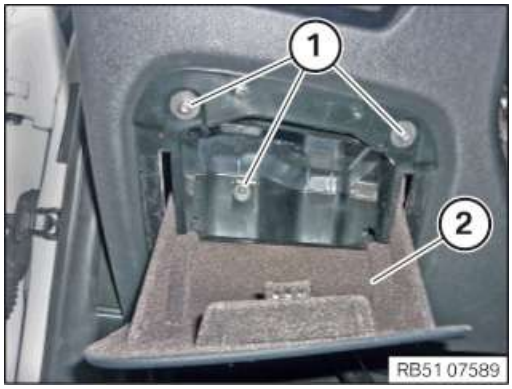
Prerequisite
- The fold-down compartment is open.

1 – Removing the left fold-down compartment



- Loosen screws (1).
- Remove the fold-down compartment (2) toward the bottom.

2 – Installing the left fold-down compartment



- Install the fold-down compartment (2).
- Tighten the screws (1).

Fold-down compartment to instrument panel

Oval-head screw		Tightening torque	1,8 Nm

Additional Information

Overview of Tightening Torques

Fold-down compartment to instrument panel Used in step 2

Oval-head screw		Tightening torque	1,8 Nm

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51 16 202 Removing and installing/replacing front cup holder

Prerequisite

- The lid of the front storage compartment is open.

1 – Remove cupholder



- Remove the insert (1).



- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

2 – Install the cup holder



- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm



- Insert the insert (1).

Additional Information

Overview of Tightening Torques

Cup holder to centre console Used in step 2

Oval-head screw		Tightening torque	1,8 Nm

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51 16 040 Removing and installing/replacing housing on left or right exterior mirror

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Removing the mirror glass

CAUTION

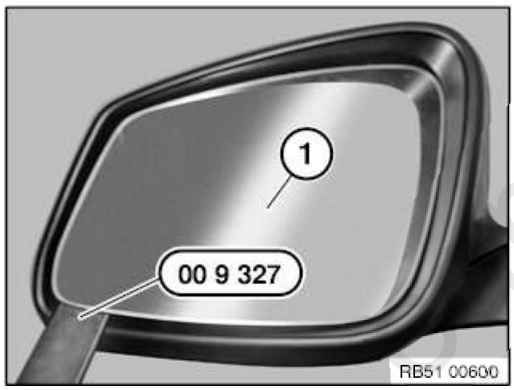
Glass splinters.

Danger of injury!

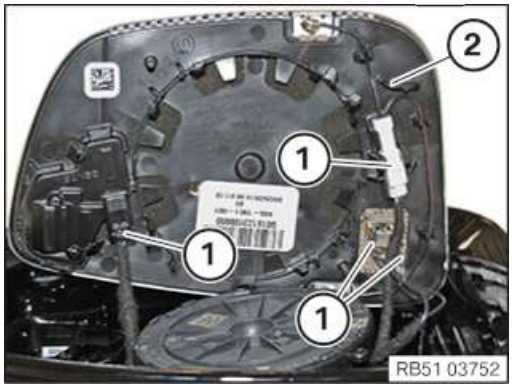
- If the mirror glass is damaged, wear safety goggles and protective gloves.

TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.



- Manually press the mirror glass (1) on the side of vehicle up to the end stop.
- Unclip the mirror glass (1) using special tool 0 496 571 (00 9 327) all the way around, starting with the outer side.



- Disconnect plug connection (1).
- Remove mirror glass (2).

2 – Removing the protective cap of the exterior mirror



- Spread and release the latch mechanisms (1) of the protective cap on the exterior mirror.



- Remove the protective cap (1) in the direction of the arrow.
- Disconnect associated plug connection.

3 – Removing the drive for exterior mirror adjustment



- **Version A:**
- Release the screws (1) and pull out the drive for exterior mirror adjustment (2) a little.



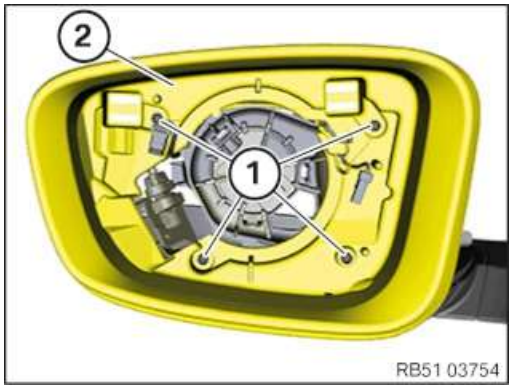
- **Version B**
- Loosen screw (1).
- Pull off the drive for exterior mirror adjustment (2).



- Unlock plug connection (1) and disconnect and remove the drive for exterior mirror adjustment (2) .

4 – Removing retaining ring from exterior rearview mirror

mdiagn.com

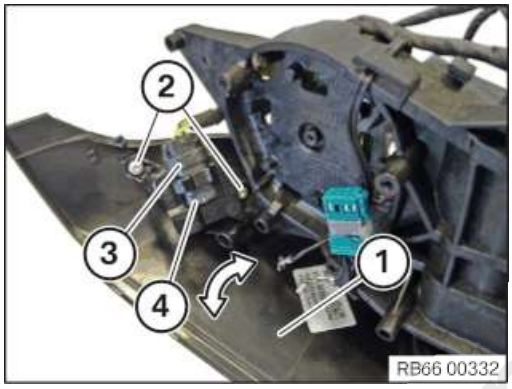


- Loosen screws (1).
- If necessary, feed out cable.
- Guide out retaining ring of exterior rearview mirror (2) in forward direction.

5 – Removing the top view camera



- Loosen the screw (1) on the lower part of the mirror housing (2).



- Carefully pull the lower part of the mirror housing (1) back in the direction of the arrow until the screws (2) are accessible.
- Loosen screws (2).
- Unlock plug connection (3) and disconnect.
- Removing the Top View Camera (4).

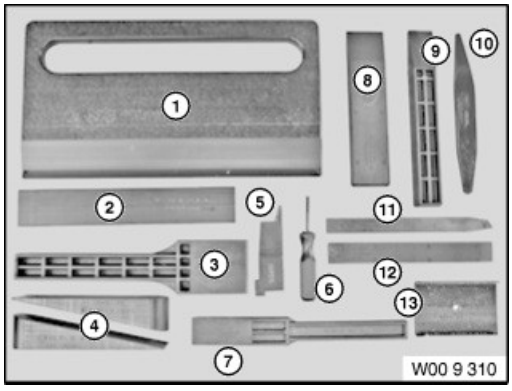
6 – Remove front door trim panel

RISK OF DAMAGE

Damage of high-quality surfaces.

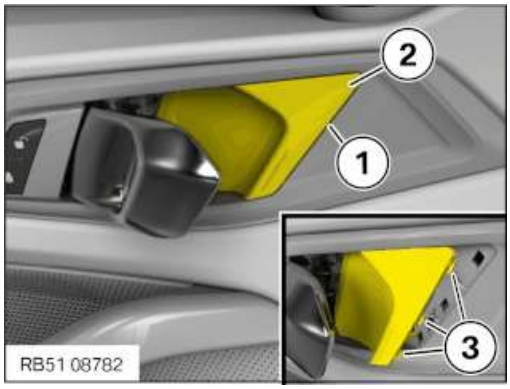
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

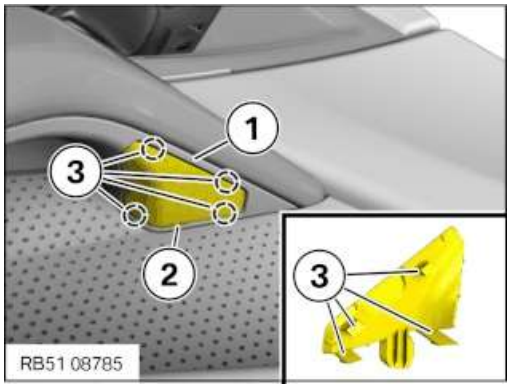


- Have the set of special tools 0 493 752 (00 9 329) ready.

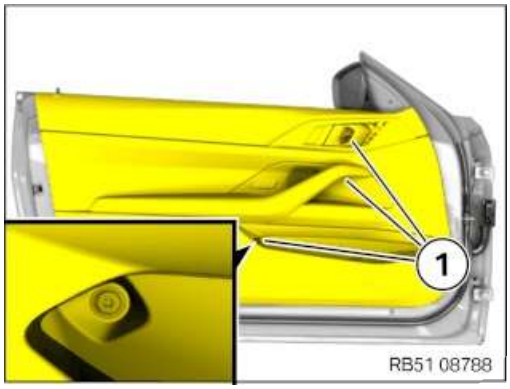
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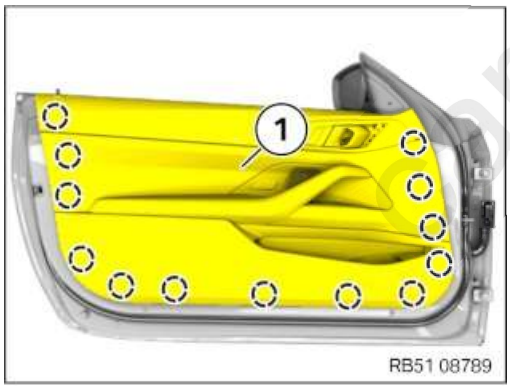
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



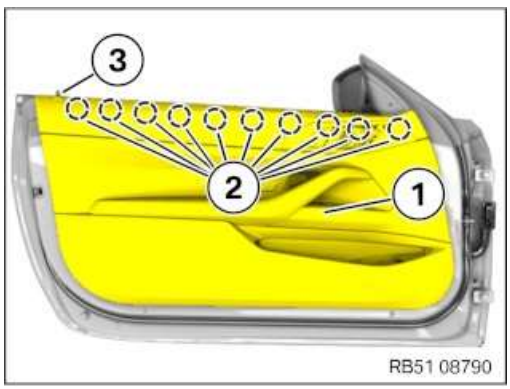
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.



- Loosen screws (1).

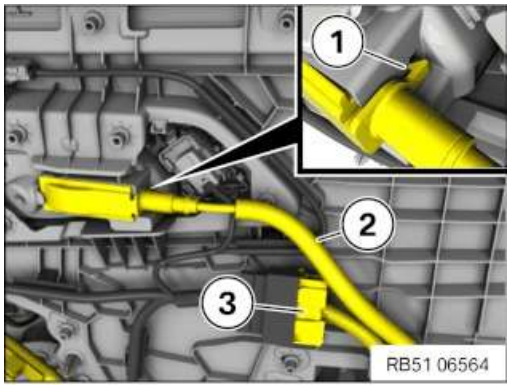


- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

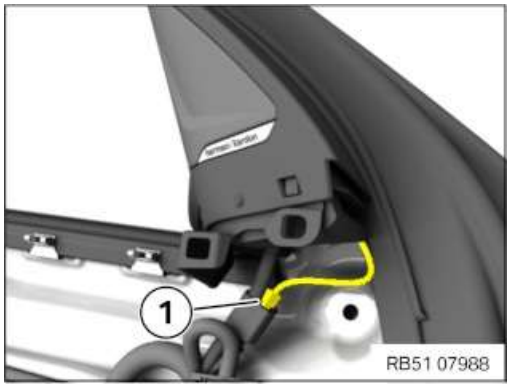
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

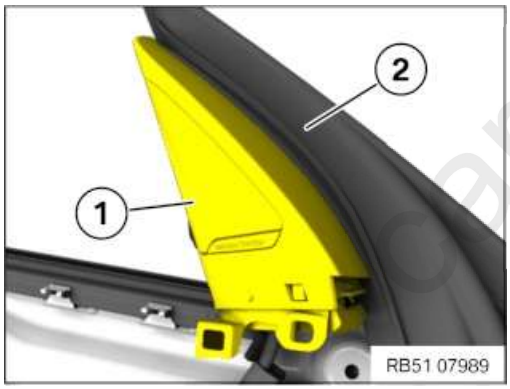
7 – Removing mirror triangle

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **For equipment specification with tweeter.**
- Unlock plug connection (1) and disconnect.



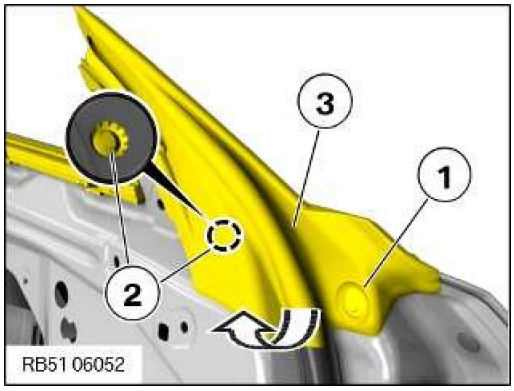
- Feed out the mirror triangle (1) from the inner window recess finisher strip (2) .

8 – Remove exterior mirror

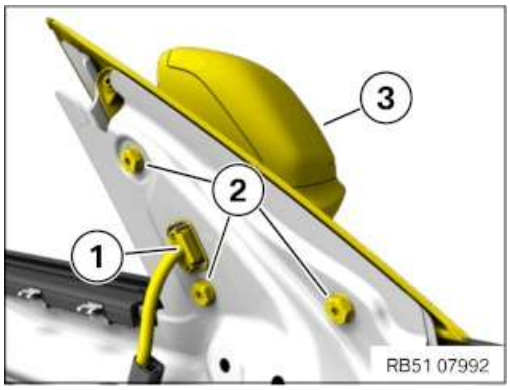
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Unclip clip (1) with suitable tool.
- Unclip clip (2).
- Partially release the inner window recess finisher strip at the front (3) in the direction of arrow.



- Unlock plug connection (1) and disconnect.
- Release screws (2) and remove the exterior mirror of the front door (3) .

MAIN WORK

9 – Disassemble exterior mirrors

RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)

Your browser doesn't support HTML5 video.

▸ **Disassemble exterior mirrors**

TECHNICAL INFORMATION

The training video illustrates the methodology for assembling and disassembling the exterior mirror.

The training video does not replace the repair instructions.

The training video is not subject to the update service.

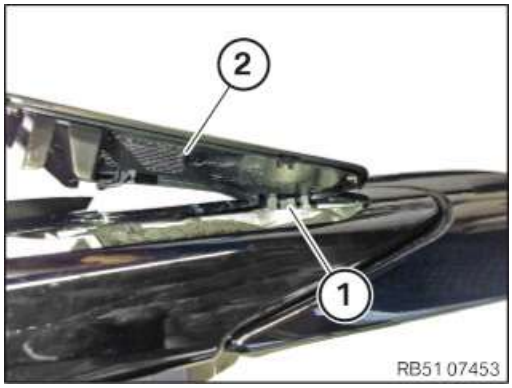
- Follow repair instructions!

▸ **Remove cover on the mirror base**

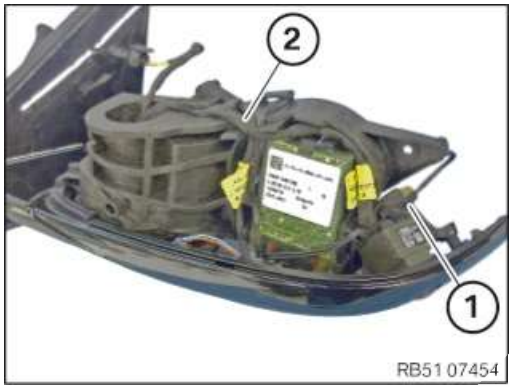
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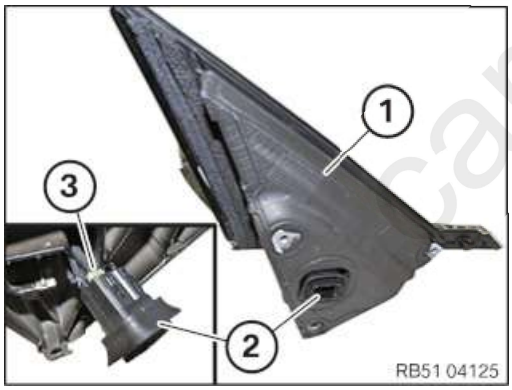
- Release cover (1), beginning at the arrow, from the latch mechanisms along the dashed lines and lift slightly.



- Carefully release retaining lug (1) to the top with a small screwdriver and remove cover (2).

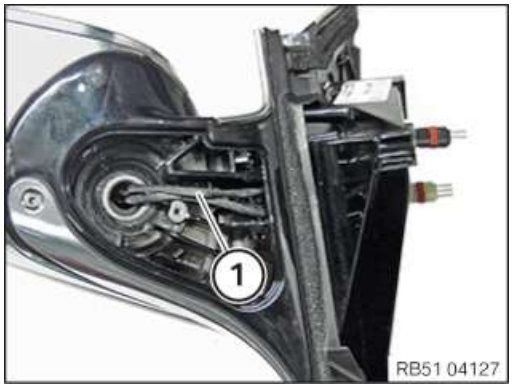


- Unlock plug connection (1) and disconnect.
- Detach the wiring harness (2) from the brackets.



- Remove sound insulation (1).
- Pull out connector housing (2).
- Unpin connector (3) from the connector housing (2).

  The number of connectors (3) varies depending on the equipment specification.

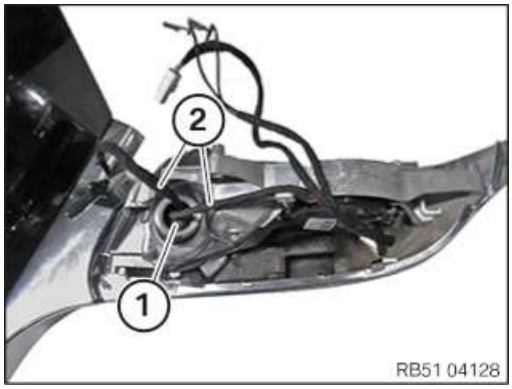


- Carefully feed out cables (1) individually.

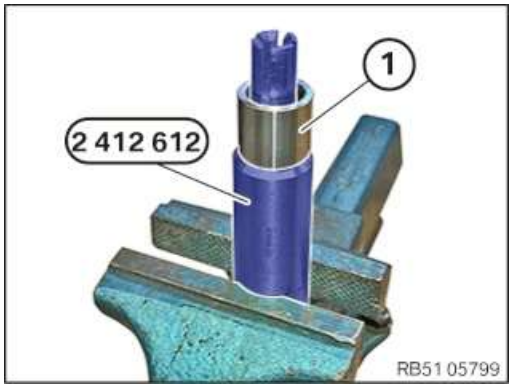
  The pins on the cables (1) must not be damaged.

  The number of cables (1) varies depending on the equipment specification.

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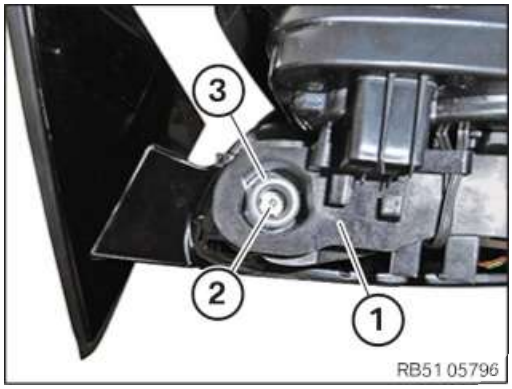


- Pull out foam insert (1) and the cables (2) from the mirror.



- Place special tool 2 412 612 in the vice as shown and mount the adapter (1).

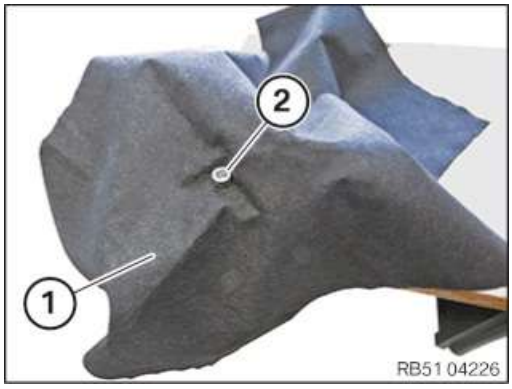
  Adapter (1) can be found in the repair kit.



- Set up exterior mirror (1) from the special tool 2 412 612.
- Screw in countersunk screw (2) into the special tool 2 412 612 and brace the sleeve (3).



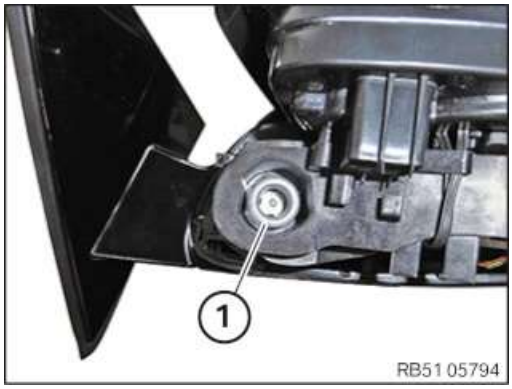
- To prevent swarf entering the joints: mask exterior rearview mirror with adhesive tape.



- To prevent entry of swarf: cover exterior rearview mirror with a cloth.

  The cloth (1) must have a minimum size of 70x70 cm and have an opening in the middle with a maximum size of 3x3 cm.
- Position the cloth (1) over the spring (2) of the exterior rearview mirror.
- Cover exterior rearview mirror with the prepared cloth.

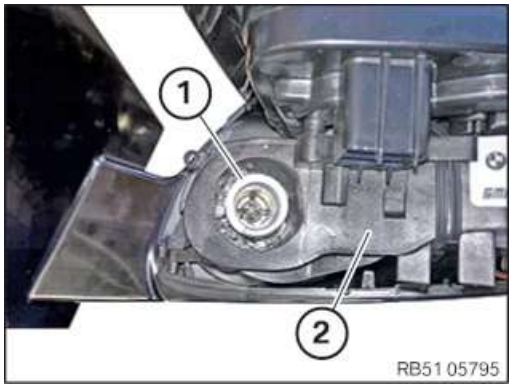
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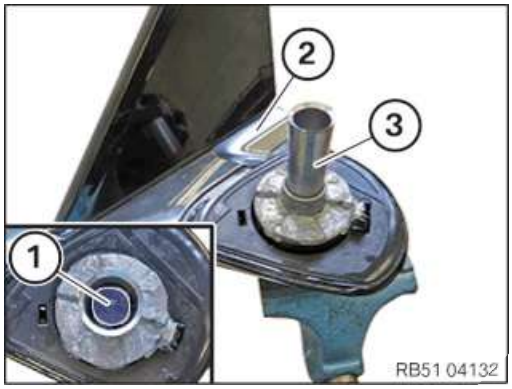
- Ask an auxiliary person to secure the exterior mirror.
- Drill out sleeve (1) with the taper bore.

  The spring has only one slight preload.

Note: The exterior rearview mirror is shown here without cloth for clarity.



- Remove all swarf with the vacuum cleaner.
- Remove cloth from the exterior rearview mirror.
- Remove spring (1) and upper mirror (2).



CAUTION

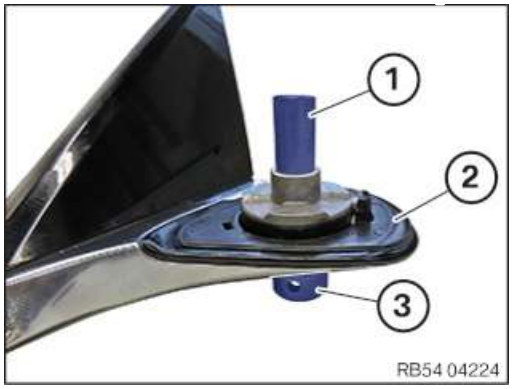
Sharp edges on the drilled out component.

Danger of injury!

- Do not touch sharp edges.

- Make sure there is no swarf on the exterior rearview mirror.
- Release countersunk screw (1).
- Remove bottom mirror section (2) from the special tool.
- Clean swarfs from the threads in special tool 2 412 612.
- Remove sleeve (3) from bottom mirror section.

Note: If necessary, remove the burr at the top of the sleeve so that it is possible to pull the sleeve out of the bottom mirror section.



- If the sleeve (1) is jammed, use a suitable tool (3) (e.g. size 22 wrench socket) and position it under the sleeve (1).
- Remove the sleeve (1) from the exterior mirror (2) using a rubber mallet.

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- Loosen screw (1).
- Detach cover (2) in area (3) and thread out from mirror housing (4).

10 – Assembling the exterior mirror

RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)

▸ **Assemble exterior mirror**

Your browser doesn't support HTML5 video.

TECHNICAL INFORMATION

The training video illustrates the methodology for assembling and disassembling the exterior mirror.

The training video does not replace the repair instructions.

The training video is not subject to the update service.

- Follow repair instructions!

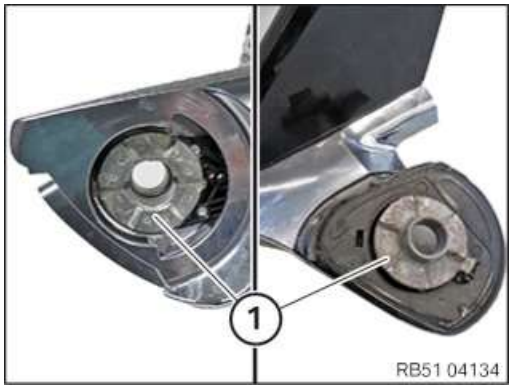


- Thread in cover (2) into the mirror housing (4) and attach in area(3).
- Tighten down screw (1).

Housing to exterior mirror

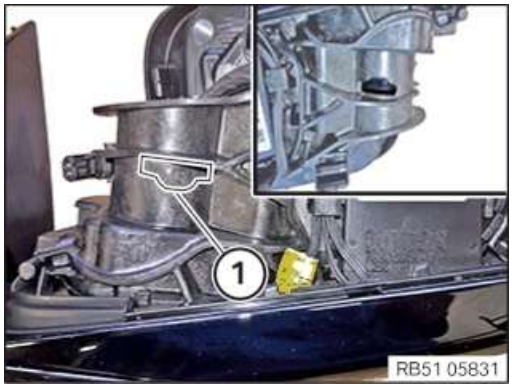
		Tightening torque	0,85 Nm

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- Clean the mirror contact surfaces (1).

  There must not be any swarf on the contact surfaces (1).
- Coat the contact surfaces (1) with grease.

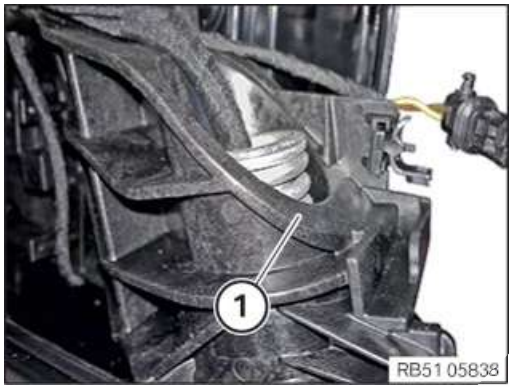


- **Variant with mirror with fold-in function:**

  Drill out the pre-engraved area (1) with a drill (**Ø 5 mm**).

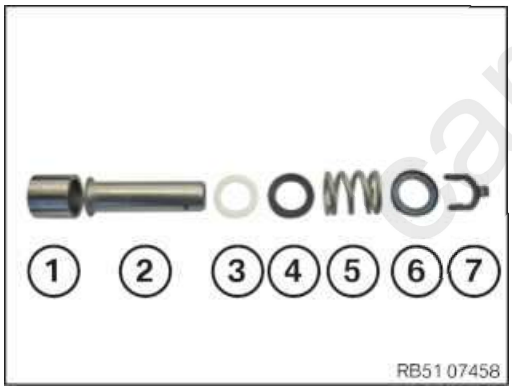
  Expose the area (1) completely as shown in the small image.

  Later, the installation of the retaining clip is done through the opening.



- In the basic version of the exterior mirror, observe that the spring is accessible as shown.

  The installation of the retaining clip is done later through the opening from outside through the taper (1).



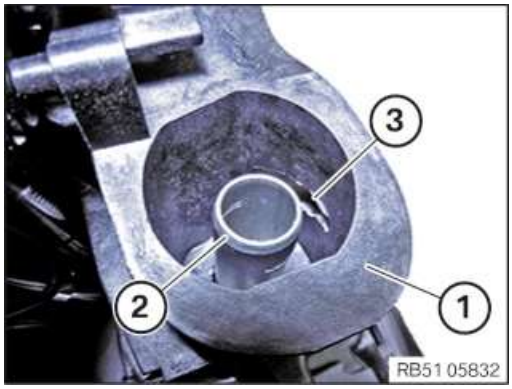
- Repair kit for the exterior mirror:
  - **1** Adapter
  - **2** Holding sleeve
  - **3** Teflon washer
  - **4** POM washer
  - **5** Spring
  - **6** Cup wheel
  - **7** Retaining clip



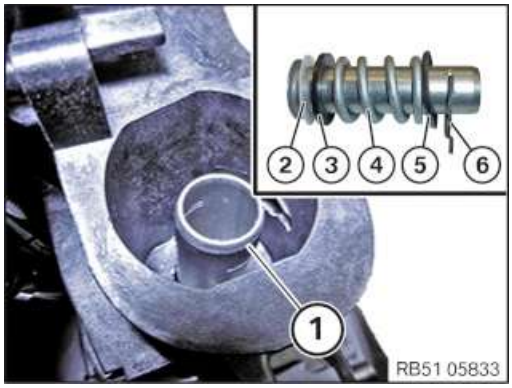
- Connect adapter (1) and the new sleeve (2) as shown on the special tool 2 412 612.

  Adapter (1) can be found in the repair kit.
- Connect the mirror base on the special tool 2 412 612.

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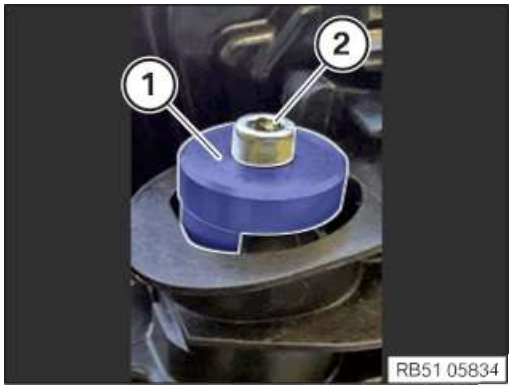


- Connect mirror (1) on the sleeve (2) and position it in such a way that the slots of the sleeve (2) are accessible through the opening (3).



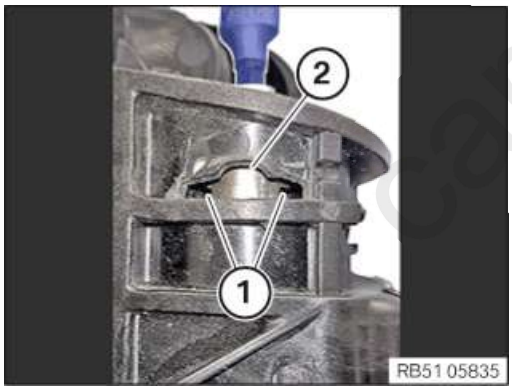
- Follow the installation sequence of the following parts on the sleeve (1).

  Use new parts from the repair kit only.
- Attach the Teflon washer (2).
- Attach POM washer (3).
- Set up spring (4).
- Position the cup wheel (5) with the outline facing up.
- Retaining clip (6) is first mounted in one of the following steps.

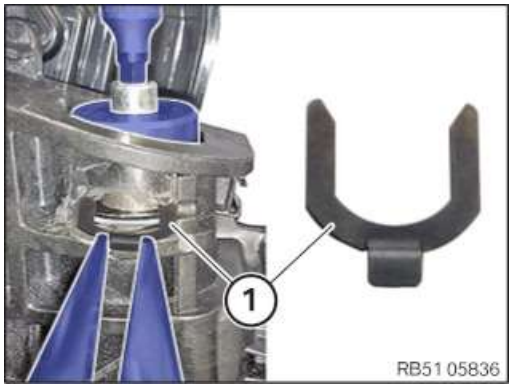


- Set up the fitting aid (1) on the cup wheel and fasten with the hexagon socket screw (2).

  Hexagon socket screw (2) can be found in the repair kit.



- Carefully tighten the spring with the fitting aid so far until the slots of the sleeve (1) are visible above the cup washer through the manufactured opening (2).
- If necessary, turn the fitting aid so far until the retaining clip can be inserted in the slots of the sleeve (2).



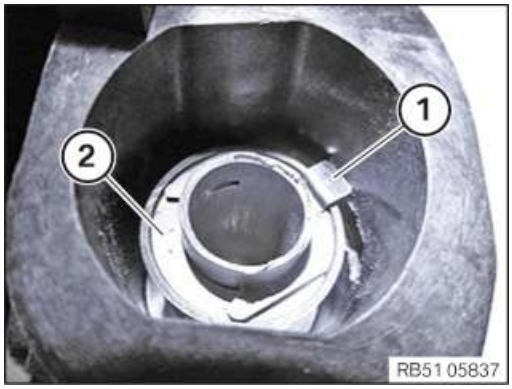
- Insert retaining clip (1) with long-nose pliers in the slots of the sleeve.

  The crank of the retaining clip (1) must point upwards.

  Retaining clip (1) must completely engage in the cup washer.

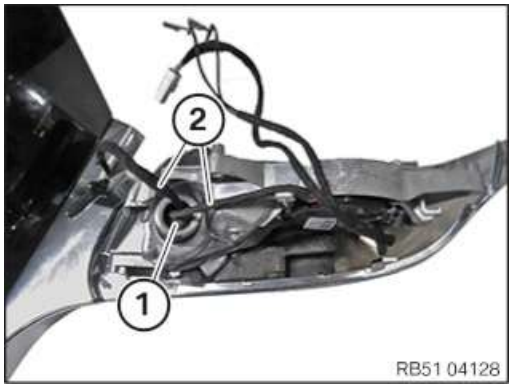
Note: It is somewhat difficult to insert the retaining clip at the right exterior mirror. Possibly, rework the aperture easily.

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- Retaining clip (1) must lie as shown in the cup washer (2).

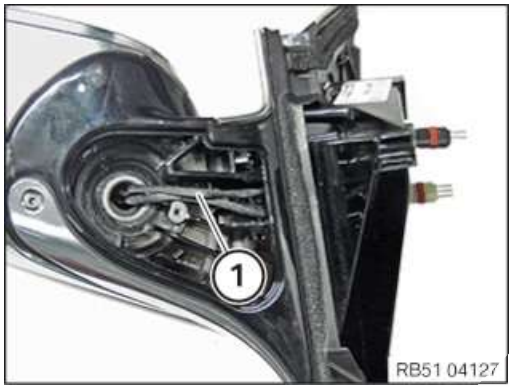
Note: Pay special attention that the retaining clip fits correctly at the right exterior mirror.



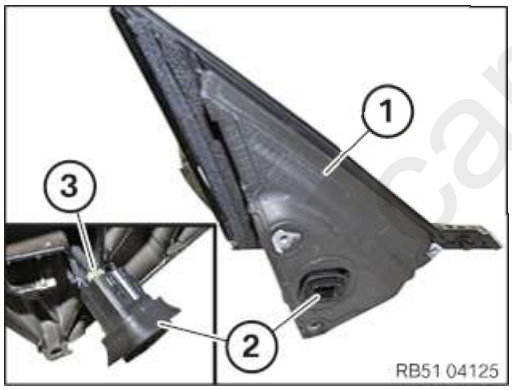
- Thread in cable (2) into the mirror.

  The pins on the cables (2) must not be damaged.

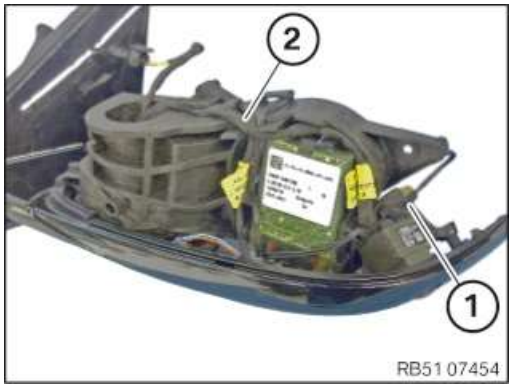
  The number of cables (2) varies depending on the equipment.
- Use foam inserts (1).



- Feed in cable (1).



- Pin connector (3) into the connector housing (2).
- Use connector housing (2).
- Use sound insulation (1).



- Attach the wiring harness (2) to the holders and place correctly.
- Connect connectors (1) and lock.

▸ **Installing the cover on the mirror base**

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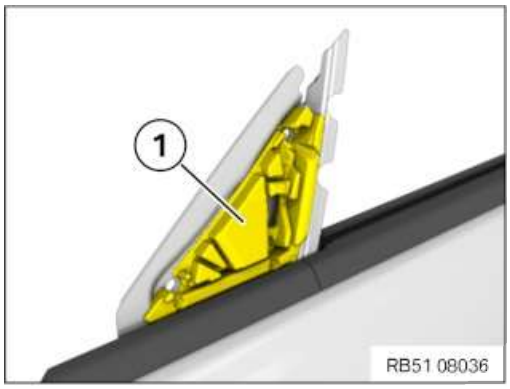
- Check the latch mechanisms on the cover (1) for damage, renew the cover (1) if necessary.
- Correctly position and engage the cover (1).

POSTPROCESSES

11 – Fit exterior mirror

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

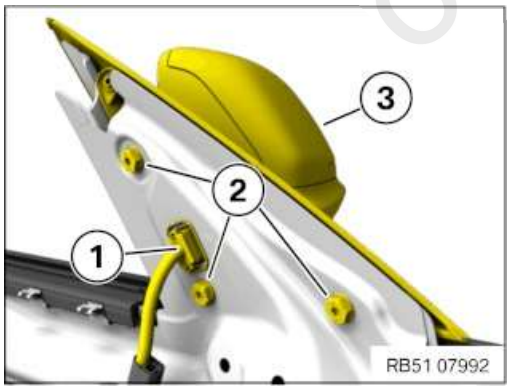
- Check the sealing (1) for the mirror triangle for damage and position it correctly.

Result

» The mirror triangle sealing is damaged.

Measure

- Renew the sealing for the mirror triangle.



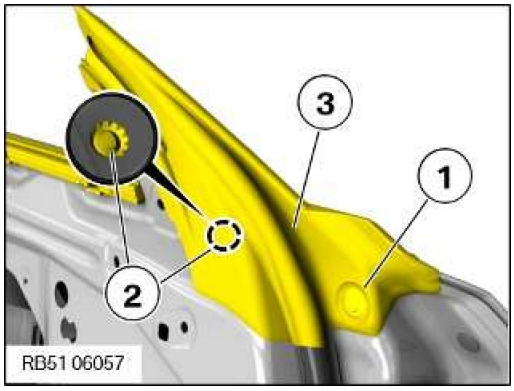
- Position the exterior mirror (3) on the door and tighten the screws (2).

Exterior mirror to door

Screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.

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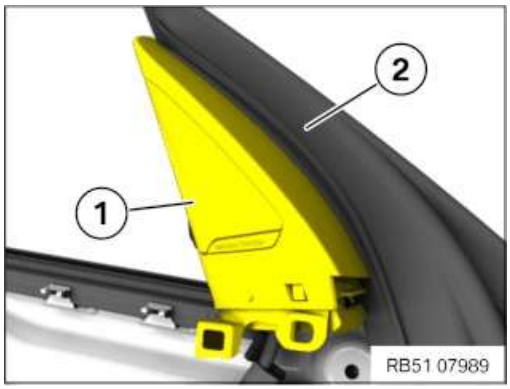


- Position the inner window recess finisher strip at the front (3).
- Clip in clip (1).
- Clip in clip (2).

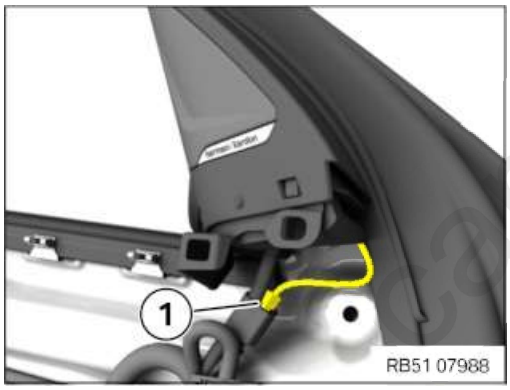
12 – Installing mirror triangle

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

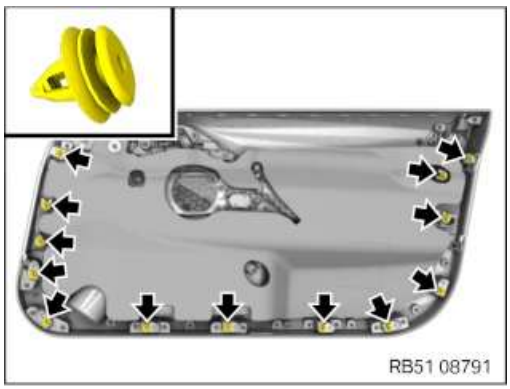


- Insert the mirror triangle (1) into the inner window recess finisher strip (2) and position it correctly.



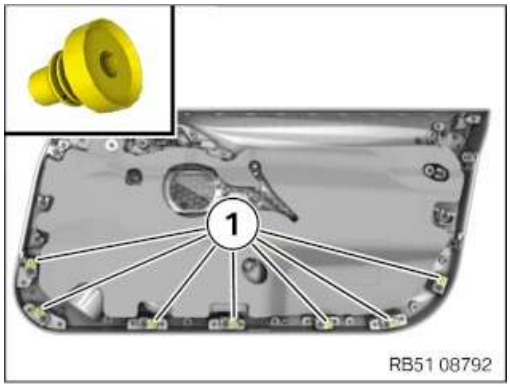
- **For equipment specification with tweeter.**
- Connect connectors (1) and lock.

13 – Install front door trim panel

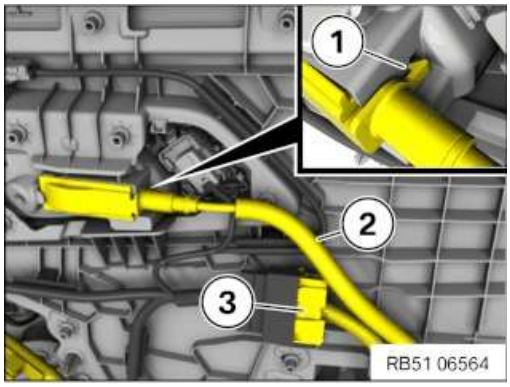


- Check clips (arrows) for damage and, if necessary, renew them.

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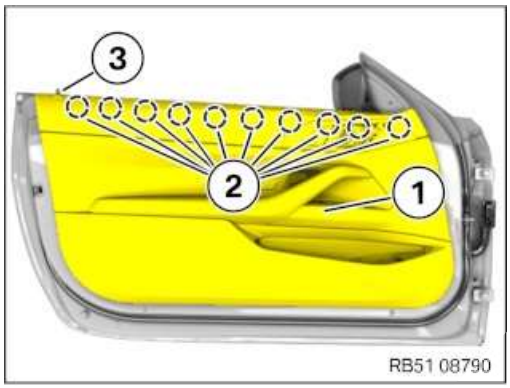
- Check the stop pad (1) for damage, renew if necessary.



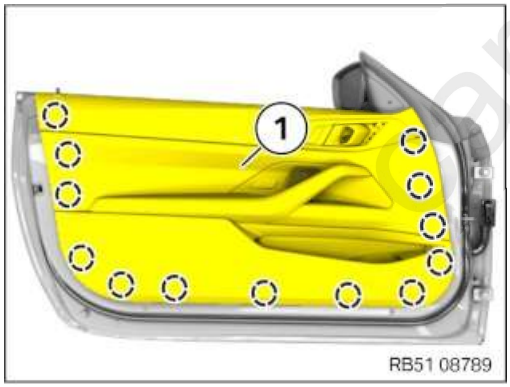
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

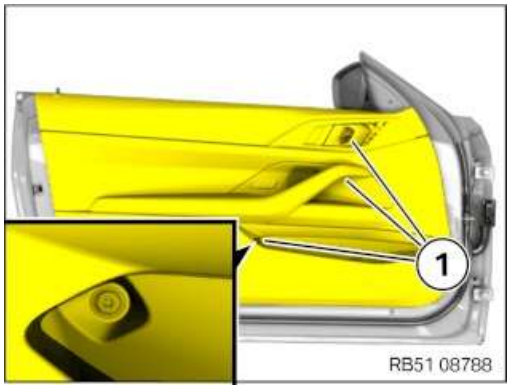
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.



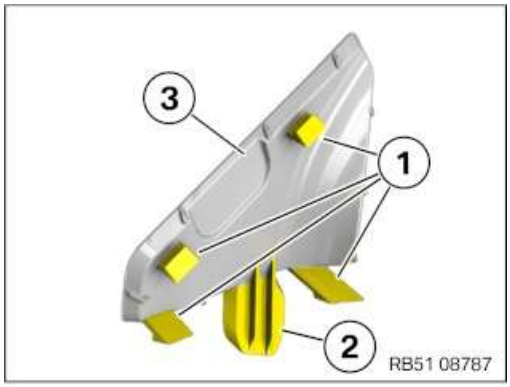
- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check

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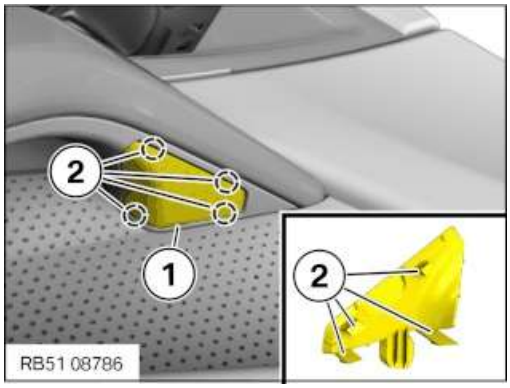
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

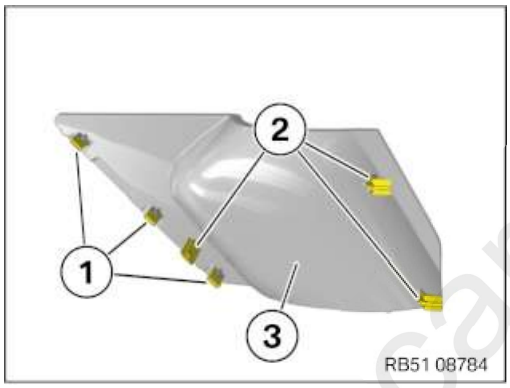
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

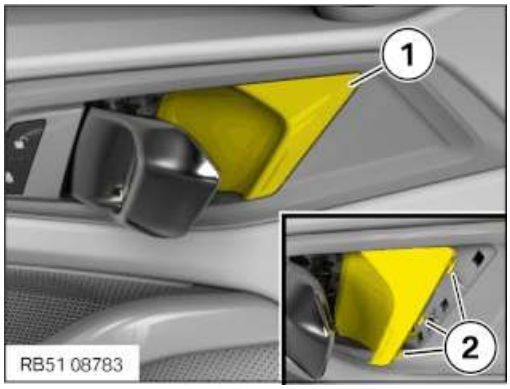


Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

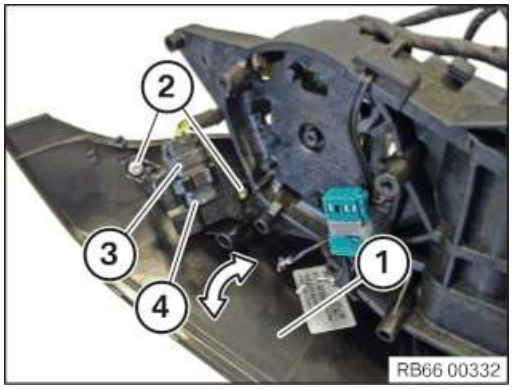
- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

14 – Installing the top view camera

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- Install and correctly position the top view camera (4).
- Connect connectors (3) and lock.
- Tighten the screws (2).

Top view camera to exterior mirror

Screw		Tightening torque	0,85 Nm

- Push lower section of the mirror housing (1) in the direction of arrow to the front and position it correctly.

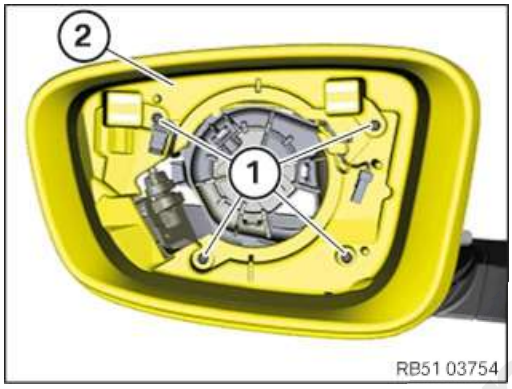


- Tighten screw (1) on the lower section of the mirror housing (2).

Housing to exterior mirror

		Tightening torque	0,85 Nm

15 – Installing the retaining ring on the exterior rearview mirror



- Feed in the retaining ring on the exterior rearview mirror (2).
- If necessary, feed in cable.
- Tighten the screws (1).

Retaining ring to exterior mirror

Screw		Tightening torque	0,85 Nm

16 – Installing the drive for exterior mirror adjustment



- Position drive for exterior mirror adjustment (2).
- Connect connectors (1) and lock.



- **Version A:**
- Position drive for exterior mirror adjustment (2) correctly.
- Tighten the screws (1).

Drive for exterior mirror adjustment

Screw		Tightening torque	1.2 Nm

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- **Version B:**
- Correctly position the drive for exterior mirror adjustment (2) and press it in.
- Tighten down screw (1).

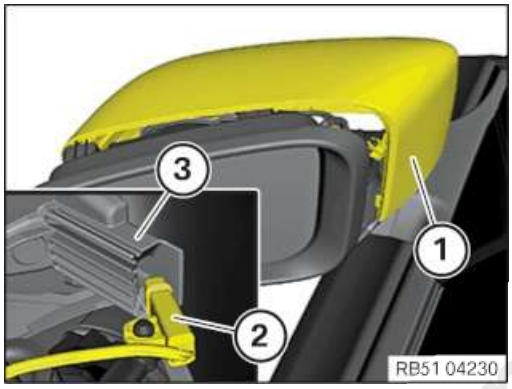
Drive for exterior mirror adjustment

Screw		Tightening torque	1.2 Nm

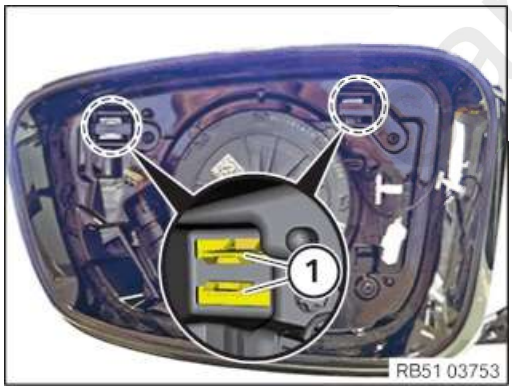
17 – Installing the protective cap of the exterior mirror



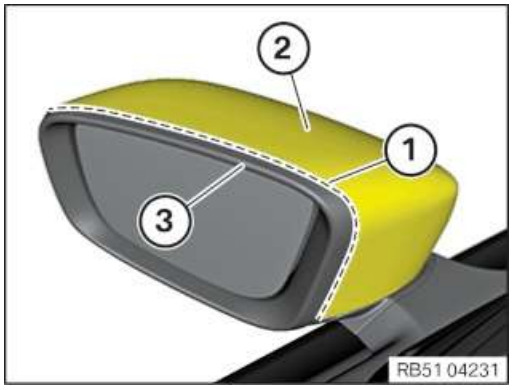
- Position the connector (1) on the mounting (2).
- Position connector (1) as shown.



- Position the protective cap (1) on the exterior mirror.
- Feed in the connector (2) for the side repeater (3).
- Push protective cap (1) on exterior mirror and lock.

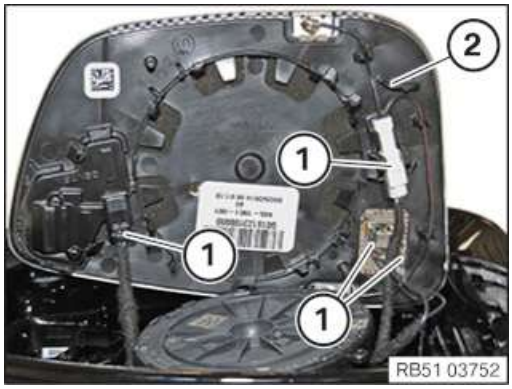


- Make sure that the latch mechanisms (1) are correctly fitted.

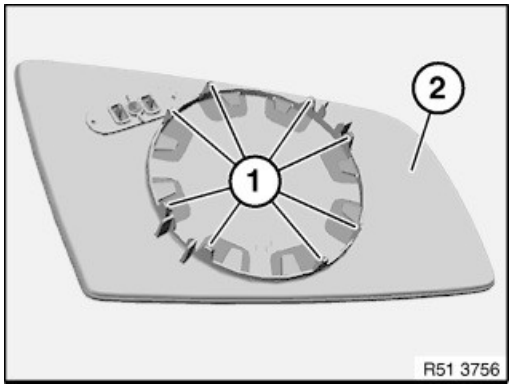


- Check the correct seating of the protective cap (2) on retaining ring (3) around (1).

18 – Installing the mirror glass



- Position mirror glass (2).
- Connect plug connections (1).



- Check whether retaining lugs (1) are missing or damaged and, if required, renew the mirror glass.
- Position the mirror glass (2) with the retaining lugs (1) flush with the drive for exterior mirror adjustment and clip in.
- Ensure correct locking.
- Check if the drive for exterior mirror adjustment is functioning correctly.

19 – Check the functions of the exterior rearview mirror

- Check all functions of the exterior rearview mirror.

  Depending on the equipment specification, an exterior rearview mirror has various functions.

  - Fold-in function
  - Turn indicators
  - Adjustment of the mirror glass
  - Top View

Additional Information

Overview of Tightening Torques

Housing to exterior mirror			Used in step 1014
		Tightening torque	0,85 Nm

Exterior mirror to door			Used in step 11
Screw		Tightening torque	8 Nm

Door trim panel			Used in step 13
Oval-head screw		Tightening torque	3 Nm

Top view camera to exterior mirror			Used in step 14
Screw		Tightening torque	0,85 Nm

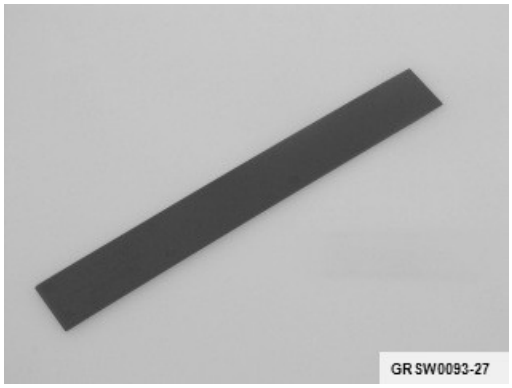
Retaining ring to exterior mirror			Used in step 15
Screw		Tightening torque	0,85 Nm

Drive for exterior mirror adjustment			Used in step 16
Screw		Tightening torque	1.2 Nm

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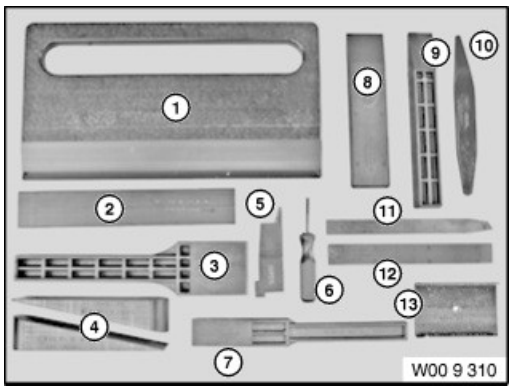
Overview of Special Tools

0 496 571 (00 9 327) Wedge



Common	Used in step 1
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 493 752 (00 9 329) Case



Common	Used in step 6
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 412 612 Installation drift



Common	Used in step 910
Usage	for repairing exterior mirror
Included in the tool or work	
Storage location	C77
Replaced by	
In connection with	
SI-Number	01 32 15 (295)

Links

Repair instructions	Used in step
61 35 ... Notes on ESD protection (Electro Static Discharge)	910
61 35 ... Notes on ESD protection (Electro Static Discharge)	910

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51 16 169 Replace centre console trim to the rear inside

PRELIMINARY WORK

1 – Removing the rear centre console trim

RISK OF DAMAGE

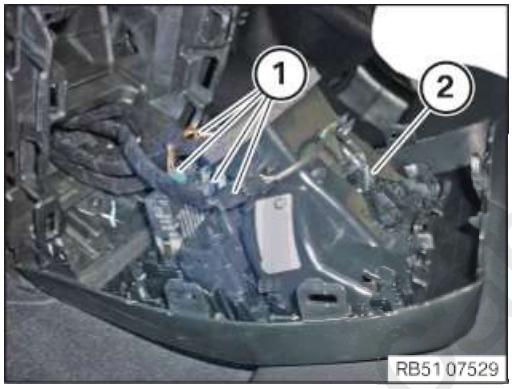
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.



- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

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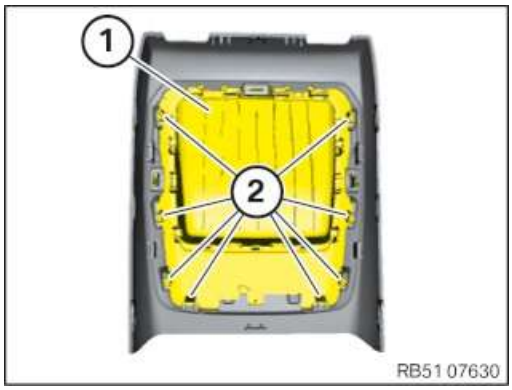
2 – Remove the rear centre console trim inwards

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release the centre console trim (1) at the latch mechanisms (2) and remove.

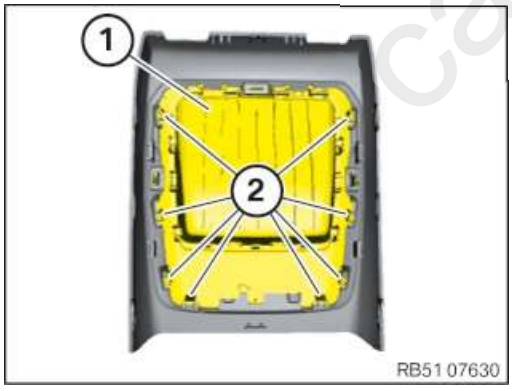
3 – Install the rear centre console trim inwards

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

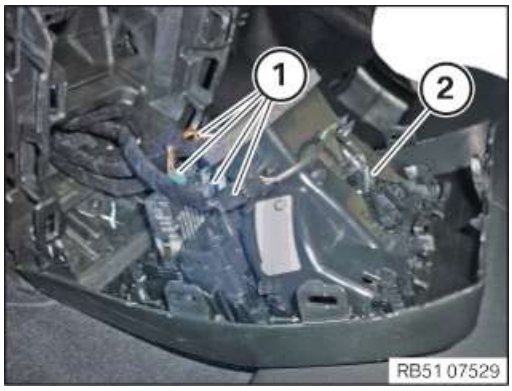
- Protect working area.
- Handle tools and components carefully.



- Install the centre console trim (1) and engage it at the latch mechanisms (2).

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4 – Installing the rear centre console trim



- Install the centre console trim (2).
- Connect connectors (1) and lock.



- Position centre console trim (1) and engage at the latch mechanisms at the side.

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51 16 151 Replace front storage compartment

PRELIMINARY WORK

1 – Remove cupholder

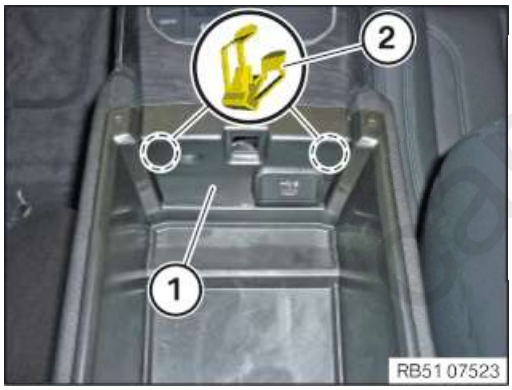


- Remove the insert (1).

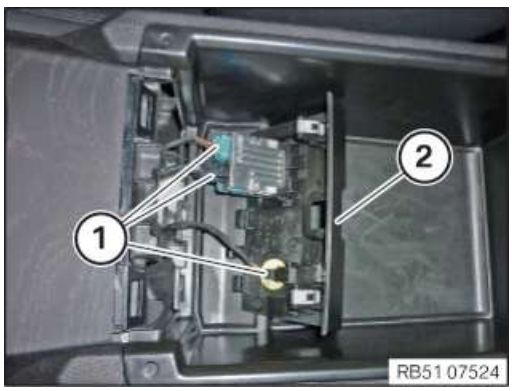


- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

2 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

3 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



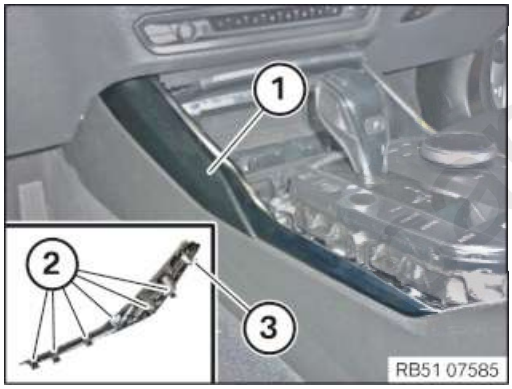
- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

4 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

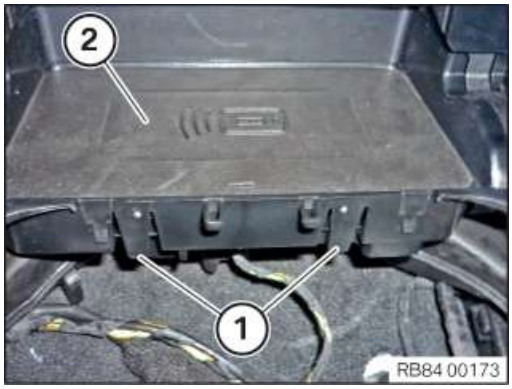
NOTICE

Description is for left component only. Procedure on the right side is identical.

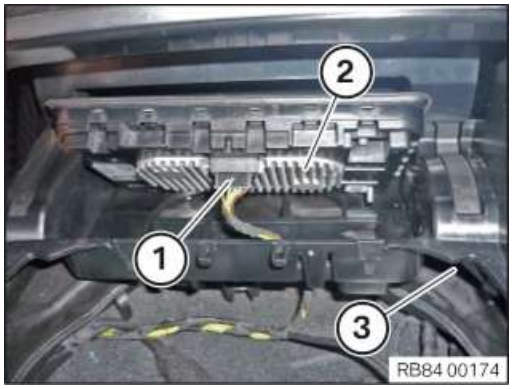


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

5 – Removing the wireless charging station



- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

6 – Remove the operating facility in the centre console

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

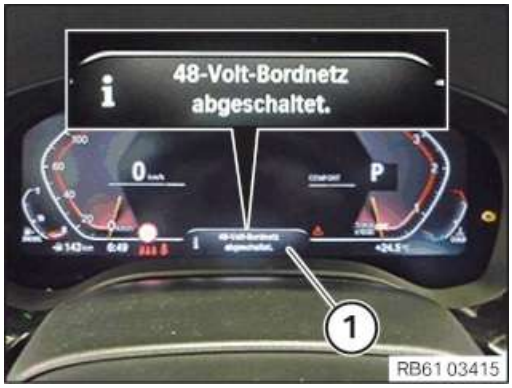
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

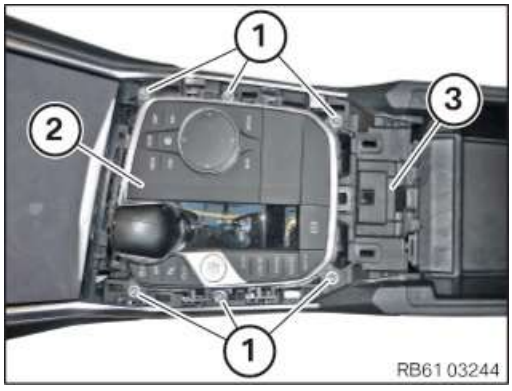
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**

- See additional information.

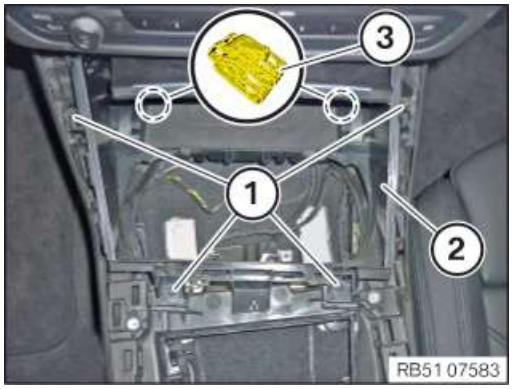




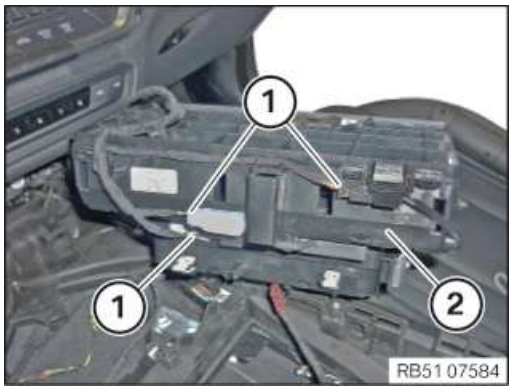
- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

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7 – Removing the storage compartment in the front centre console



- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).

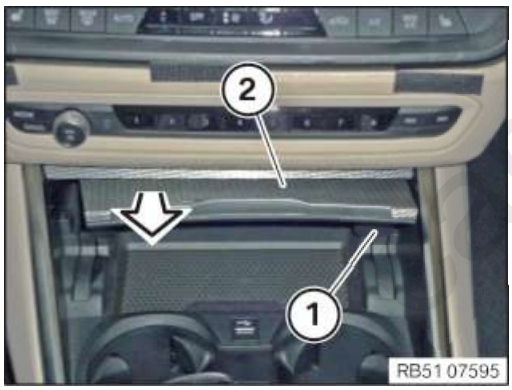


- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

MAIN WORK

8 – When replacing the storage compartment, remount the front centre console

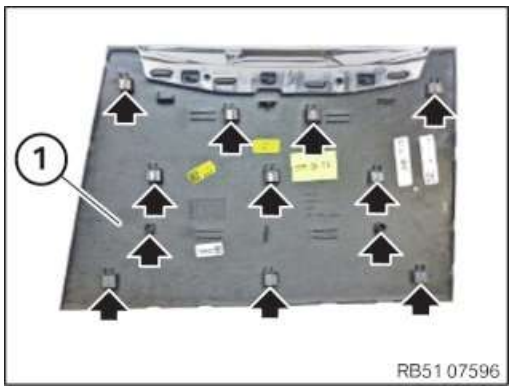
▸ **Removing the front storage compartment trim**



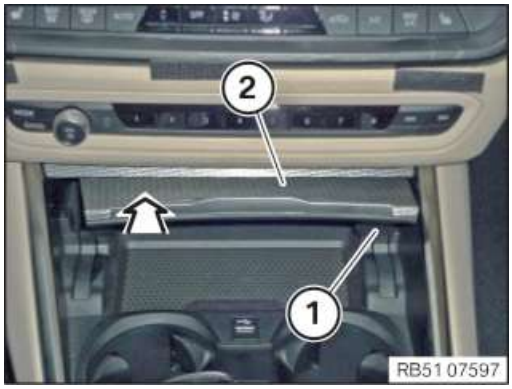
- Hold down the lower section (1) and move the storage compartment trim (2) slightly to the rear in direction of arrow.

  Guide out the storage compartment trim (2) toward the top and remove it.

▸ **Installing front storage compartment trim**



- Check all the guides or latch mechanisms (arrows) for damage, renew the storage compartment trim (1) if necessary.



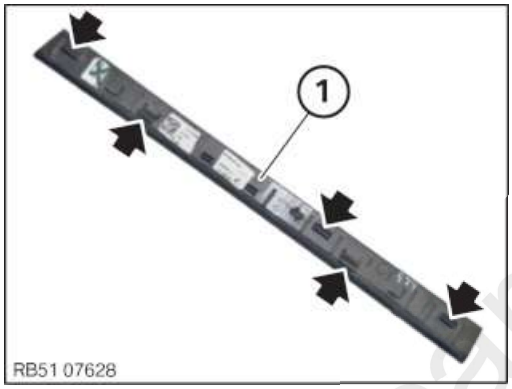
- Position the storage compartment trim (2) on the lower section (1) and clip in the direction of arrow.

▸ Remove centre stack trim



- Release centre stack trim (1) backwards from the latch mechanisms (arrows) and remove from the storage compartment (2).

▸ Install the centre stack trim



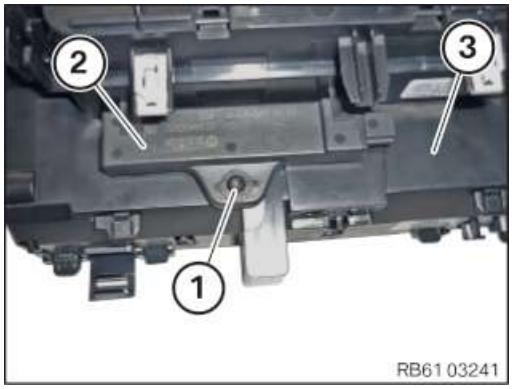
- Check latch mechanisms (arrows) for damage, renew trim (1) of centre stack if necessary.



- Position trim (1) of centre stack correctly on storage compartment (2) and engage on latch mechanisms (arrows).

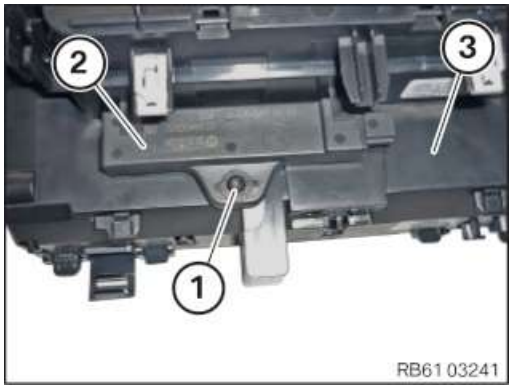
▸ Removing interior aerial on the front storage compartment

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- Loosen screw (1).
- Detach the interior aerial (2) from the storage compartment (3) and remove.

▸ **Install front interior aerial on storage compartment**



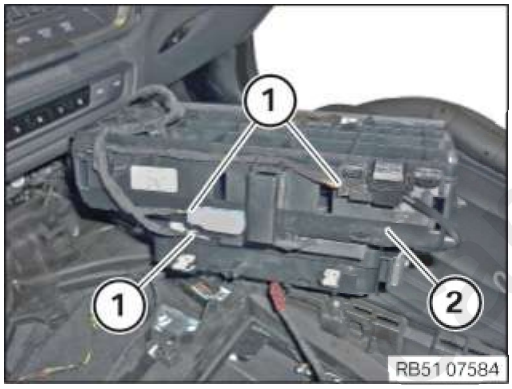
- Position the interior aerial (2) on storage compartment (3) and tighten the screw (1).

Interior aerial

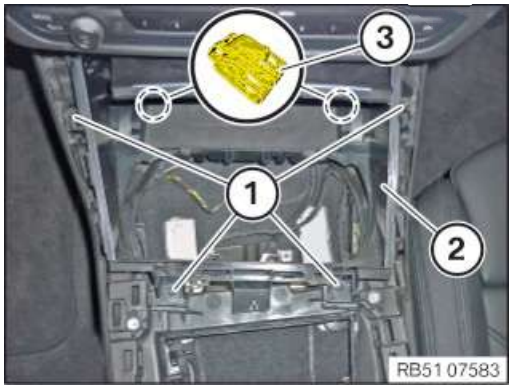
Screw		Tightening torque	2.3 Nm

POSTPROCESSES

9 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).



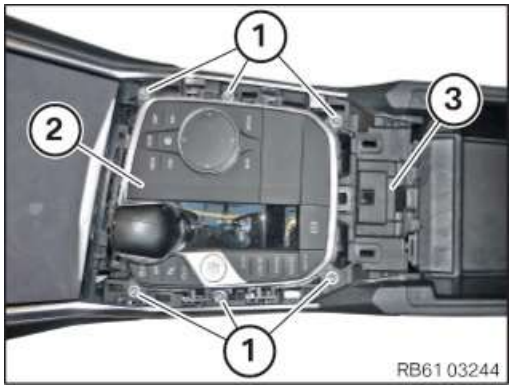
- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

10 – Install the operating facility in the centre console

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- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw		Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**



- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .

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- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



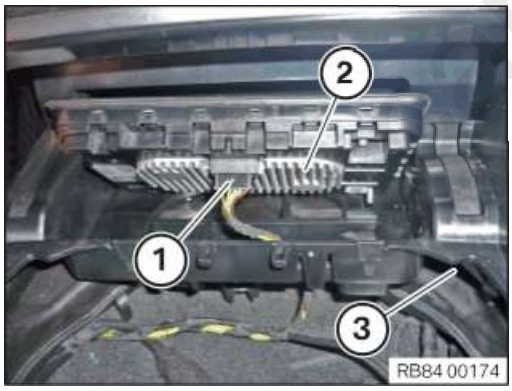
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



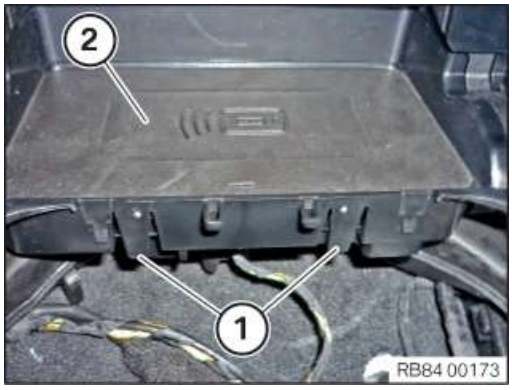
- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

11 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.

  The latch mechanisms (1) must engage correctly.

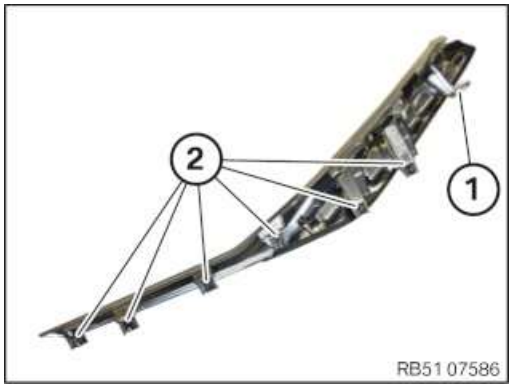
12 – Installing the decorative trim on the centre console on the left and right

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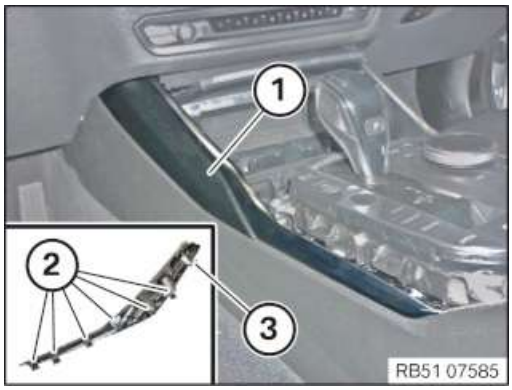
▸ **Installing the decorative trim on the centre console**

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

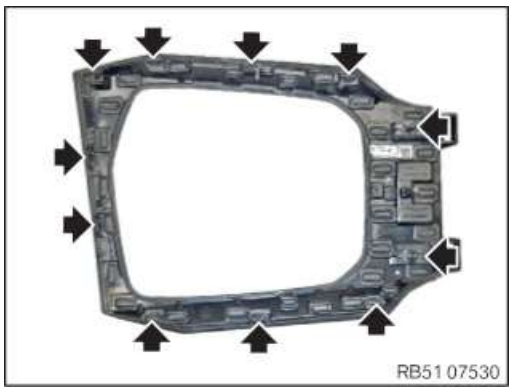
13 – Installing the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



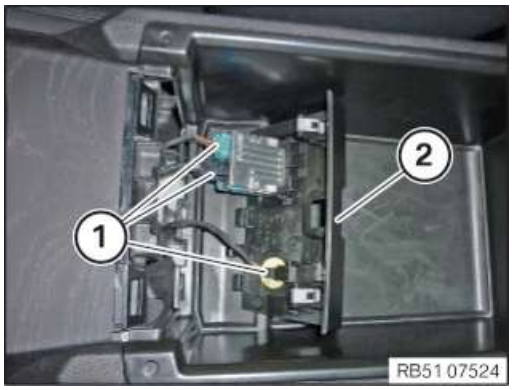
- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

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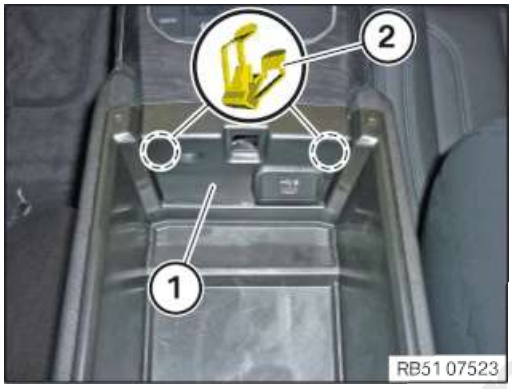


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

14 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

15 – Install the cup holder



- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm



- Insert the insert (1).

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Additional Information

Overview of Tightening Torques

Interior aerial			Used in step 8
Screw		Tightening torque	2.3 Nm

Storage compartment in centre console			Used in step 9
Oval-head screw		Tightening torque	1,8 Nm

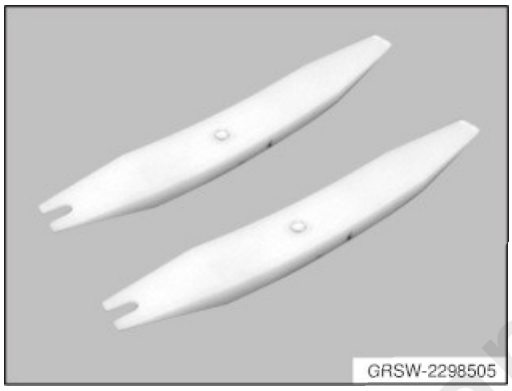
Gear selector switch to centre console trim			Used in step 10
Screw		Tightening torque	1,8 Nm

Negative battery cable to 48-V battery			Used in step 10
Nut M8		Tightening torque	19 Nm

Cup holder to centre console			Used in step 15
Oval-head screw		Tightening torque	1,8 Nm

Overview of Special Tools

2 298 505 Wedge



Common		Used in step 23
Usage	Set (delivery of 2 pieces)	
Included in the tool or work		
Storage location	C34	
Replaced by		
In connection with		
SI-Number	01 03 12 (792)	

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	610

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	610
61 20 900 Disconnecting and connecting battery earth lead	610
61 20 900 Disconnecting and connecting battery earth lead	610
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51 16 164 Replace the rear centre console trim

PRELIMINARY WORK

1 – Removing the rear centre console trim

RISK OF DAMAGE

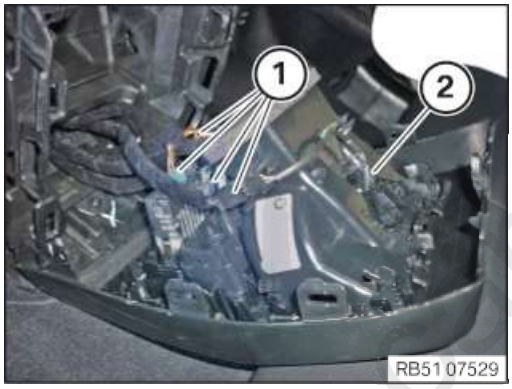
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.

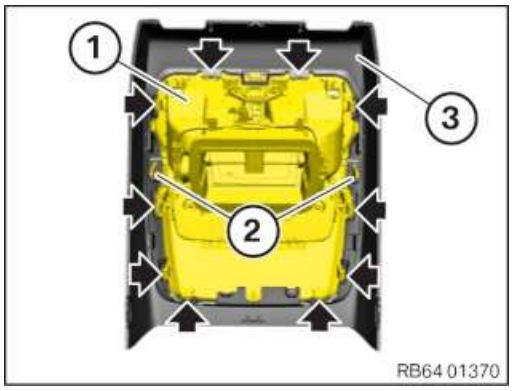


- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

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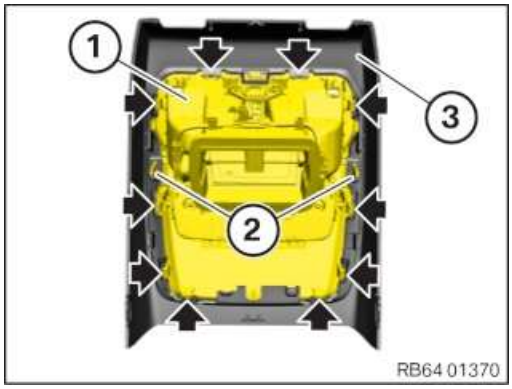
MAIN WORK

2 – Removing the rear ventilation grille



- Release the ventilation grille (1) at the latch mechanisms (arrows).
- Feed out the ventilation grille (1) at the guides (2) and remove it from the decorative strip (3).

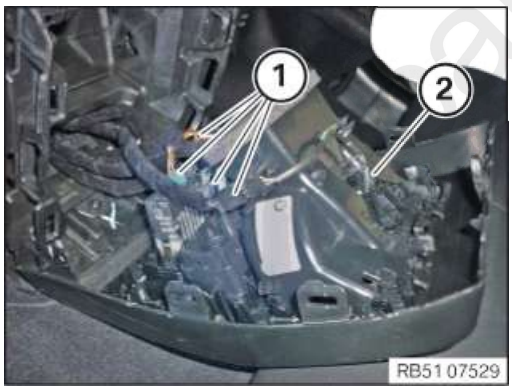
3 – Installing the rear ventilation grille



- Feed in the ventilation grille (1) with the guides (2) into the decorative strip (3).
- Engage latch mechanisms (arrows) at the decorative strip (3) .

POSTPROCESSES

4 – Installing the rear centre console trim



- Install the centre console trim (2).
- Connect connectors (1) and lock.



- Position centre console trim (1) and engage at the latch mechanisms at the side.

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51 16 166 Replacing centre console

PRELIMINARY WORK

1 – Remove cupholder

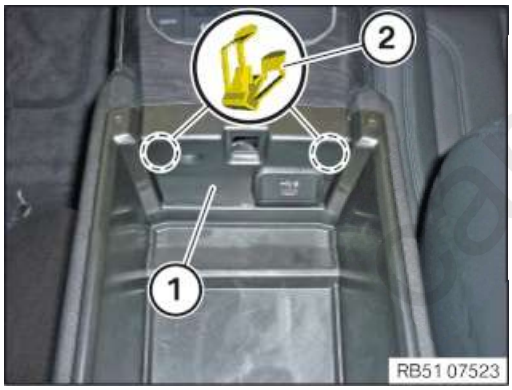


- Remove the insert (1).

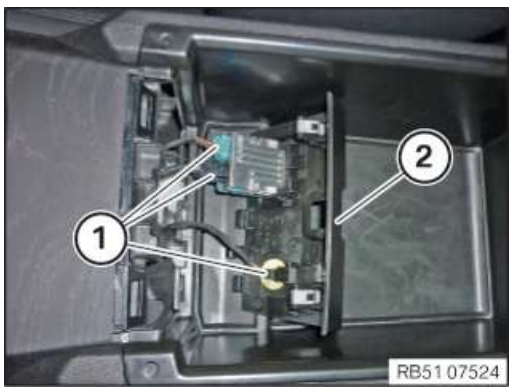


- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

2 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

3 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



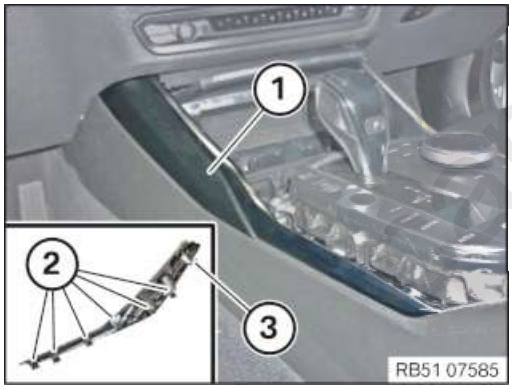
- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

4 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

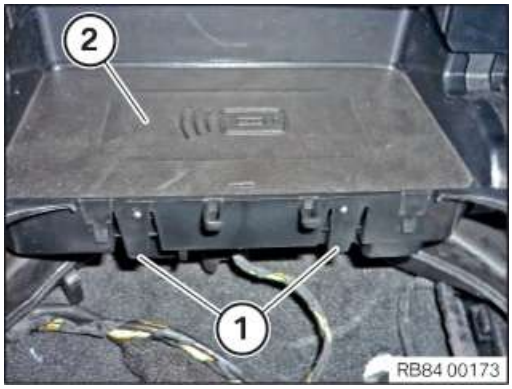
NOTICE

Description is for left component only. Procedure on the right side is identical.

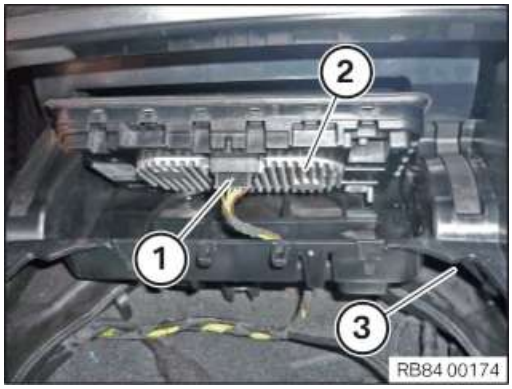


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

5 – Removing the wireless charging station



- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

6 – Remove the operating facility in the centre console

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

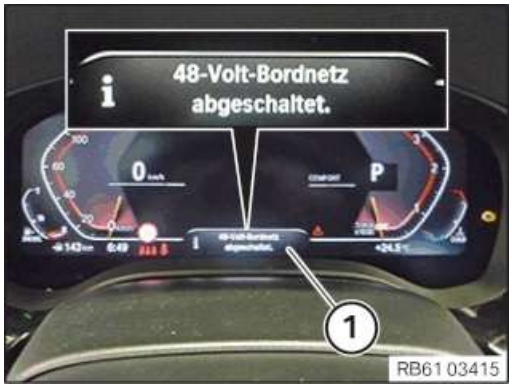
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

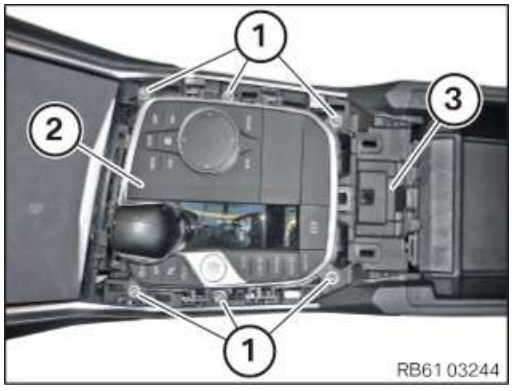
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**

- See additional information.

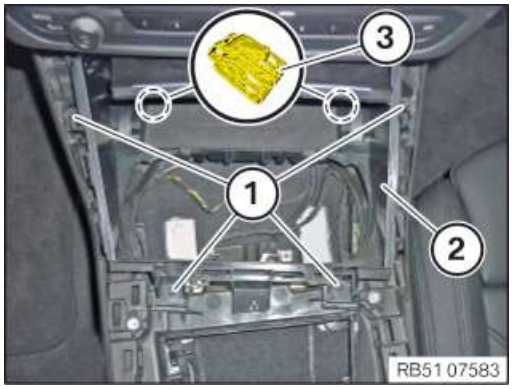




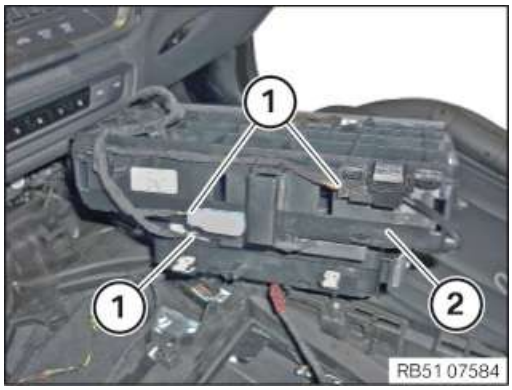
- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

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7 – Removing the storage compartment in the front centre console



- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).



- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

8 – Removing the rear centre console trim

RISK OF DAMAGE

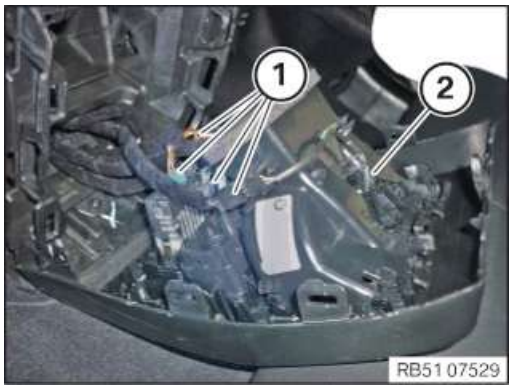
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.



- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

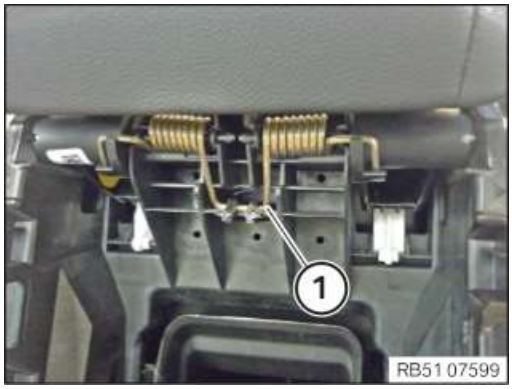
9 – Removing the centre armrest

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9 – Removing the centre armrest

Prerequisite

Centre armrest is open.



- Open the centre-armrest so that the spring is relaxed (1).
- Lift the spring (1) with long-nose pliers above the retaining lugs and detach.

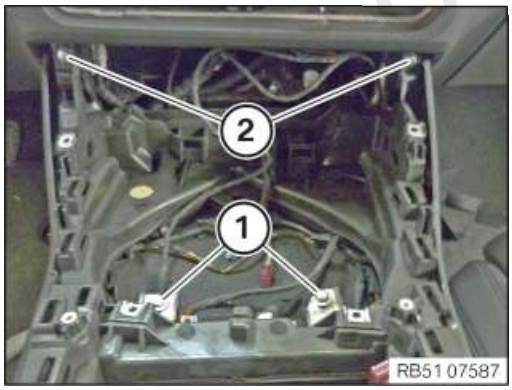


- Press pins (1) with a screwdriver outwards.
- Pull out the pins (1) with long-nose pliers at the gearing (2) completely from the centre console.
- Feed out the centre armrest towards rear from the centre console and remove.

10 – Removing the centre console

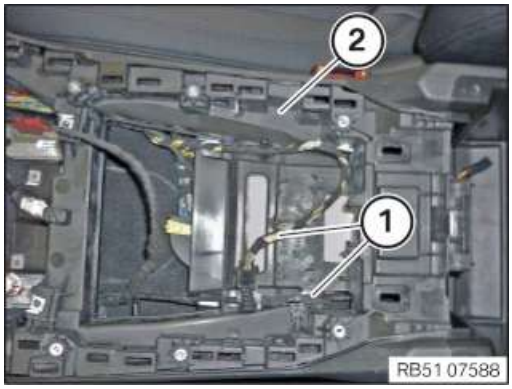


- Loosen screws (1).

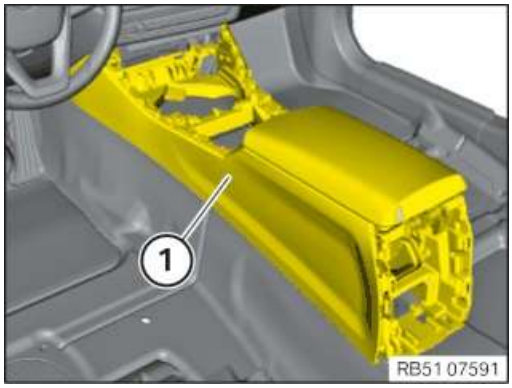


- Loosen screws (1) and (2).

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- Release the wiring harness (1) from the centre console (2).



NOTICE

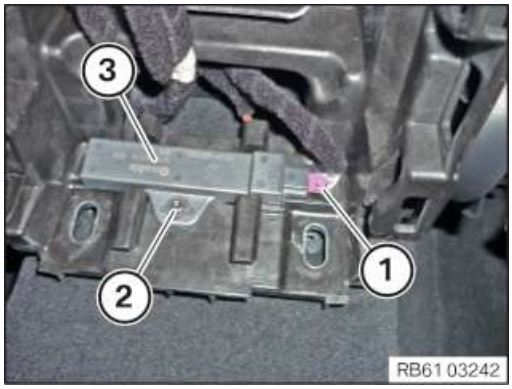
To provide a better overview: Schematic diagram with partially hidden components.

- Carefully raise rear centre console (1).
- Feed out wiring harness from the centre console (1) and unlock and disconnect existing plug connections, if required.
- Feed out and remove the centre console (1) on the instrument panel .

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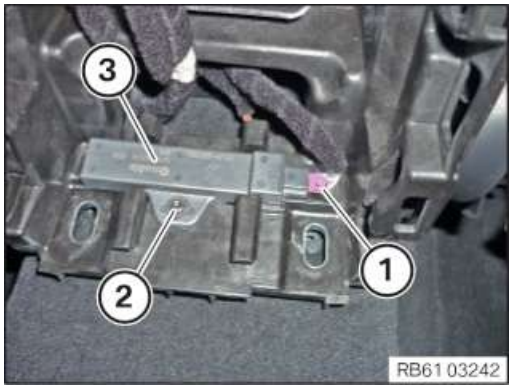
MAIN WORK

11 – Remounting when replacing the centre console trim



▸ **Removing the interior aerial from the rear centre console**

- Disconnect plug connection (1).
- Loosen screw (2).
- Remove the interior aerial (3).

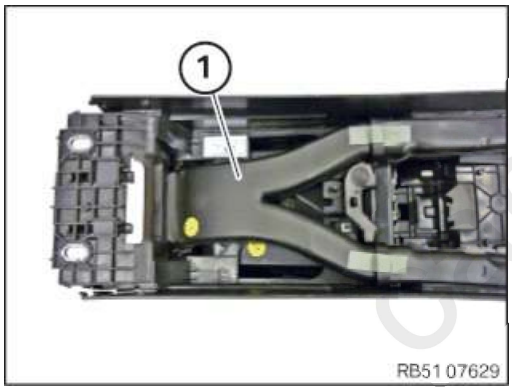


▸ **Install the interior aerial on the rear centre console**

- Connect connector (1).
- Position interior aerial (3) correctly and tighten the screw (2).

Interior aerial

Screw		Tightening torque	2.3 Nm

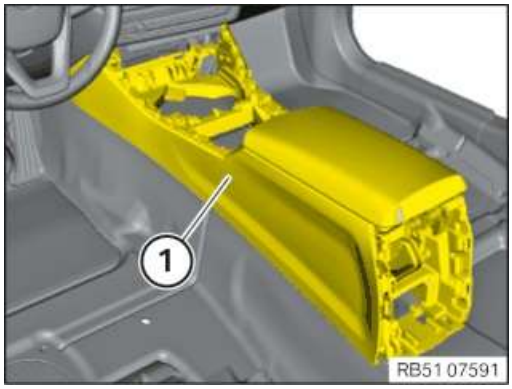


- Remove air duct (1) and remount it on the new centre console.

POSTPROCESSES

12 – Installing the centre console

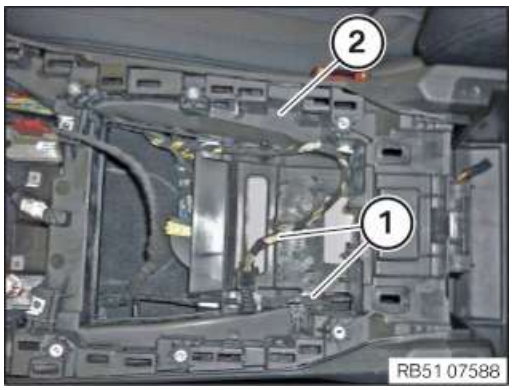
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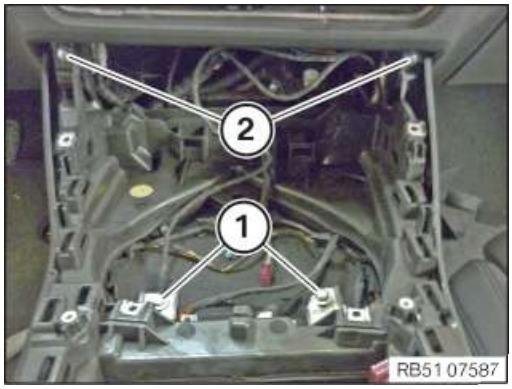
NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Install centre console (1) and thereby feed in the wiring harness.
- Feed in the centre console (1) to the instrument panel and position correctly.



- Secure the wiring harness to the centre console (1) and connect and lock the existing plug connections.



- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

- Tighten the screws (2).

Centre console to instrument panel

Oval-head screw		Tightening torque	1,8 Nm



- Tighten the screws (1).

Centre console on tunnel

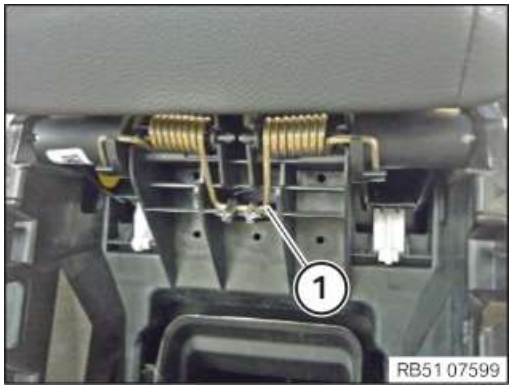
M6x18 Hexagon screw		Tightening torque	4,6 Nm

13 – Installing the centre armrest



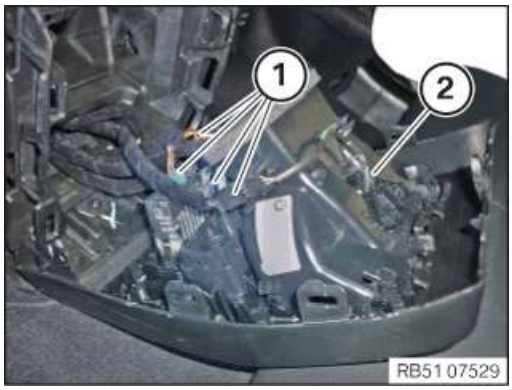
- Feed the centre-armrest into the centre console and position correctly.
- Insert pins (1) and insert into the centre console using gearing (2).

.com



- Open the centre-armrest (1) so that the spring is relaxed.
- Lift and mount spring (1) with long-nose pliers above the retaining lugs.

14 – Installing the rear centre console trim

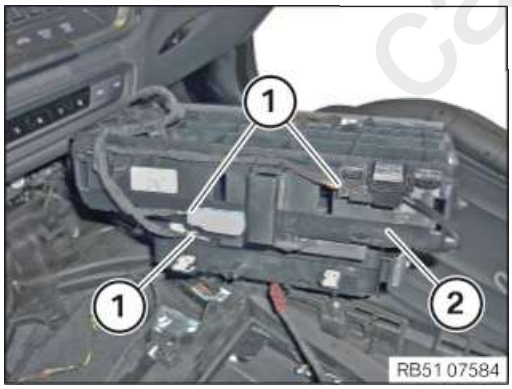


- Install the centre console trim (2).
- Connect connectors (1) and lock.

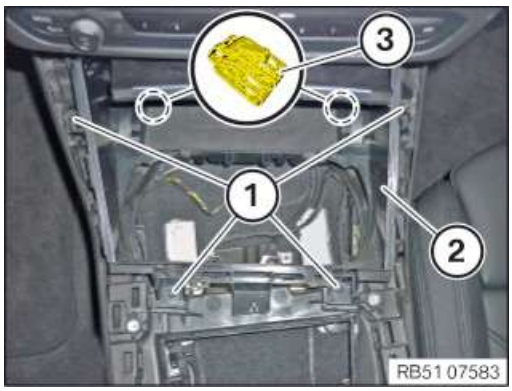


- Position centre console trim (1) and engage at the latch mechanisms at the side.

15 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).



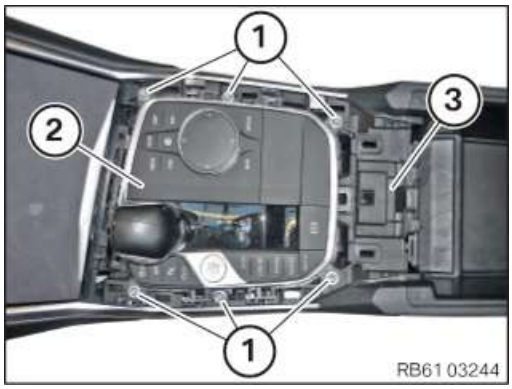
- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

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16 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw		Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**



- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .

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- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



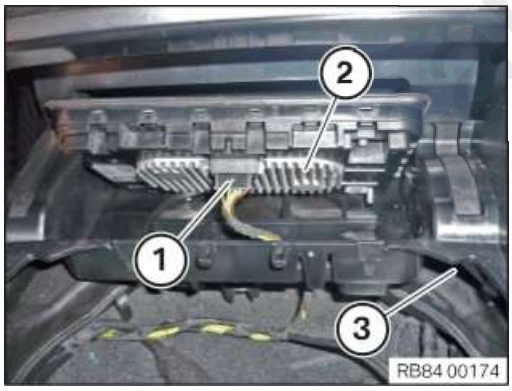
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



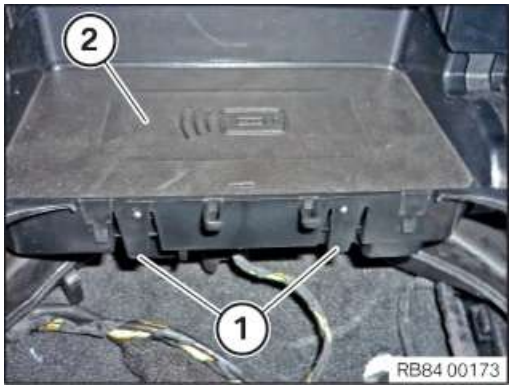
- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

17 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.

  The latch mechanisms (1) must engage correctly.

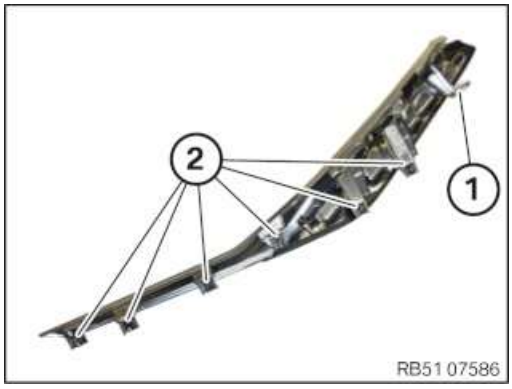
18 – Installing the decorative trim on the centre console on the left and right

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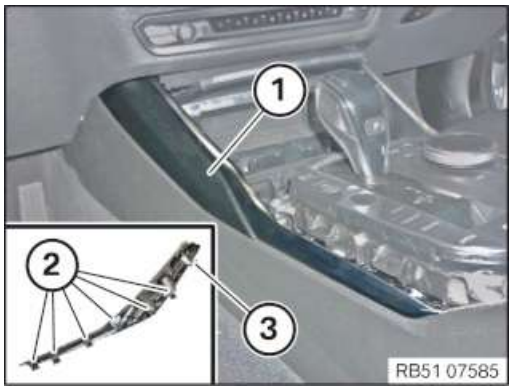
▸ **Installing the decorative trim on the centre console**

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

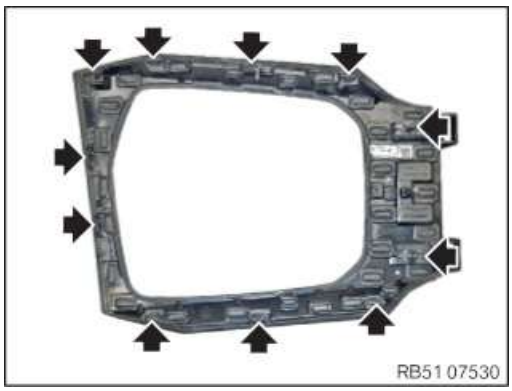
19 – Installing the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



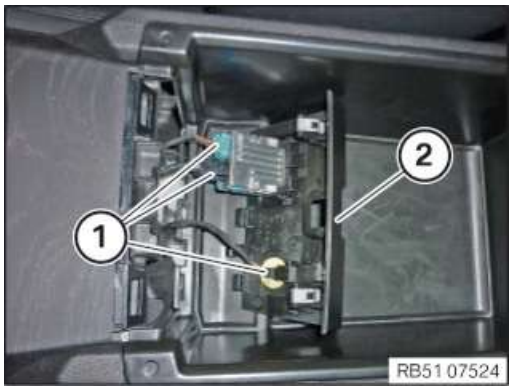
- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

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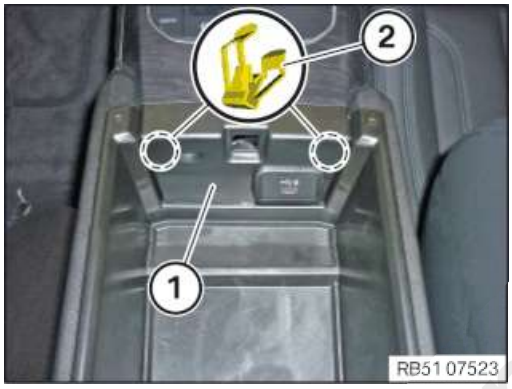


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

20 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

21 – Install the cup holder



- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm



- Insert the insert (1).

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Additional Information

Overview of Tightening Torques

Interior aerial			Used in step 11
Screw		Tightening torque	2.3 Nm

Centre console on tunnel			Used in step 12
M6x18 Hexagon screw		Tightening torque	4,6 Nm

Centre console to instrument panel			Used in step 12
Oval-head screw		Tightening torque	1,8 Nm

Storage compartment in centre console			Used in step 15
Oval-head screw		Tightening torque	1,8 Nm

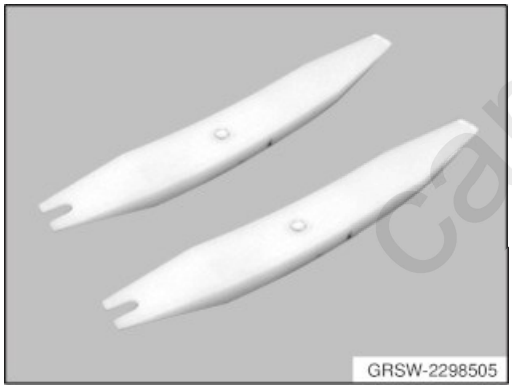
Gear selector switch to centre console trim			Used in step 16
Screw		Tightening torque	1,8 Nm

Negative battery cable to 48-V battery			Used in step 16
Nut M8		Tightening torque	19 Nm

Cup holder to centre console			Used in step 21
Oval-head screw		Tightening torque	1,8 Nm

Overview of Special Tools

2 298 505 Wedge



Common		Used in step 23
Usage	Set (delivery of 2 pieces)	
Included in the tool or work		
Storage location	C34	
Replaced by		
In connection with		
SI-Number	01 03 12 (792)	

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	616

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	616
61 20 900 Disconnecting and connecting battery earth lead	616
61 20 900 Disconnecting and connecting battery earth lead	616
61 20 900 Disconnecting and connecting battery earth lead	616
61 20 900 Disconnecting and connecting battery earth lead	616
61 20 900 Disconnecting and connecting battery earth lead	616

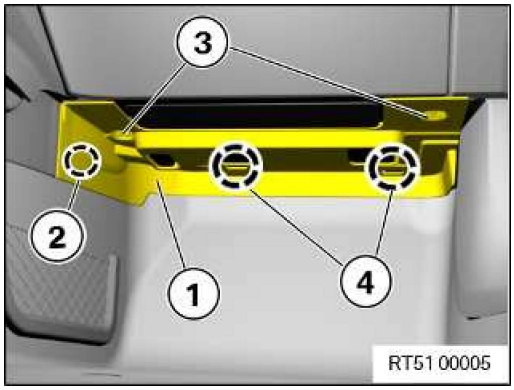
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61 20 900 Disconnecting and connecting battery earth lead	616
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	616
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	616
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	616
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61 20 900 Disconnecting and connecting battery earth lead	616
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	616
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	616
61 20 900 Disconnecting and connecting battery earth lead	616
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	616
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	616
61 20 900 Disconnecting and connecting battery earth lead

51 16 377 Replacing glove box lid

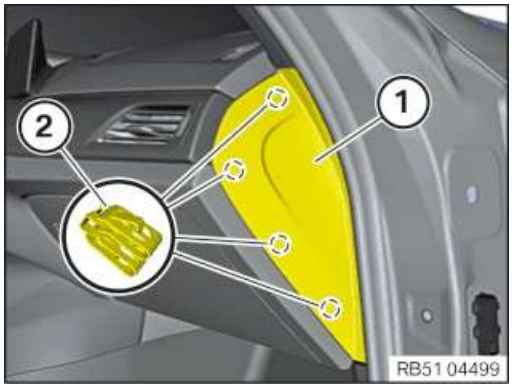
PRELIMINARY WORK

1 – Remove the right footwell trim



- Turn the locks (3) by 90°.
- Feed the footwell trim (1) out of the guide (2).
- Detach the footwell trim (1) inward out of the guides (4).
- Unlock associated plug connection and disconnect.

2 – Remove the side panel on the right instrument panel

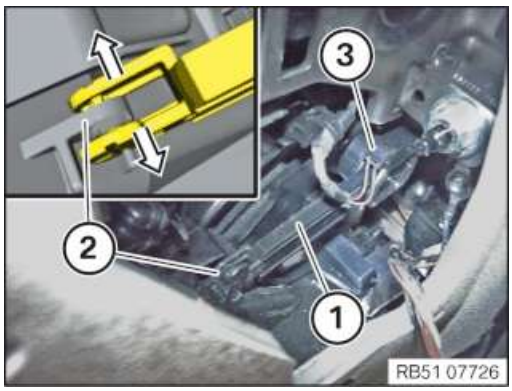


- Unclip and remove the side panel (1) towards the outside from the clamps (2).
- If necessary, unlock associated plug connection and disconnect.

3 – Remove glove box damper



- Release plug connection (1) from the instrument panel and pull to the outside.



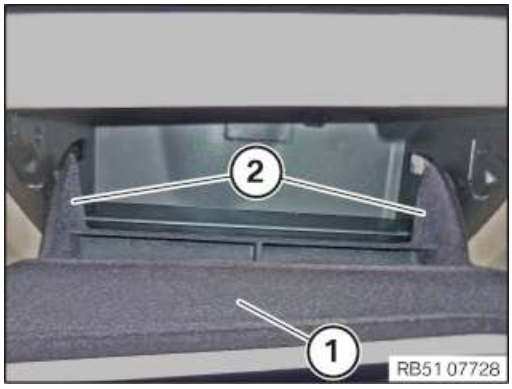
- Release damper (1) from retaining bracket (2) (spread slightly in the direction of the arrow).
- Open glove box cover.
- Twist damper (1) slightly in the clockwise direction and remove it outwards.
- Feed damper (1) out of the instrument panel.
- Disconnect plug connection (3).

4 – Remove glove box lid

Prerequisite

The glove box lid is open.

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- Raise the glove box lid (1) slightly.
- Carefully bend the side section (2)of glove box lid (1) inside so that the glove box lid (1) can be fed out of the instrument panel .
- Swivel the glove box lid (1) further down until it feeds out of the hinges.

MAIN WORK

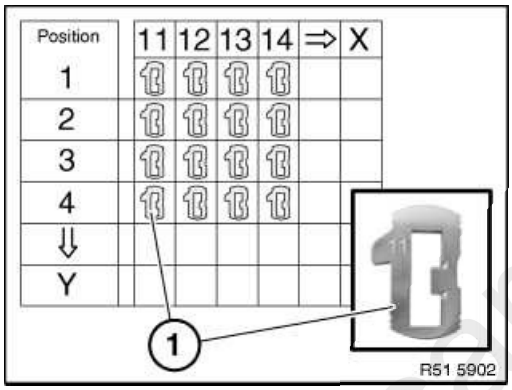
5 – When replacing the glove box lid

- **The closure of the glove box lid and the lock barrel cannot be removed without destroying them and must always be renewed.**

▸ **Assembling the lock barrel**

NOTICE

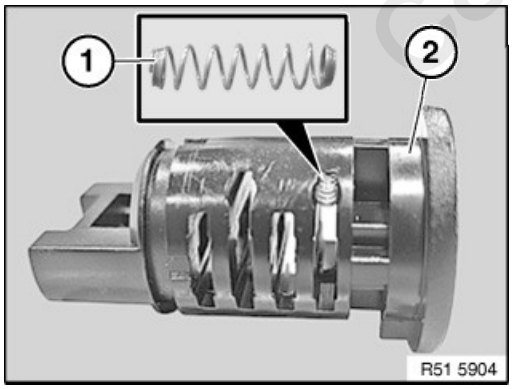
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Sort the enclosed retainers (1) as per the graphic.

  X = number embossed on the retainer (1)

  Y = installation position in the lock barrel

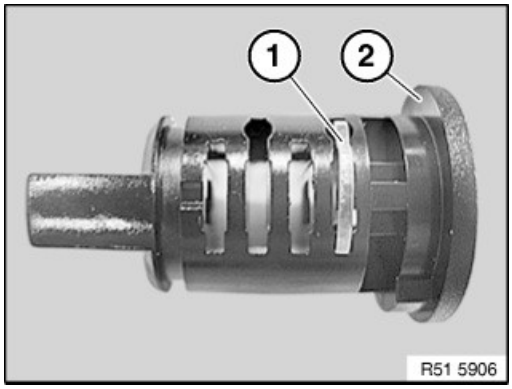


NOTICE

The description is for one component only. The procedure is identical for all further components.

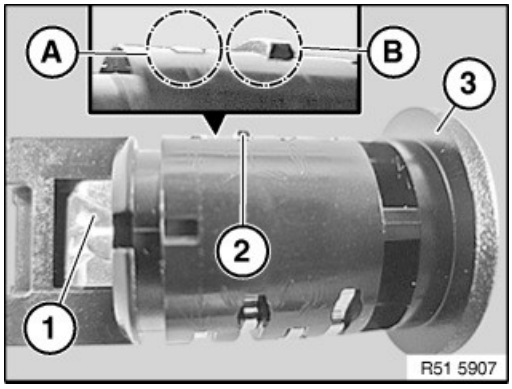
- Insert the spring (1) into the lock barrel (2).

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- Insert and engage the retainer (1) with the lowest embossed number **X** into position **Y** of the lock barrel (2).

  The retainer engages audibly.



Check

- Insert the ignition key (1) into the lock barrel (3).
- Check whether the retainer (2) is flush with the housing.

Result

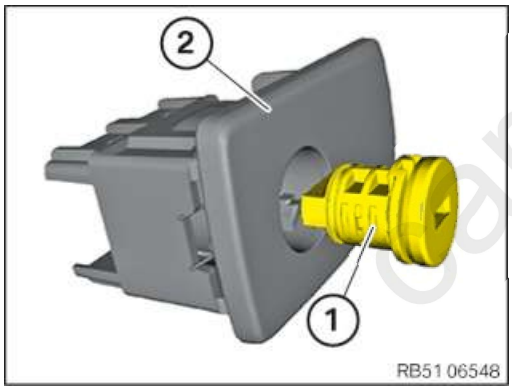
» The retainer (2) is not flush with the housing (B).

Measure

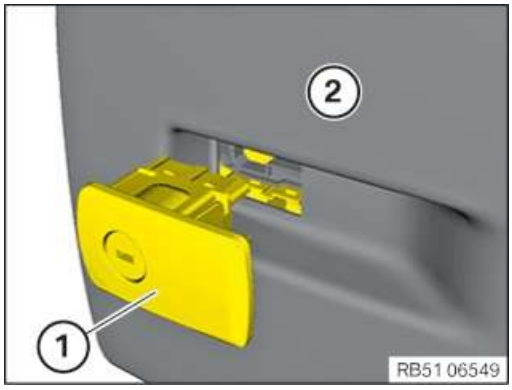
- Press out the retainer (2) from the lock barrel (3) using a suitable tool.

Measure

- Repeat the operations using the retainer with the next higher number **X**, until the retainer is flush with the housing (A).



- Insert the lock barrel (1) with the ignition key in the glove box lock (2) and engage via pressure.



- Carefully insert the glove box lock (1) in the glove box lid (2) and lock.

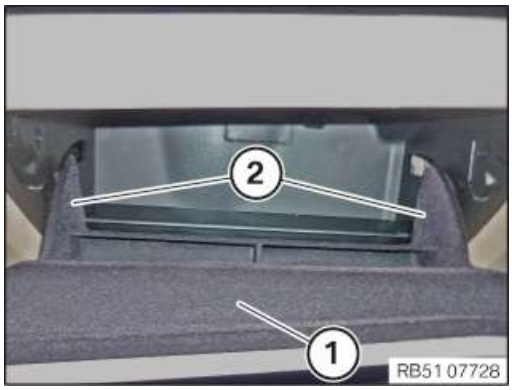
POSTPROCESSES

6 – Install glovebox cover

Prerequisite

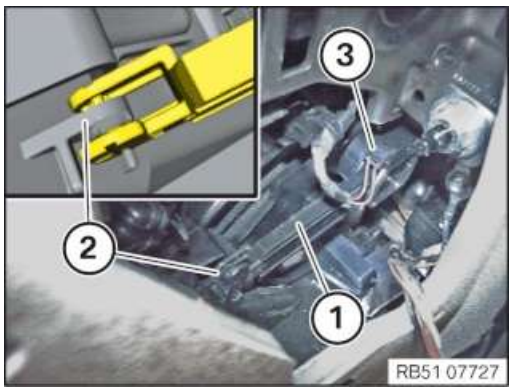
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The glove box lid is open.



- Insert glove box lid (1) on the hinges and swivel to the top.
- Bend the side section (2) of the glove box lid (1) carefully inward and feed in at the instrument panel.

7 – Installing glove box damper

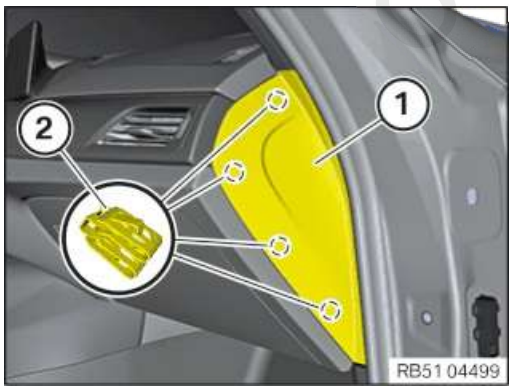


- Connect connector (3).
- Insert damper (1) in instrument panel.
- Open glove box cover.
- Install damper (1) and twist it slightly in the anticlockwise direction.
- Engage the damper (1) in the retaining bracket (2).



- Install connector (1) and mount on the instrument panel.

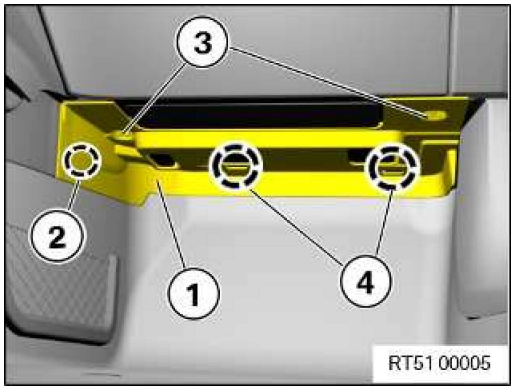
8 – Install the side panel on instrument panel on the right



- If required, connect the associated connector.
- Feed in the side panel (1) and clip it in at the clamps (2).

9 – Install the right footwell trim panel

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- Connect associated connector.
- Attach the footwell trim (1) to the guides (4) and fold up.
- Guide the footwell trim (1) into the guide (2) of the centre console.
- Position the locks (3) correctly and turn by 90°.

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51 16 026 Replacing mirror glass for exterior mirror

NOTICE

Description is for left component only. Procedure on the right side is identical.

1 – Removing the mirror glass

CAUTION

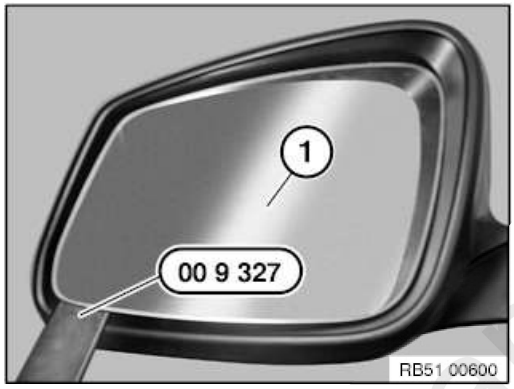
Glass splinters.

Danger of injury!

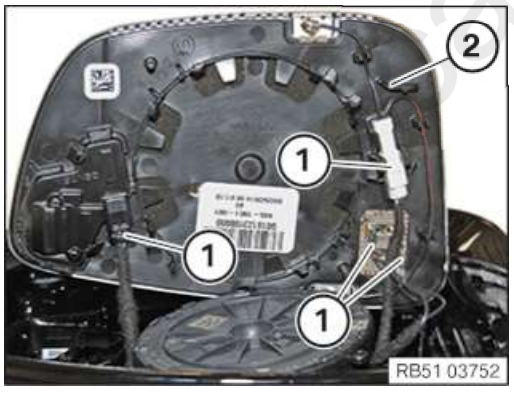
- If the mirror glass is damaged, wear safety goggles and protective gloves.

TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.

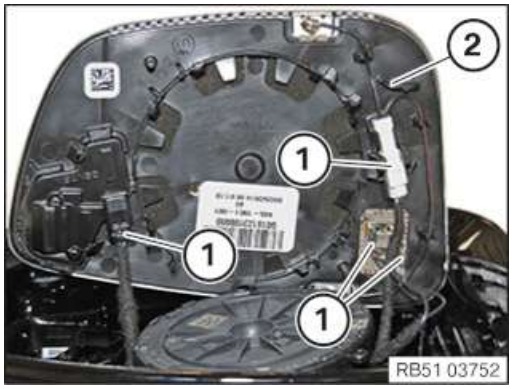


- Manually press the mirror glass (1) on the side of vehicle up to the end stop.
- Unclip the mirror glass (1) using special tool 0 496 571 (00 9 327) all the way around, starting with the outer side.

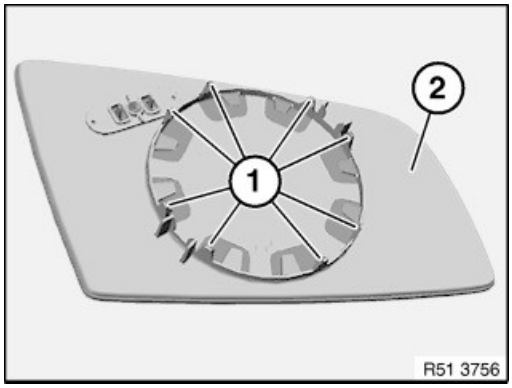


- Disconnect plug connection (1).
- Remove mirror glass (2).

2 – Installing the mirror glass



- Position mirror glass (2).
- Connect plug connections (1).

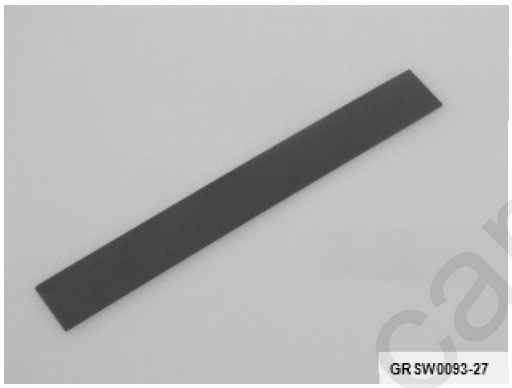


- Check whether retaining lugs (1) are missing or damaged and, if required, renew the mirror glass.
- Position the mirror glass (2) with the retaining lugs (1) flush with the drive for exterior mirror adjustment and clip in.
- Ensure correct locking.
- Check if the drive for exterior mirror adjustment is functioning correctly.

Additional Information

Overview of Special Tools

0 496 571 (00 9 327) Wedge

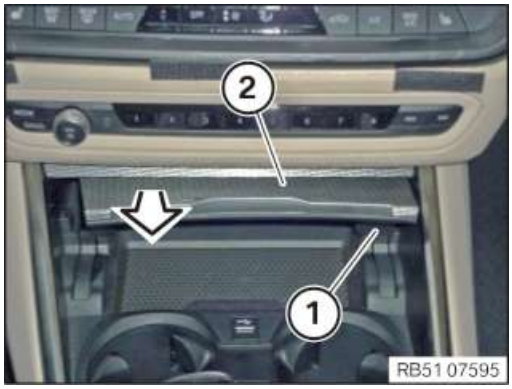


Common	Used in step 1
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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51 16 213 Replacing storage compartment trim

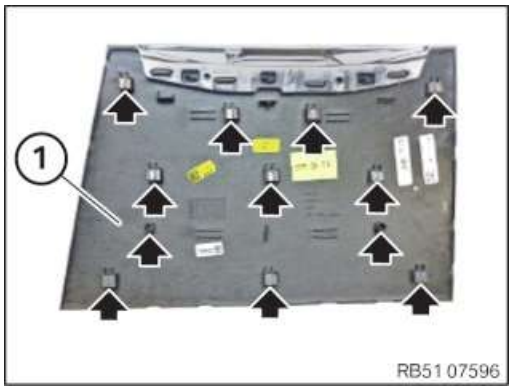
1 – Removing the front storage compartment trim



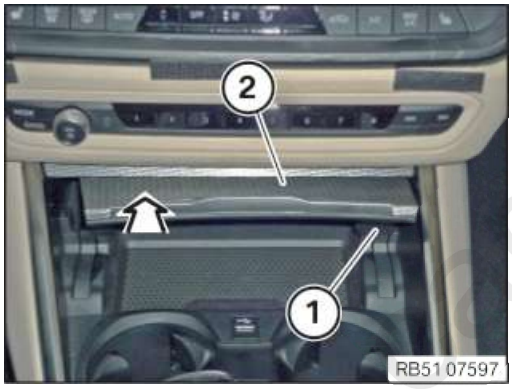
- Hold down the lower section (1) and move the storage compartment trim (2) slightly to the rear in direction of arrow.

  Guide out the storage compartment trim (2) toward the top and remove it.

2 – Installing front storage compartment trim



- Check all the guides or latch mechanisms (arrows) for damage, renew the storage compartment trim (1) if necessary.



- Position the storage compartment trim (2) on the lower section (1) and clip in the direction of arrow.

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51 16 220 Replacing storage compartment trim

PRELIMINARY WORK

1 – Remove cupholder

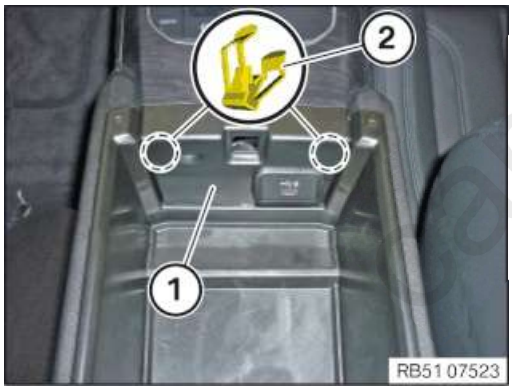


- Remove the insert (1).

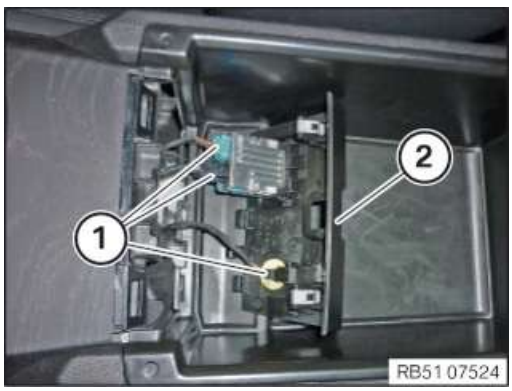


- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

2 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

3 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



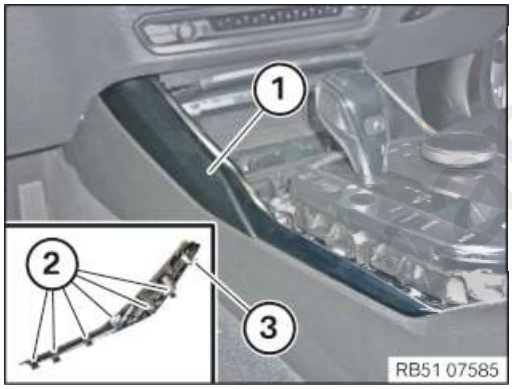
- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

4 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

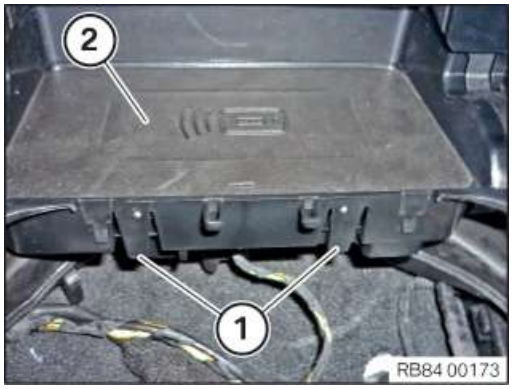
NOTICE

Description is for left component only. Procedure on the right side is identical.

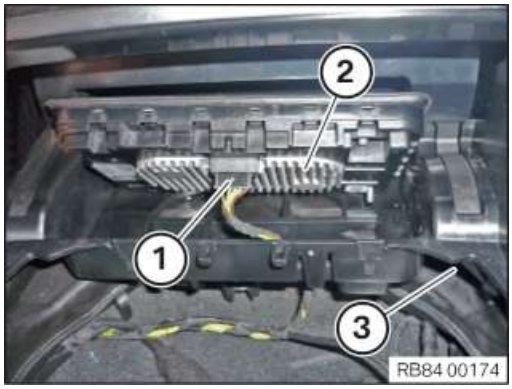


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

5 – Removing the wireless charging station



- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

6 – Remove the operating facility in the centre console

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

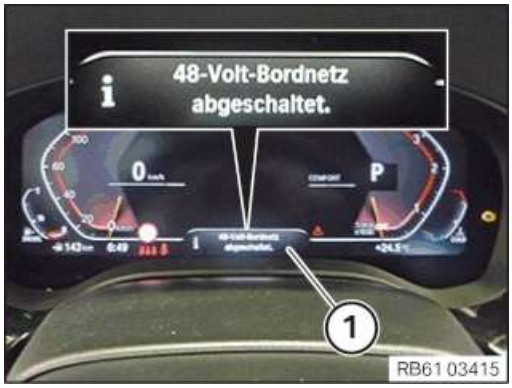
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

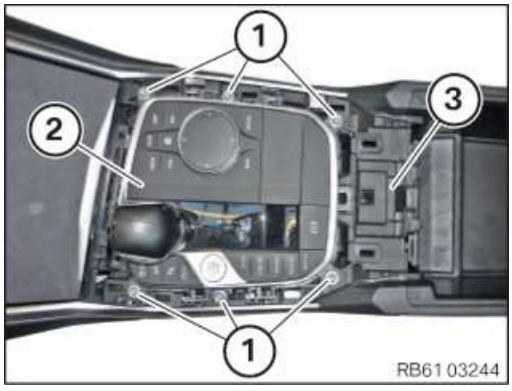
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**

- See additional information.

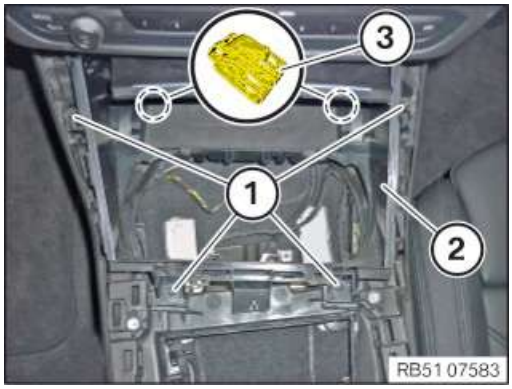




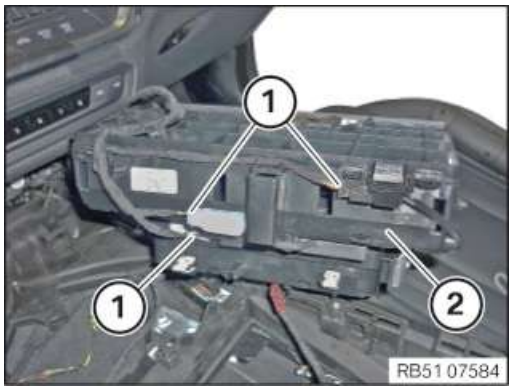
- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

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7 – Removing the storage compartment in the front centre console



- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).



- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

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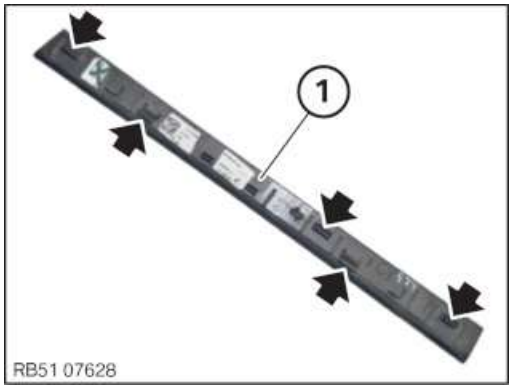
MAIN WORK

8 – Remove centre stack trim

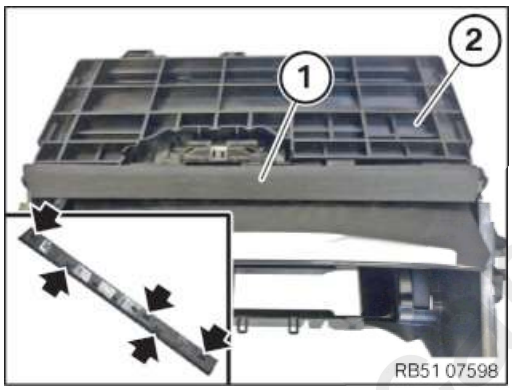


- Release centre stack trim (1) backwards from the latch mechanisms (arrows) and remove from the storage compartment (2).

9 – Install the centre stack trim



- Check latch mechanisms (arrows) for damage, renew trim (1) of centre stack if necessary.

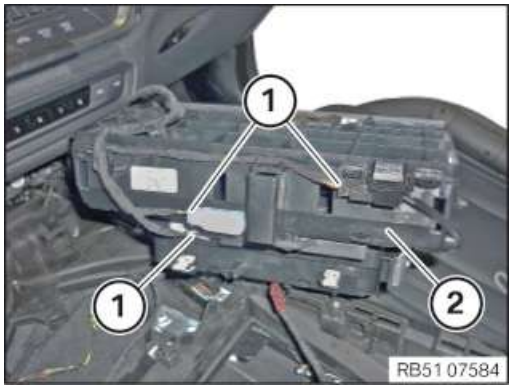


- Position trim (1) of centre stack correctly on storage compartment (2) and engage on latch mechanisms (arrows).

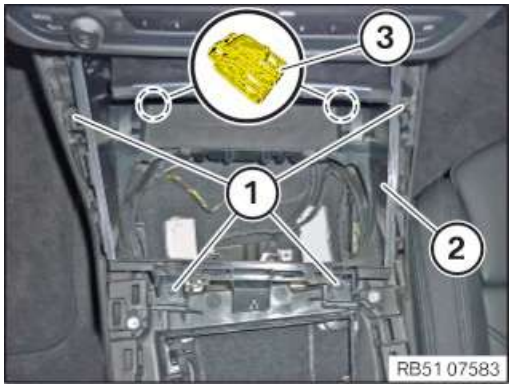
oldiagn.com

POSTPROCESSES

10 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).

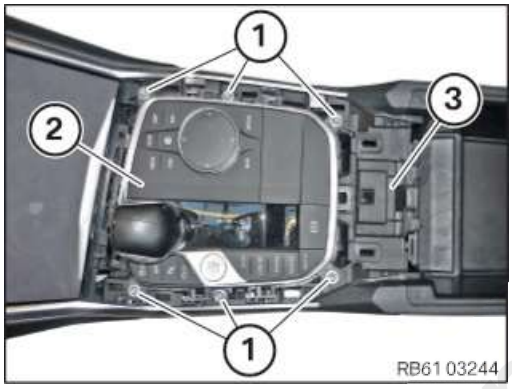


- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

11 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw		Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**



- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

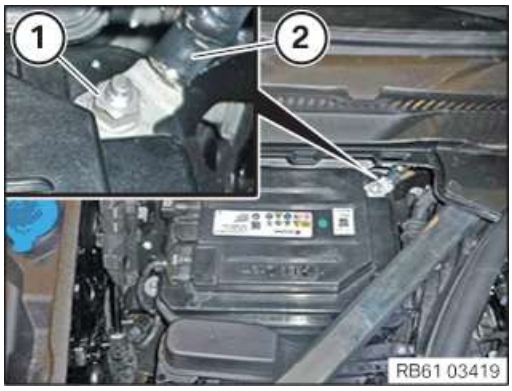
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



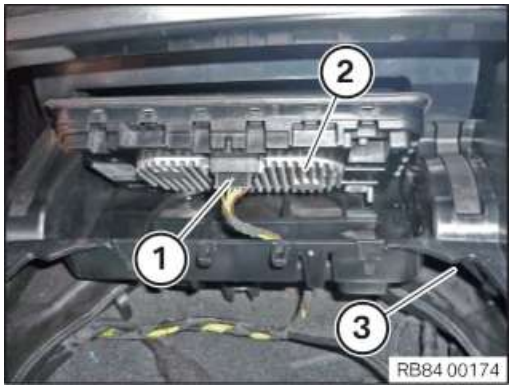
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



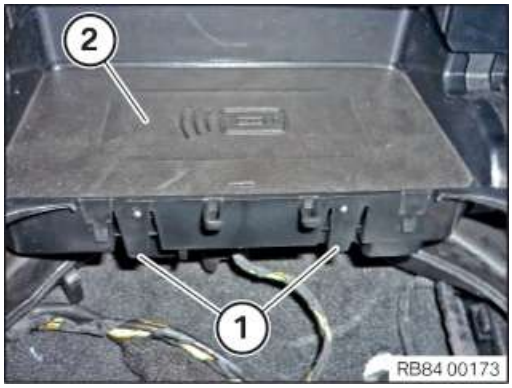
- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

12 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.

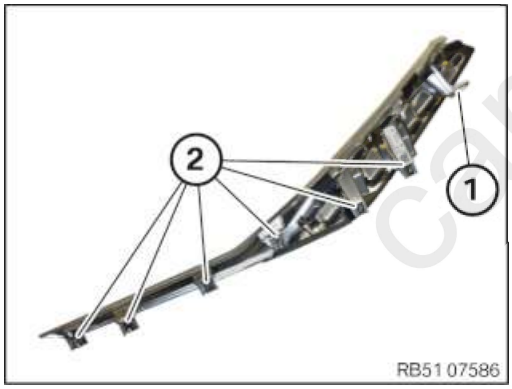
  The latch mechanisms (1) must engage correctly.

13 – Installing the decorative trim on the centre console on the left and right

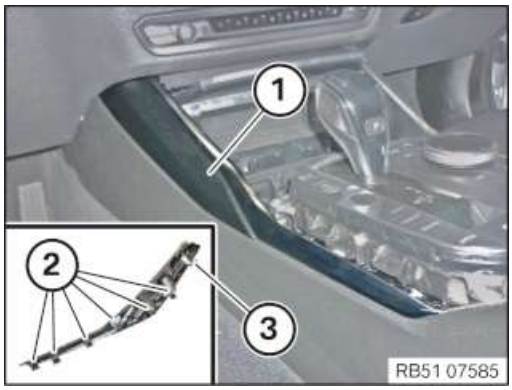
▸ **Installing the decorative trim on the centre console**

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

14 – Installing the centre console trim

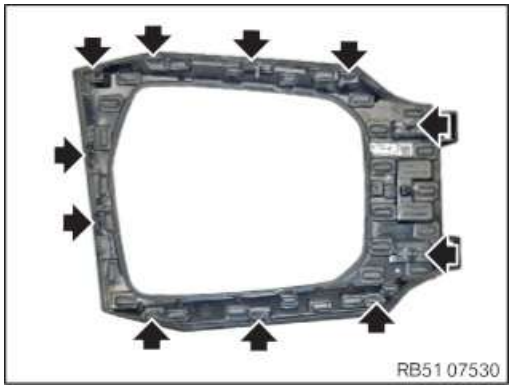
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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

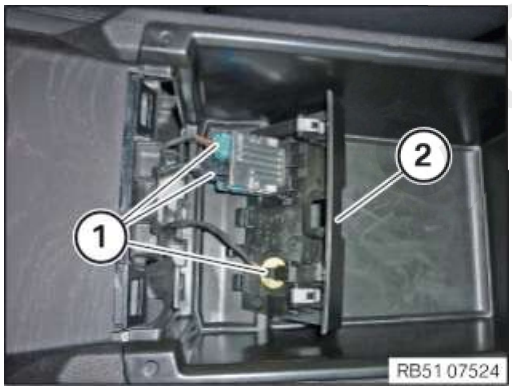


- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

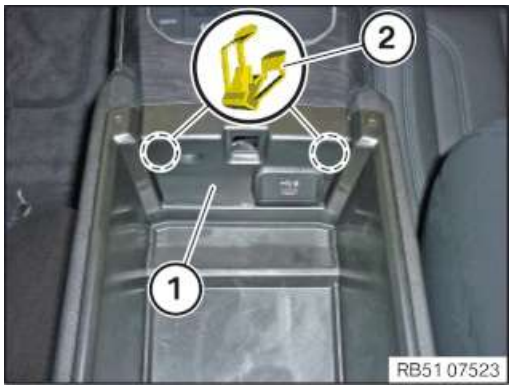


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

15 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

16 – Install the cup holder



- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm



- Insert the insert (1).

Additional Information

Overview of Tightening Torques

Storage compartment in centre console Used in step 10

Oval-head screw		Tightening torque	1,8 Nm

Gear selector switch to centre console trim Used in step 11

Screw		Tightening torque	1,8 Nm

Negative battery cable to 48-V battery Used in step 11

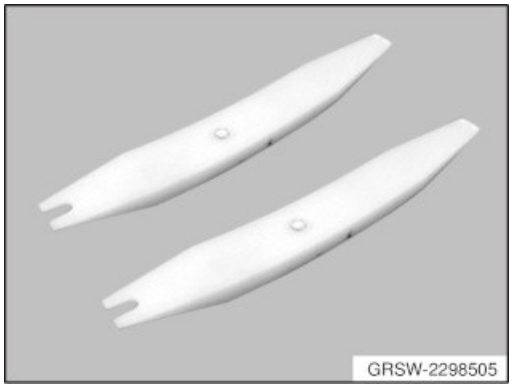
Nut M8		Tightening torque	19 Nm

Cup holder to centre console Used in step 16

Oval-head screw		Tightening torque	1,8 Nm

Overview of Special Tools

2 298 505 Wedge



Common Used in step 23

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

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Repair instructions (PRE)	Used in step
Notes on 48-V battery	611

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	611
61 20 900 Disconnecting and connecting battery earth lead	611
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61 20 900 Disconnecting and connecting battery earth lead	611
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	611
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	611
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61 20 900 Disconnecting and connecting battery earth lead	611

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51 16 002 Replacing the exterior rearview mirror on the front door on the left or right

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Removing the mirror glass

CAUTION

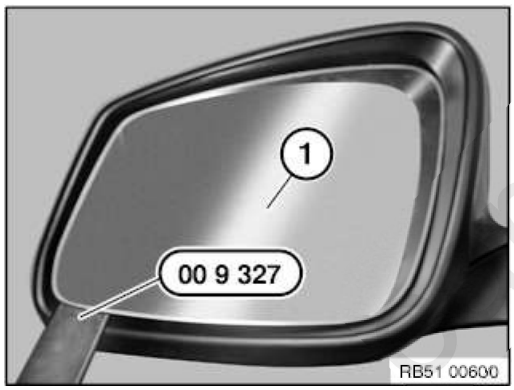
Glass splinters.

Danger of injury!

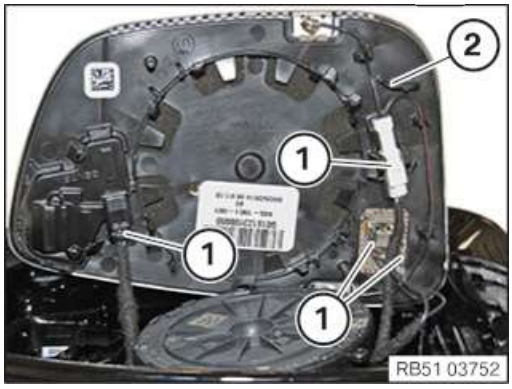
- If the mirror glass is damaged, wear safety goggles and protective gloves.

TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.



- Manually press the mirror glass (1) on the side of vehicle up to the end stop.
- Unclip the mirror glass (1) using special tool 0 496 571 (00 9 327) all the way around, starting with the outer side.



- Disconnect plug connection (1).
- Remove mirror glass (2).

2 – Removing the protective cap of the exterior mirror



- Spread and release the latch mechanisms (1) of the protective cap on the exterior mirror.



- Remove the protective cap (1) in the direction of the arrow.
- Disconnect associated plug connection.

3 – Removing the drive for exterior mirror adjustment



- **Version A:**
- Release the screws (1) and pull out the drive for exterior mirror adjustment (2) a little.



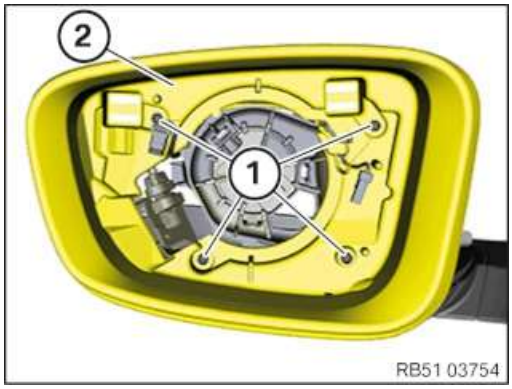
- **Version B**
- Loosen screw (1).
- Pull off the drive for exterior mirror adjustment (2).



- Unlock plug connection (1) and disconnect and remove the drive for exterior mirror adjustment (2) .

4 – Removing retaining ring from exterior rearview mirror

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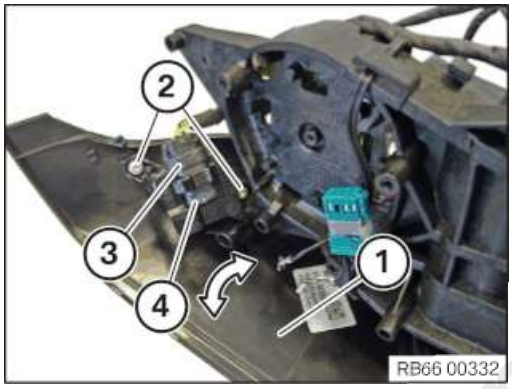


- Loosen screws (1).
- If necessary, feed out cable.
- Guide out retaining ring of exterior rearview mirror (2) in forward direction.

5 – Removing the top view camera



- Loosen the screw (1) on the lower part of the mirror housing (2).



- Carefully pull the lower part of the mirror housing (1) back in the direction of the arrow until the screws (2) are accessible.
- Loosen screws (2).
- Unlock plug connection (3) and disconnect.
- Removing the Top View Camera (4).

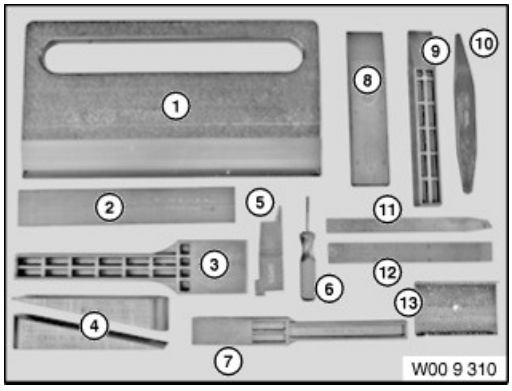
6 – Remove front door trim panel

RISK OF DAMAGE

Damage of high-quality surfaces.

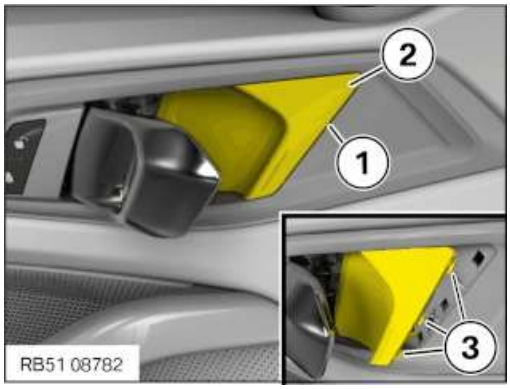
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

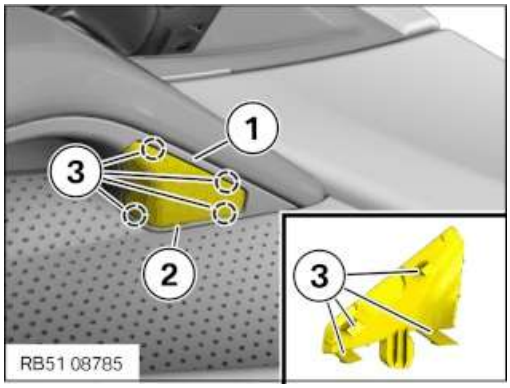


- Have the set of special tools 0 493 752 (00 9 329) ready.

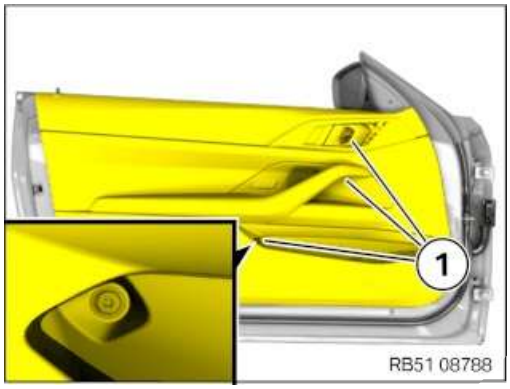
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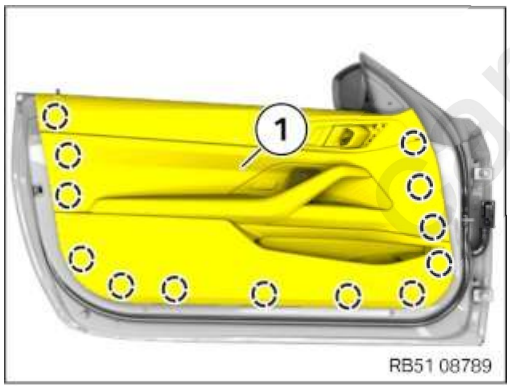
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



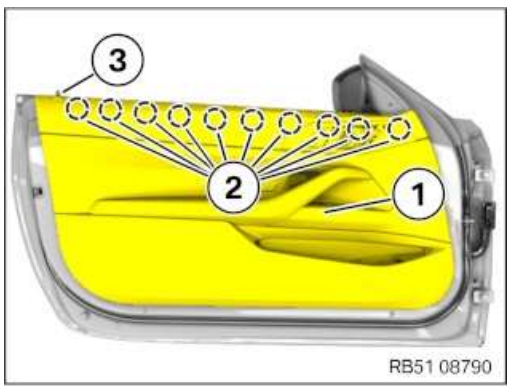
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.



- Loosen screws (1).

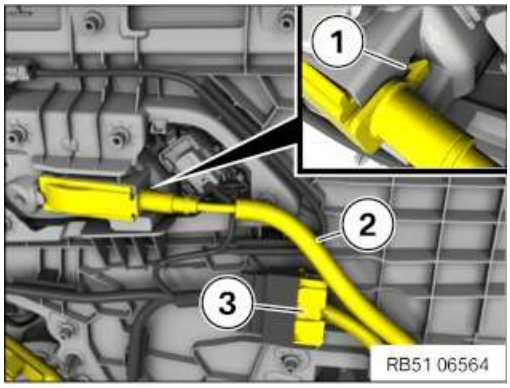


- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

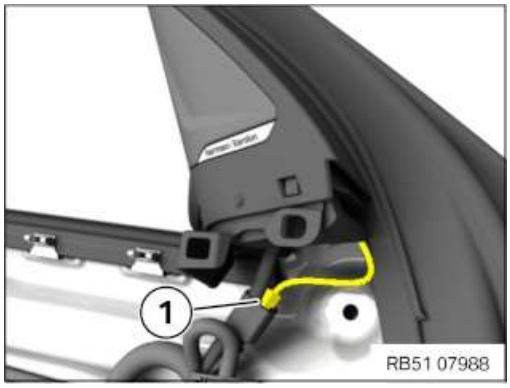
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

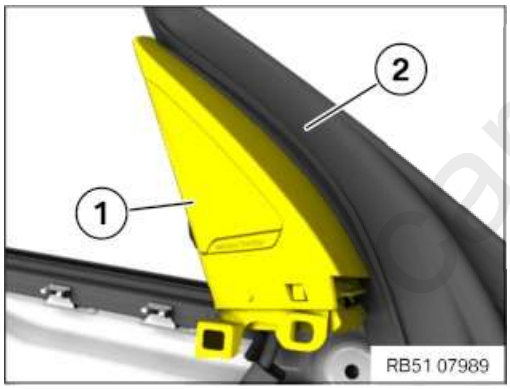
7 – Removing mirror triangle

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **For equipment specification with tweeter.**
- Unlock plug connection (1) and disconnect.



- Feed out the mirror triangle (1) from the inner window recess finisher strip (2) .

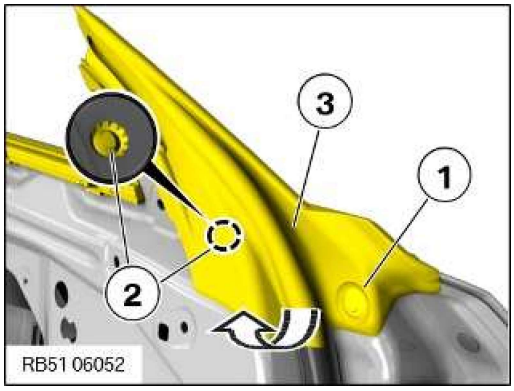
MAIN WORK

8 – Remove exterior mirror

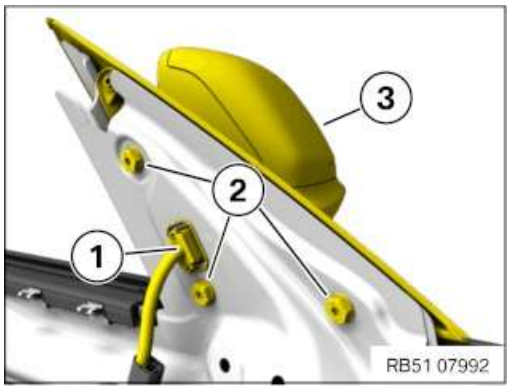
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Unclip clip (1) with suitable tool.
- Unclip clip (2).
- Partially release the inner window recess finisher strip at the front (3) in the direction of arrow.

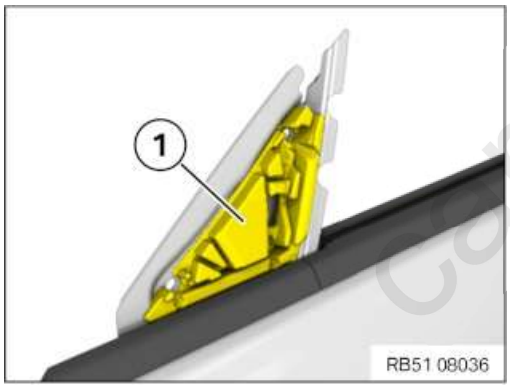


- Unlock plug connection (1) and disconnect.
- Release screws (2) and remove the exterior mirror of the front door (3) .

9 – Fit exterior mirror

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

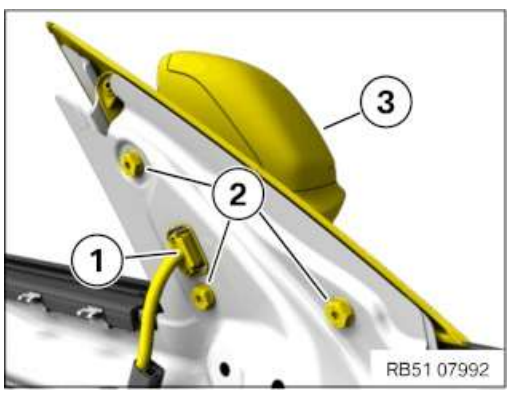
- Check the sealing (1) for the mirror triangle for damage and position it correctly.

Result

» The mirror triangle sealing is damaged.

Measure

- Renew the sealing for the mirror triangle.



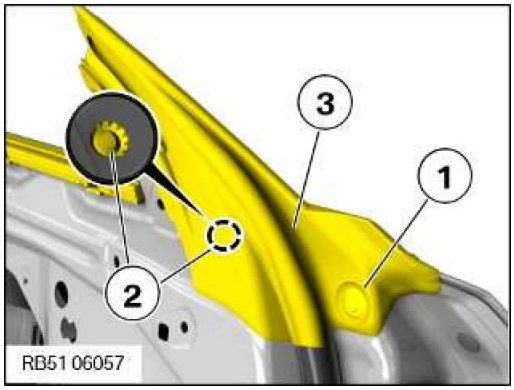
- Position the exterior mirror (3) on the door and tighten the screws (2).

Exterior mirror to door

Screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.

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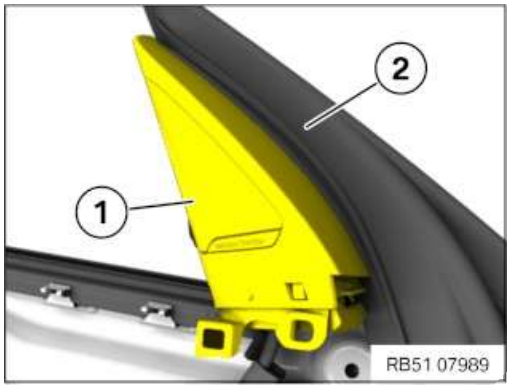
- Position the inner window recess finisher strip at the front (3).
- Clip in clip (1).
- Clip in clip (2).

POSTPROCESSES

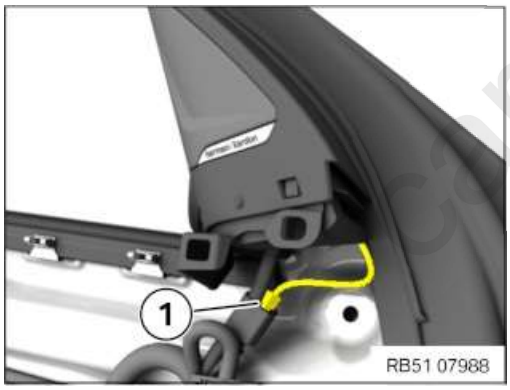
10 – Installing mirror triangle

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

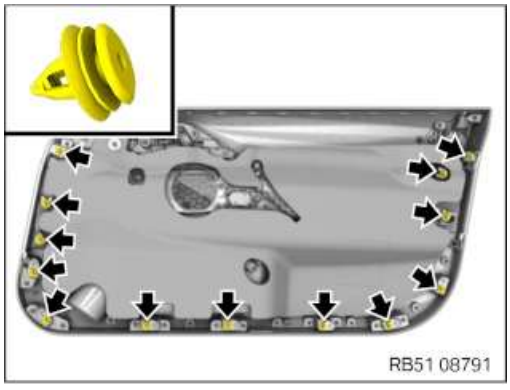


- Insert the mirror triangle (1) into the inner window recess finisher strip (2) and position it correctly.



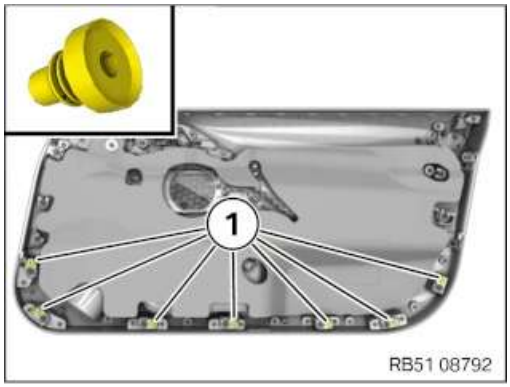
- **For equipment specification with tweeter.**
- Connect connectors (1) and lock.

11 – Install front door trim panel

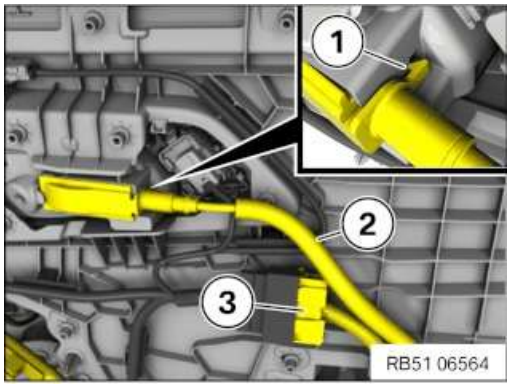


- Check clips (arrows) for damage and, if necessary, renew them.

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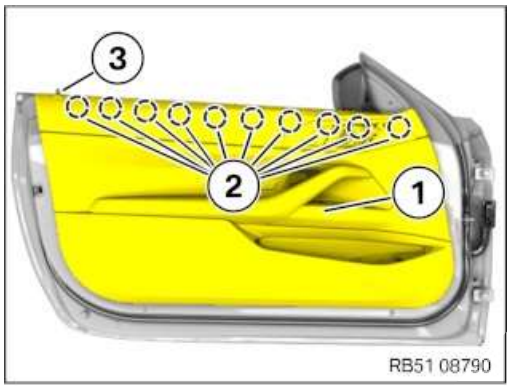
- Check the stop pad (1) for damage, renew if necessary.



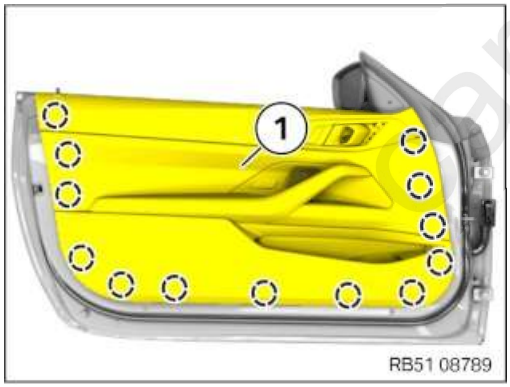
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

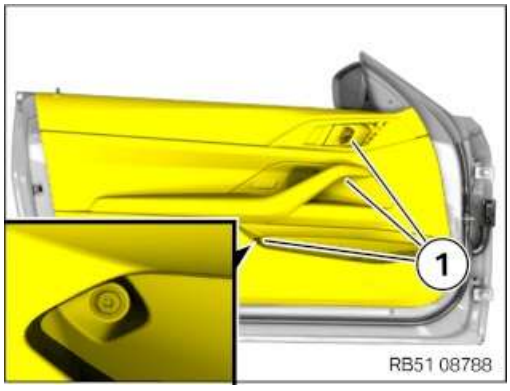
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.



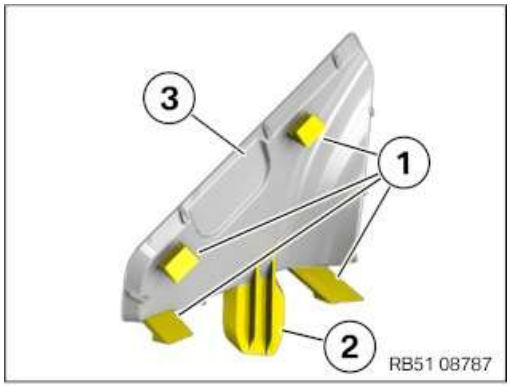
- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check

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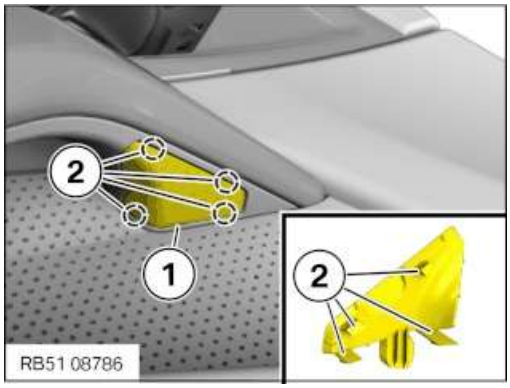
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

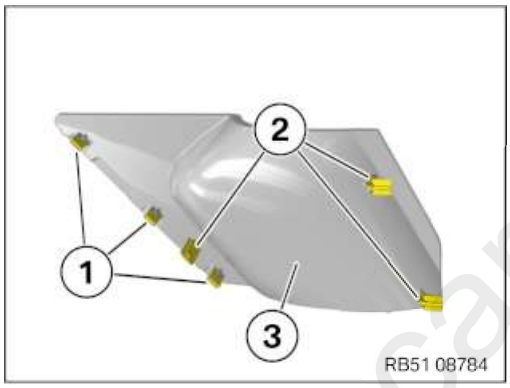
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

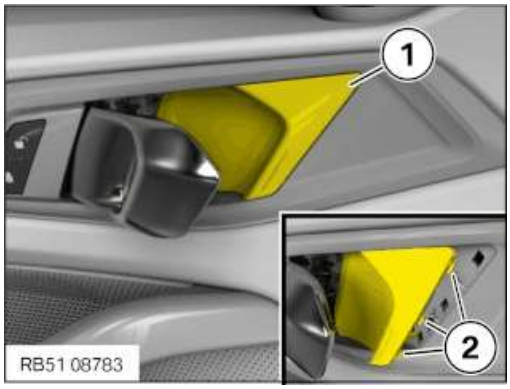


Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

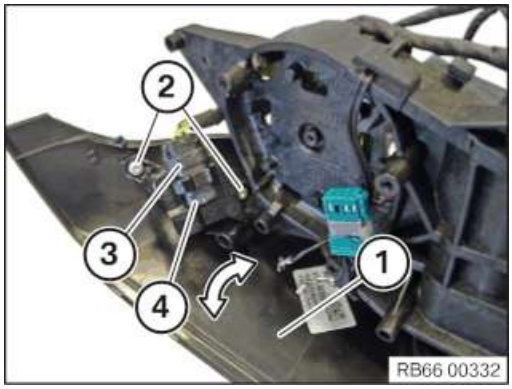
- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

12 – Installing the top view camera

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- Install and correctly position the top view camera (4).
- Connect connectors (3) and lock.
- Tighten the screws (2).

Top view camera to exterior mirror

Screw		Tightening torque	0,85 Nm

- Push lower section of the mirror housing (1) in the direction of arrow to the front and position it correctly.

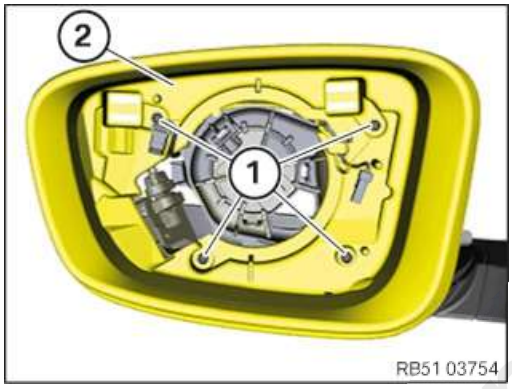


- Tighten screw (1) on the lower section of the mirror housing (2).

Housing to exterior mirror

		Tightening torque	0,85 Nm

13 – Installing the retaining ring on the exterior rearview mirror



- Feed in the retaining ring on the exterior rearview mirror (2).
- If necessary, feed in cable.
- Tighten the screws (1).

Retaining ring to exterior mirror

Screw		Tightening torque	0,85 Nm

14 – Installing the drive for exterior mirror adjustment



- Position drive for exterior mirror adjustment (2).
- Connect connectors (1) and lock.



- **Version A:**
- Position drive for exterior mirror adjustment (2) correctly.
- Tighten the screws (1).

Drive for exterior mirror adjustment

Screw		Tightening torque	1.2 Nm

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- **Version B:**
- Correctly position the drive for exterior mirror adjustment (2) and press it in.
- Tighten down screw (1).

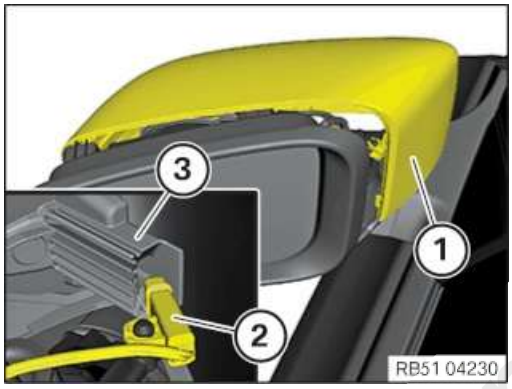
Drive for exterior mirror adjustment

Screw		Tightening torque	1.2 Nm

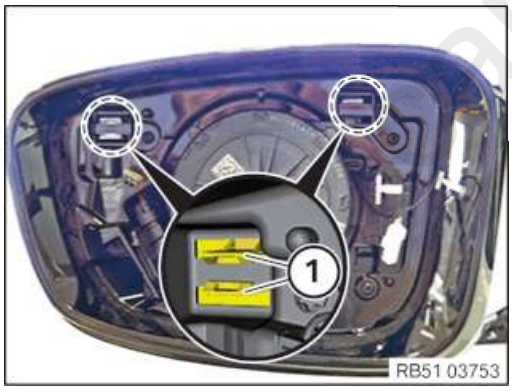
15 – Installing the protective cap of the exterior mirror



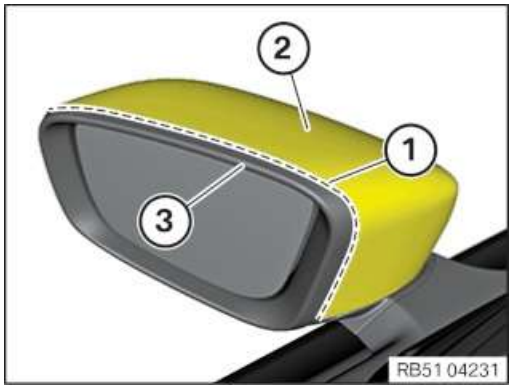
- Position the connector (1) on the mounting (2).
- Position connector (1) as shown.



- Position the protective cap (1) on the exterior mirror.
- Feed in the connector (2) for the side repeater (3).
- Push protective cap (1) on exterior mirror and lock.

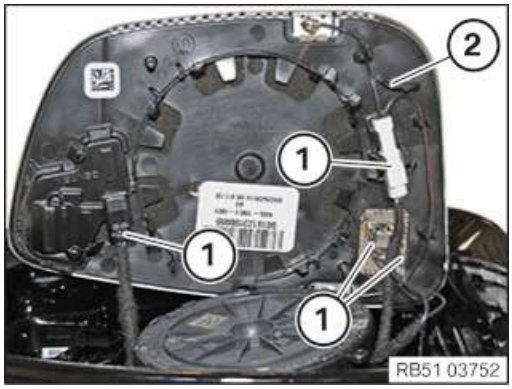


- Make sure that the latch mechanisms (1) are correctly fitted.

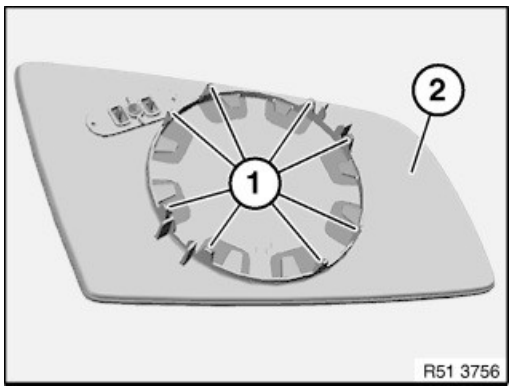


- Check the correct seating of the protective cap (2) on retaining ring (3) around (1).

16 – Installing the mirror glass



- Position mirror glass (2).
- Connect plug connections (1).



- Check whether retaining lugs (1) are missing or damaged and, if required, renew the mirror glass.
- Position the mirror glass (2) with the retaining lugs (1) flush with the drive for exterior mirror adjustment and clip in.
- Ensure correct locking.
- Check if the drive for exterior mirror adjustment is functioning correctly.

17 – Check the functions of the exterior rearview mirror

- Check all functions of the exterior rearview mirror.

  Depending on the equipment specification, an exterior rearview mirror has various functions.

  - Fold-in function
  - Turn indicators
  - Adjustment of the mirror glass
  - Top View

Additional Information

Overview of Tightening Torques

Exterior mirror to door			Used in step 9
Screw		Tightening torque	8 Nm

Door trim panel			Used in step 11
Oval-head screw		Tightening torque	3 Nm

Top view camera to exterior mirror			Used in step 12
Screw		Tightening torque	0,85 Nm

Housing to exterior mirror			Used in step 12
		Tightening torque	0,85 Nm

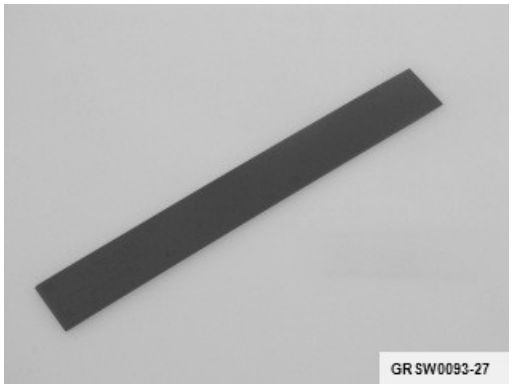
Retaining ring to exterior mirror			Used in step 13
Screw		Tightening torque	0,85 Nm

Drive for exterior mirror adjustment			Used in step 14
Screw		Tightening torque	1.2 Nm

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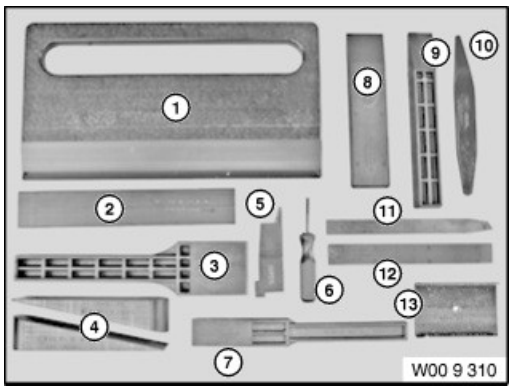
Overview of Special Tools

0 496 571 (00 9 327) Wedge



Common	Used in step 1
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 493 752 (00 9 329) Case



Common	Used in step 6
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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51 21 004 Adjusting front left or right lock striker

TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body

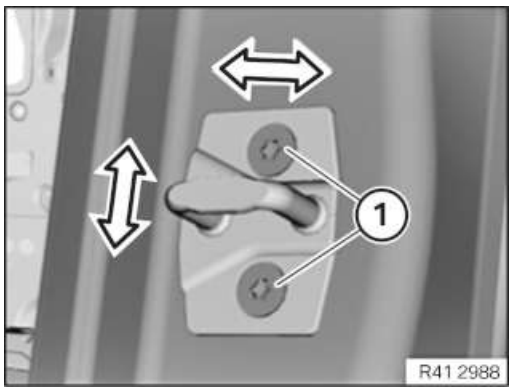
NOTICE

Description is for left component only. Procedure on the right side is identical.

1 Adjust lock striker

Prerequisite

The screws on lock striker are loosened so far that the lock striker can still be moved.



TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body

- Adjust the lock striker's height such that the door lock does not bump or rub against anything.
- Move lock striker sideways in order to adjust the gap dimensions between door and rear side panel.
- Tighten the screws (1).

Lock striker

Screw		Tightening torque	21 Nm

Additional Information

Overview of Tightening Torques

Lock striker			Used in step 1
Screw		Tightening torque	21 Nm

Links

Repair instructions (PRE)	**Used in step**
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1

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Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	1
Gap dimensions, body	
Gap dimensions, body	
Gap dimensions, body	

Repair instructions	**Used in step**
41 00 ... Gap dimensions, body	1

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51 21 280 Remove and install/replace door stop of the front left or front right door

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

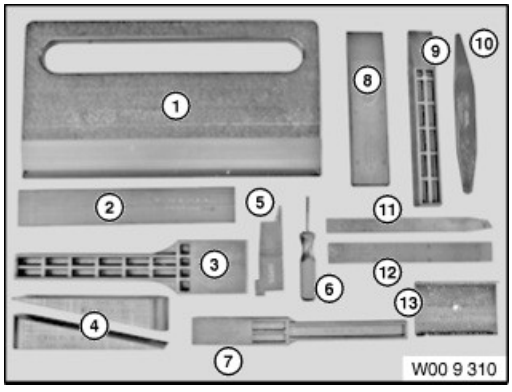
2 – Remove front door trim panel

RISK OF DAMAGE

Damage of high-quality surfaces.

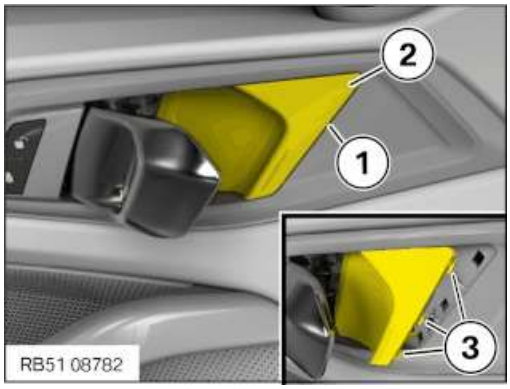
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

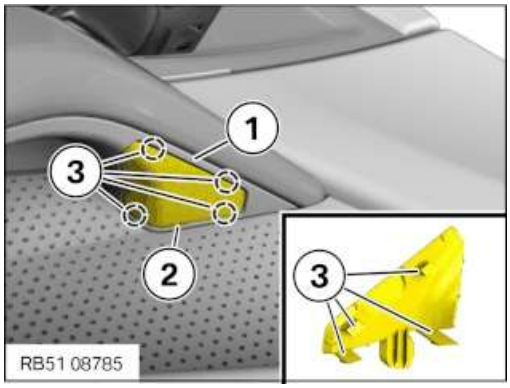


- Have the set of special tools 0 493 752 (00 9 329) ready.

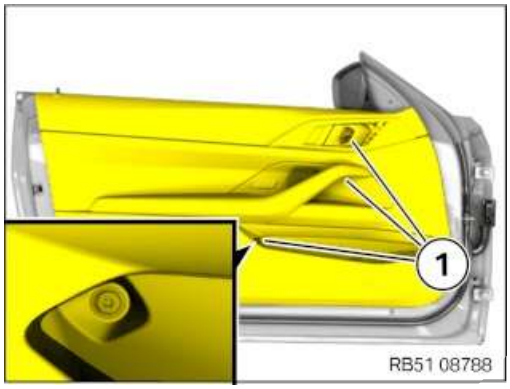
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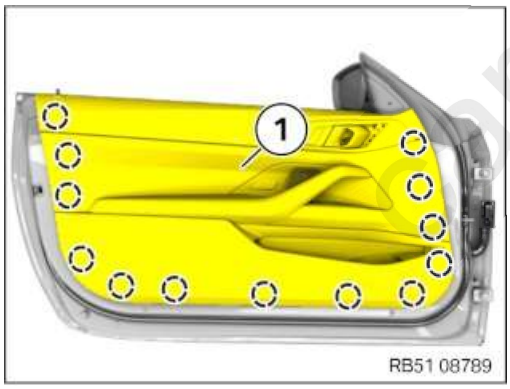
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



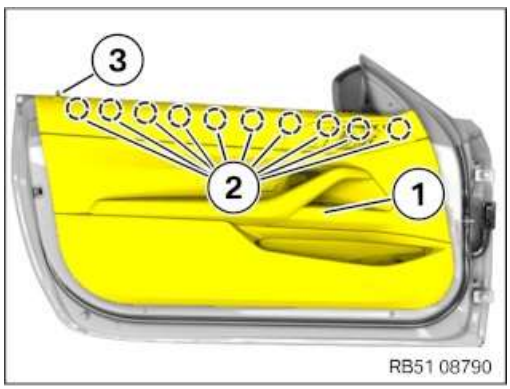
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.



- Loosen screws (1).

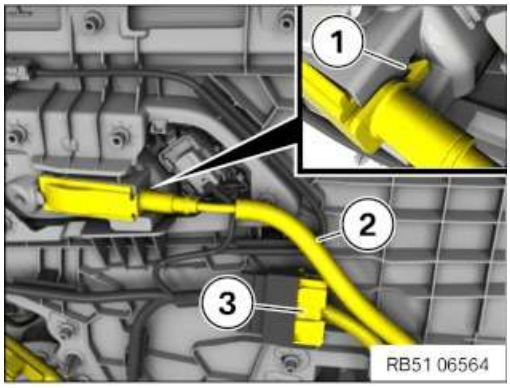


- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

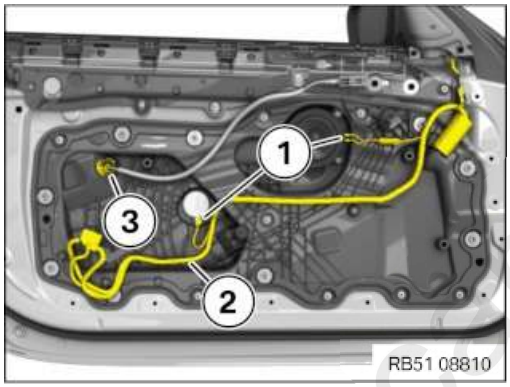
  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

3 – Disconnecting all battery earth leads

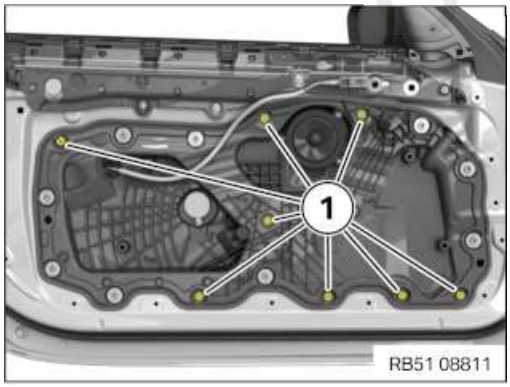


- See additional information.

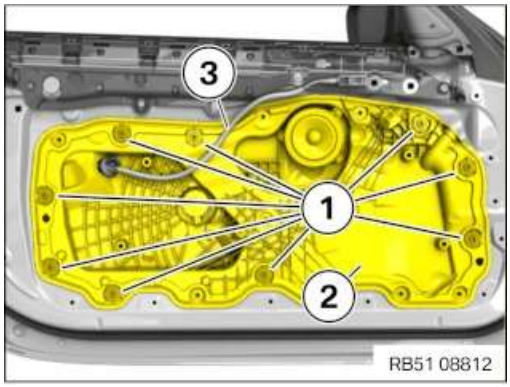
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).

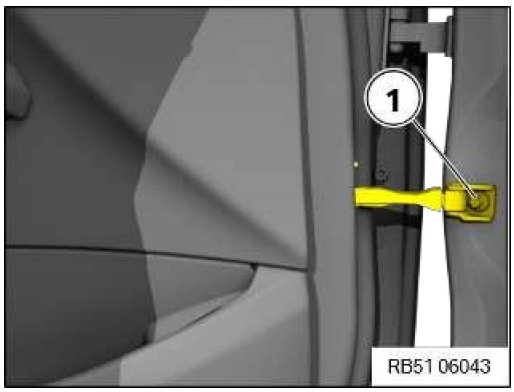


- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

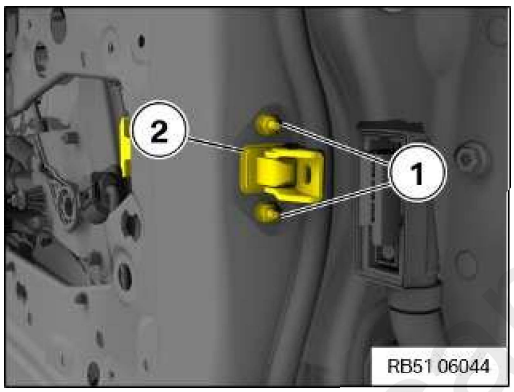
  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

MAIN WORK

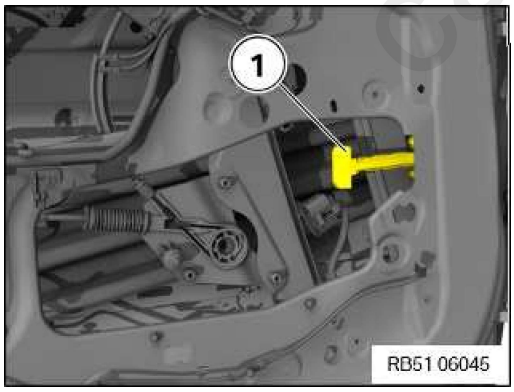
5 – Remove the door brake of the front door



- Loosen screw (1).



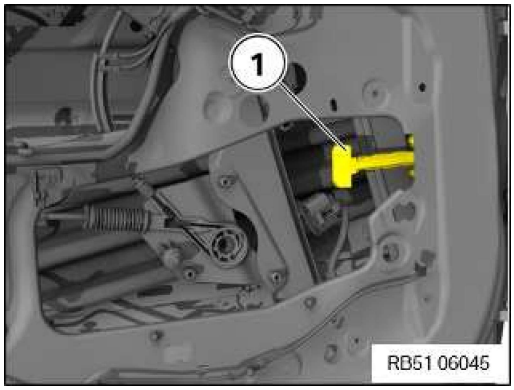
- Loosen nuts (1).
- Loosen cover (2).



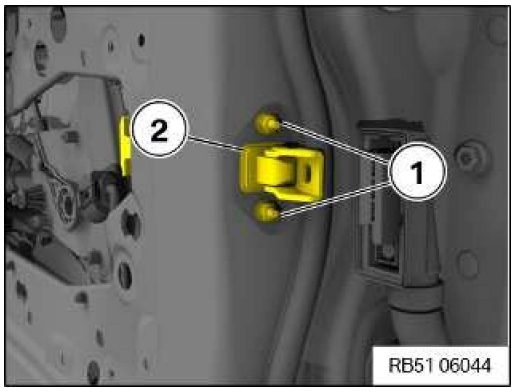
- Remove the door brake of front door (1) through the aperture in the door.

6 – Installing the door brake of the front door

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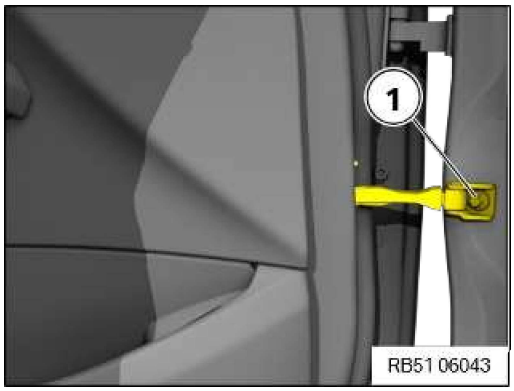
- Install the door brake of front door (1) through the aperture in the door.



- Install the cover (2).
- Tighten nuts (1).

Door retainer to door

Hexagon nut		Tightening torque	8 Nm



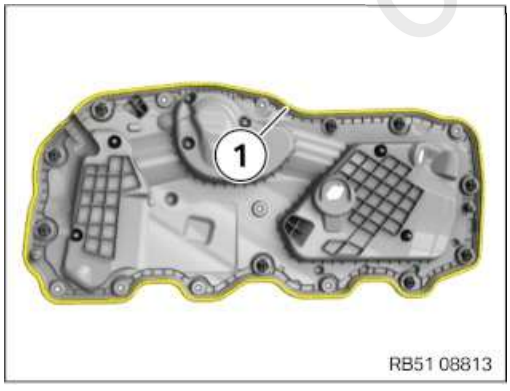
- Tighten down screw (1).

Door stop to pillar

Screw		Tightening torque	28 Nm

POSTPROCESSES

7 – Installing the module carrier on the front door



Check

- Check the seal (1) of the module carrier on the front door for damage.

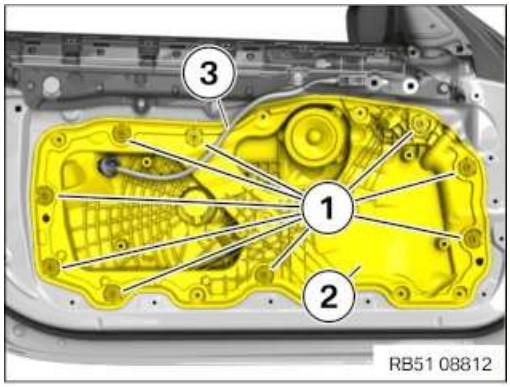
Result

» Seal (1) is damaged.

Measure

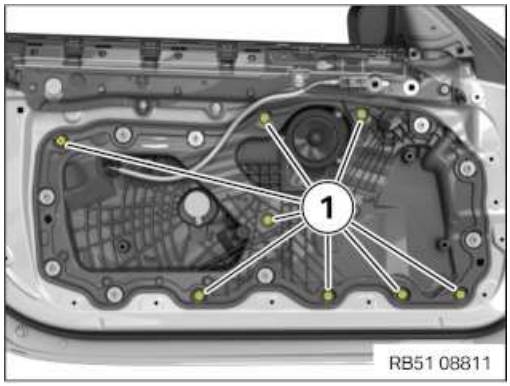
- Renew the module carrier on the front door.

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- Position the module carrier on the front door (2).

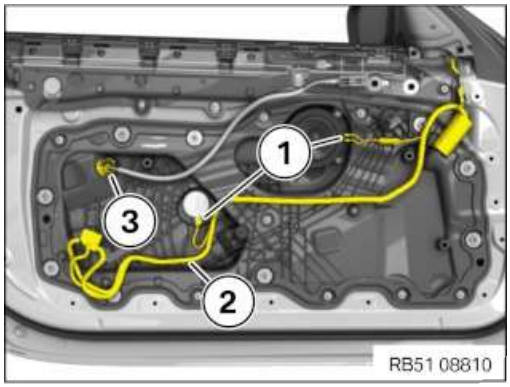
  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

Module carrier to the front door

Oval-head screwM6		Tightening torque	9 Nm



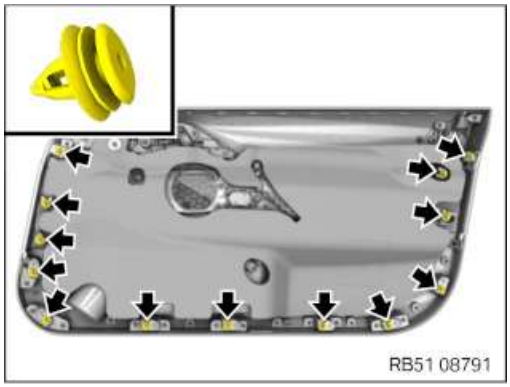
- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

8 – Connecting all battery earth leads



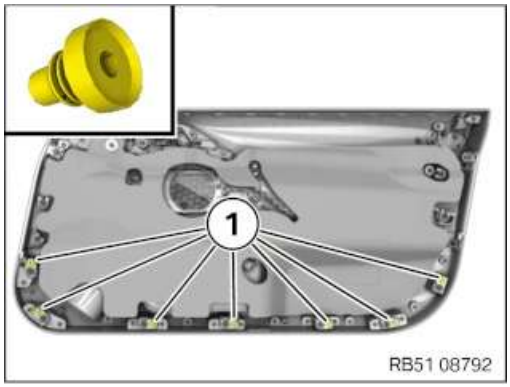
- See additional information.

9 – Install front door trim panel

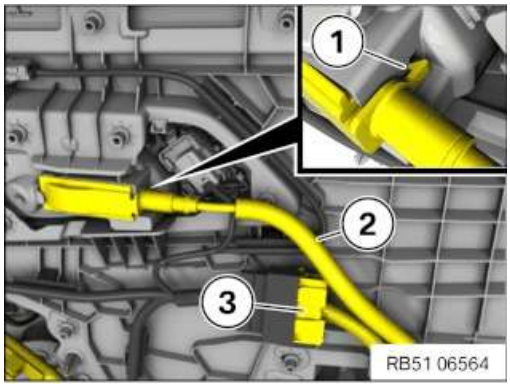


- Check clips (arrows) for damage and, if necessary, renew them.

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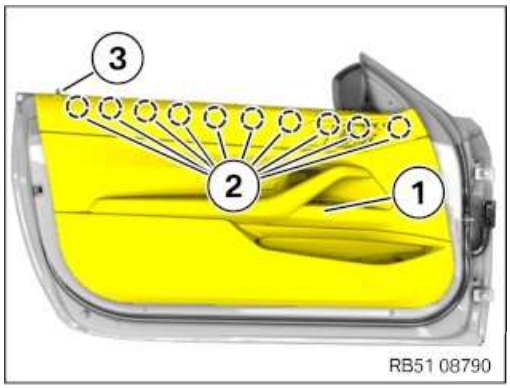
- Check the stop pad (1) for damage, renew if necessary.



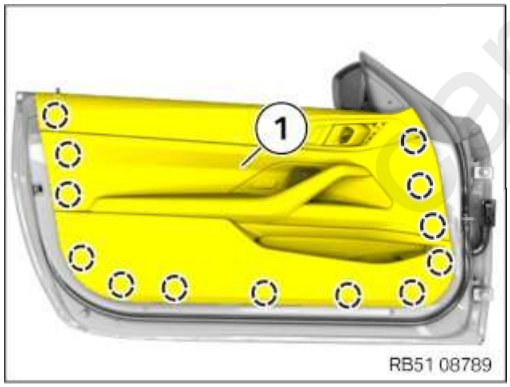
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

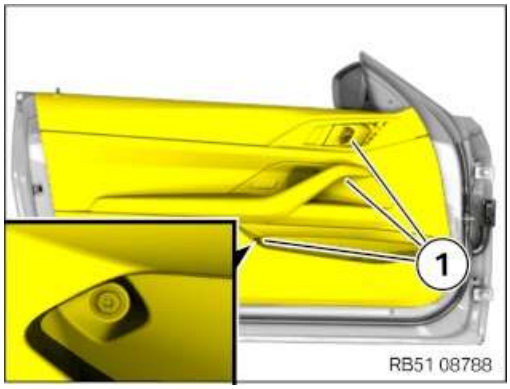
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.



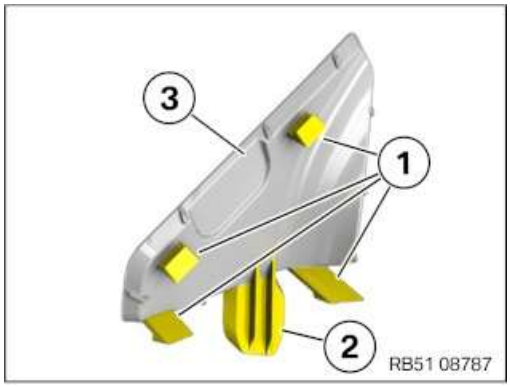
- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check

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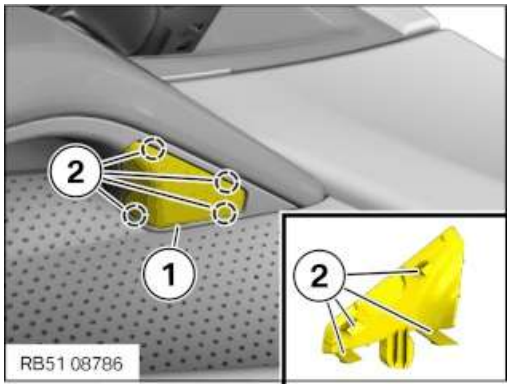
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

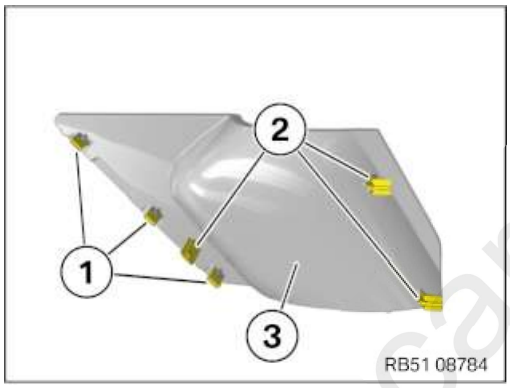
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

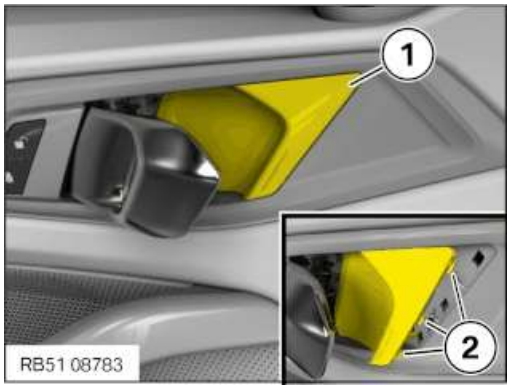


Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

10 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

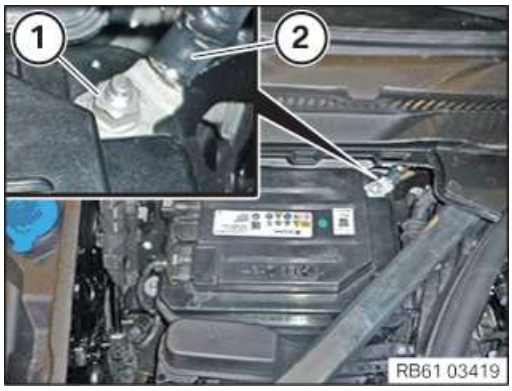
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

Door retainer to door			Used in step 6
Hexagon nut		Tightening torque	8 Nm

Door stop to pillar			Used in step 6
Screw		Tightening torque	28 Nm

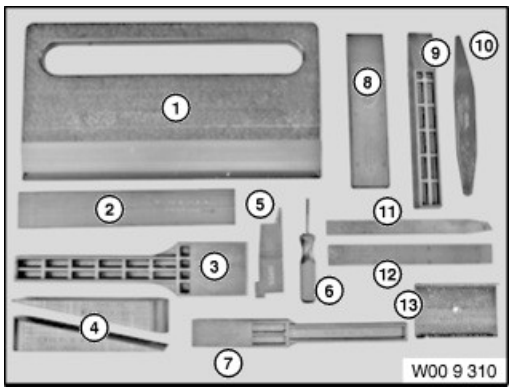
Module carrier to the front door			Used in step 7
Oval-head screwM6		Tightening torque	9 Nm

Door trim panel			Used in step 9
Oval-head screw		Tightening torque	3 Nm

Negative battery cable to 48-V battery			Used in step 10
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common		Used in step 2
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.	
Included in the tool or work	0 490 527	
Storage location	Individual	
Replaced by		
In connection with		
SI-Number	01 07 09 (530)	

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	110

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
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61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	38
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	38
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61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	38
61 20 900 Disconnecting and connecting battery earth lead	38

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61 20 900 Disconnecting and connecting battery earth lead	38
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61 20 900 Disconnecting and connecting battery earth lead	38
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61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	38
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	38
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
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61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38

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51 21 235 Removing and installing/replacing the Bowden cable for the inside door opener on the left or right front door

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

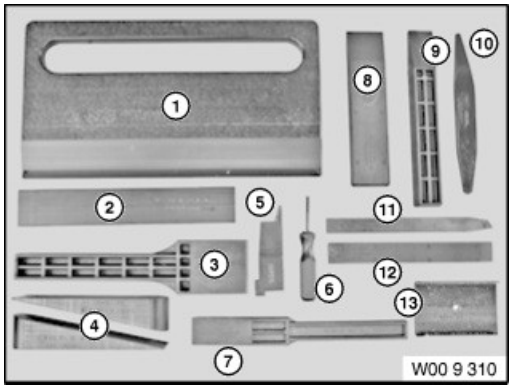
2 – Remove front door trim panel

RISK OF DAMAGE

Damage of high-quality surfaces.

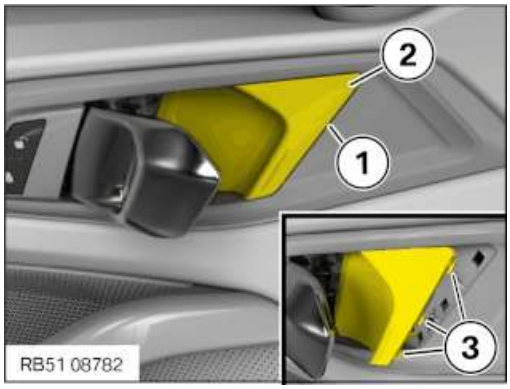
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

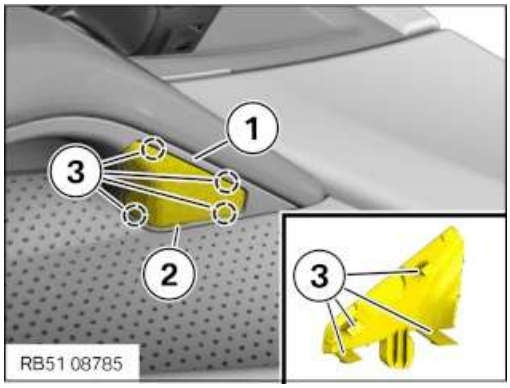


- Have the set of special tools 0 493 752 (00 9 329) ready.

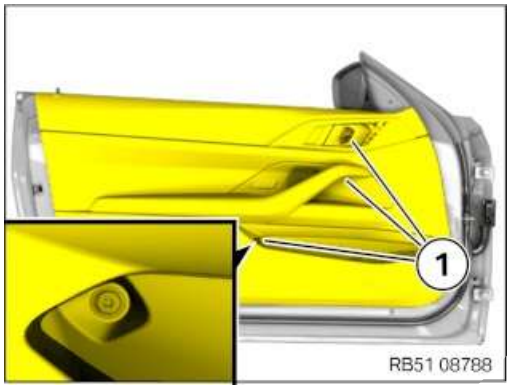
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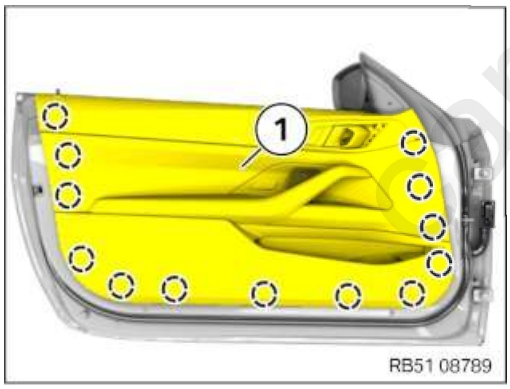
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



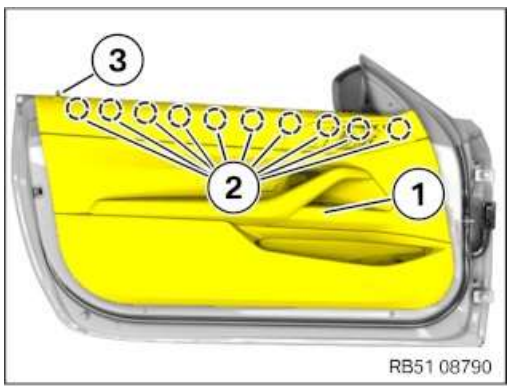
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.



- Loosen screws (1).

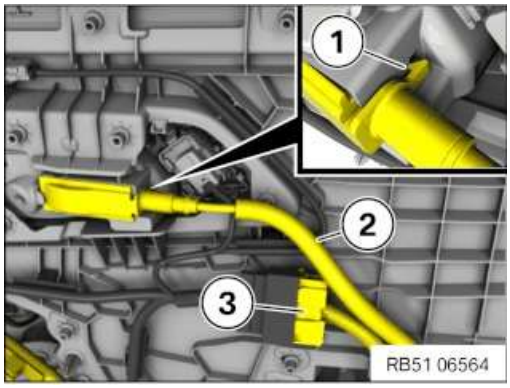


- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

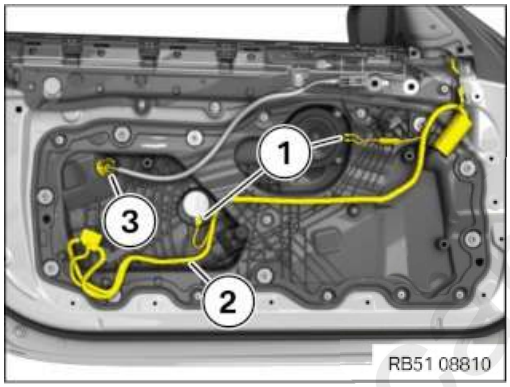
  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

3 – Disconnecting all battery earth leads

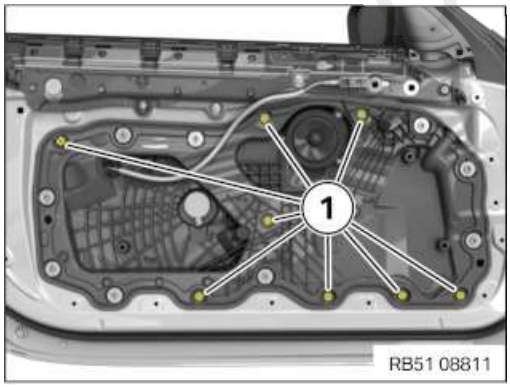


- See additional information.

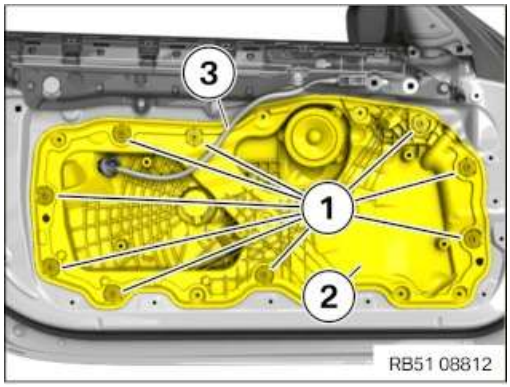
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).



- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

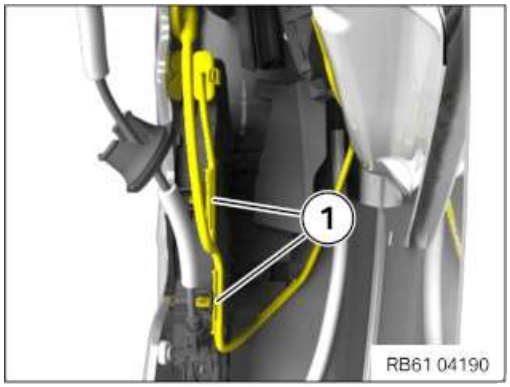
  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

MAIN WORK

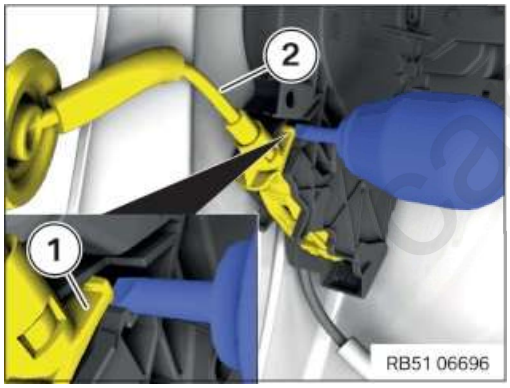
5 – Remove Bowden cable for the inside door opener

NOTICE

To provide a better overview: Illustration of surrounding parts in removed state.



- Unclip clips (1) and place wiring harness aside.



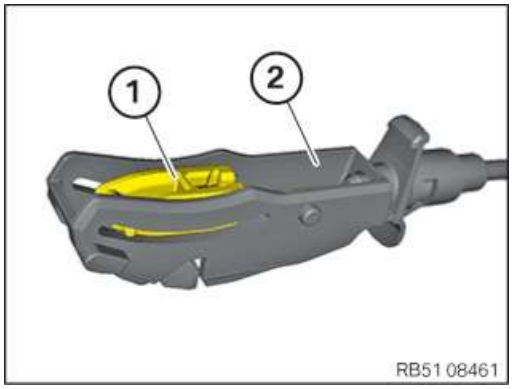
- Unclip clip (1) with a suitable tool.
- Remove the Bowden cable (2) from the door lock.

6 – Install the Bowden cable for the inside door opener

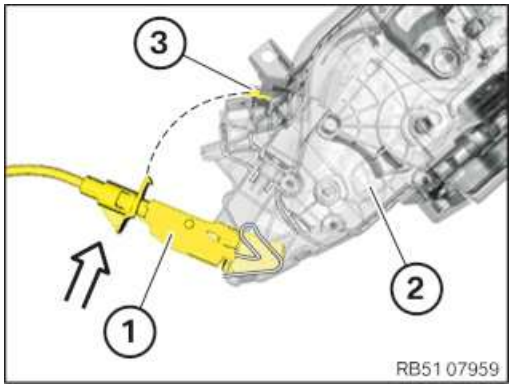
NOTICE

To provide a better overview: Illustration of surrounding parts in removed state.

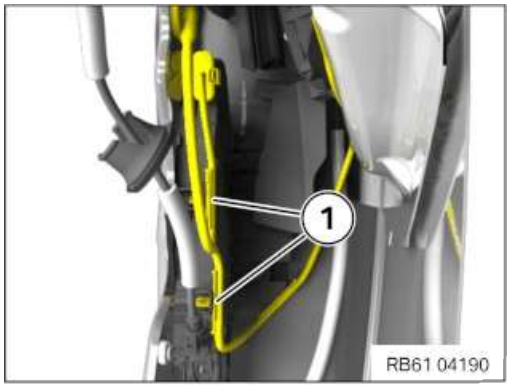
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- Before installing the Bowden cable, make sure that the drawbar eye (1) is located in front of Bowden cable bracket (2) as shown.



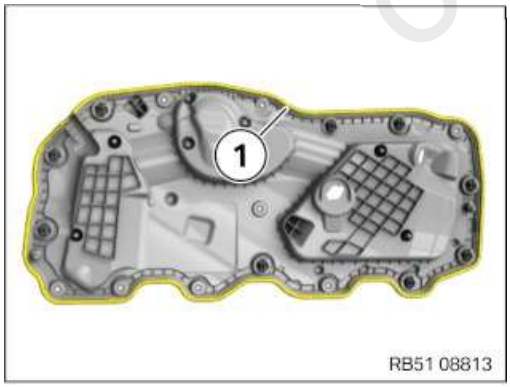
- Feed in the Bowden cable (1) to the door lock (2) as shown.
- Turn the Bowden cable (1) in the direction of arrow a little further in an upwards direction.
- Lock the Bowden cable (1) with an easy lift on the retaining lug (3).



- Clip in the wiring harness using clips (1).

POSTPROCESSES

7 – Installing the module carrier on the front door



Check

- Check the seal (1) of the module carrier on the front door for damage.

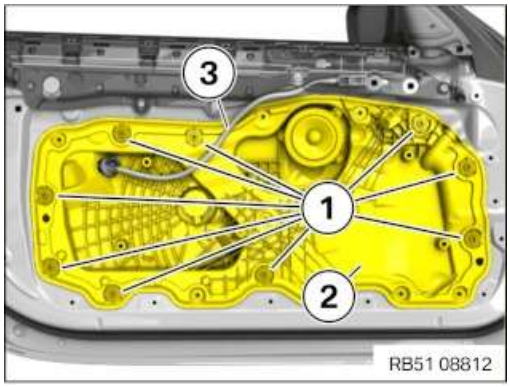
Result

» Seal (1) is damaged.

Measure

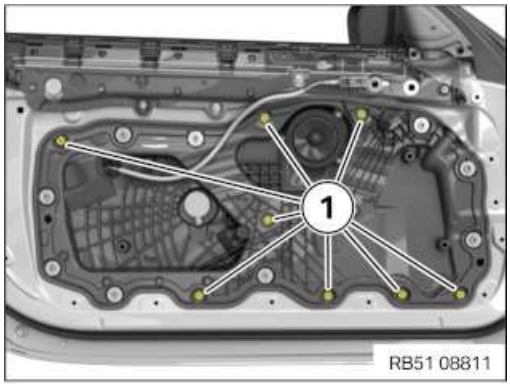
- Renew the module carrier on the front door.

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- Position the module carrier on the front door (2).

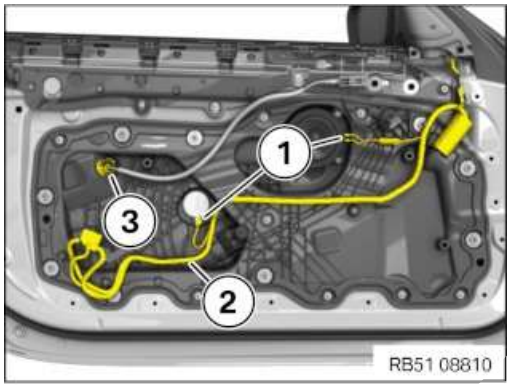
  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

Module carrier to the front door

Oval-head screwM6		Tightening torque	9 Nm



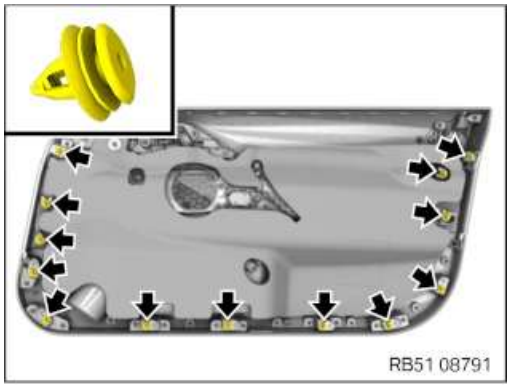
- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

8 – Connecting all battery earth leads



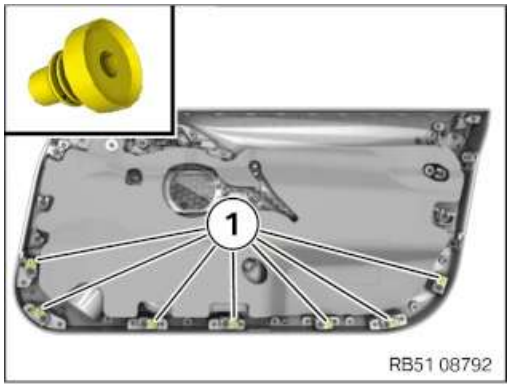
- See additional information.

9 – Install front door trim panel

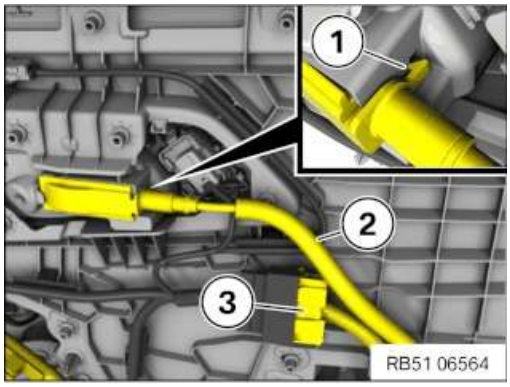


- Check clips (arrows) for damage and, if necessary, renew them.

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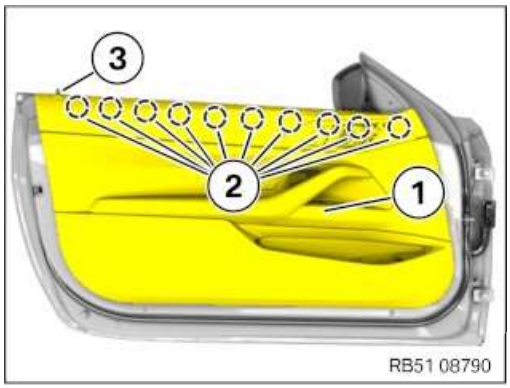
- Check the stop pad (1) for damage, renew if necessary.



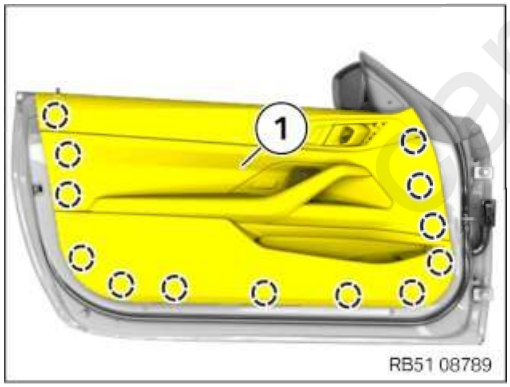
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

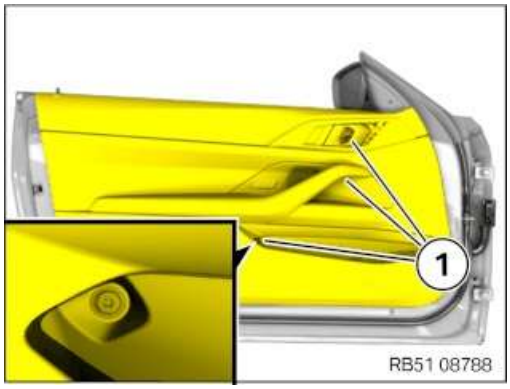
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.



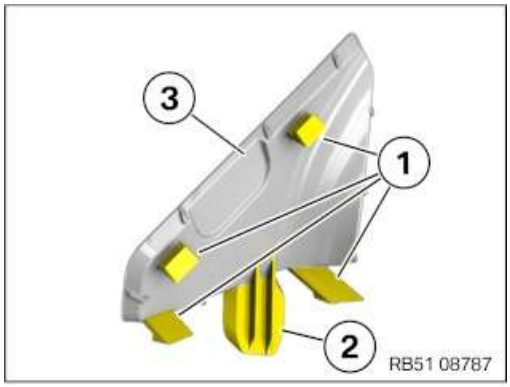
- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check

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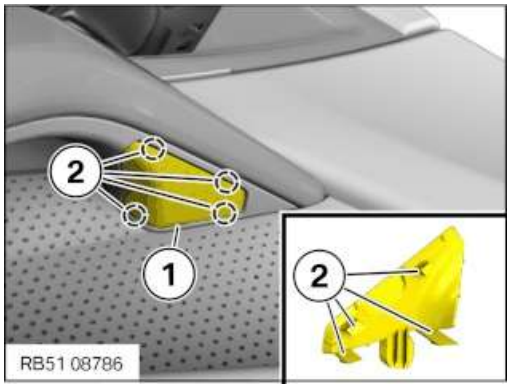
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

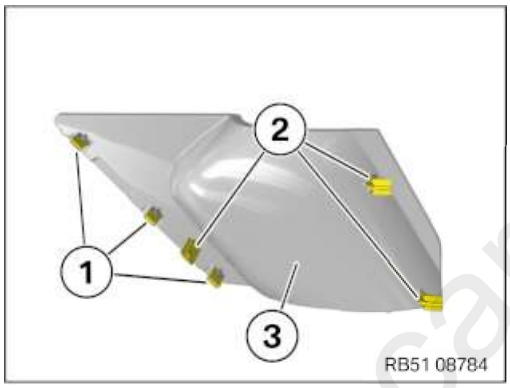
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

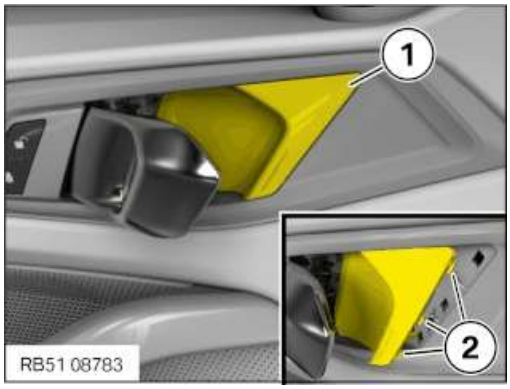


Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

10 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

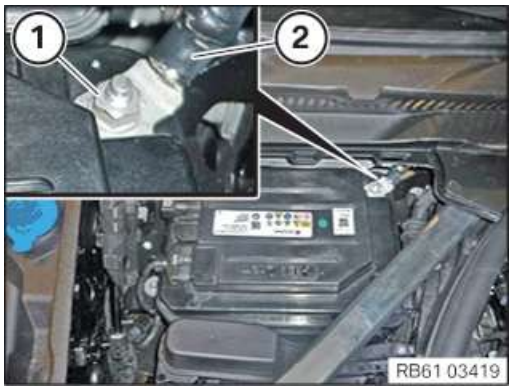
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

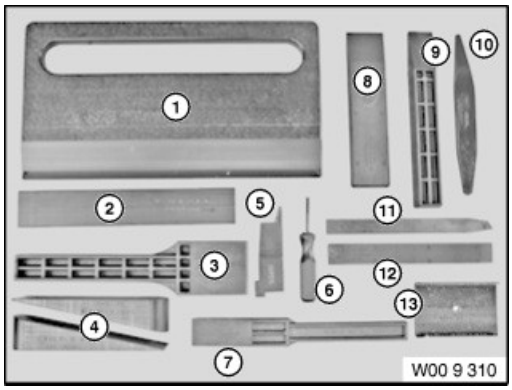
Module carrier to the front door			Used in step 7
Oval-head screwM6		Tightening torque	9 Nm

Door trim panel			Used in step 9
Oval-head screw		Tightening torque	3 Nm

Negative battery cable to 48-V battery			Used in step 10
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 2
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	110

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
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61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	38
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	38
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
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61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38
61 20 900 Disconnecting and connecting battery earth lead	38

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This documentation refers to special tools that were not yet available when going to press.

51 21 233 Removing and installing/replacing the Bowden cable of the outside door handle at the front left or right

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

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RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

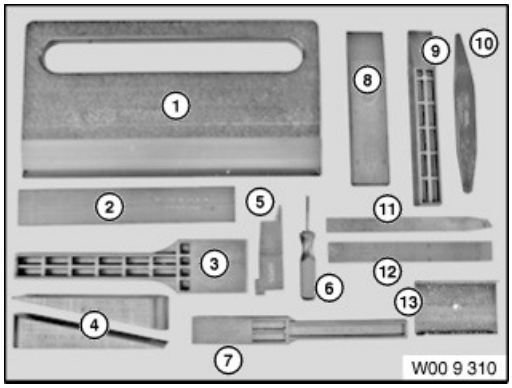
3 – Remove front door trim panel

RISK OF DAMAGE

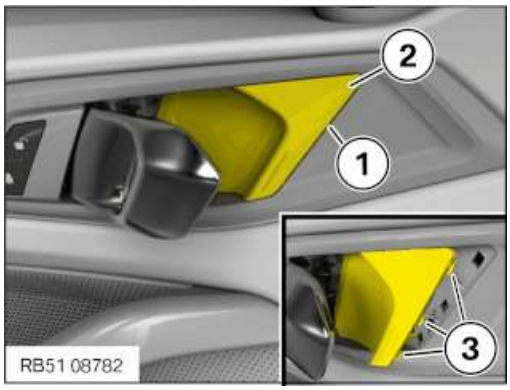
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

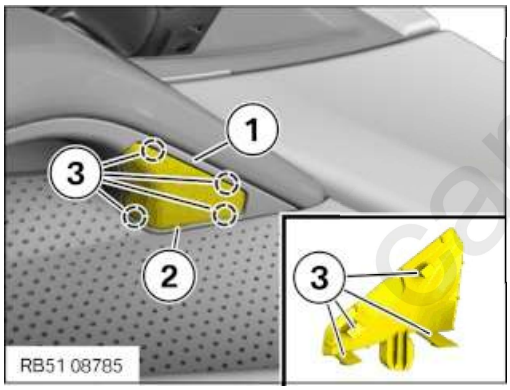
- Protect surfaces from damage.



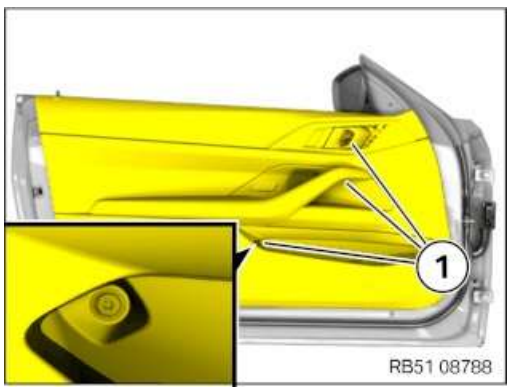
- Have the set of special tools 0 493 752 (00 9 329) ready.



- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.

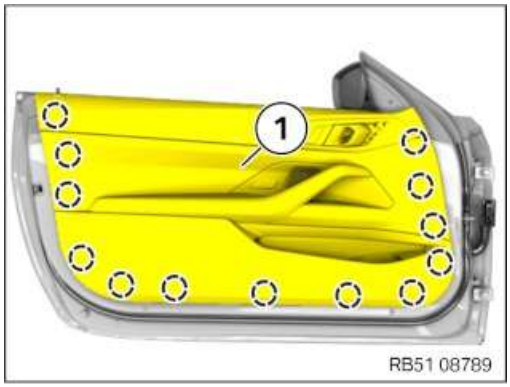


- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

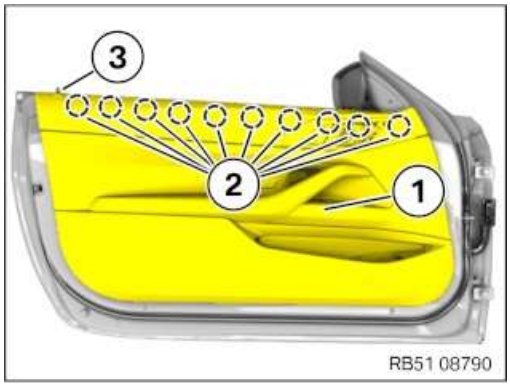


- Loosen screws (1).

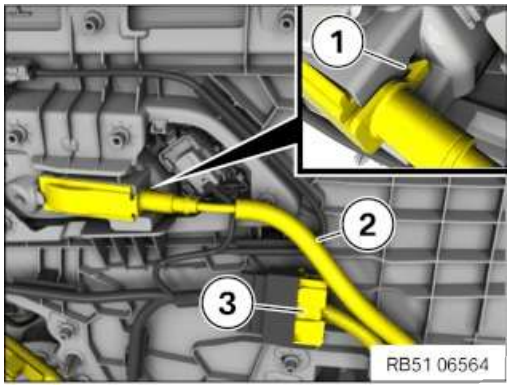
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- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



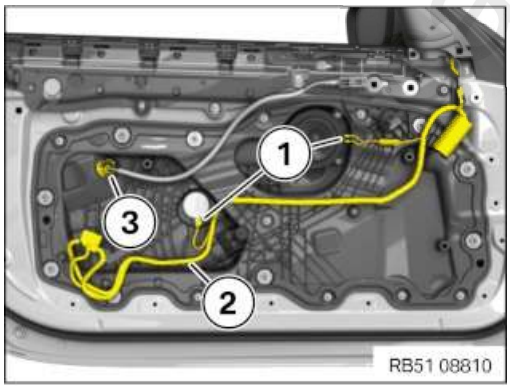
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

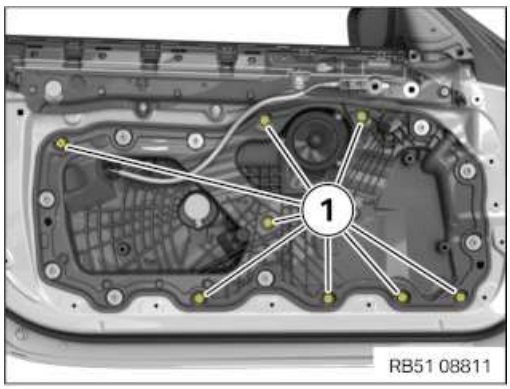
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

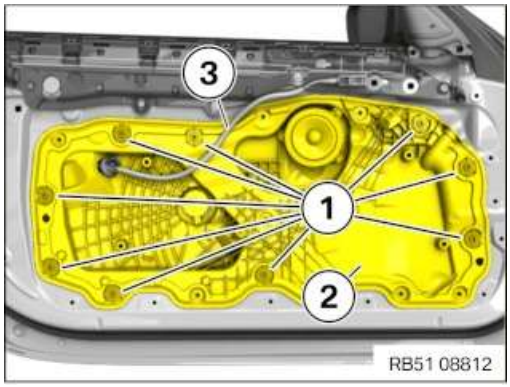
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).



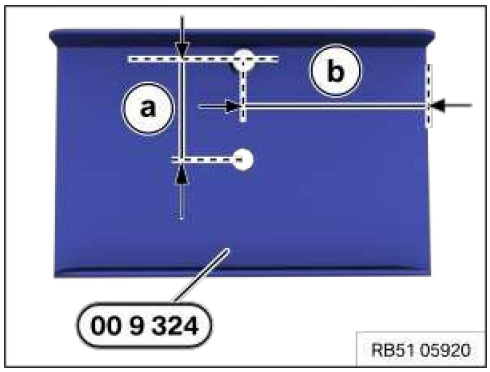
- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

5 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

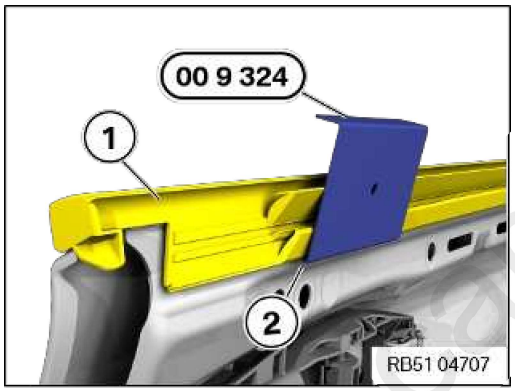
- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

  Dimension (b) = 50 mm from the outer edge of the special tool

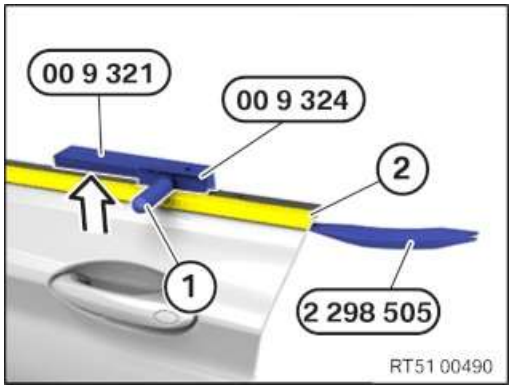


NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

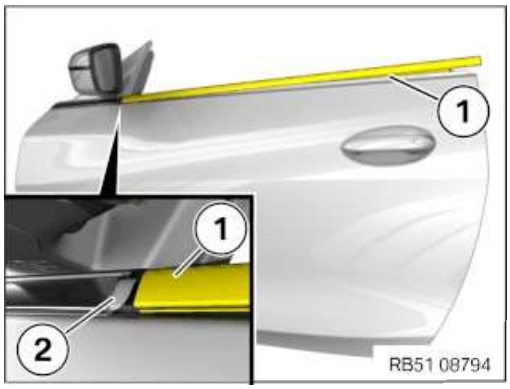
- Protect working area.
- Handle tools and components carefully.

- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.

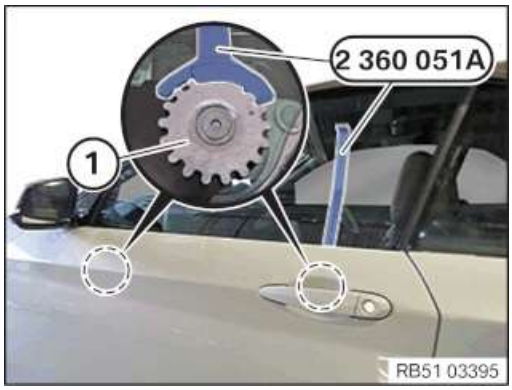


- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

6 – Release door window at front

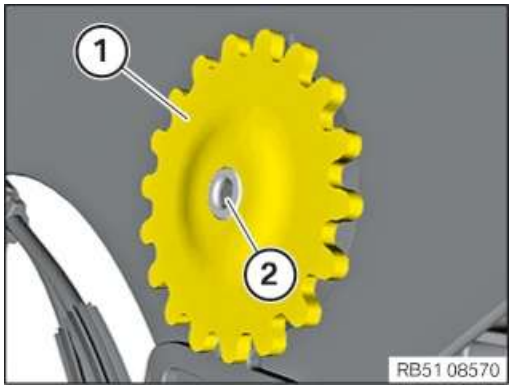
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



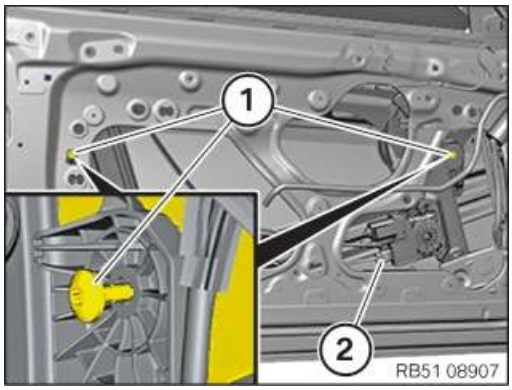
- Undo multi-tooth nuts (1) on side window glass with special tool **A**. (Observe next operation.)

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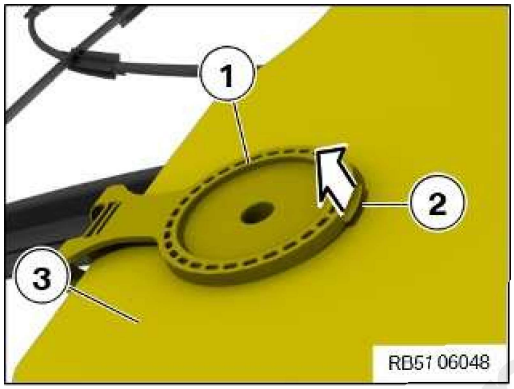


- Only undo the multi-tooth nut (1) to the extent it is flush with the socket (2).
- Lower front door window glass half way.

7 – Removing front door window glass



- Open the front door window glass so that the screws (1) are accessible.
- Unlock plug connection (2) and disconnect.
- Unscrew the screws (1) so far until the disassembly of the front door window glass is possible.

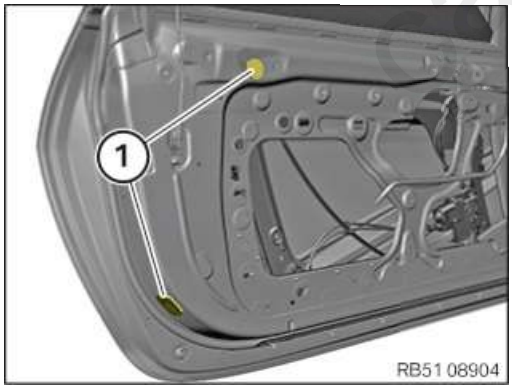


NOTICE

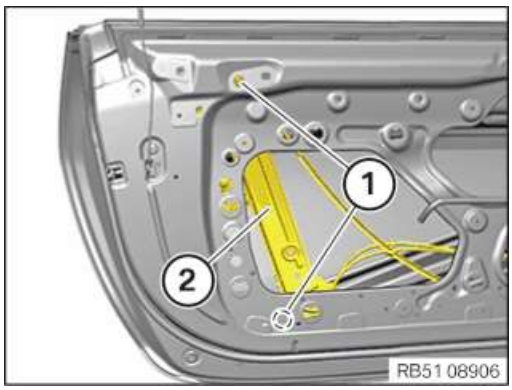
To provide a better overview: Schematic diagram with partially hidden components.

- Lift holder (1) on the tab (2) in the direction of arrow.
- Feed out the front door window glass (3) from the door upwards.

8 – Removing front door power window regulator

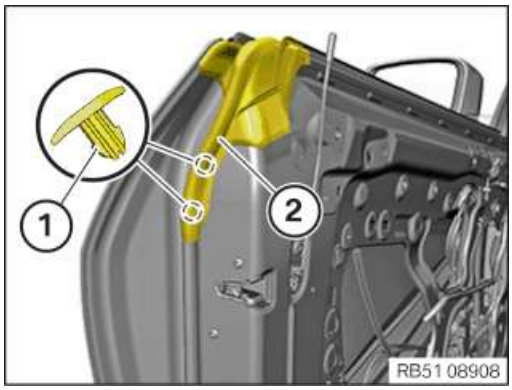


- Remove plug (1).

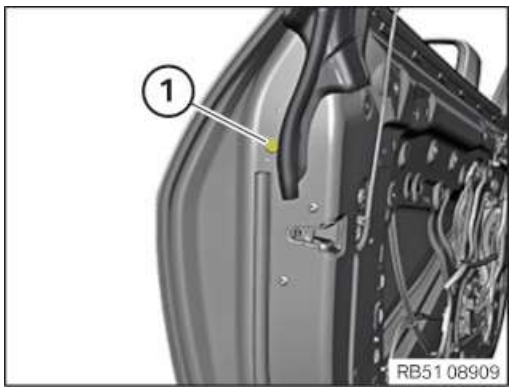


- Release nuts (1).
- Carefully push the power window (2) to the side.

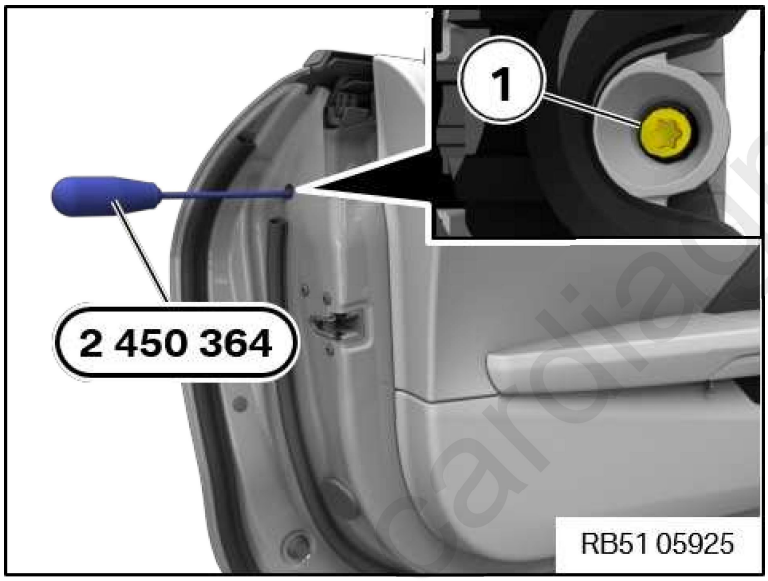
9 – Remove the outside door handle



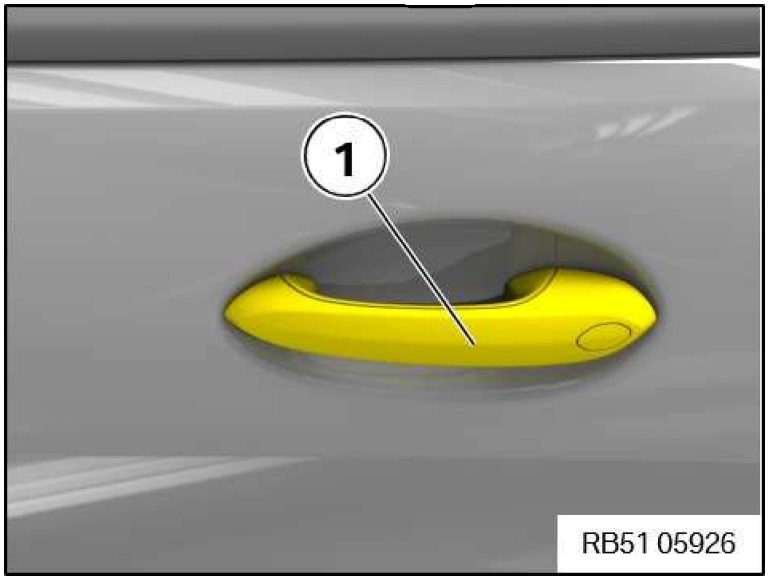
- Release the seal (2) at the clips (1) and move is slightly to the side.



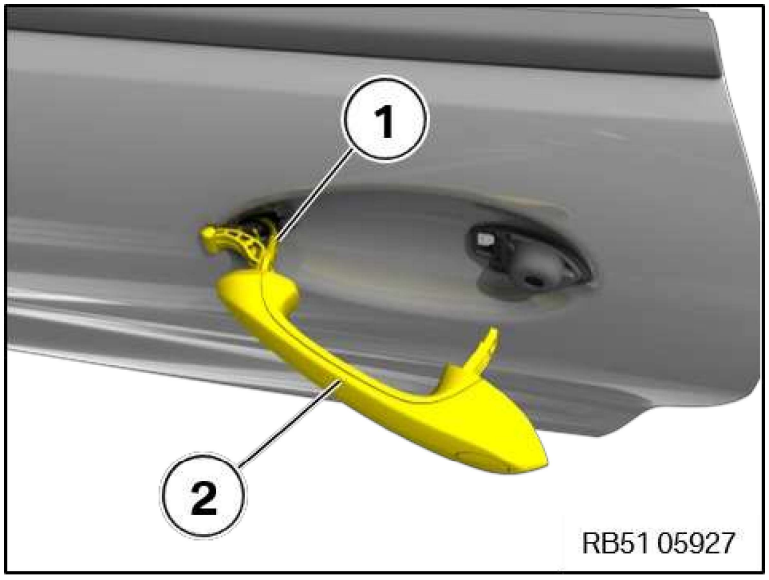
- Remove the seal plug (1).



- Release the clamping bolt (1) from the outside door handle support with the special tool 2 450 364.

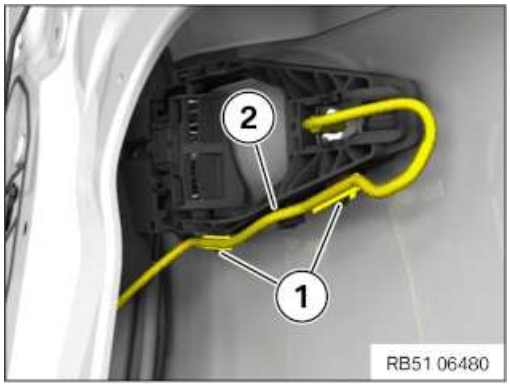


- Pull the rear outside door handle (1) to the outside and remove it in the process.
- Pivot the outside door handle (1) further towards the outside and in this process, remove it at the front.

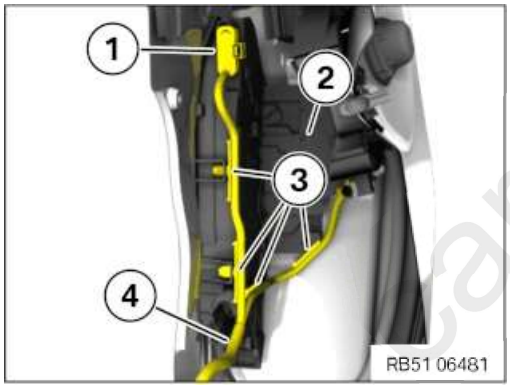


- Unlock and disconnect plug connections (1).
- Remove the outside door handle (2).

10 – Removing the outside door handle support



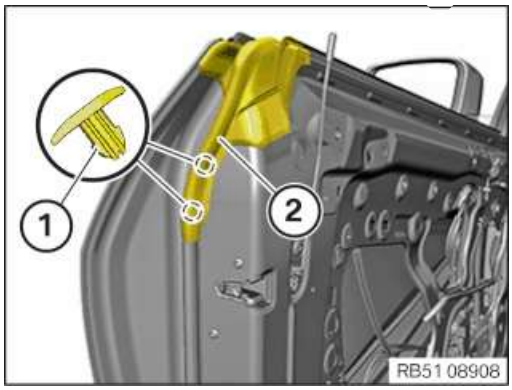
- Unclip clips (1) and place wiring harness (2) aside.



NOTICE

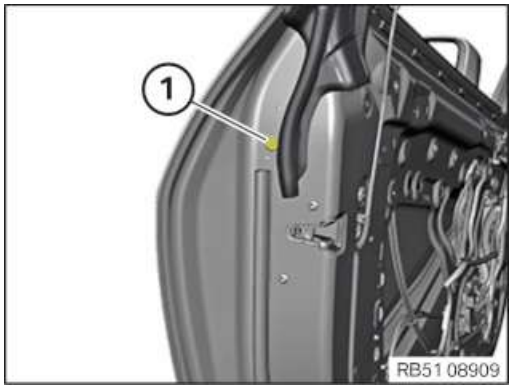
To provide a better overview: Schematic diagram with partially hidden components.

- Unlock and disconnect the plug connection (1)on the door lock (2).
- Unclip clips (3).
- Remove the wiring harness (4) and put to one side.

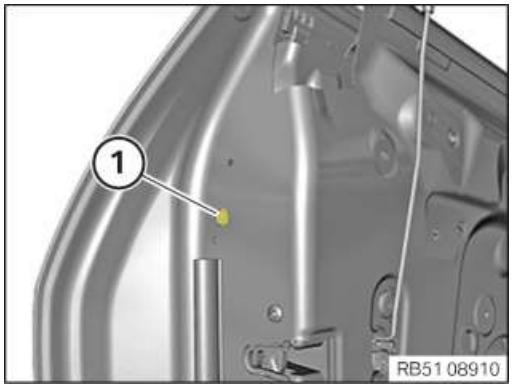


- Release the seal (2) at the clips (1) and move is slightly to the side.

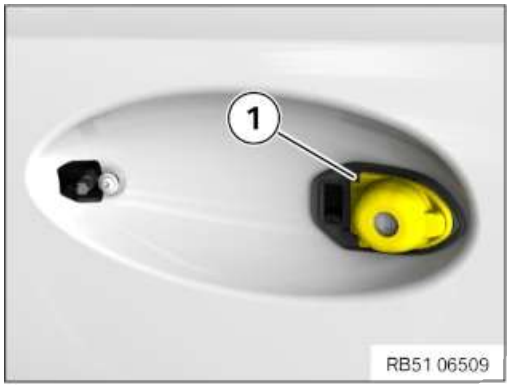
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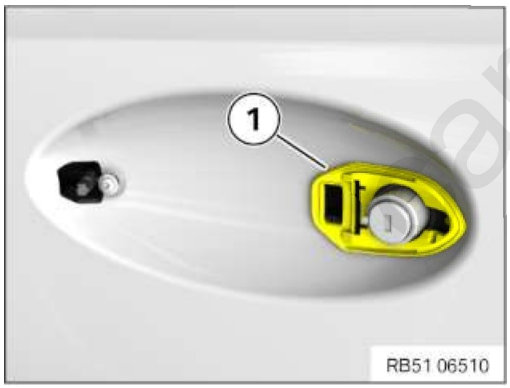
- Remove the seal plug (1).



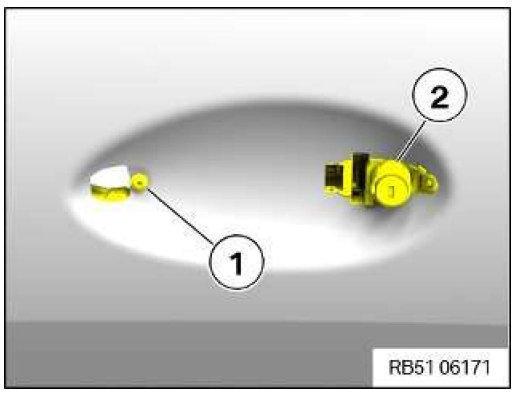
- Loosen screw (1).



- Remove the cover (1).

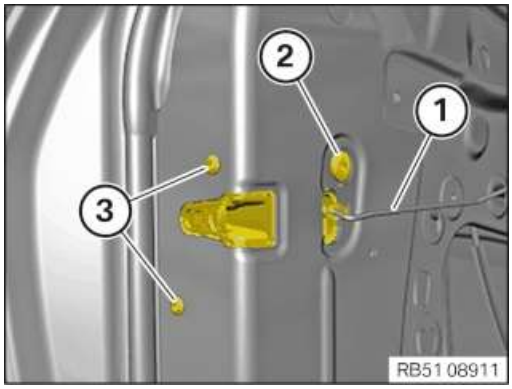


- Remove seal (1) for the outside door handle.

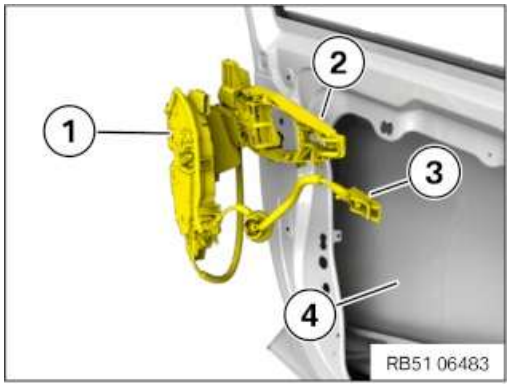


- Loosen screw (1).
- Slide the outside door handle support (2) forward and thread out to the inside.

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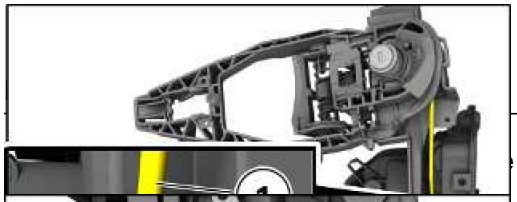


- Unclip locking rod (1).
- Release the screws (2) and (3).



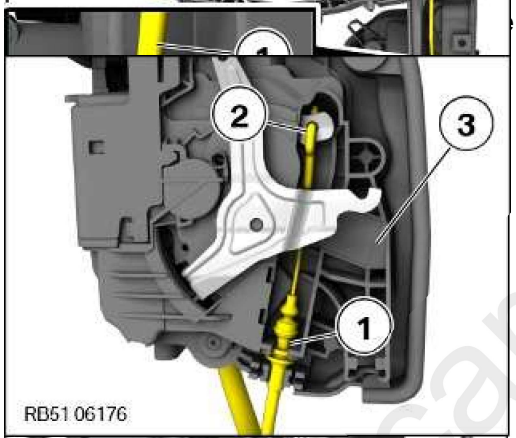
- Feed out the door lock (1) along with the outside door handle support (2) and the Bowden cable for inner door handle (3) from the door(4) .

  Make sure that the seal of door lock (1) is not damaged.

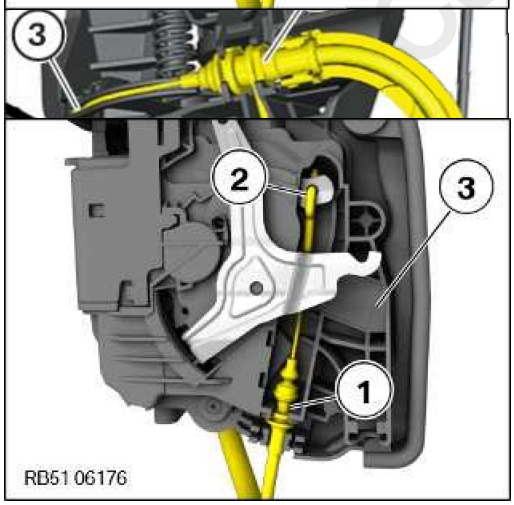


- Detach the linkage (1) from the door lock (2).

door handle



- Unclip the Bowden cable (1) on the door lock (3).
- Detach the Bowden cable nipple (2) on the door lock (3).
- Lift tab (1) over the latch mechanisms and turn upwards.
- Detach the Bowden cable (2) for the outside door handle.
- Detach the Bowden cable nipple (3).



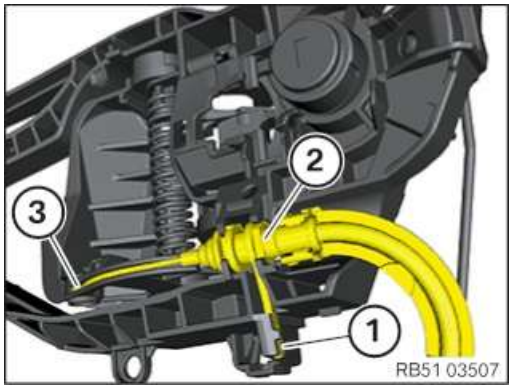
- Renew the Bowden cable.

  Parts: Bowden cable
- Hook the Bowden cable nipple (2) of the Bowden cable (1) onto the door lock (3).
- Clip Bowden cable (1) into door lock (3).

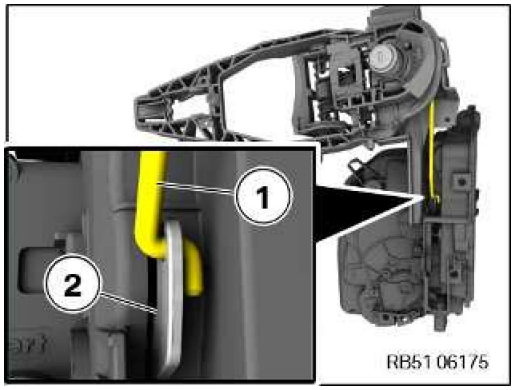
POSTPROCESSES

12 – Installing the outer door handle support

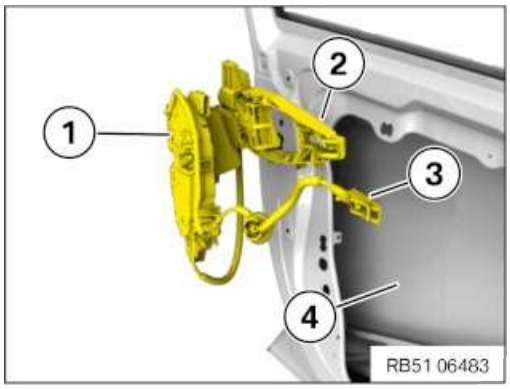
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- Hook the Bowden cable nipple (3) of the Bowden cable (2).
- Hook the new Bowden cable (2).
- Twist and engage the tab (1).

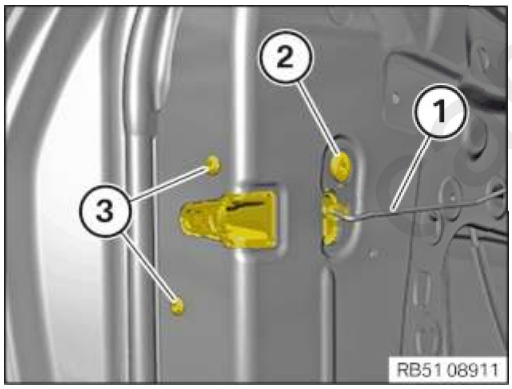


- Attach the linkage (1) in the door lock (2).



- Feed in the door lock (1) along with the outside door handle support (2) and the Bowden cable (3) for the inner door handle into the door (4).

  Make sure that the seal of door lock (1) is not damaged.



- Screw in screws (2) and (3) a few turns.
- Tighten the screws (3).

Door lock to door

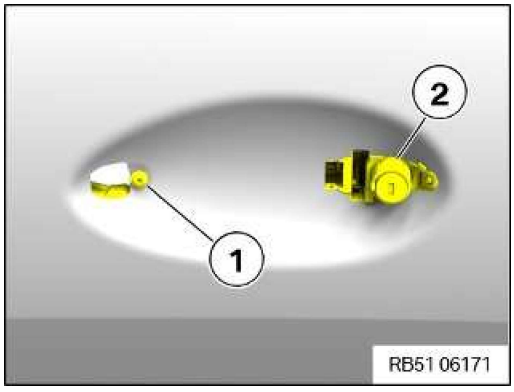
Screw		Tightening torque	8,8 Nm

- Tighten down screw (2).

Door lock to door

Screw		Tightening torque	8,8 Nm

- Clip in locking rod (1).

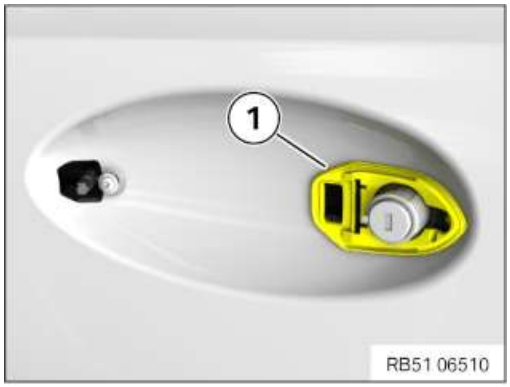


- Feed in outside door handle support (2) and position correctly.
- Tighten down screw (1).

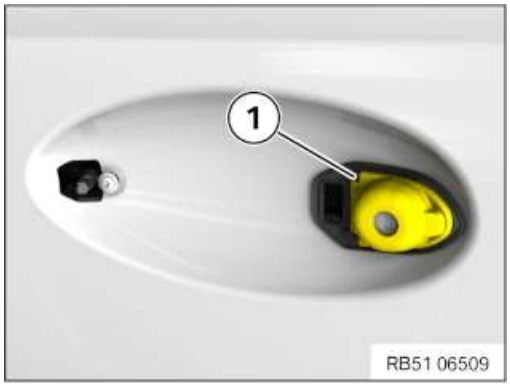
Outside door handle support to door

Screw		Tightening torque	2,6 Nm

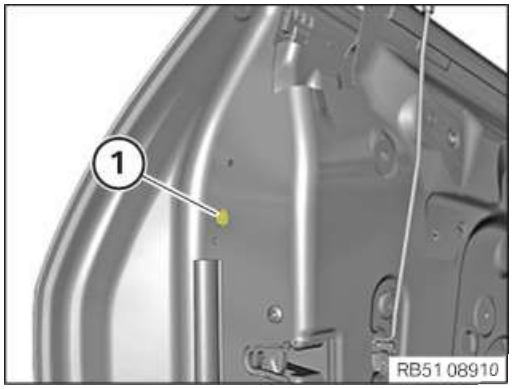
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- Install seal (1) for the outside door handle.



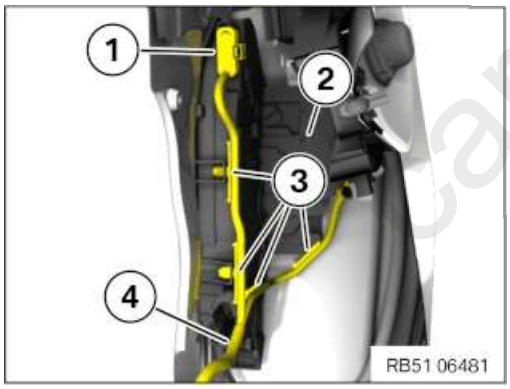
- Install the cover (1) .



- Tighten down screw (1).

Attachment bell to outside door handle support

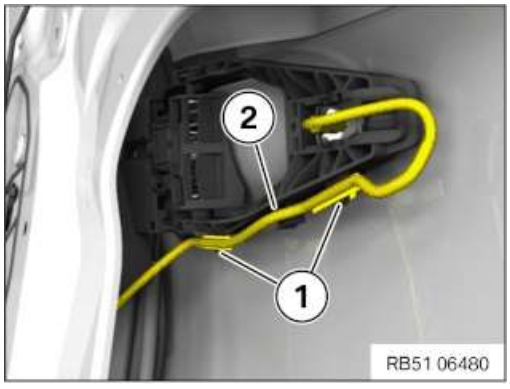
Screw		Tightening torque	3 Nm



NOTICE

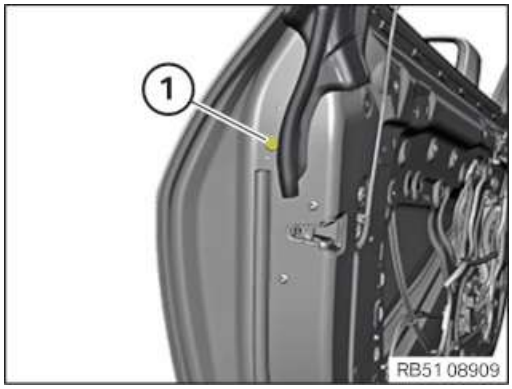
To provide a better overview: Schematic diagram with partially hidden components.

- Insert the wiring harness (4).
- Connect connector (1) at the door lock (2) and lock.
- Clip in clips (3).

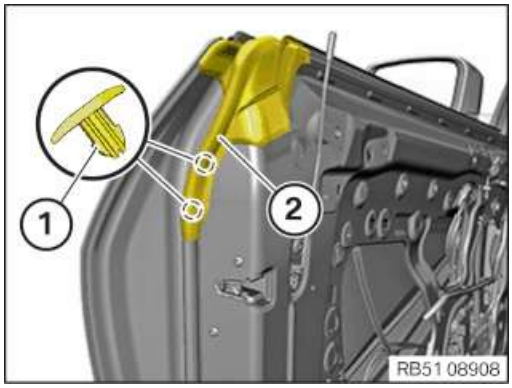


- Route the wiring harness (2) correctly.
- Clip in clips (1).

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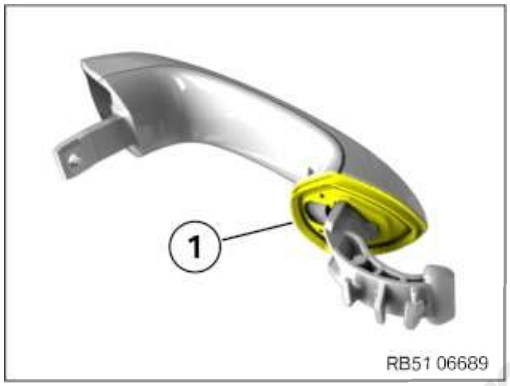


- Install seal plug (1).

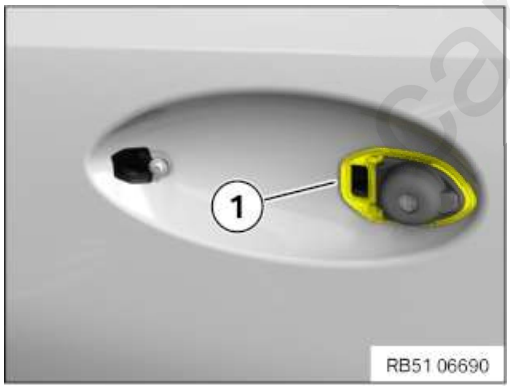


- Secure the seal (2) with the clips (1).

13 – Installing the outside door handle

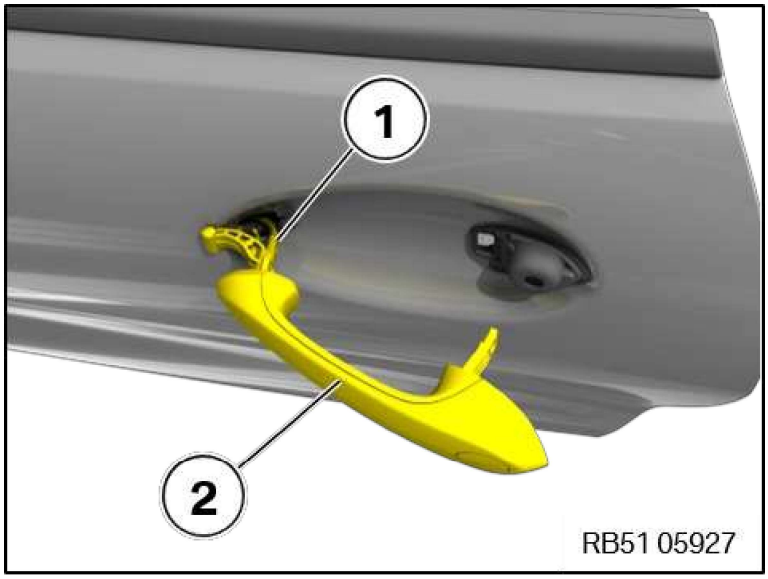


- Check the seal (1) for damage and renew if necessary.

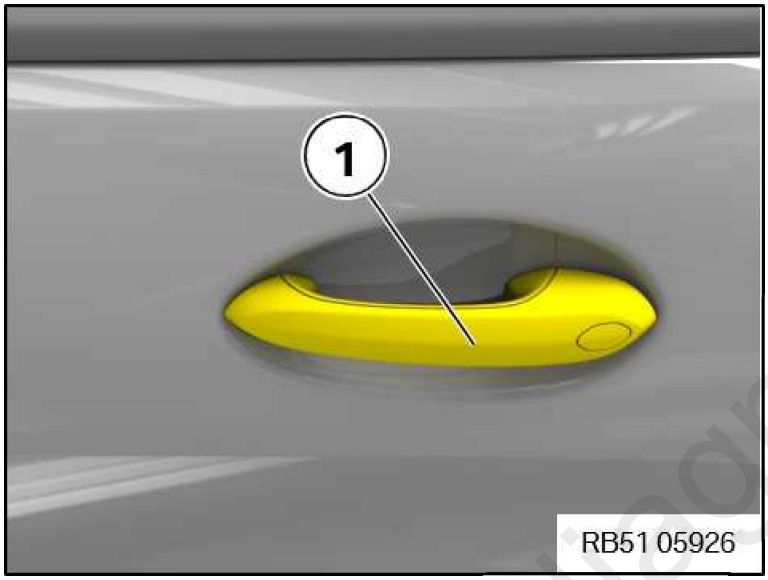


- Check the seal (1) for damage and renew if necessary.

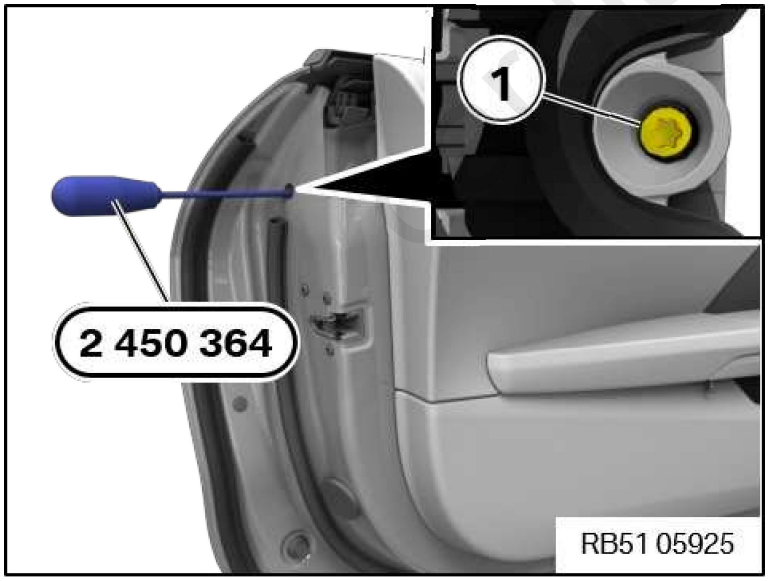
carsdiagn.com



- Insert the front outside door handle (2).
- Connect connectors (1) and lock.



- Insert the rear outside door handle (1).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

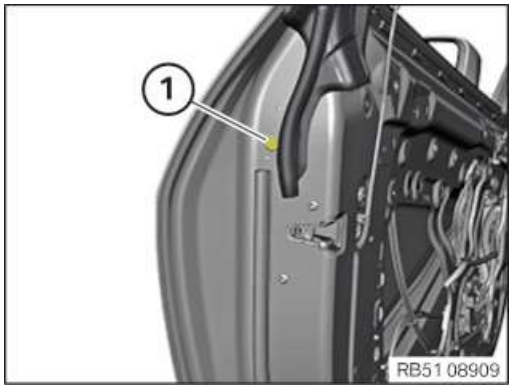
- Tighten the clamping bolt (1) on the outside door handle support with the special tool 2 450 364.

Clamping bolt for door handle

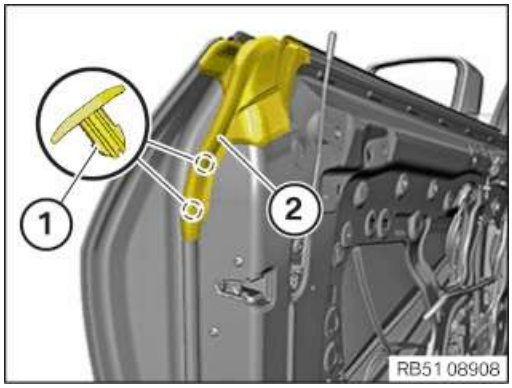
Screw		Tightening torque	2 Nm

Outer door handle to door

Clamping bolt		Tightening torque	3 Nm

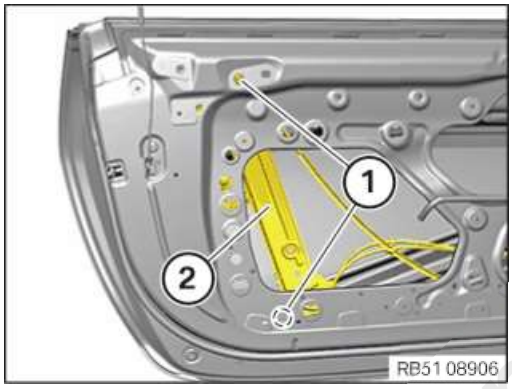


- Install seal plug (1).



- Fasten the seal (2) with the clips (1).

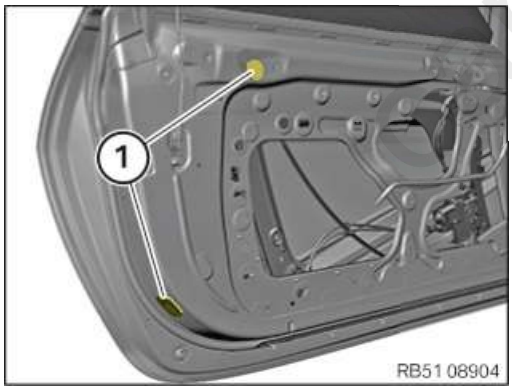
14 – Partially installing the window regulator of the front door



- Correctly position the window regulator (2).
- Tighten nuts (1).

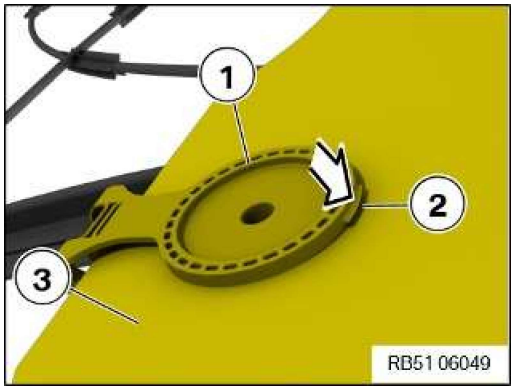
Power window regulator to inner door panel

M6		9,5 Nm



- Install the plug (1).

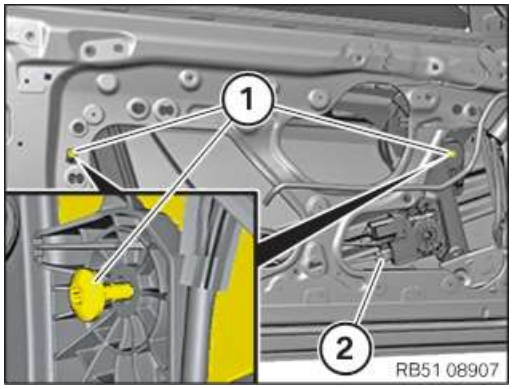
15 – Installing front door window glass



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Insert door window glass front (3) from the top.
- Press holder (1) on the tab (2) in direction of arrow and lock.



- Screw in the screws (1) and tighten them.

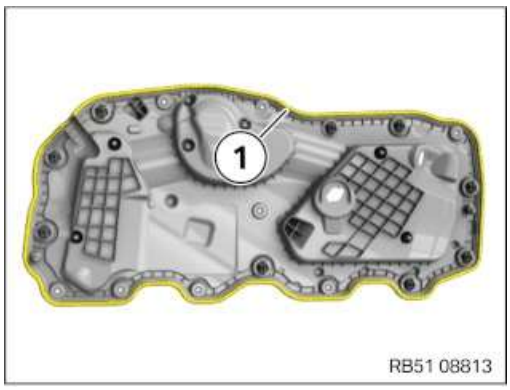
  In this process, counter support the multi-tooth nuts of the electric window.

Door window glass to power window regulator

Screw		Tightening torque	0.25 Nm

- Connect connectors (2) and lock.

16 – Installing the module carrier on the front door



Check

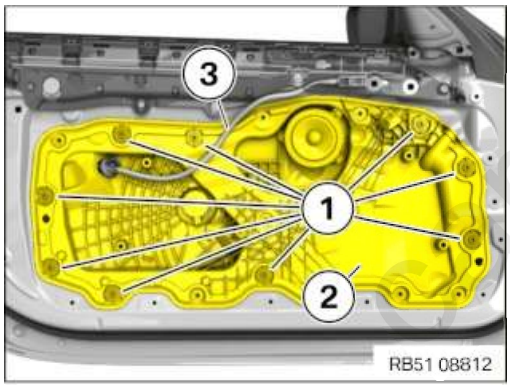
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

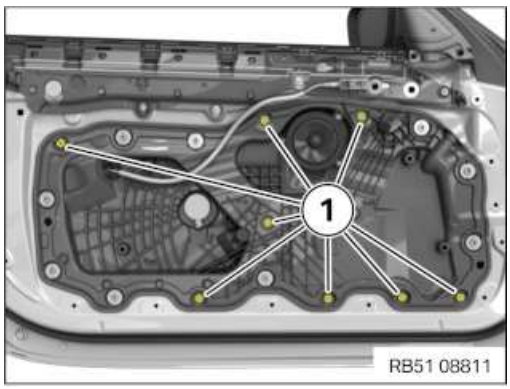
Measure

- Renew the module carrier on the front door.



- Position the module carrier on the front door (2).

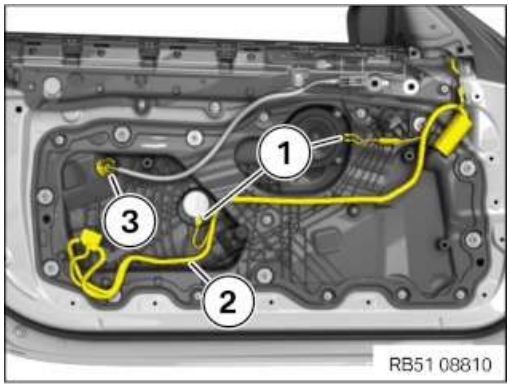
  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

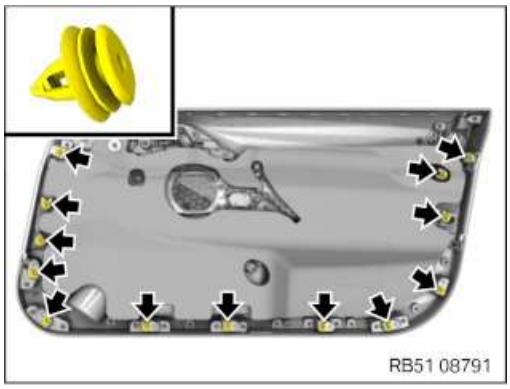
Module carrier to the front door

Oval-head screwM6		Tightening torque	9 Nm

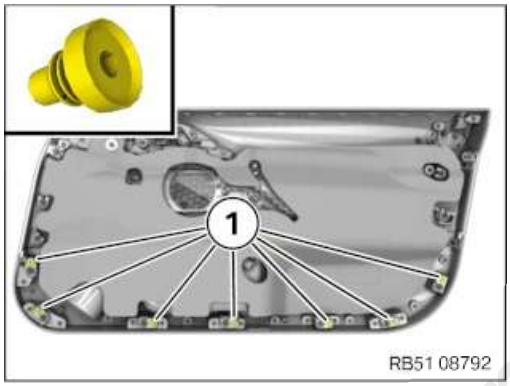


- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

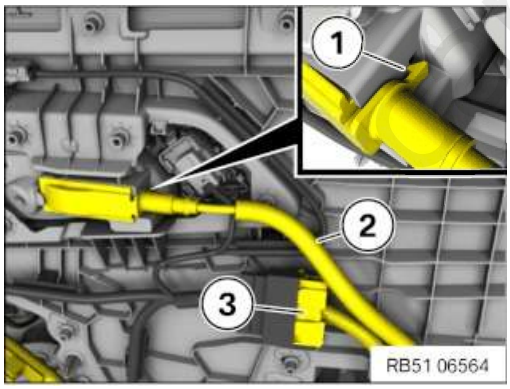
17 – Install front door trim panel



- Check clips (arrows) for damage and, if necessary, renew them.



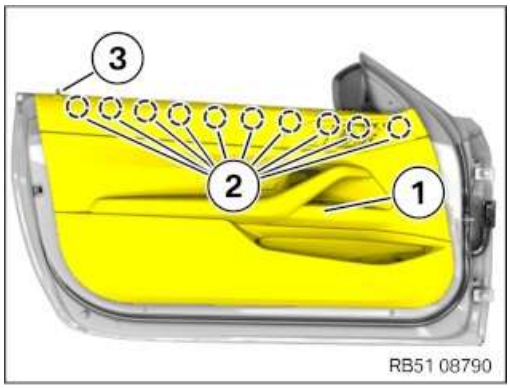
- Check the stop pad (1) for damage, renew if necessary.



NOTICE

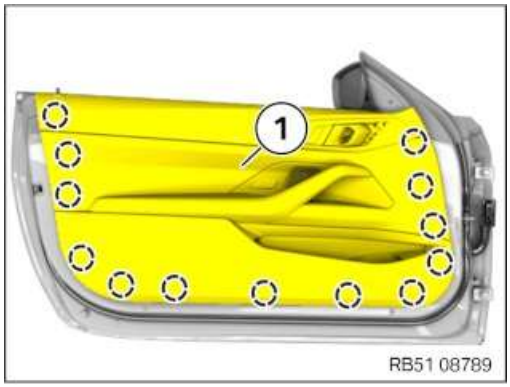
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.

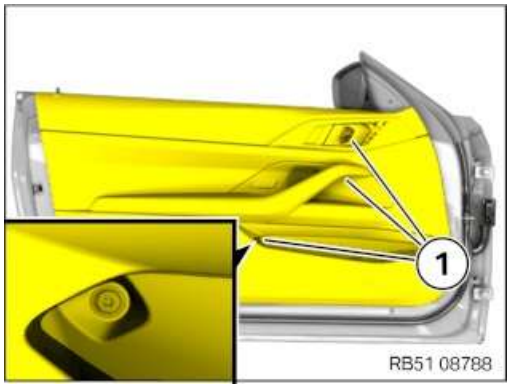


- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .

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- Clip in the door trim panel (1) at the marked places.

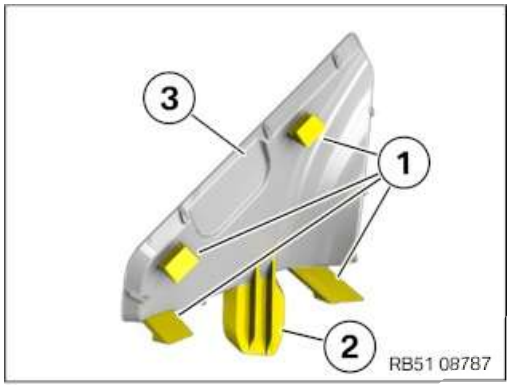


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



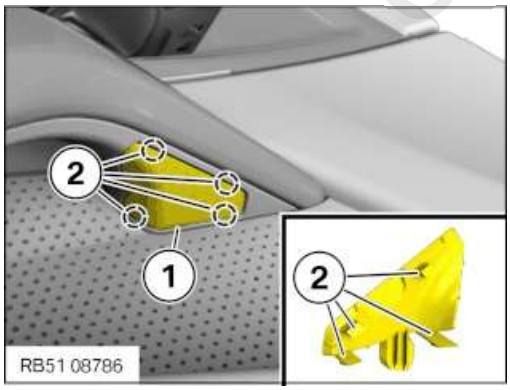
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

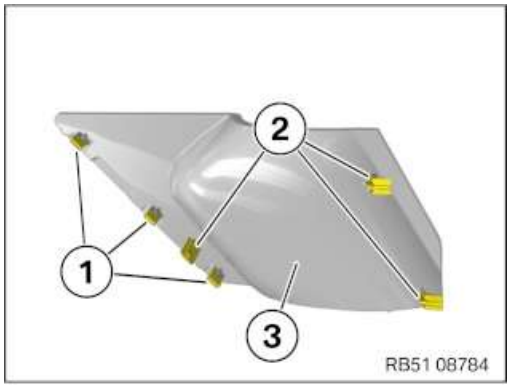
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

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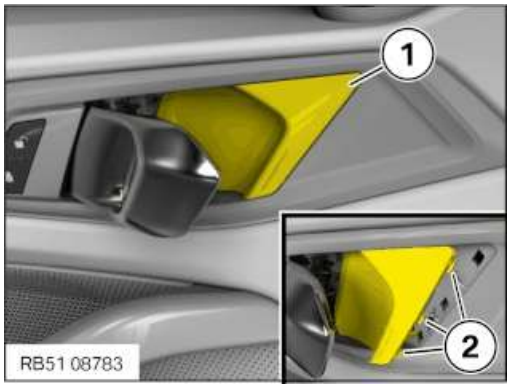
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

18 – Connecting all battery earth leads



- See additional information.

19 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

20 – Adjusting door window glass

Prerequisite

Vehicle is supported on all wheels at ground level.

Front door has been correctly fitted.

Battery charger is connected (during adjustment work, the complete operability of the power window regulator is only guaranteed with external voltage supply).

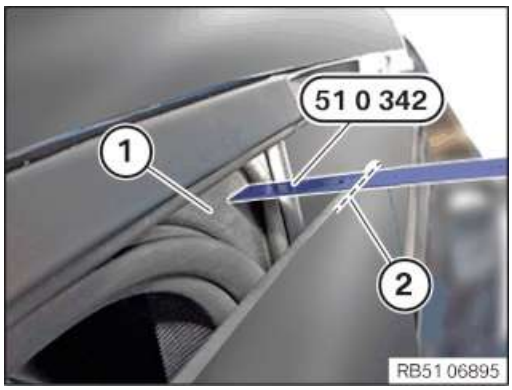
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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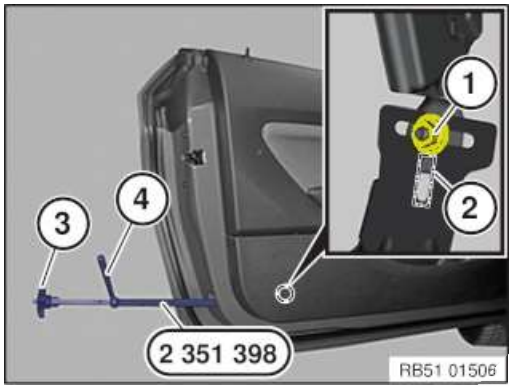


- Open door; move door window glass into uppermost position, if necessary.
- Insert special tool with the special tool in the rotary striker of the door lock and lock the rotary striker manually (door window glass moves fully upwards).
- Carefully close the door until the special tool lies on the striker (defined opening angle for the measurement).



- Do not exert any force on the door or door window glass during measurement.
- Abut special tool to the seal (1) and the door window glass (2).
- Determine dimension for preload between the seal (1) and outer edge of door window glass (2).

  Nominal dimension = 55 ± 1 mm



- Open door and remove sealing cap from door frame.
- Feed in special tool into the door and position at the nut (1) and the guide (2).
- Slacken nut (1) with knob (3).
- Turning the lever (4) to set the preload.

  Nominal dimension = 55 ± 1 mm
- Tighten nut (1).

Power window regulator to inner door panel

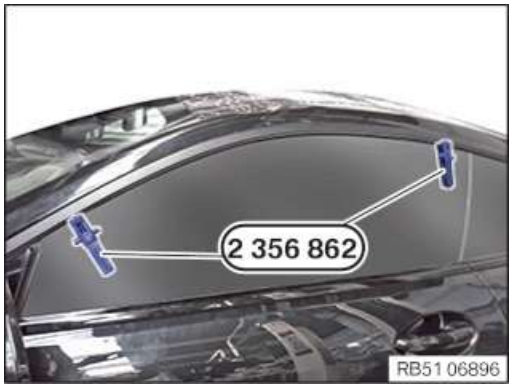
M6			9,5 Nm

- Check setting, repeat process if necessary.
- Remove special tool and fit the seal plug.
- Remove the special tool from the rotary striker of the door lock.



- Connect the special tool 2 356 862 to the holder (5 mm)(1) on the door window glass when it is locked (A).

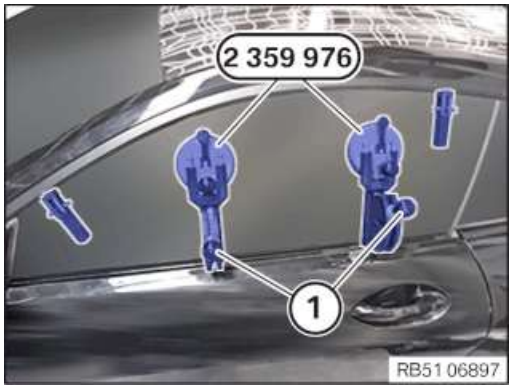
  Close the door and release the lock (2) (B).



- Open door.
- Place special tool 2 356 862 as shown on the door window glass.

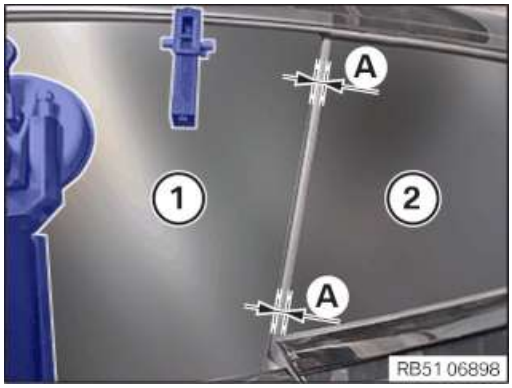
  Approx. displaced by 40 mm inwards in each case.
- Close door.
- Measure retraction depth.

  Nominal dimension: 5.5 ± 1 mm



- Attach special tool 2 359 976 on the door window glass so that the multi-tooth screws of the door window glass are still accessible.
- Release adjustment lever (1) by twisting.
- Set the retraction depth of the side window glass by moving the adjustment lever (1).

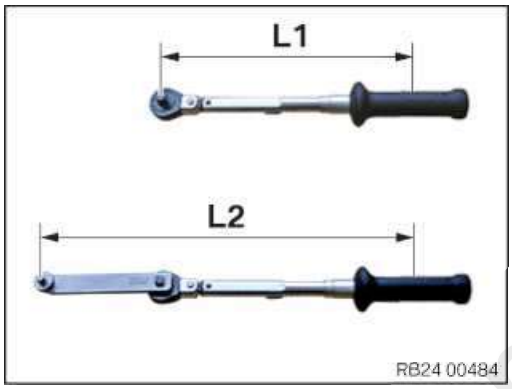
  Nominal dimension: 5.5 ± 1 mm
- Tighten adjustment lever (1).



- Adjust door window panel (1) parallel to the rear side window (2).

  Dimension (A) = 8.0 ± 1 mm

▸ **Tighten the front door window glass**



TECHNICAL INFORMATION

While using the special tool, that extends the lever arm of the torque wrench, the setpoint torque deviates from the torque to be set.

NOTICE

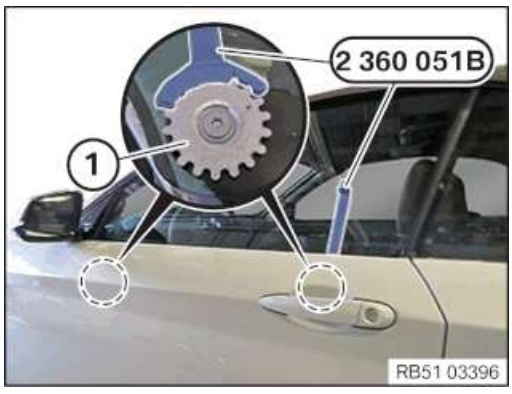
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten multi-point nuts (1) on the door window glass in the front using special tool **B** and a torque wrench.

Toothed nut of side window

Toothed nut		Tightening torque	11 Nm

21 – Install outer weather strip

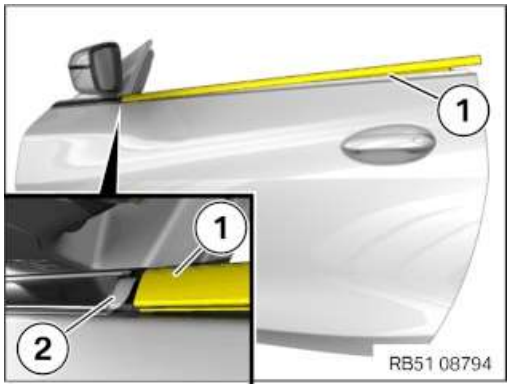
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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

Additional Information

Overview of Tightening Torques

Door lock to door			Used in step 12
Screw		Tightening torque	8,8 Nm

Outside door handle support to door			Used in step 12
Screw		Tightening torque	2,6 Nm

Attachment bell to outside door handle support			Used in step 12
Screw		Tightening torque	3 Nm

Clamping bolt for door handle			Used in step 13
Screw		Tightening torque	2 Nm

Outer door handle to door			Used in step 13
Clamping bolt		Tightening torque	3 Nm

Power window regulator to inner door panel			Used in step 1420
M6			9,5 Nm

Door window glass to power window regulator			Used in step 15
Screw		Tightening torque	0.25 Nm

Module carrier to the front door			Used in step 16
Oval-head screwM6		Tightening torque	9 Nm

Door trim panel			Used in step 17
Oval-head screw		Tightening torque	3 Nm

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Negative battery cable to 48-V battery Used in step 19

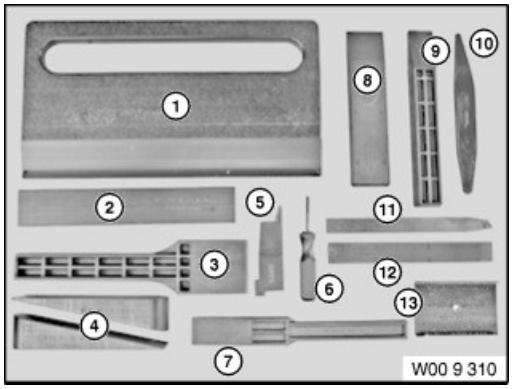
Nut M8		Tightening torque	19 Nm

Toothed nut of side window Used in step 20

Toothed nut		Tightening torque	11 Nm

Overview of Special Tools

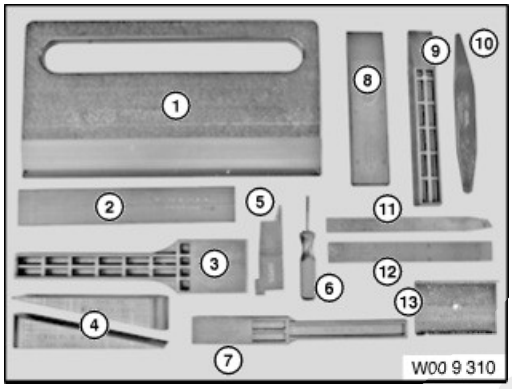
0 493 752 (00 9 329) Case



Common Used in step 3

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

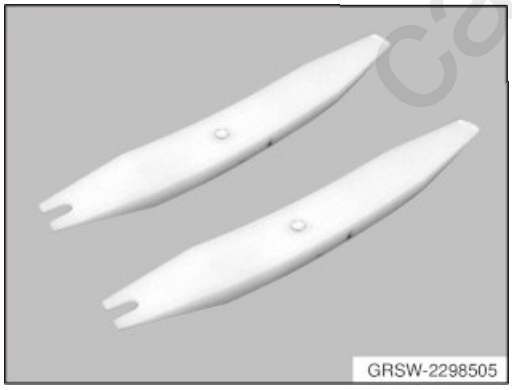
0 495 484 (00 9 324) Panel wedge



Common Used in step 5

Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

2 298 505 Wedge

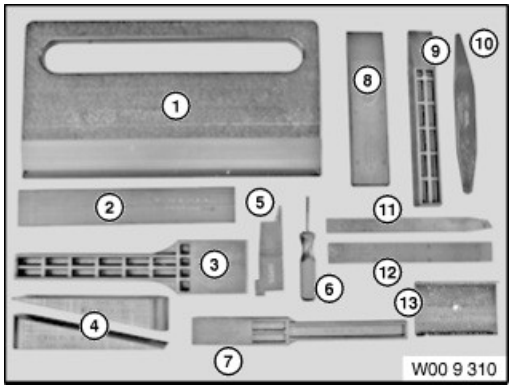


Common Used in step 5

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)

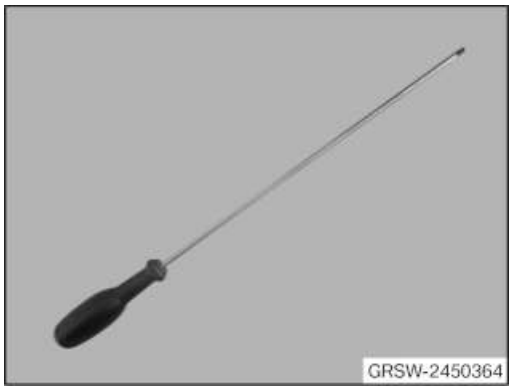
Carorgn.com

0 490 538 (00 9 321) Folding stick



Common	Used in step 5
Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 450 364 Torx



Common	Used in step 913
Usage	for releasing the outside door handles
Included in the tool or work	
Storage location	A5
Replaced by	
In connection with	
SI-Number	01 22 16 (440)

2 356 862 Device



Common	Used in step 20
Usage	Device for measuring the side window retraction depth. Also valid for: BMW i Aftersales Basic. This tool set replaces the tool 2304553
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 29 13 (998)

2 359 976 Siphon



Common	Used in step 20
Usage	For fixing and adjusting frameless side/door window glass. Also valid for: BMW i Aftersales Basic
Included in the tool or work	
Storage location	A73
Replaced by	
In connection with	
SI-Number	01 27 14 (129)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	119

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Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
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61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	218
61 20 900 Disconnecting and connecting battery earth lead

61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 218
61 20 900 Disconnecting and connecting battery earth lead 218
61 20 900 Disconnecting and connecting battery earth lead 218
61 20 900 Disconnecting and connecting battery earth lead 218

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This documentation refers to special tools that were not yet available when going to press.

51 21 140 Removing and installing/replacing the complete lock barrel on the left or right front door

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

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RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

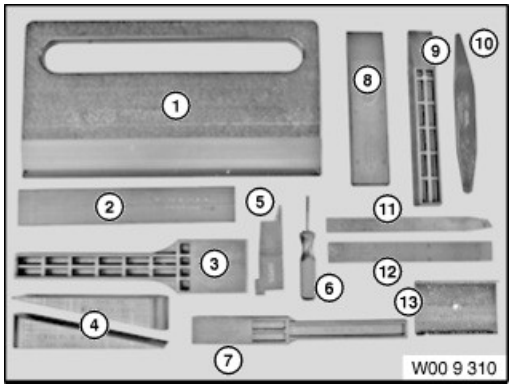
3 – Remove front door trim panel

RISK OF DAMAGE

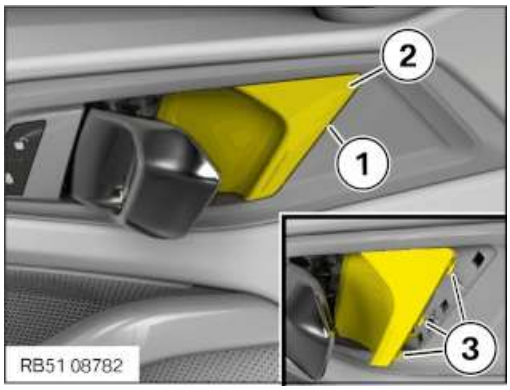
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

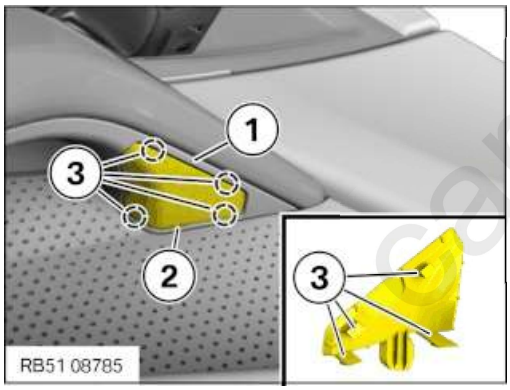
- Protect surfaces from damage.



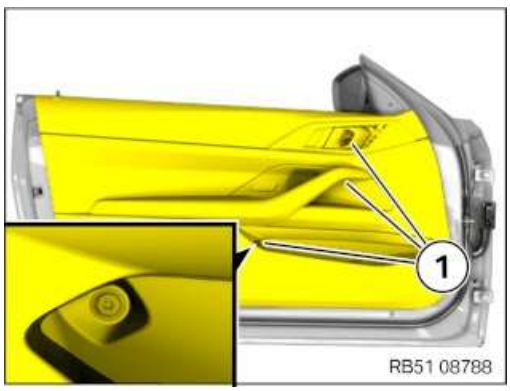
- Have the set of special tools 0 493 752 (00 9 329) ready.



- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.

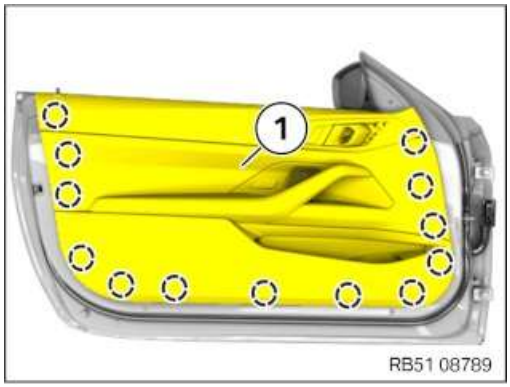


- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

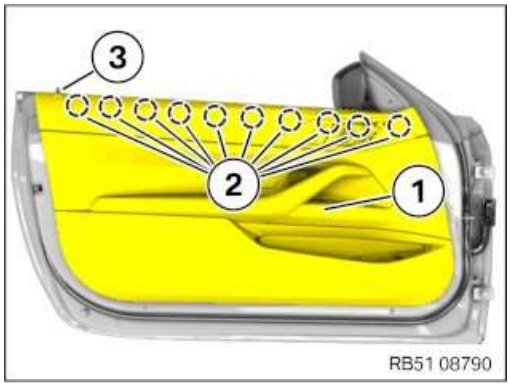


- Loosen screws (1).

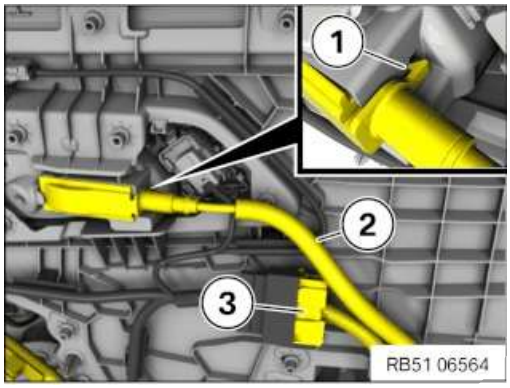
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- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



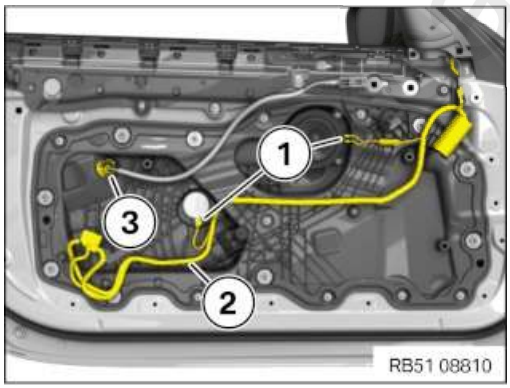
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

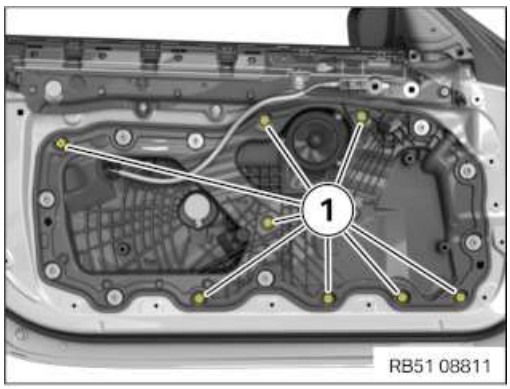
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

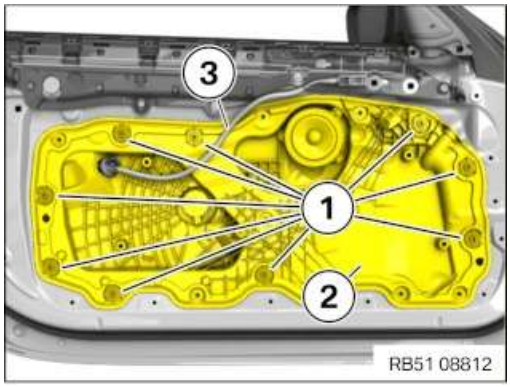
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).



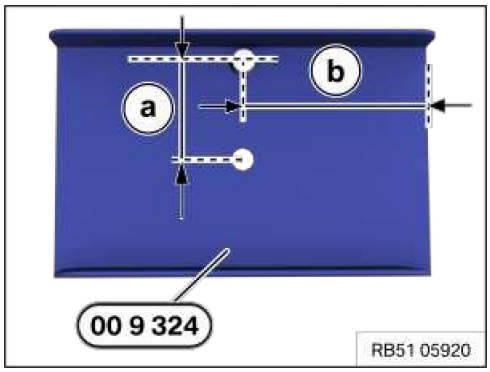
- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

5 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

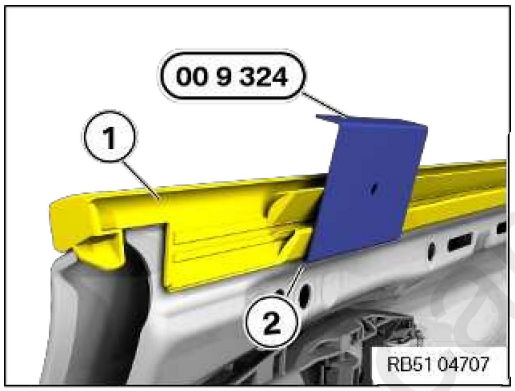
- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

  Dimension (b) = 50 mm from the outer edge of the special tool

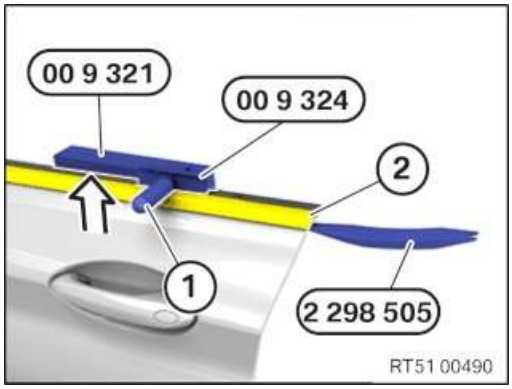


NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

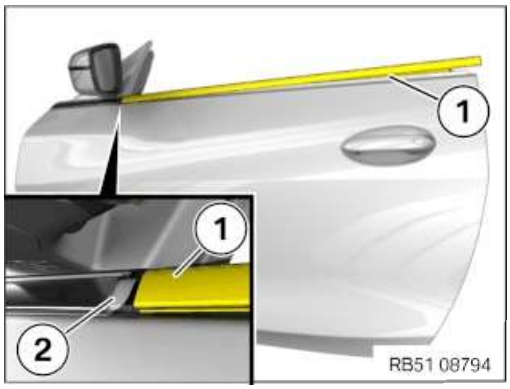
- Protect working area.
- Handle tools and components carefully.

- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.

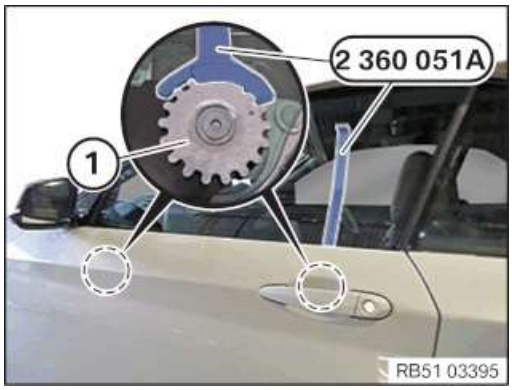


- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

6 – Release door window at front

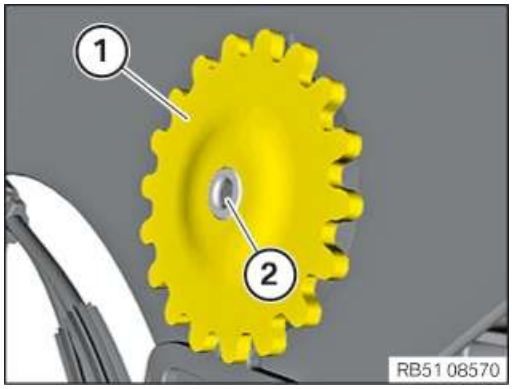
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



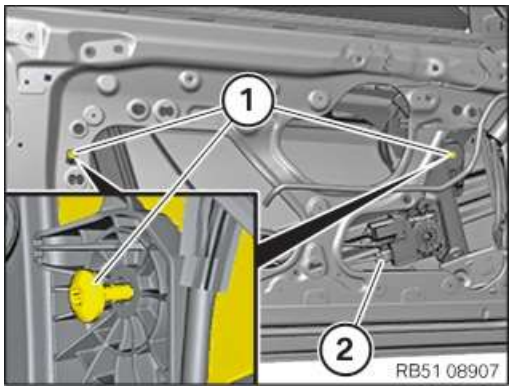
- Undo multi-tooth nuts (1) on side window glass with special tool **A**. (Observe next operation.)

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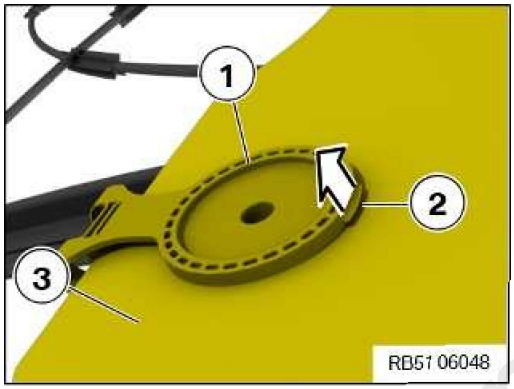


- Only undo the multi-tooth nut (1) to the extent it is flush with the socket (2).
- Lower front door window glass half way.

7 – Removing front door window glass



- Open the front door window glass so that the screws (1) are accessible.
- Unlock plug connection (2) and disconnect.
- Unscrew the screws (1) so far until the disassembly of the front door window glass is possible.

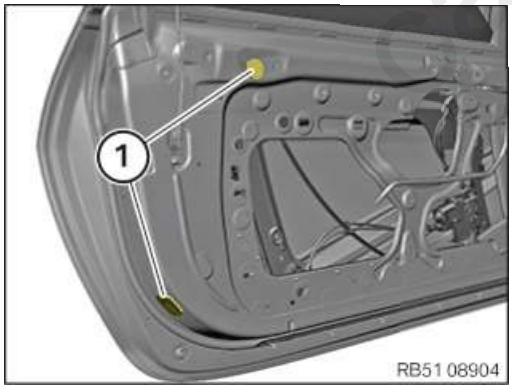


NOTICE

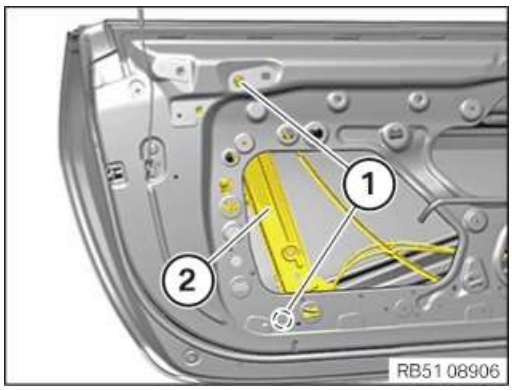
To provide a better overview: Schematic diagram with partially hidden components.

- Lift holder (1) on the tab (2) in the direction of arrow.
- Feed out the front door window glass (3) from the door upwards.

8 – Removing front door power window regulator

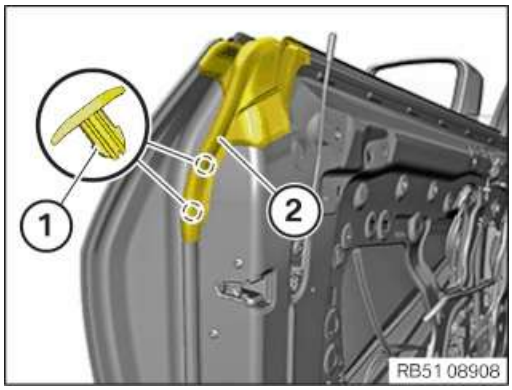


- Remove plug (1).

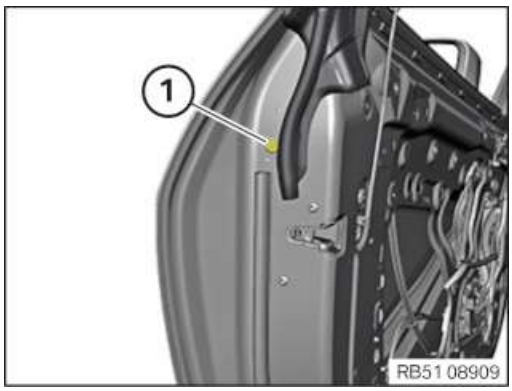


- Release nuts (1).
- Carefully push the power window (2) to the side.

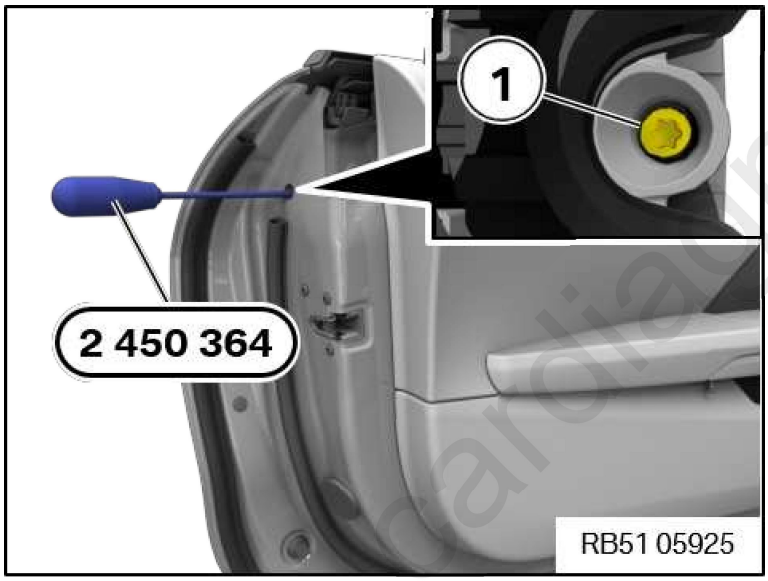
9 – Remove the outside door handle



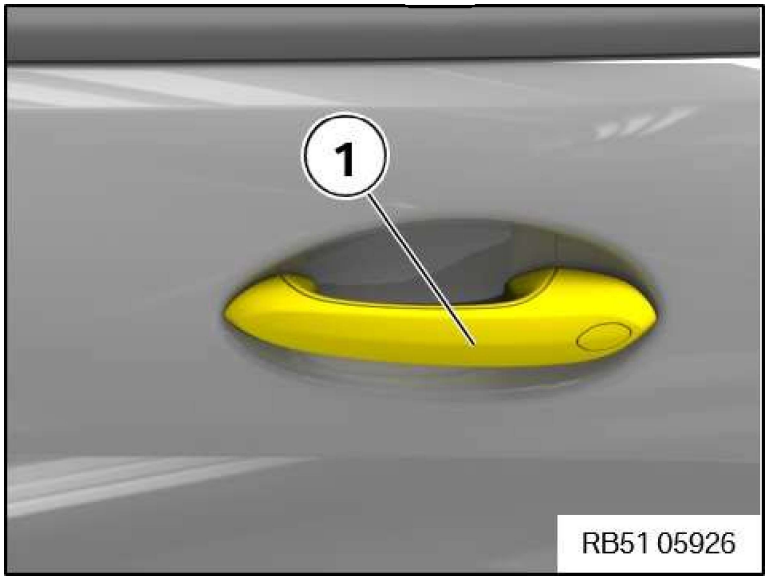
- Release the seal (2) at the clips (1) and move is slightly to the side.



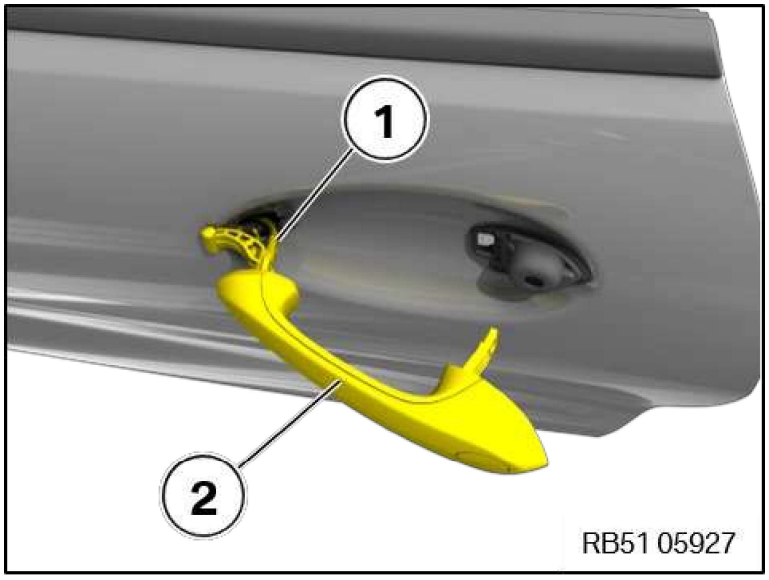
- Remove the seal plug (1).



- Release the clamping bolt (1) from the outside door handle support with the special tool 2 450 364.

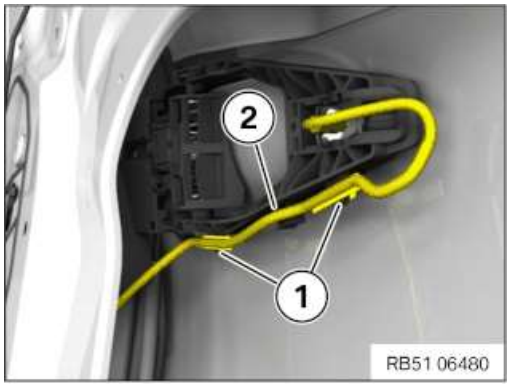


- Pull the rear outside door handle (1) to the outside and remove it in the process.
- Pivot the outside door handle (1) further towards the outside and in this process, remove it at the front.

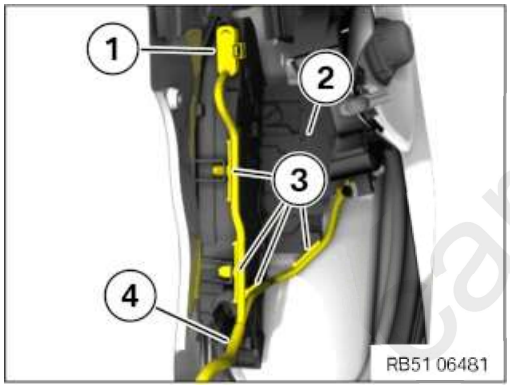


- Unlock and disconnect plug connections (1).
- Remove the outside door handle (2).

10 – Removing the outside door handle support



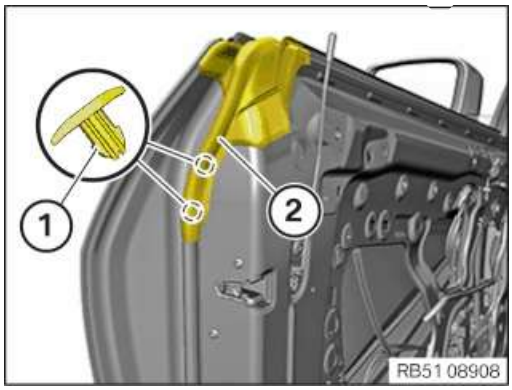
- Unclip clips (1) and place wiring harness (2) aside.



NOTICE

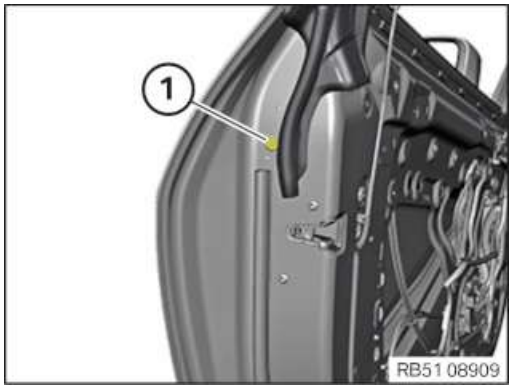
To provide a better overview: Schematic diagram with partially hidden components.

- Unlock and disconnect the plug connection (1)on the door lock (2).
- Unclip clips (3).
- Remove the wiring harness (4) and put to one side.

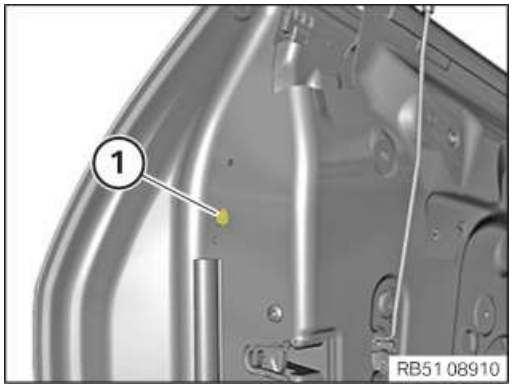


- Release the seal (2) at the clips (1) and move is slightly to the side.

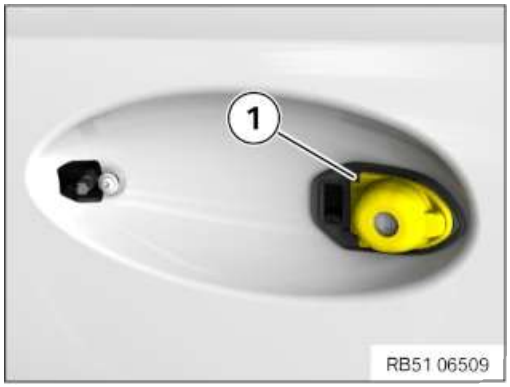
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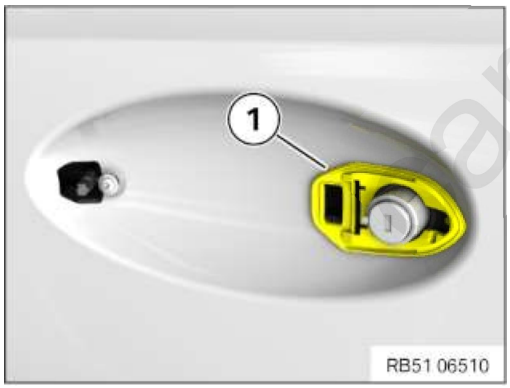
- Remove the seal plug (1).



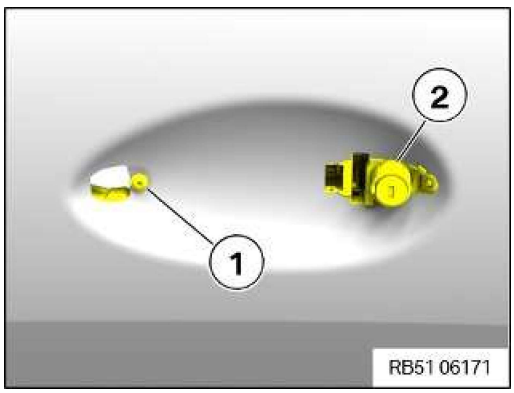
- Loosen screw (1).



- Remove the cover (1).

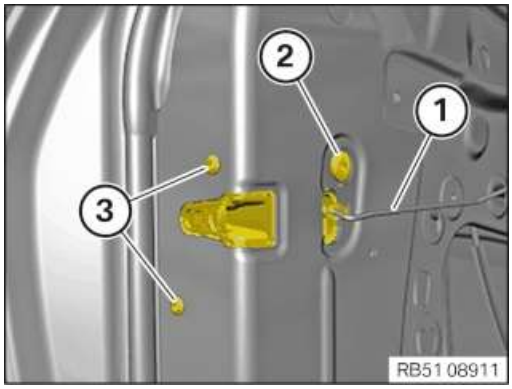


- Remove seal (1) for the outside door handle.

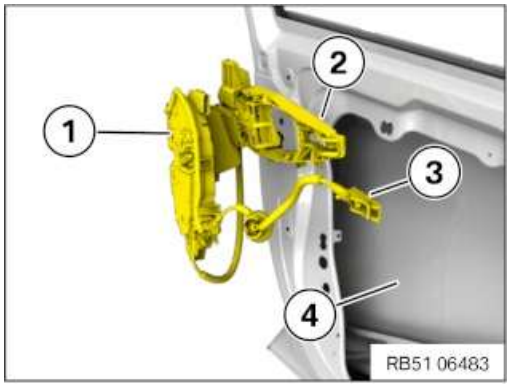


- Loosen screw (1).
- Slide the outside door handle support (2) forward and thread out to the inside.

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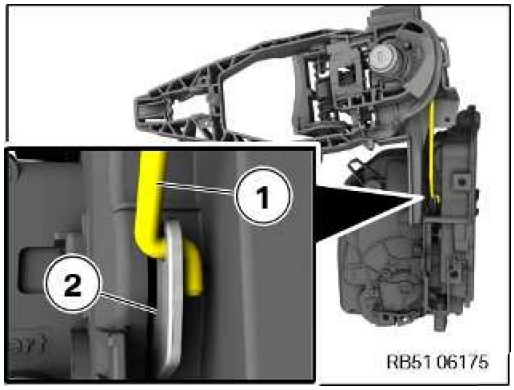


- Unclip locking rod (1).
- Release the screws (2) and (3).

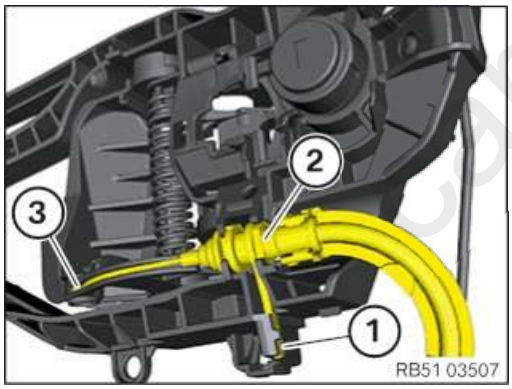


- Feed out the door lock (1) along with the outside door handle support (2) and the Bowden cable for inner door handle (3) from the door(4) .

  Make sure that the seal of door lock (1) is not damaged.



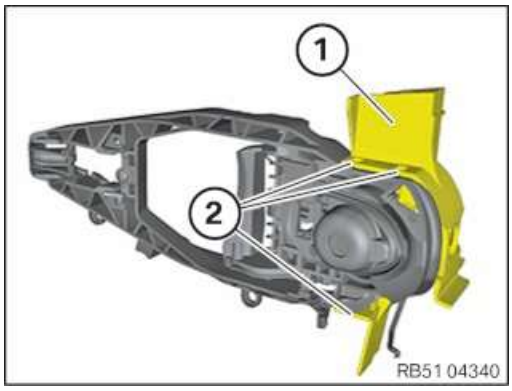
- Detach the linkage (1) from the door lock (2).



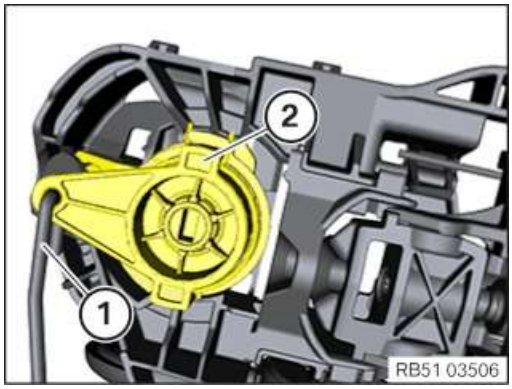
- Lift tab (1) over the latch mechanisms and turn upwards.
- Detach the Bowden cable (2) for the outside door handle.
- Detach the Bowden cable nipple (3).

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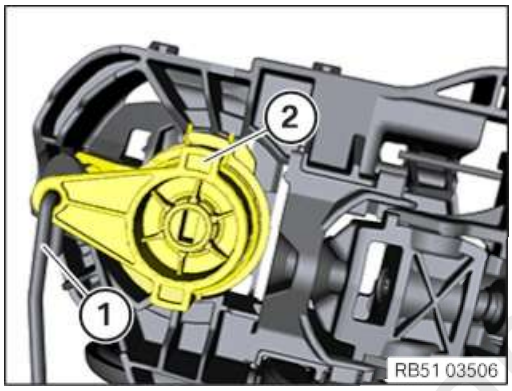
11 – Replacing lock barrel



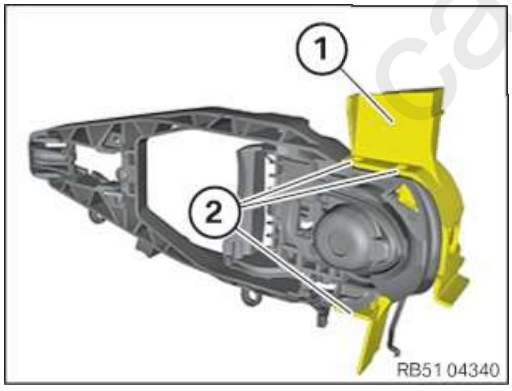
- Unclip the cover (1) at the points (2).
- Remove cover (1).



- Detach the locking rod (1).
- Twist the lock barrel (2) in clockwise direction and remove it.



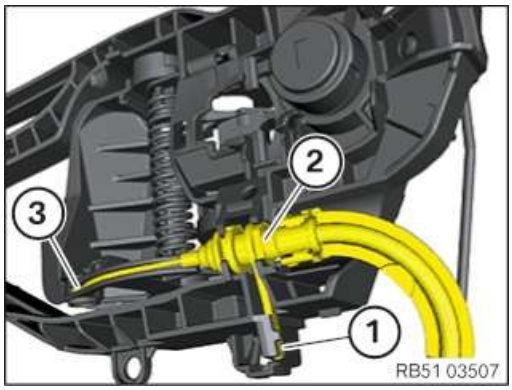
- Screw in the new lock barrel (2) counterclockwise.
- Attach the locking rod (1) in the new lock barrel (2).



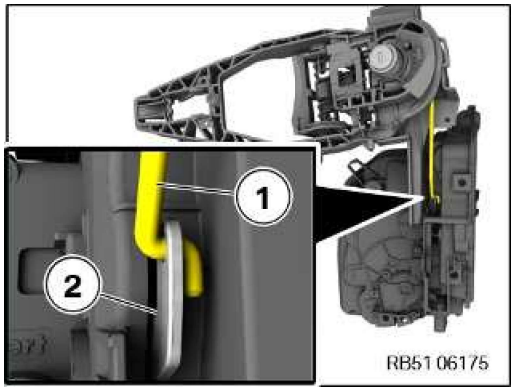
- Clip in the cover (1) at the points (2).

cardiagn.com

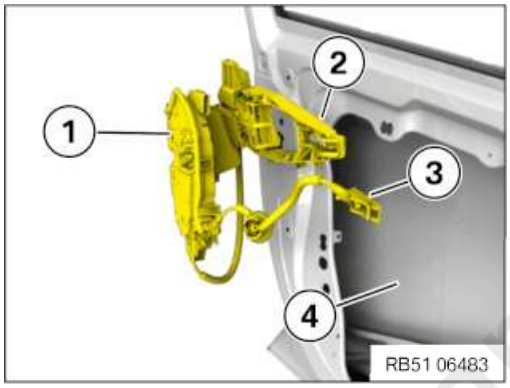
12 – Installing the outer door handle support



- Hook the Bowden cable nipple (3) of the Bowden cable (2).
- Hook the new Bowden cable (2).
- Twist and engage the tab (1).

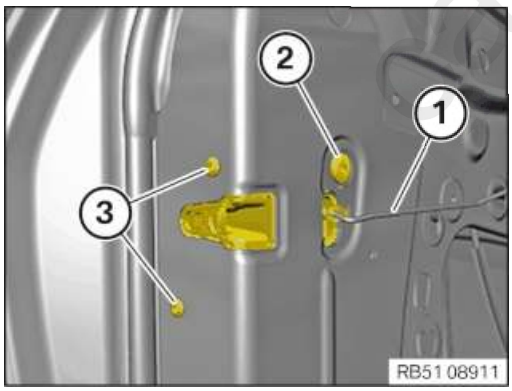


- Attach the linkage (1) in the door lock (2).



- Feed in the door lock (1) along with the outside door handle support (2) and the Bowden cable (3) for the inner door handle into the door (4).

  Make sure that the seal of door lock (1) is not damaged.



- Screw in screws (2) and (3) a few turns.
- Tighten the screws (3).

Door lock to door

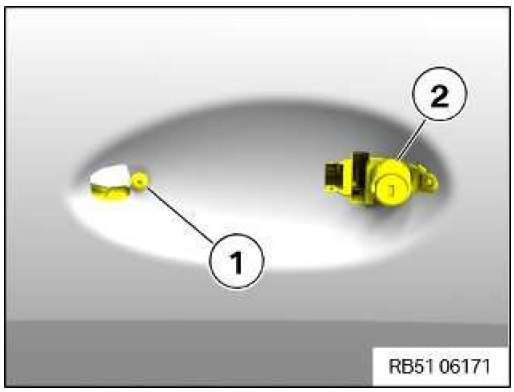
Screw		Tightening torque	8,8 Nm

- Tighten down screw (2).

Door lock to door

Screw		Tightening torque	8,8 Nm

- Clip in locking rod (1).

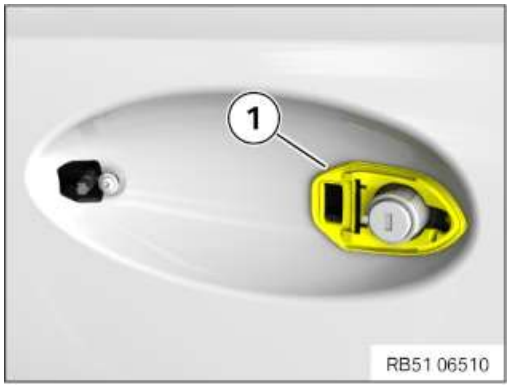


- Feed in outside door handle support (2) and position correctly.
- Tighten down screw (1).

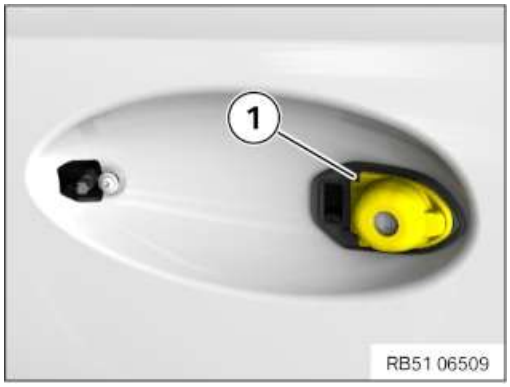
Outside door handle support to door

Screw		Tightening torque	2,6 Nm

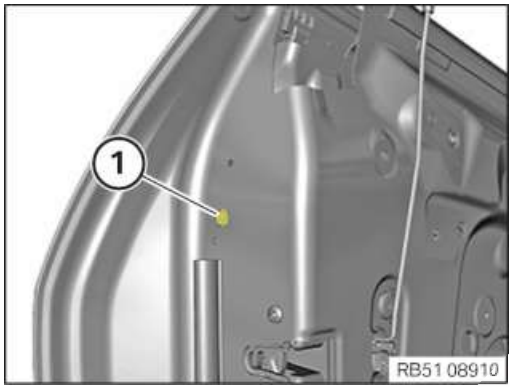
rdiagn.com



- Install seal (1) for the outside door handle.



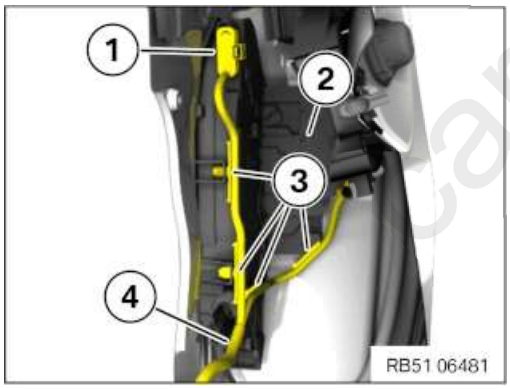
- Install the cover (1) .



- Tighten down screw (1).

Attachment bell to outside door handle support

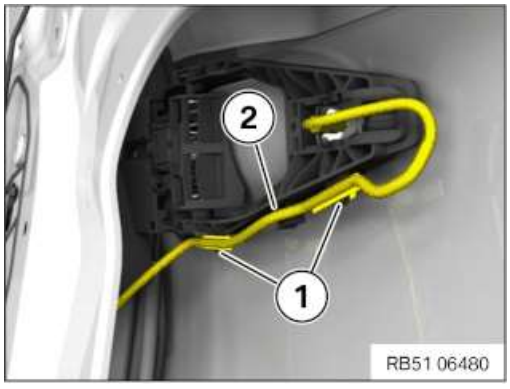
Screw		Tightening torque	3 Nm



NOTICE

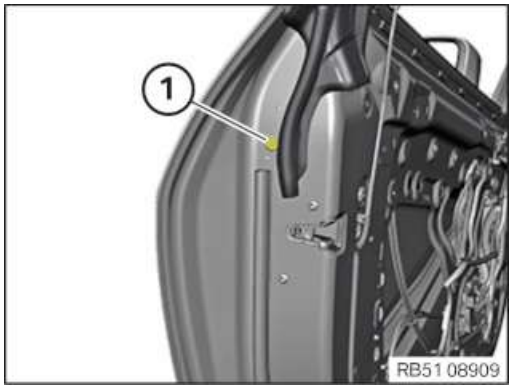
To provide a better overview: Schematic diagram with partially hidden components.

- Insert the wiring harness (4).
- Connect connector (1) at the door lock (2) and lock.
- Clip in clips (3).

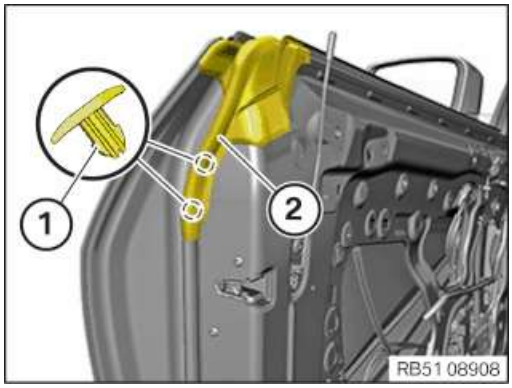


- Route the wiring harness (2) correctly.
- Clip in clips (1).

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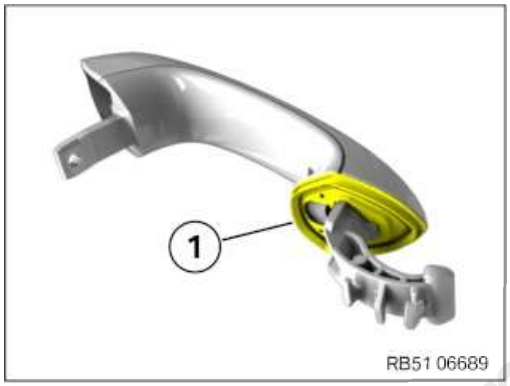


- Install seal plug (1).

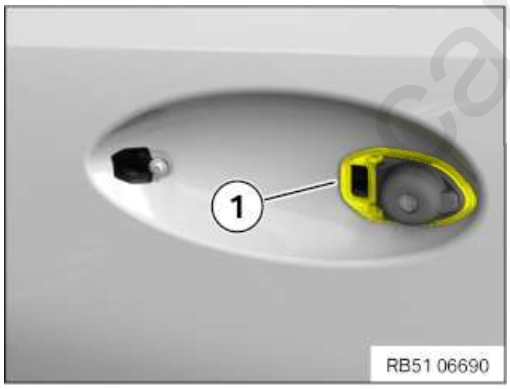


- Secure the seal (2) with the clips (1).

13 – Installing the outside door handle

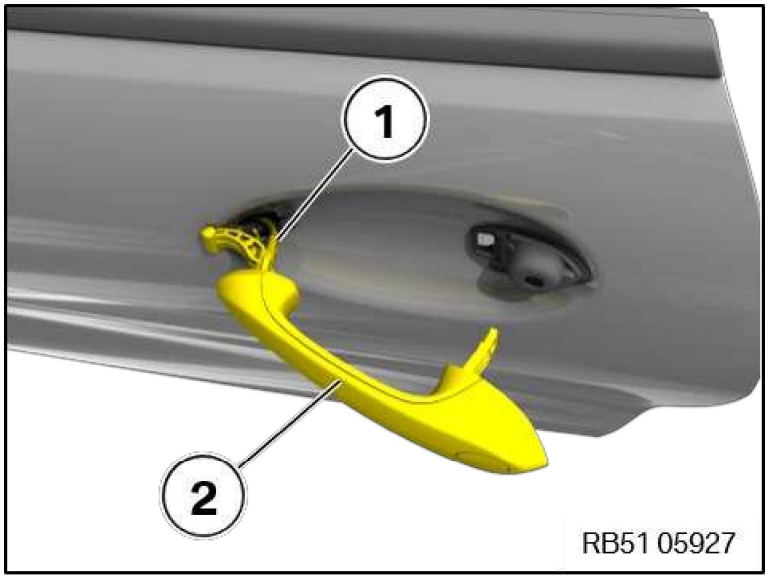


- Check the seal (1) for damage and renew if necessary.

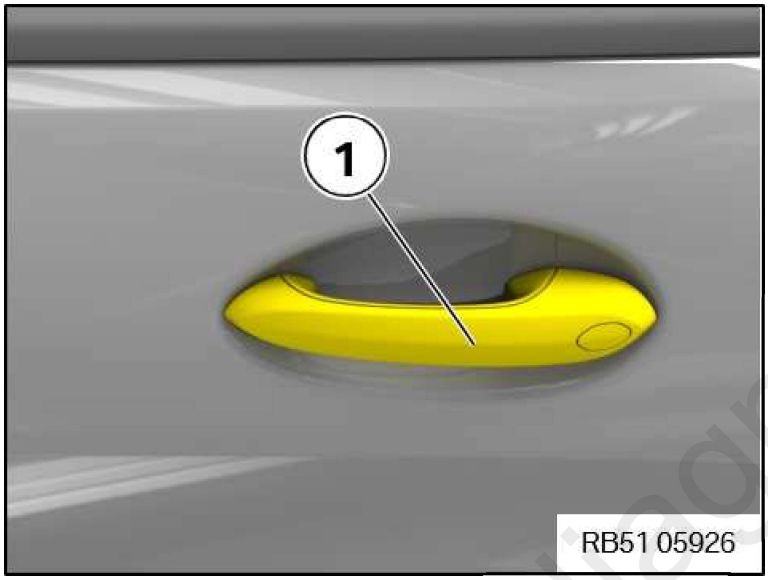


- Check the seal (1) for damage and renew if necessary.

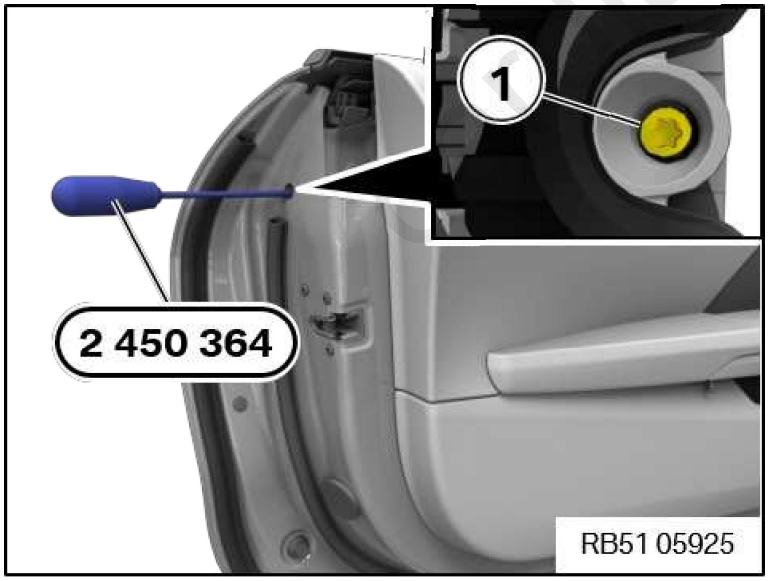
carsdiagn.com



- Insert the front outside door handle (2).
- Connect connectors (1) and lock.



- Insert the rear outside door handle (1).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

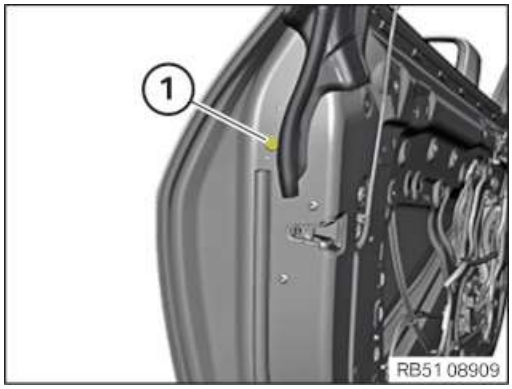
- Tighten the clamping bolt (1) on the outside door handle support with the special tool 2 450 364.

Clamping bolt for door handle

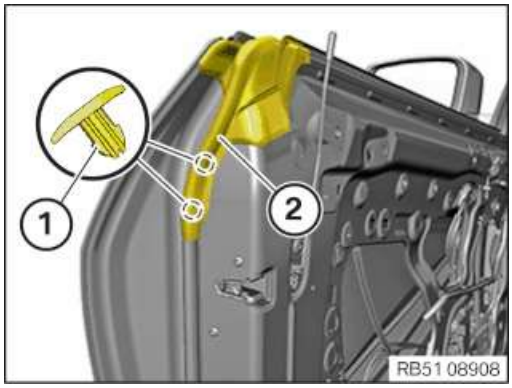
Screw		Tightening torque	2 Nm

Outer door handle to door

Clamping bolt		Tightening torque	3 Nm

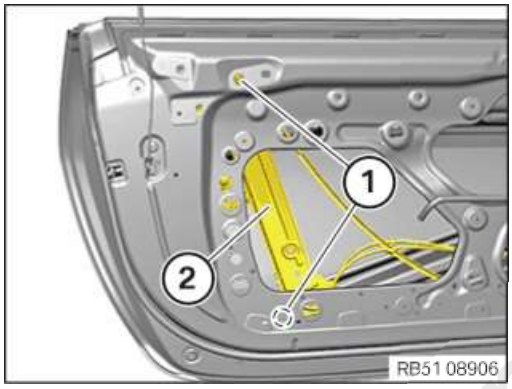


- Install seal plug (1).



- Fasten the seal (2) with the clips (1).

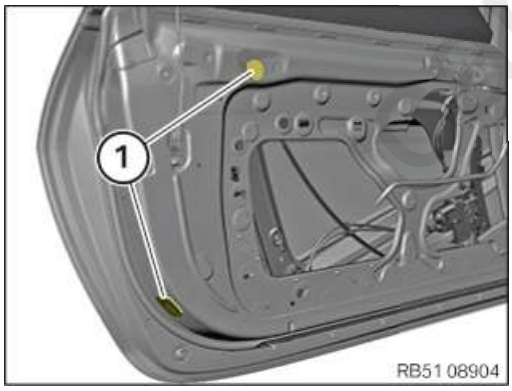
14 – Partially installing the window regulator of the front door



- Correctly position the window regulator (2).
- Tighten nuts (1).

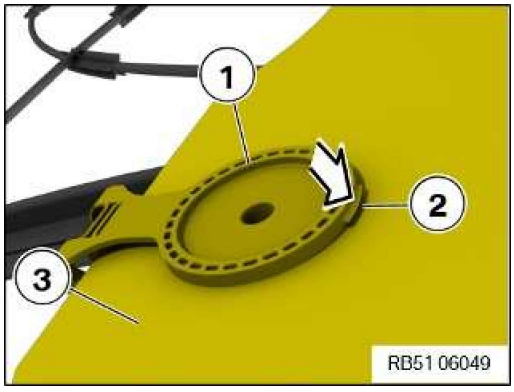
Power window regulator to inner door panel

M6		9,5 Nm



- Install the plug (1).

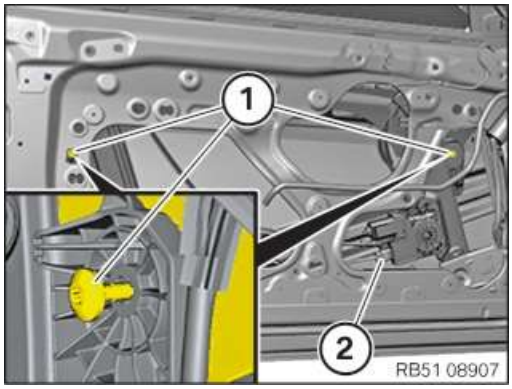
15 – Installing front door window glass



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Insert door window glass front (3) from the top.
- Press holder (1) on the tab (2) in direction of arrow and lock.



- Screw in the screws (1) and tighten them.

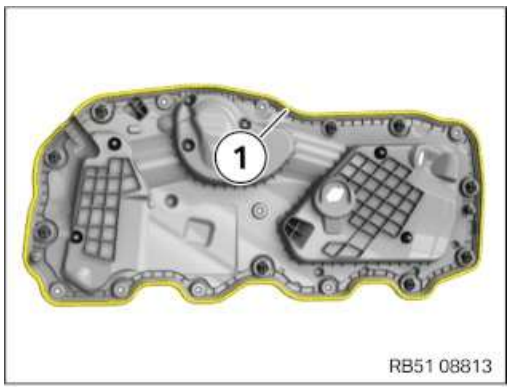
  In this process, counter support the multi-tooth nuts of the electric window.

Door window glass to power window regulator

Screw		Tightening torque	0.25 Nm

- Connect connectors (2) and lock.

16 – Installing the module carrier on the front door



Check

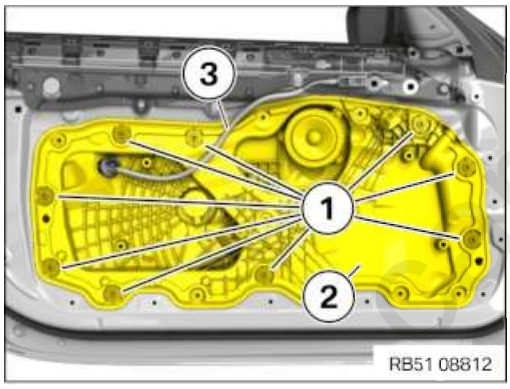
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

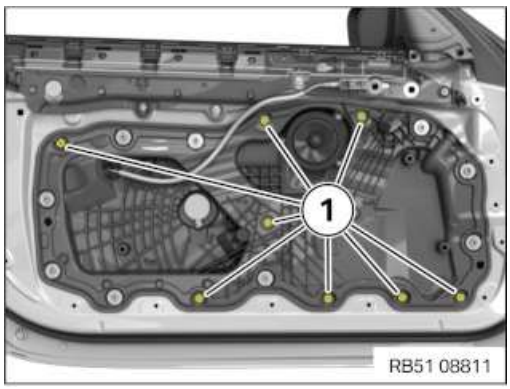
Measure

- Renew the module carrier on the front door.



- Position the module carrier on the front door (2).

  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.

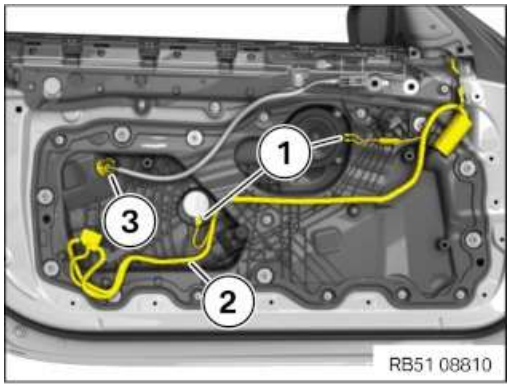


- Tighten the screws (1).

Module carrier to the front door

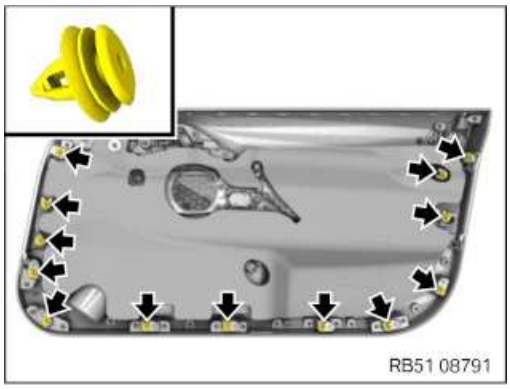
Oval-head screwM6		Tightening torque	9 Nm

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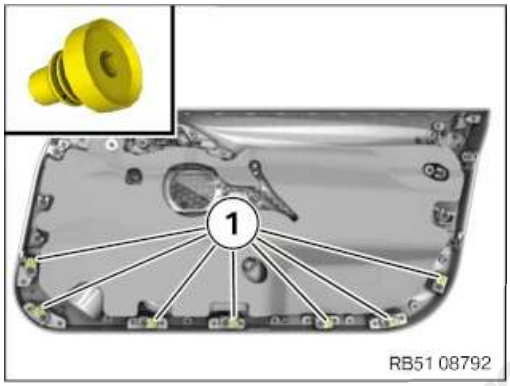


- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

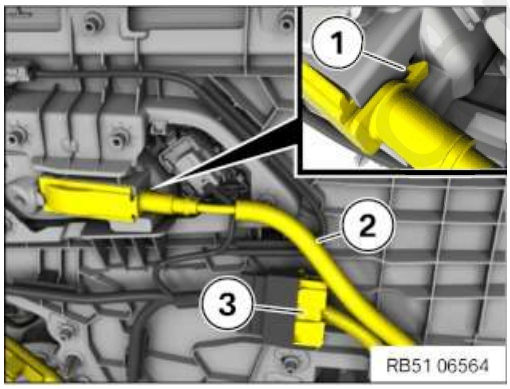
17 – Install front door trim panel



- Check clips (arrows) for damage and, if necessary, renew them.



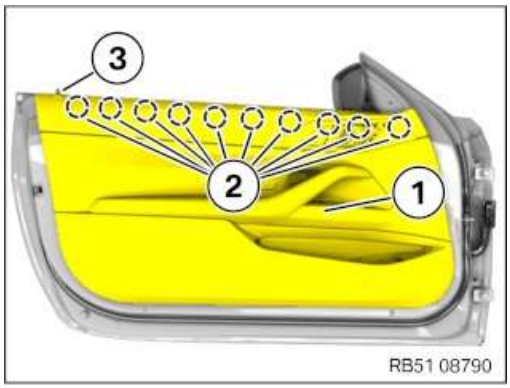
- Check the stop pad (1) for damage, renew if necessary.



NOTICE

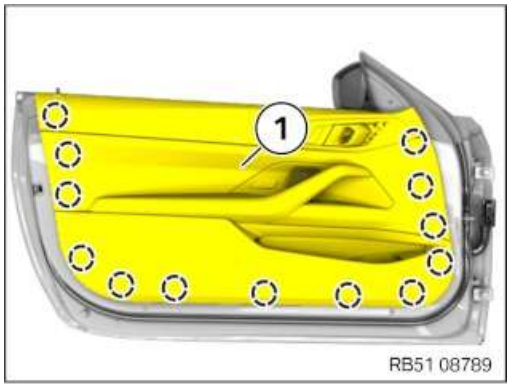
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.

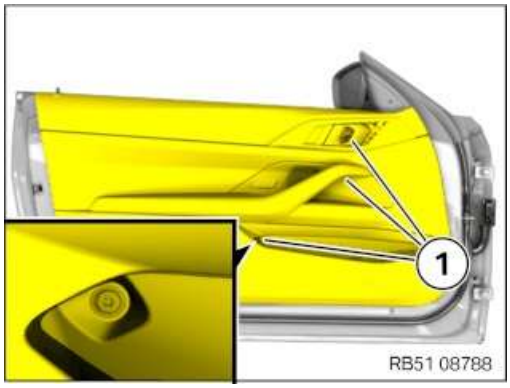


- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .

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- Clip in the door trim panel (1) at the marked places.

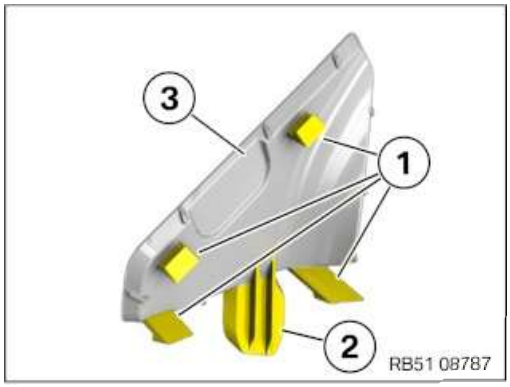


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



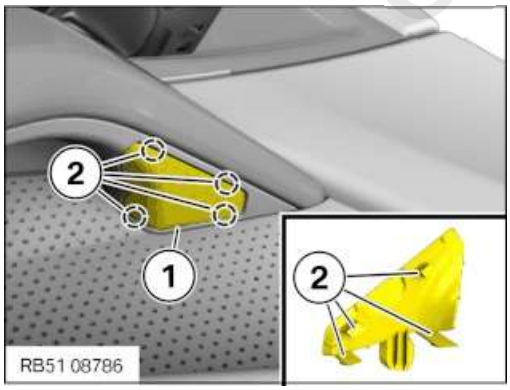
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

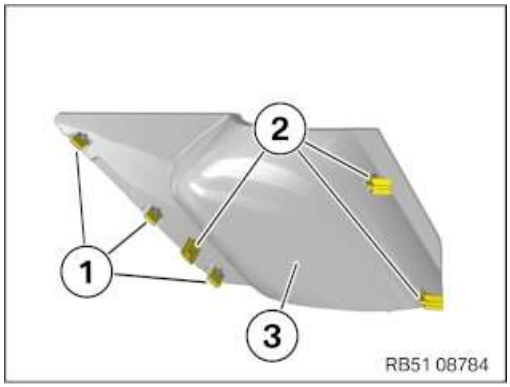
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

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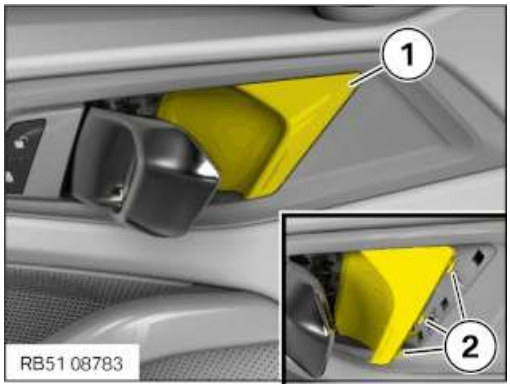
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

18 – Connecting all battery earth leads



- See additional information.

19 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

20 – Adjusting door window glass

Prerequisite

Vehicle is supported on all wheels at ground level.

Front door has been correctly fitted.

Battery charger is connected (during adjustment work, the complete operability of the power window regulator is only guaranteed with external voltage supply).

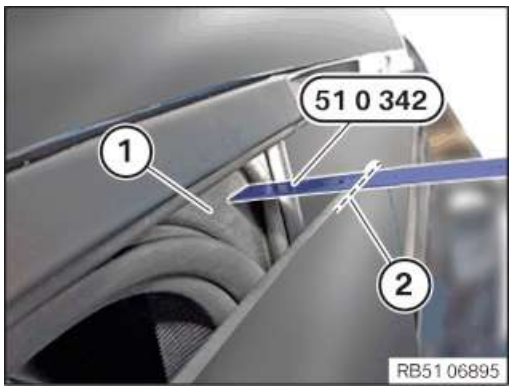
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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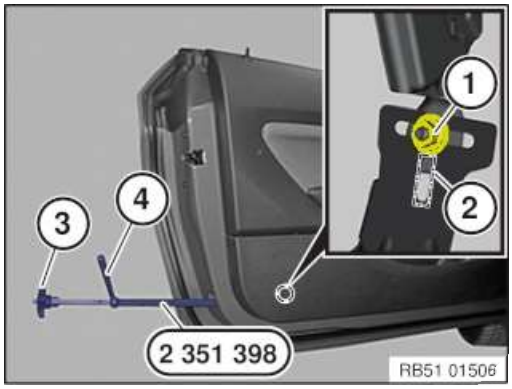


- Open door; move door window glass into uppermost position, if necessary.
- Insert special tool with the special tool in the rotary striker of the door lock and lock the rotary striker manually (door window glass moves fully upwards).
- Carefully close the door until the special tool lies on the striker (defined opening angle for the measurement).



- Do not exert any force on the door or door window glass during measurement.
- Abut special tool to the seal (1) and the door window glass (2).
- Determine dimension for preload between the seal (1) and outer edge of door window glass (2).

  Nominal dimension = 55 ± 1 mm



- Open door and remove sealing cap from door frame.
- Feed in special tool into the door and position at the nut (1) and the guide (2).
- Slacken nut (1) with knob (3).
- Turning the lever (4) to set the preload.

  Nominal dimension = 55 ± 1 mm
- Tighten nut (1).

Power window regulator to inner door panel

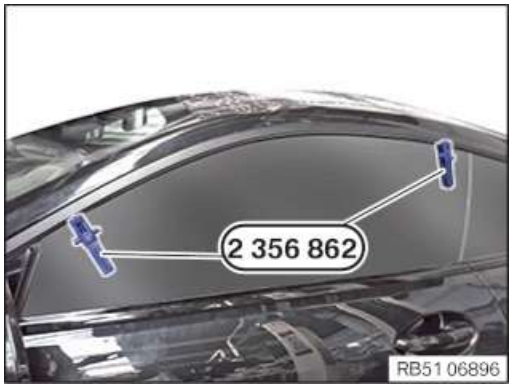
M6			9,5 Nm

- Check setting, repeat process if necessary.
- Remove special tool and fit the seal plug.
- Remove the special tool from the rotary striker of the door lock.



- Connect the special tool 2 356 862 to the holder (5 mm)(1) on the door window glass when it is locked (A).

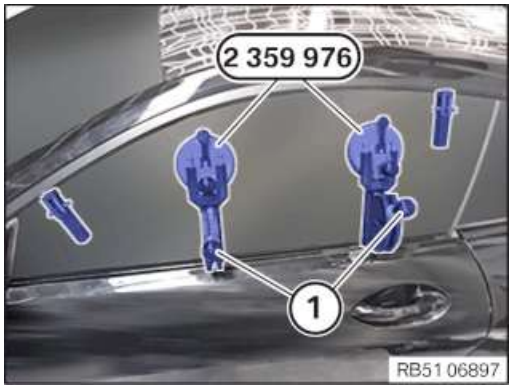
  Close the door and release the lock (2) (B).



- Open door.
- Place special tool 2 356 862 as shown on the door window glass.

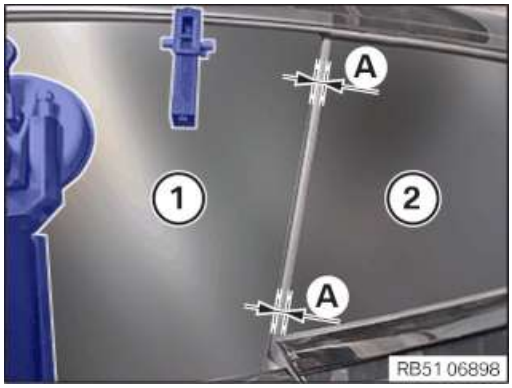
  Approx. displaced by 40 mm inwards in each case.
- Close door.
- Measure retraction depth.

  Nominal dimension: 5.5 ± 1 mm



- Attach special tool 2 359 976 on the door window glass so that the multi-tooth screws of the door window glass are still accessible.
- Release adjustment lever (1) by twisting.
- Set the retraction depth of the side window glass by moving the adjustment lever (1).

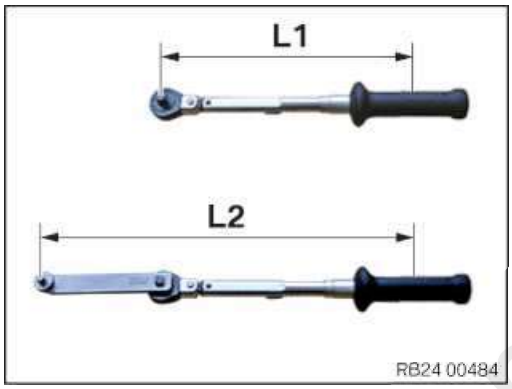
  Nominal dimension: 5.5 ± 1 mm
- Tighten adjustment lever (1).



- Adjust door window panel (1) parallel to the rear side window (2).

  Dimension (A) = 8.0 ± 1 mm

▸ **Tighten the front door window glass**



TECHNICAL INFORMATION

While using the special tool, that extends the lever arm of the torque wrench, the setpoint torque deviates from the torque to be set.

NOTICE

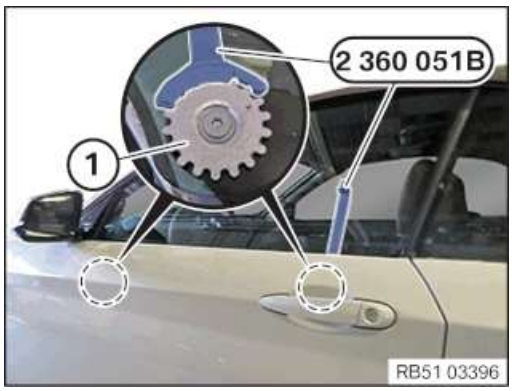
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten multi-point nuts (1) on the door window glass in the front using special tool **B** and a torque wrench.

Toothed nut of side window

Toothed nut		Tightening torque	11 Nm

21 – Install outer weather strip

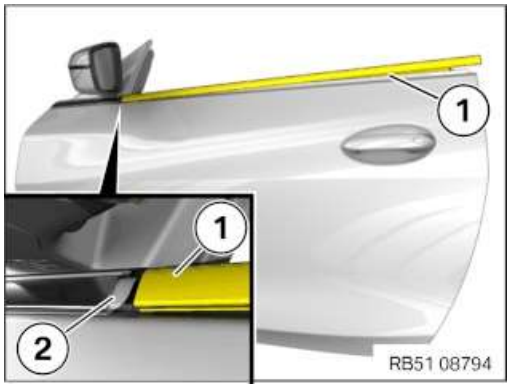
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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

Additional Information

Overview of Tightening Torques

Door lock to door			Used in step 12
Screw		Tightening torque	8,8 Nm

Outside door handle support to door			Used in step 12
Screw		Tightening torque	2,6 Nm

Attachment bell to outside door handle support			Used in step 12
Screw		Tightening torque	3 Nm

Clamping bolt for door handle			Used in step 13
Screw		Tightening torque	2 Nm

Outer door handle to door			Used in step 13
Clamping bolt		Tightening torque	3 Nm

Power window regulator to inner door panel			Used in step 1420
M6			9,5 Nm

Door window glass to power window regulator			Used in step 15
Screw		Tightening torque	0.25 Nm

Module carrier to the front door			Used in step 16
Oval-head screwM6		Tightening torque	9 Nm

Door trim panel			Used in step 17
Oval-head screw		Tightening torque	3 Nm

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Negative battery cable to 48-V battery Used in step 19

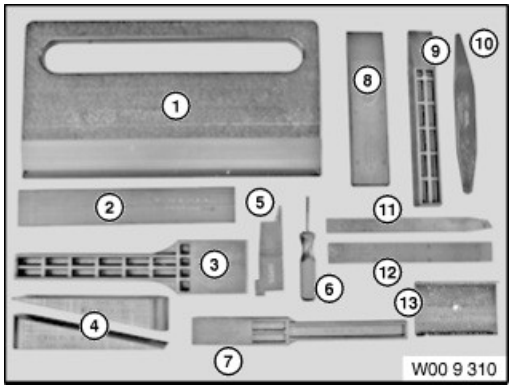
Nut M8		Tightening torque	19 Nm

Toothed nut of side window Used in step 20

Toothed nut		Tightening torque	11 Nm

Overview of Special Tools

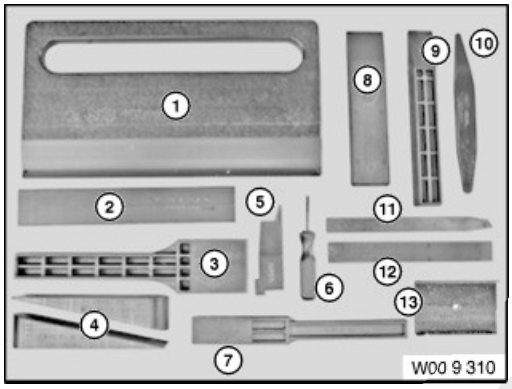
0 493 752 (00 9 329) Case



Common Used in step 3

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

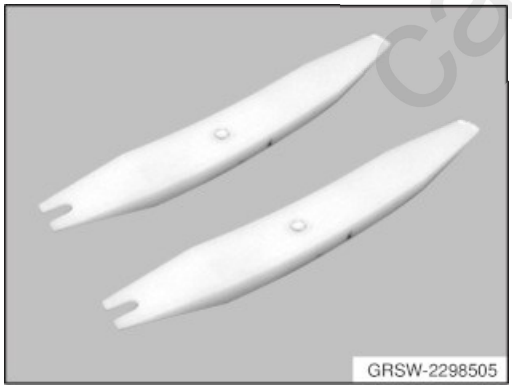
0 495 484 (00 9 324) Panel wedge



Common Used in step 5

Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

2 298 505 Wedge

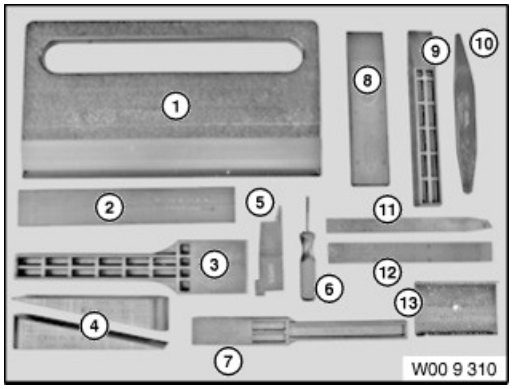


Common Used in step 5

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)

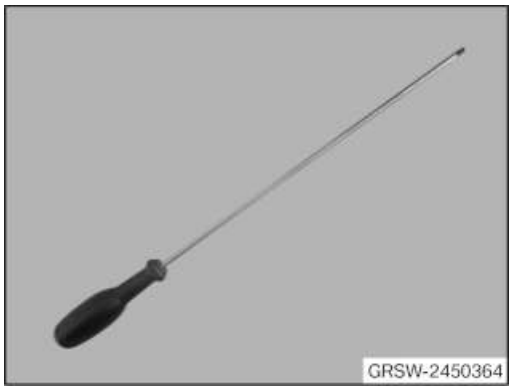
Carorgn.com

0 490 538 (00 9 321) Folding stick



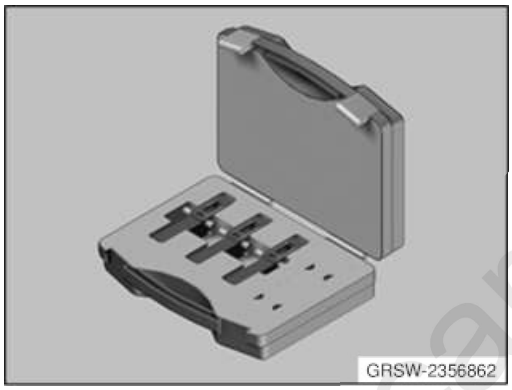
Common	Used in step 5
Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 450 364 Torx



Common	Used in step 913
Usage	for releasing the outside door handles
Included in the tool or work	
Storage location	A5
Replaced by	
In connection with	
SI-Number	01 22 16 (440)

2 356 862 Device



Common	Used in step 20
Usage	Device for measuring the side window retraction depth. Also valid for: BMW i Aftersales Basic. This tool set replaces the tool 2304553
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 29 13 (998)

2 359 976 Siphon



Common	Used in step 20
Usage	For fixing and adjusting frameless side/door window glass. Also valid for: BMW i Aftersales Basic
Included in the tool or work	
Storage location	A73
Replaced by	
In connection with	
SI-Number	01 27 14 (129)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	119

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Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
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61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
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61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	218
61 20 900 Disconnecting and connecting battery earth lead

61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 218
61 20 900 Disconnecting and connecting battery earth lead 218
61 20 900 Disconnecting and connecting battery earth lead 218
61 20 900 Disconnecting and connecting battery earth lead 218

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This documentation refers to special tools that were not yet available when going to press.

51 21 092 Removing and installing/replacing the door lock of the driver's door

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove front door trim panel

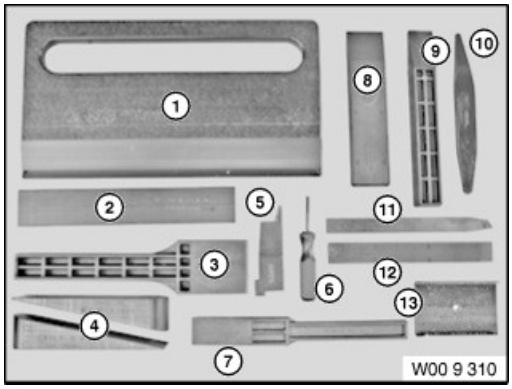
RISK OF DAMAGE

Damage of high-quality surfaces.

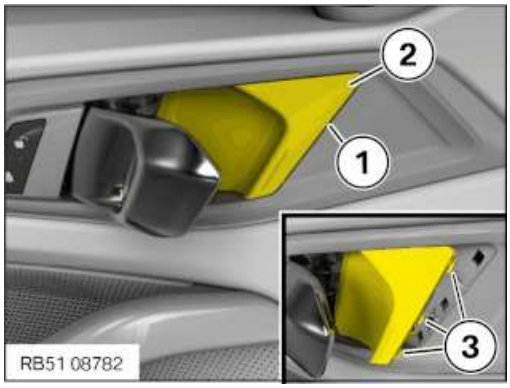
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

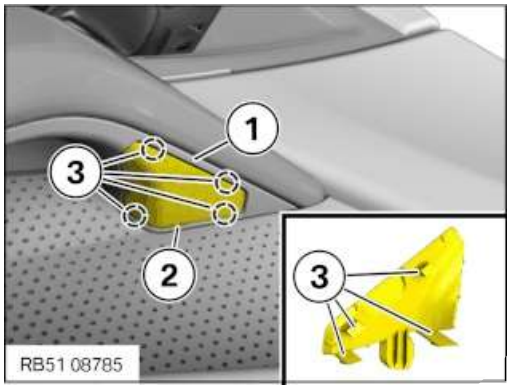
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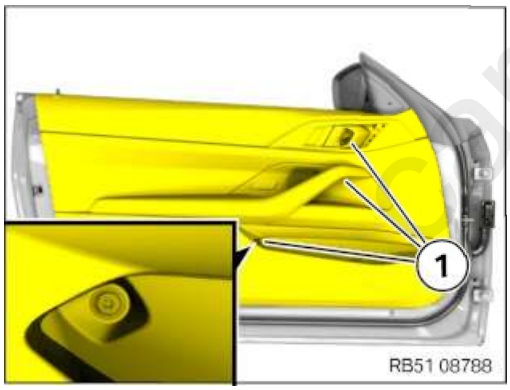
- Have the set of special tools 0 493 752 (00 9 329) ready.



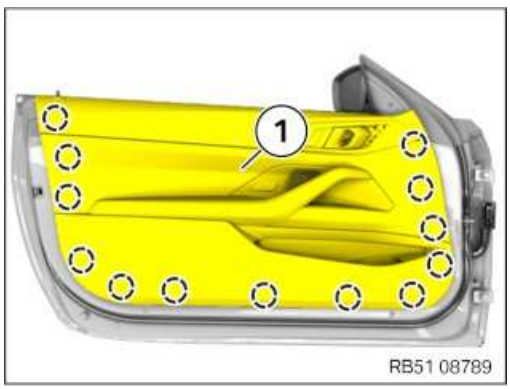
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

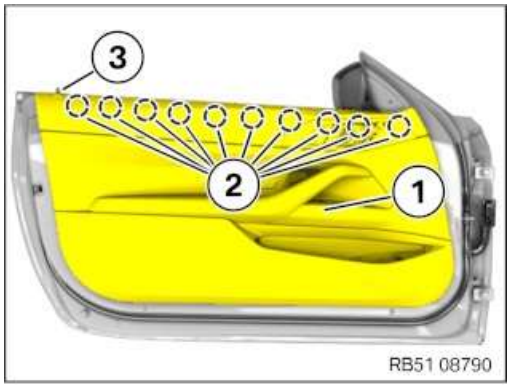


- Loosen screws (1).

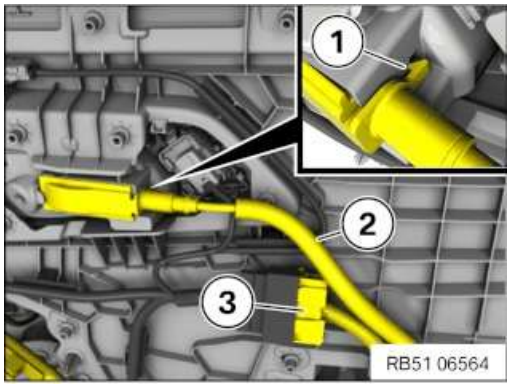


- Unclip the door trim panel (1) with the suitable special tool at the marked places.

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- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



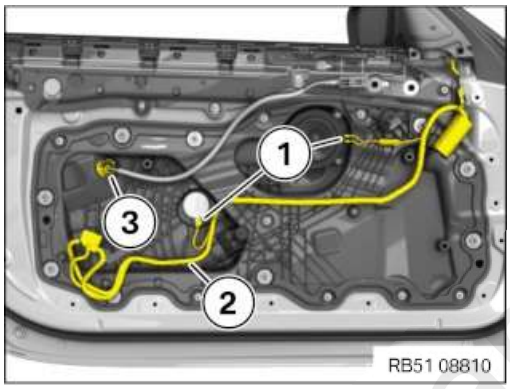
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

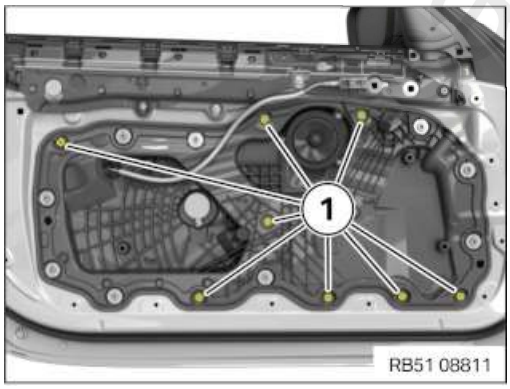
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

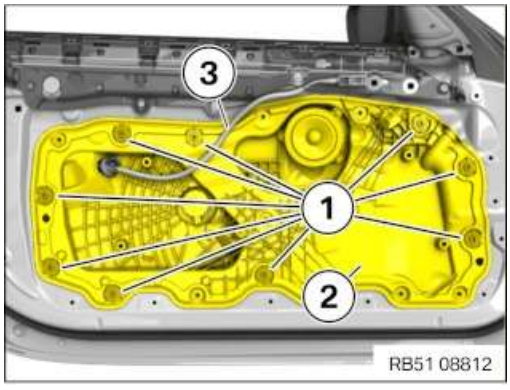
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).



- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

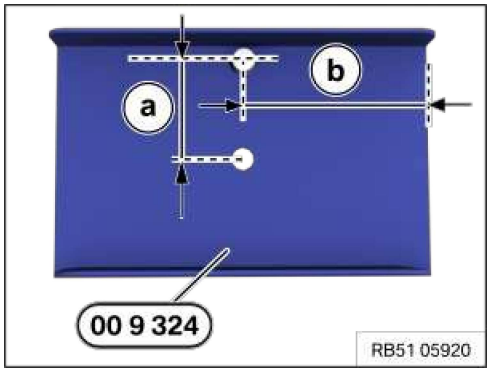
  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

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5 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

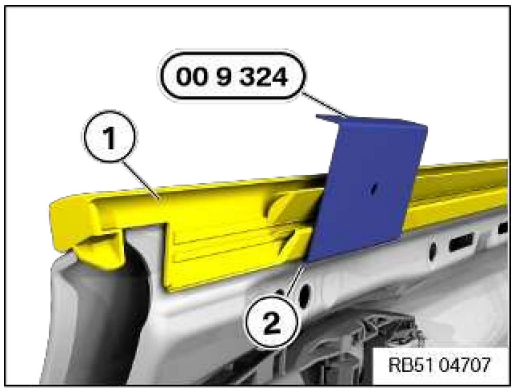
- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

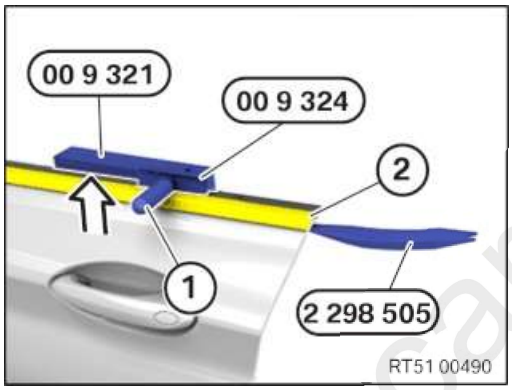
  Dimension (b) = 50 mm from the outer edge of the special tool



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

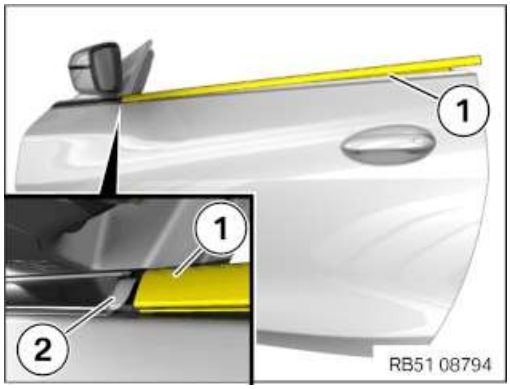
- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.

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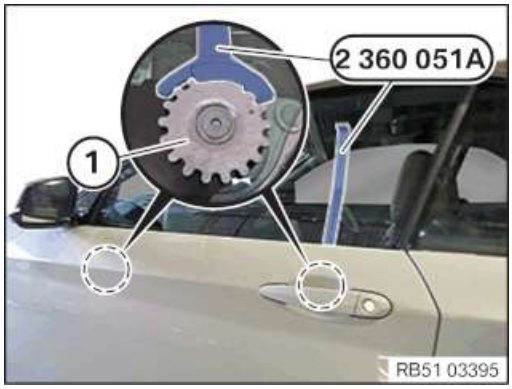


- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

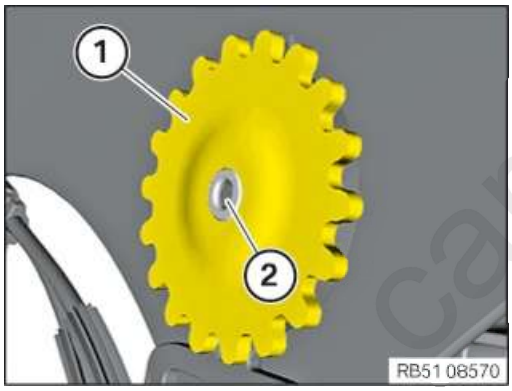
6 – Release door window at front

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

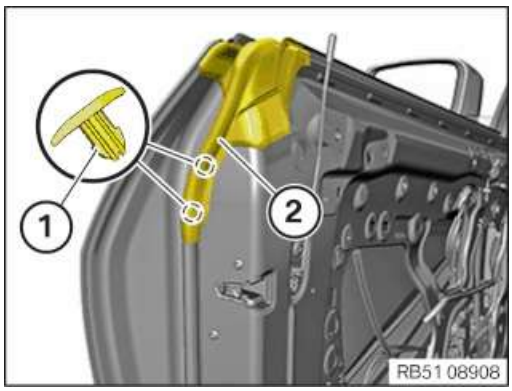


- Undo multi-tooth nuts (1) on side window glass with special tool **A**. (Observe next operation.)



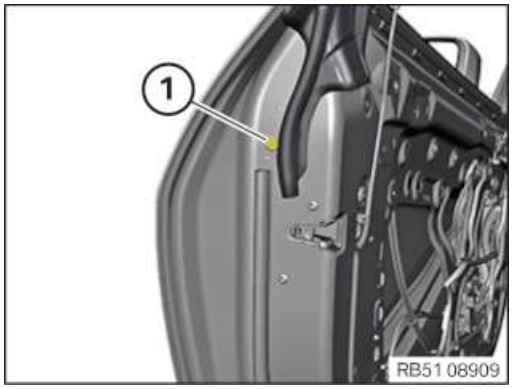
- Only undo the multi-tooth nut (1) to the extent it is flush with the socket (2).
- Lower front door window glass half way.

7 – Remove the outside door handle

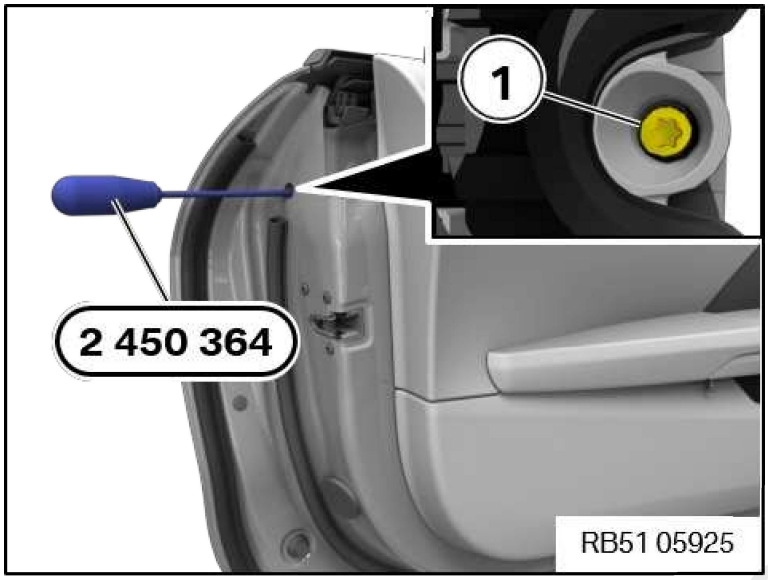


- Release the seal (2) at the clips (1) and move is slightly to the side.

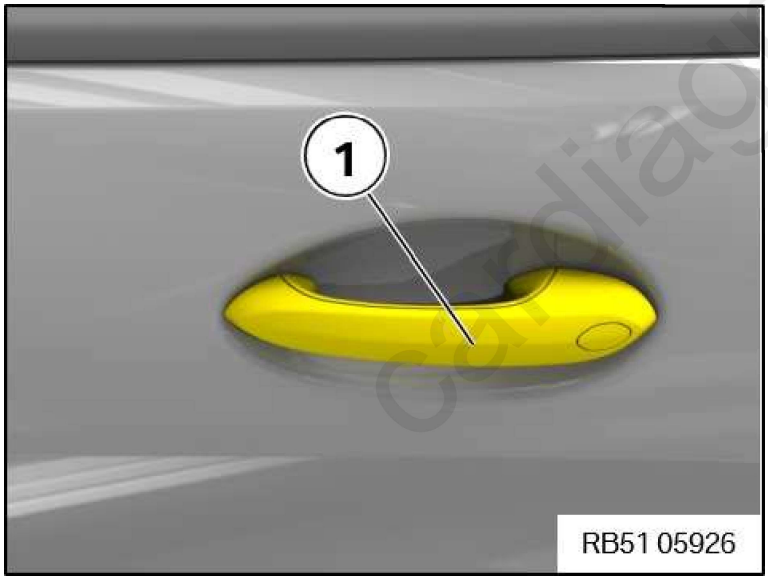
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- Remove the seal plug (1).

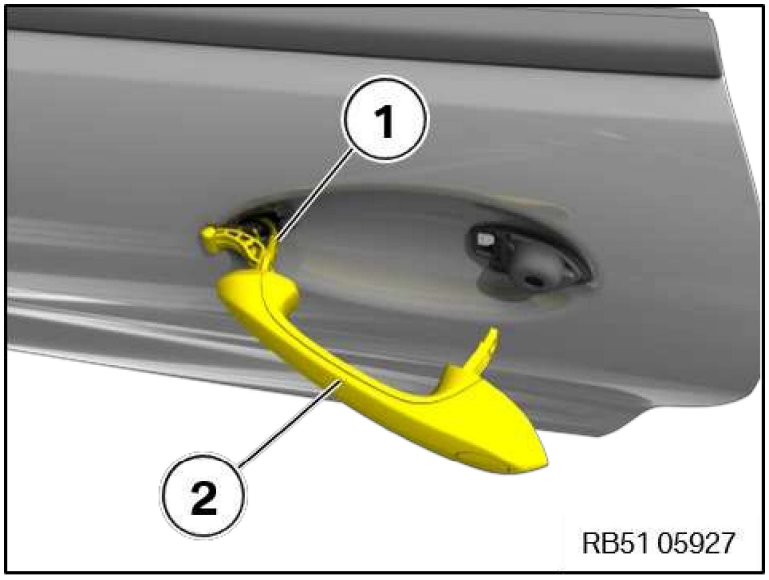


- Release the clamping bolt (1) from the outside door handle support with the special tool 2 450 364.



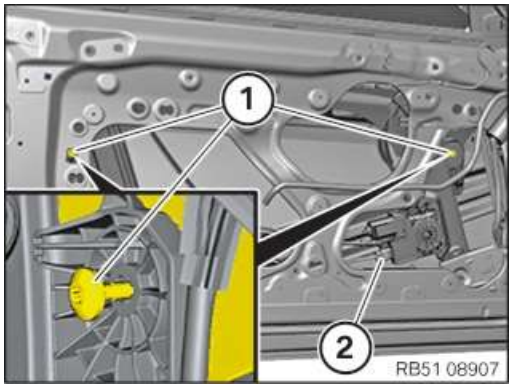
- Pull the rear outside door handle (1) to the outside and remove it in the process.
- Pivot the outside door handle (1) further towards the outside and in this process, remove it at the front.

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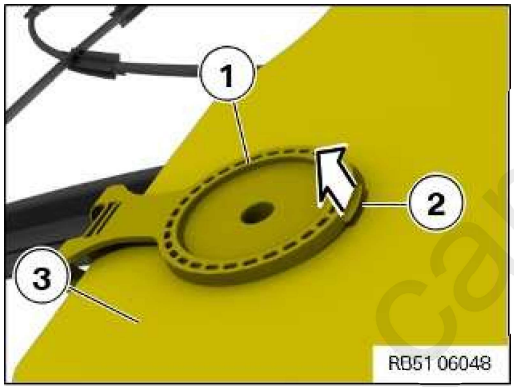


- Unlock and disconnect plug connections (1).
- Remove the outside door handle (2).

8 – Removing front door window glass



- Open the front door window glass so that the screws (1) are accessible.
- Unlock plug connection (2) and disconnect.
- Unscrew the screws (1) so far until the disassembly of the front door window glass is possible.

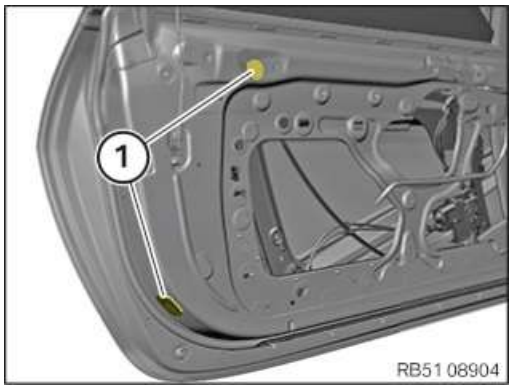


NOTICE

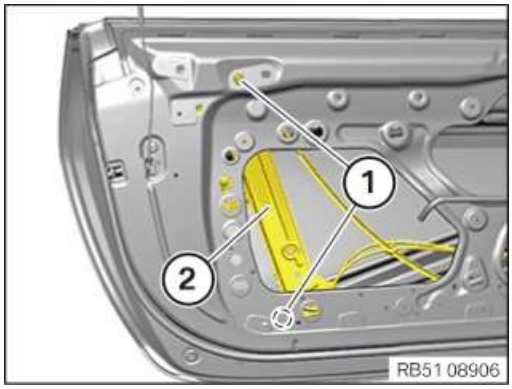
To provide a better overview: Schematic diagram with partially hidden components.

- Lift holder (1) on the tab (2) in the direction of arrow.
- Feed out the front door window glass (3) from the door upwards.

9 – Removing front door power window regulator



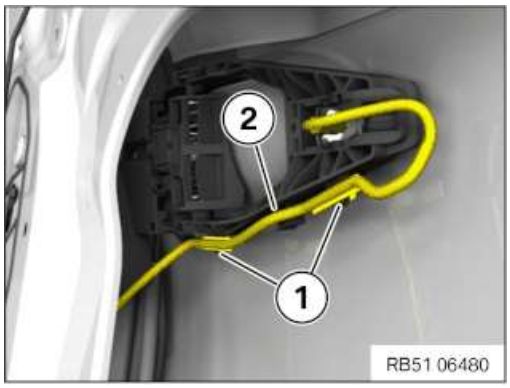
- Remove plug (1).



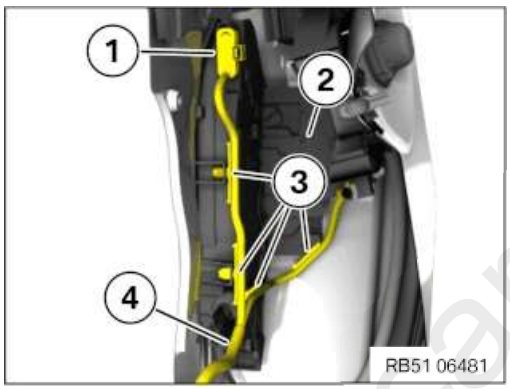
- Release nuts (1).
- Carefully push the power window (2) to the side.

MAIN WORK

10 – Removing the door lock of the driver's door at the front



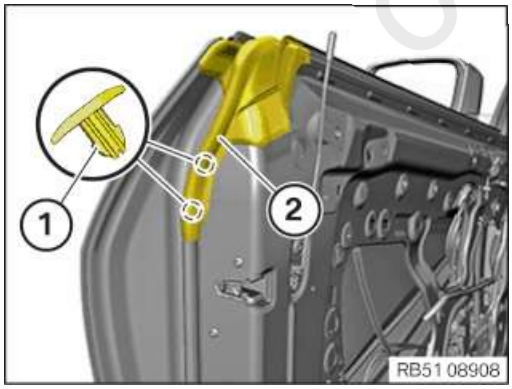
- Unclip clips (1) and place wiring harness (2) aside.



NOTICE

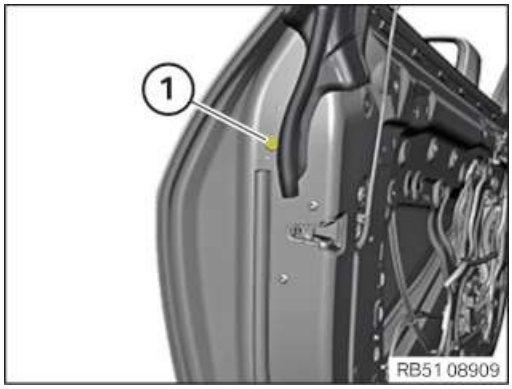
To provide a better overview: Schematic diagram with partially hidden components.

- Unlock and disconnect the plug connection (1)on the door lock (2).
- Unclip clips (3).
- Remove the wiring harness (4) and put to one side.

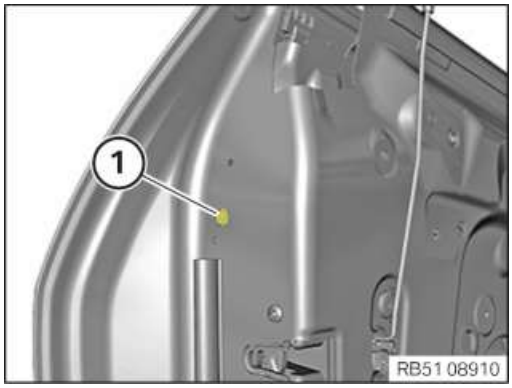


- Release the seal (2) at the clips (1) and bend it slightly to one side.

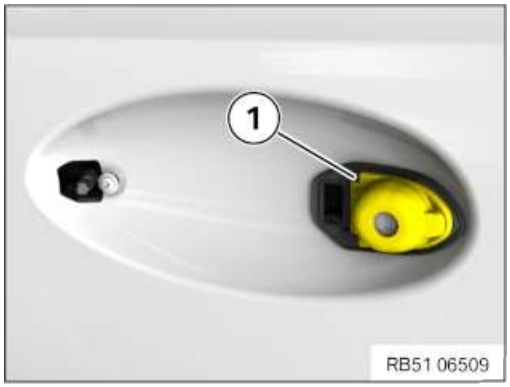
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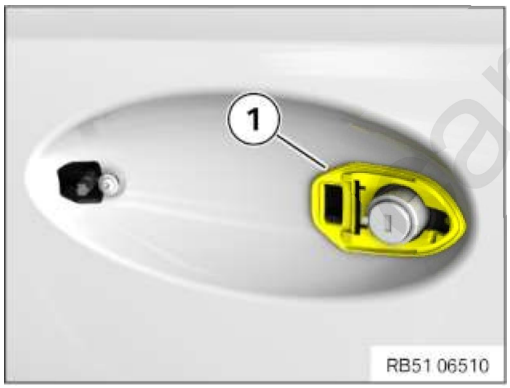
- Remove the seal plug (1).



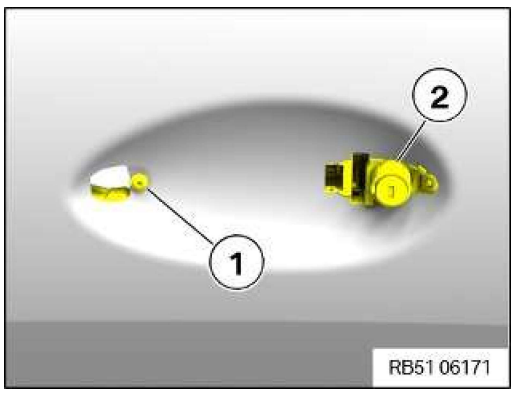
- Loosen screw (1).



- Remove the cover (1).

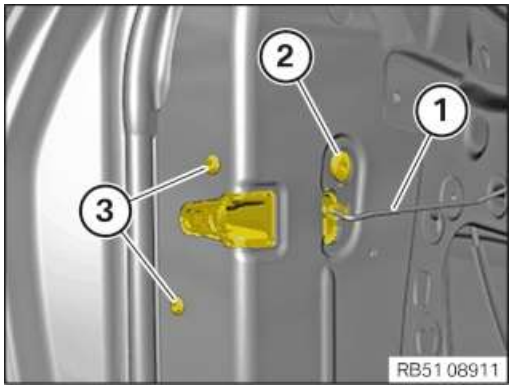


- Remove seal (1) for the outside door handle.

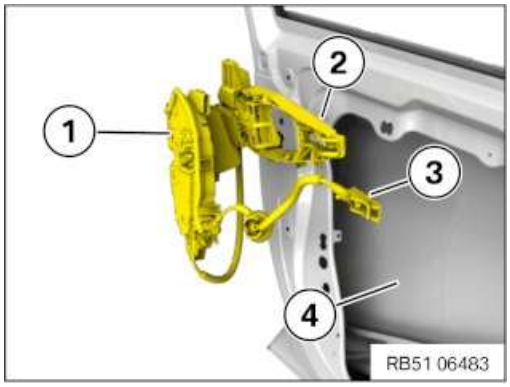


- Loosen screw (1).
- Slide the outside door handle support (2) forward and thread out to the inside.

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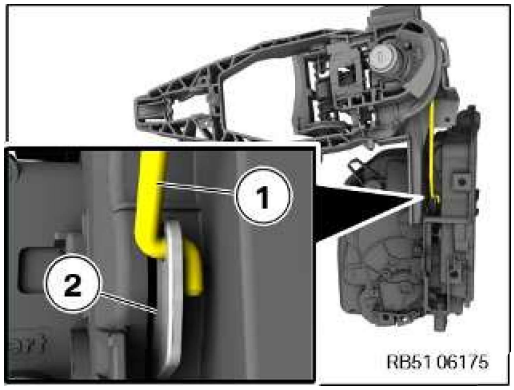


- Unclip locking rod (1).
- Release the screws (2) and (3).

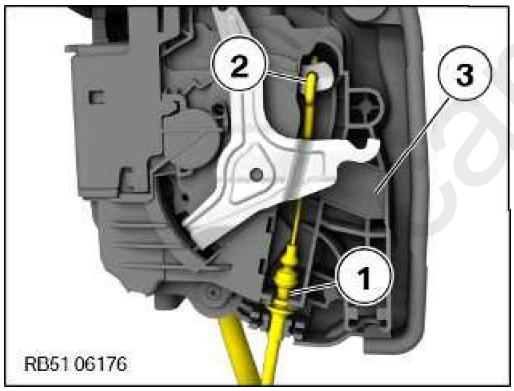


- Thread out the door lock (1) together with the outside door handle support (2) and the Bowden cable (3) for inner door handle on the inside from the door (4).

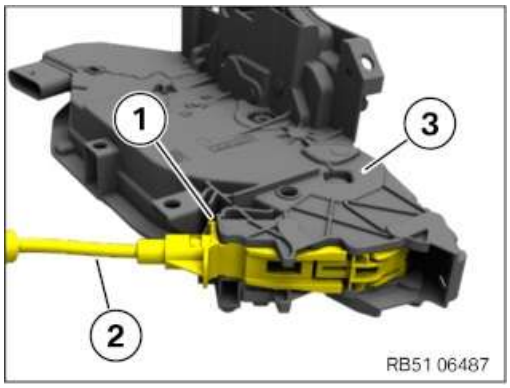
  Make sure that the seal of door lock (1) is not damaged.



- Detach the linkage (1) from the door lock (2).



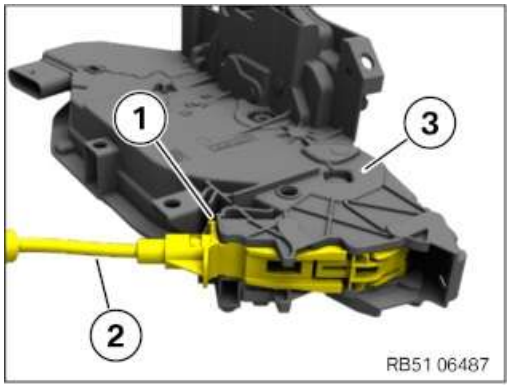
- Unclip the Bowden cable (1) on the door lock (3).
- Detach the Bowden cable nipple (2) on the door lock (3).



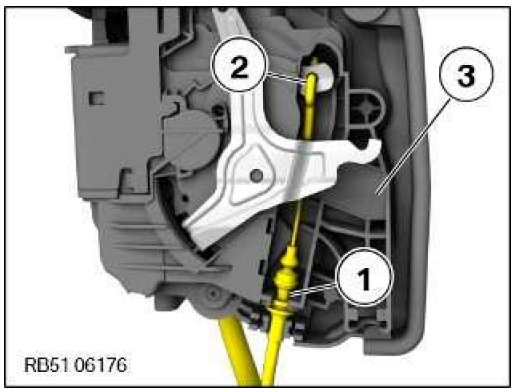
- Unclip the clip (1) on the Bowden cable (2) for the inner door opener .
- Remove the Bowden cable (2) for the inner door opener from the door lock (3).

11 – Installing door lock of the front driver's door

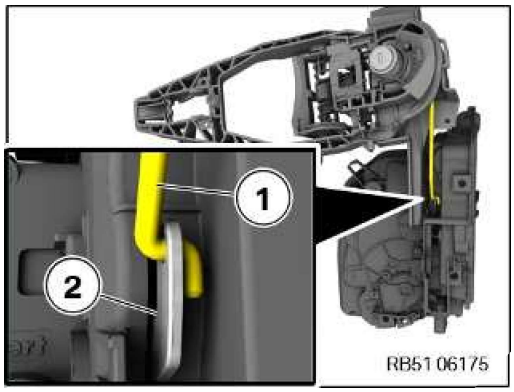
cardiagn.com



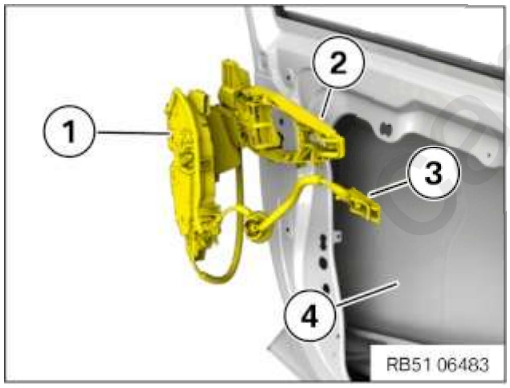
- Install Bowden cable for the inner door opener (2) in the door lock (3).
- Clip in clip (1).



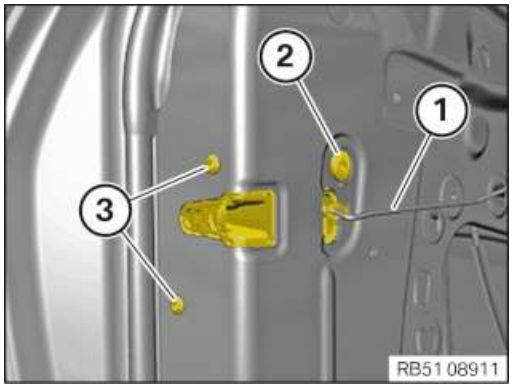
- Attach Bowden cable nipple (2) to door lock (3).
- Clip Bowden cable (1) into door lock (3).



- Attach the linkage (1) in the door lock (2).



- Feed in the door lock (1) together with outside door handle support (2) and the Bowden cable (3) for inner door handle into the door (4).
- Make sure that the seal of door lock (1) is not damaged.



- Screw in screws (2) and (3) a few turns.
- Tighten the screws (3).

Door lock to door

Screw		Tightening torque	8,8 Nm

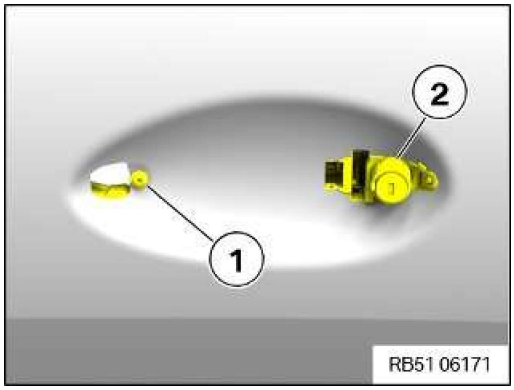
- Tighten down screw (2).

Door lock to door

Screw		Tightening torque	8,8 Nm

- Clip in locking rod (1).

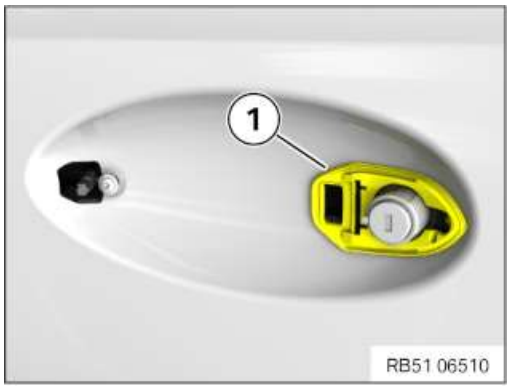
cardiagn.com



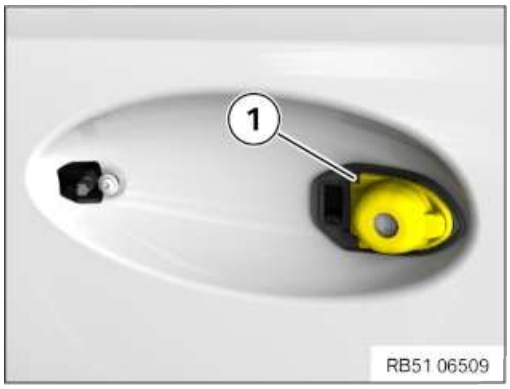
- Feed in outside door handle support (2) and position correctly.
- Tighten down screw (1).

Outside door handle support to door

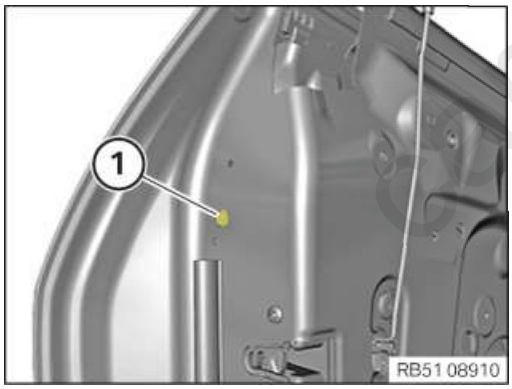
Screw		Tightening torque	2,6 Nm



- Install seal (1) for the outside door handle.



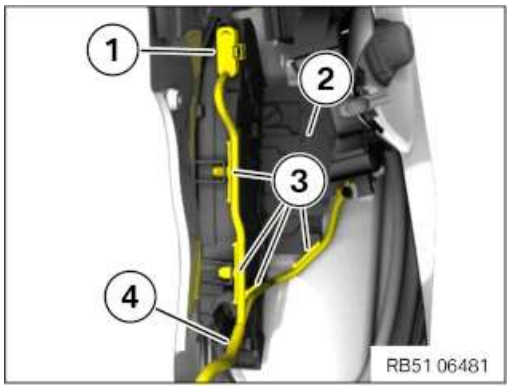
- Install the cover (1) .



- Tighten down screw (1).

Attachment bell to outside door handle support

Screw		Tightening torque	3 Nm

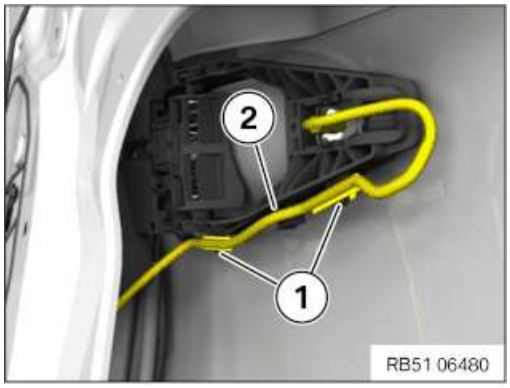


NOTICE

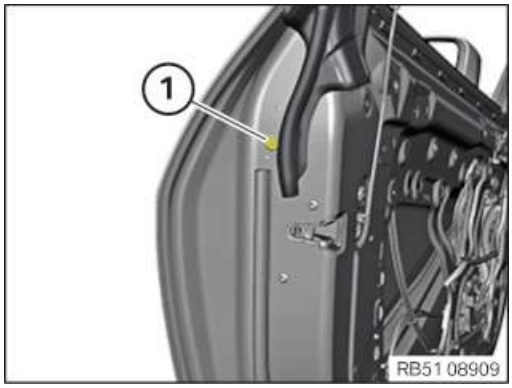
To provide a better overview: Schematic diagram with partially hidden components.

- Insert the wiring harness (4).
- Connect connector (1) at the door lock (2) and lock.
- Clip in clips (3).

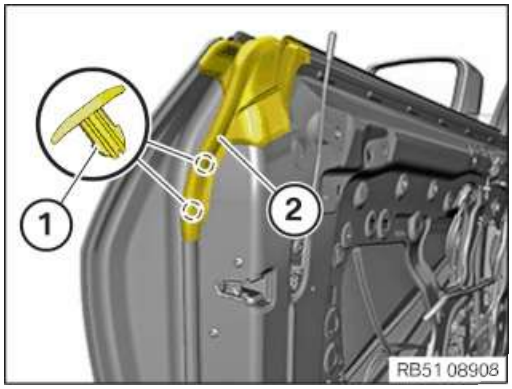
carjdiagn.com



- Route the wiring harness (2) correctly.
- Clip in clips (1).



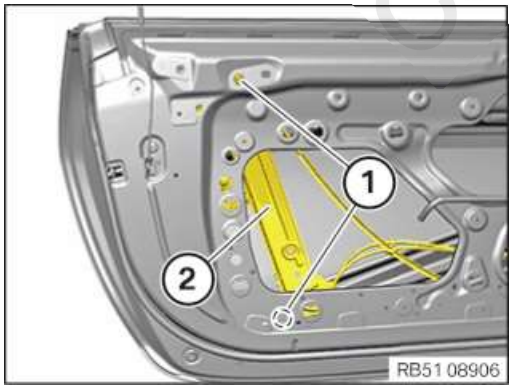
- Install seal plug (1).



- Fasten the seal (2) with the clips (1).

POSTPROCESSES

12 – Partially installing the window regulator of the front door

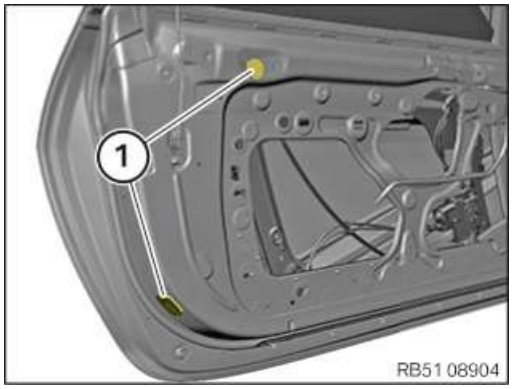


- Correctly position the window regulator (2).
- Tighten nuts (1).

Power window regulator to inner door panel

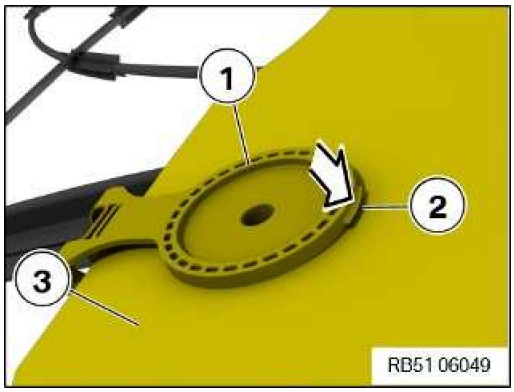
M6			9,5 Nm

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- Install the plug (1).

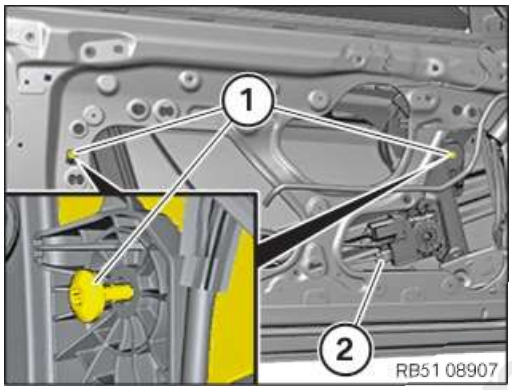
13 – Installing front door window glass



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Insert door window glass front (3) from the top.
- Press holder (1) on the tab (2) in direction of arrow and lock.



- Screw in the screws (1) and tighten them.

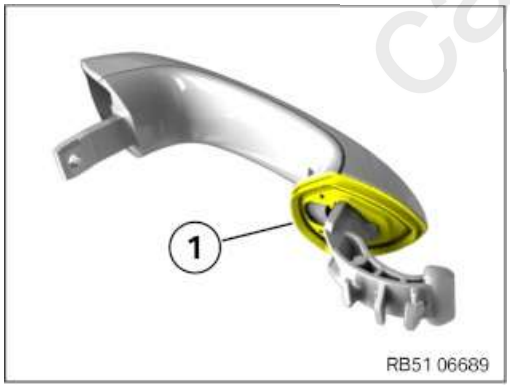
  In this process, counter support the multi-tooth nuts of the electric window.

Door window glass to power window regulator

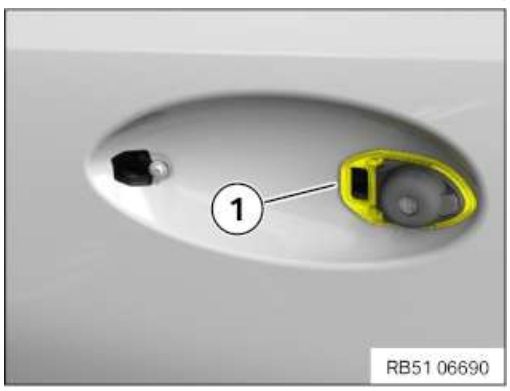
Screw	Tightening torque	0.25 Nm

- Connect connectors (2) and lock.

14 – Installing the outside door handle

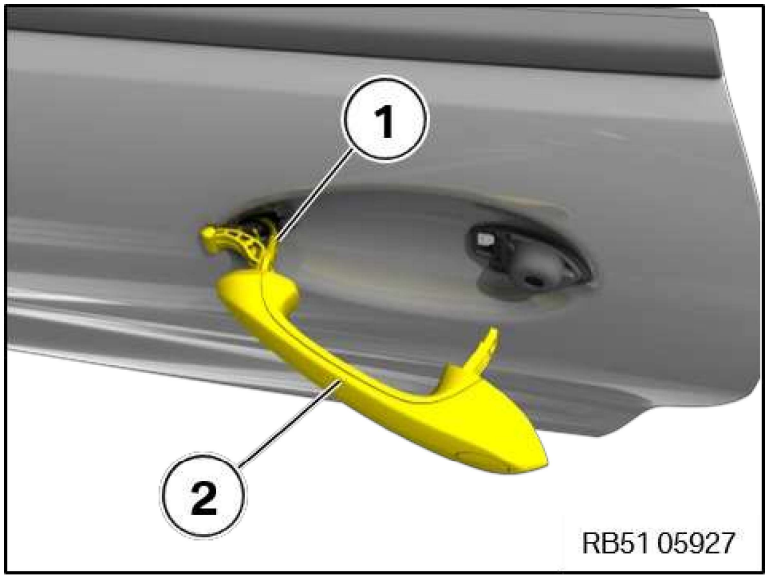


- Check the seal (1) for damage and renew if necessary.

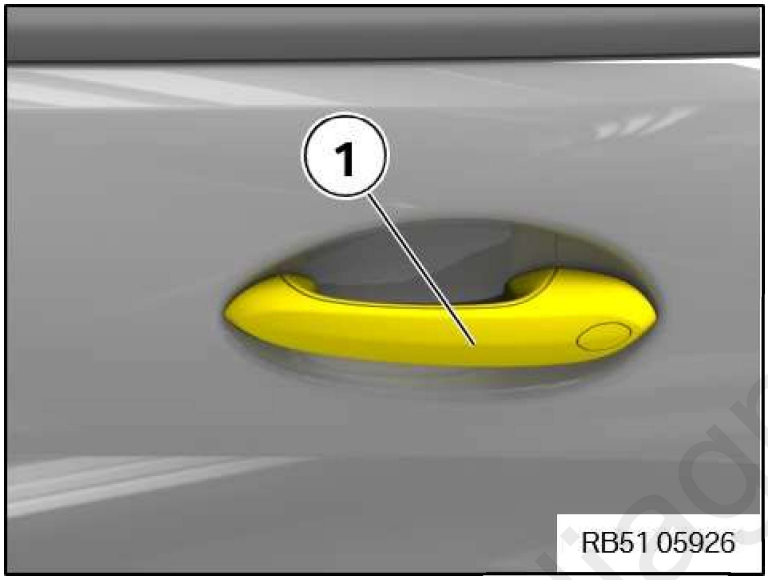


- Check the seal (1) for damage and renew if necessary.

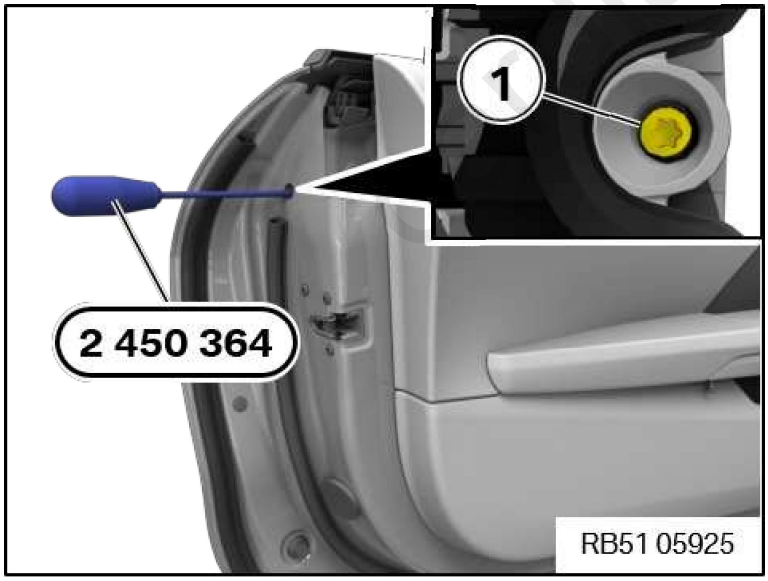
cardiagn.com



- Insert the front outside door handle (2).
- Connect connectors (1) and lock.



- Insert the rear outside door handle (1).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

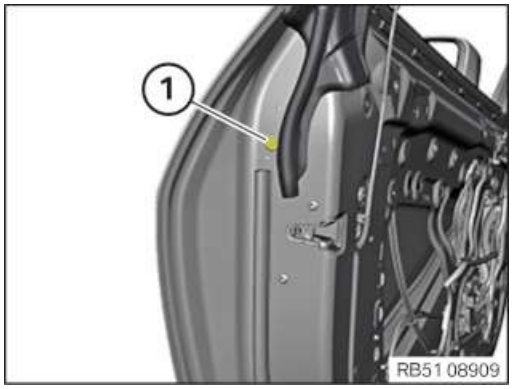
- Tighten the clamping bolt (1) on the outside door handle support with the special tool 2 450 364.

Clamping bolt for door handle

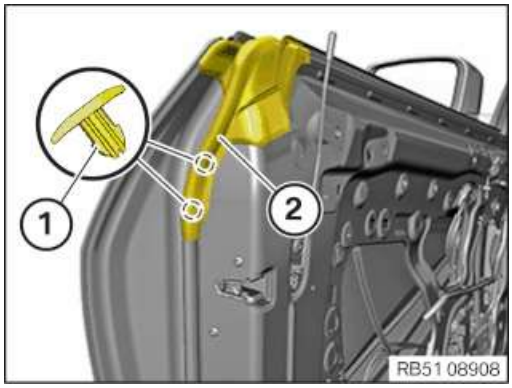
Screw		Tightening torque	2 Nm

Outer door handle to door

Clamping bolt		Tightening torque	3 Nm

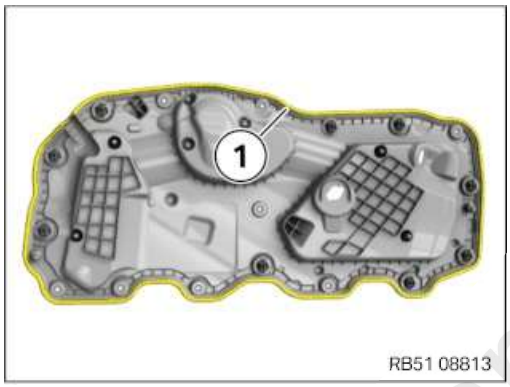


- Install seal plug (1).



- Fasten the seal (2) with the clips (1).

15 – Installing the module carrier on the front door



Check

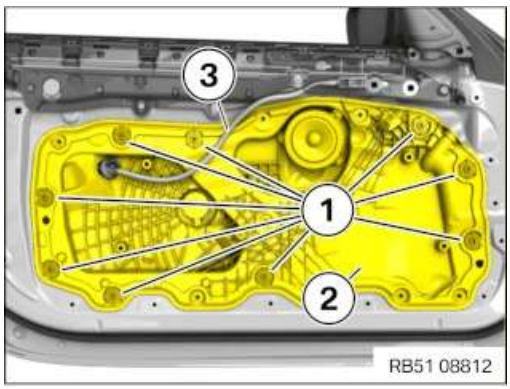
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

Measure

- Renew the module carrier on the front door.

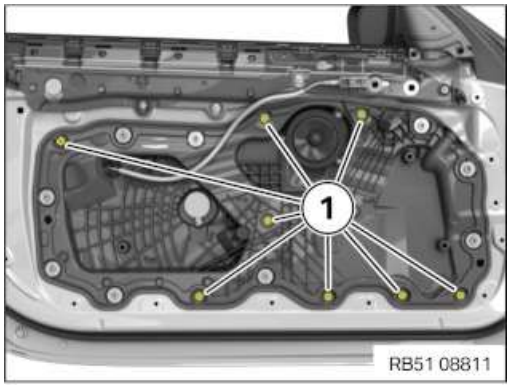


- Position the module carrier on the front door (2).

  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).

- Lock the bayonet fittings (1) by twisting them.

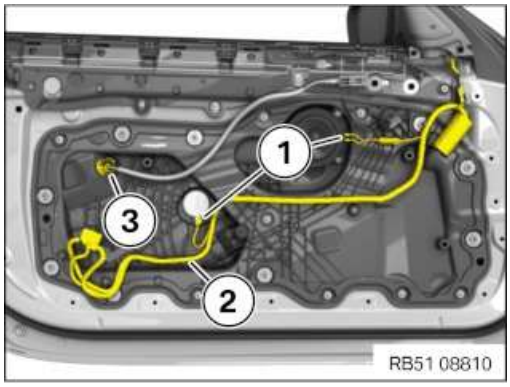
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- Tighten the screws (1).

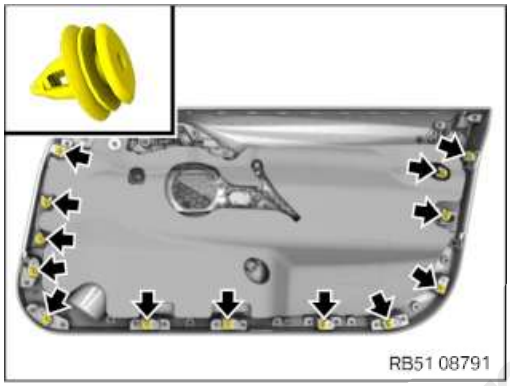
Module carrier to the front door

Oval-head screwM6		Tightening torque	9 Nm

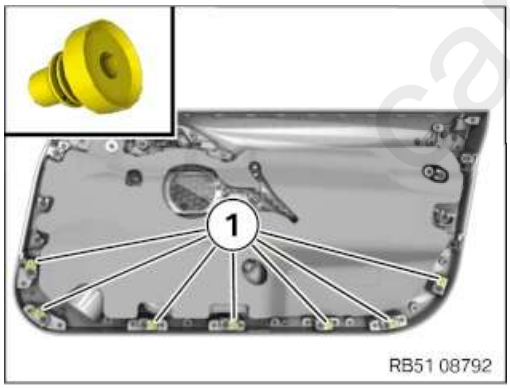


- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

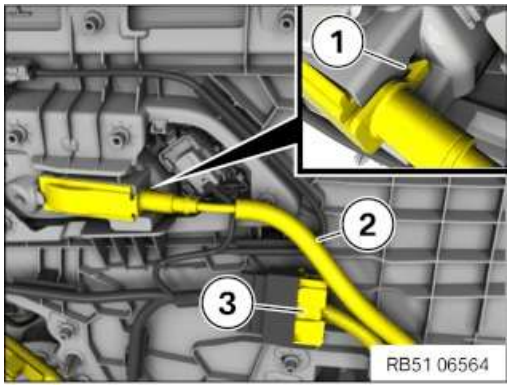
16 – Install front door trim panel



- Check clips (arrows) for damage and, if necessary, renew them.



- Check the stop pad (1) for damage, renew if necessary.

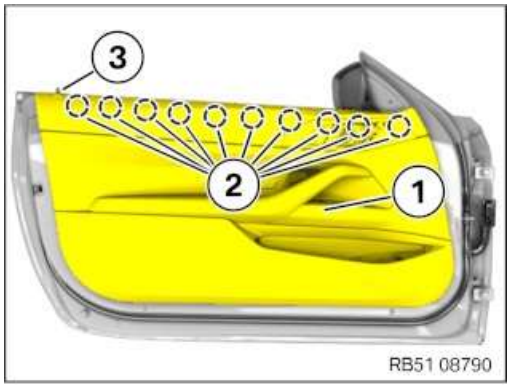


NOTICE

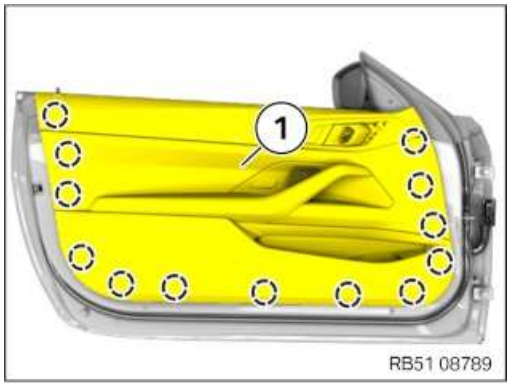
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.

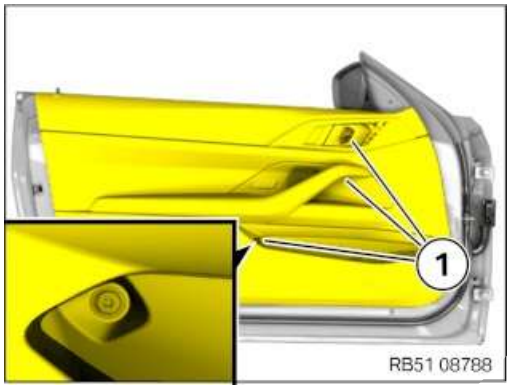
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- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

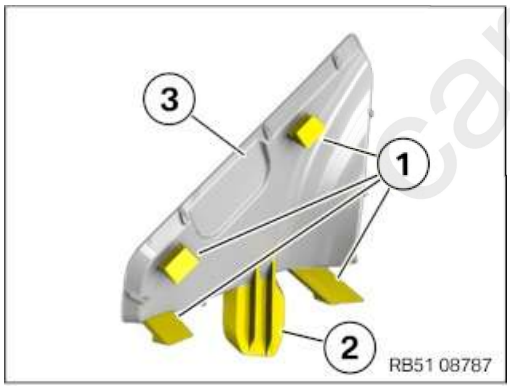


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

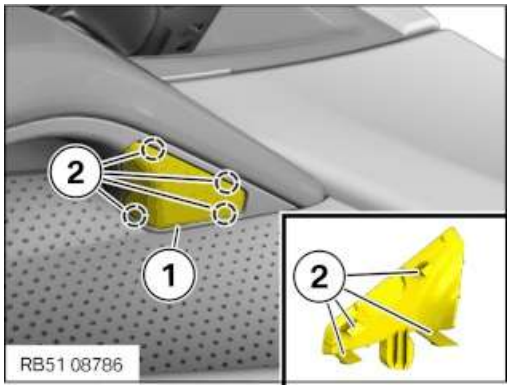
Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

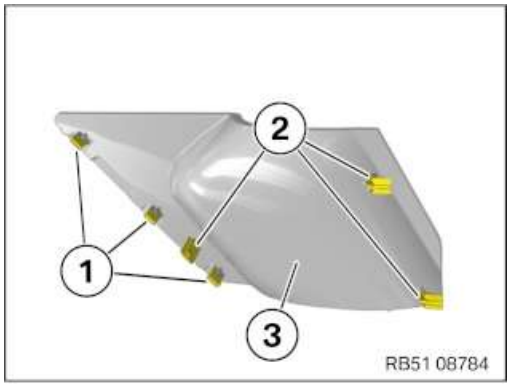
- Replace the cover (3).

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- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check



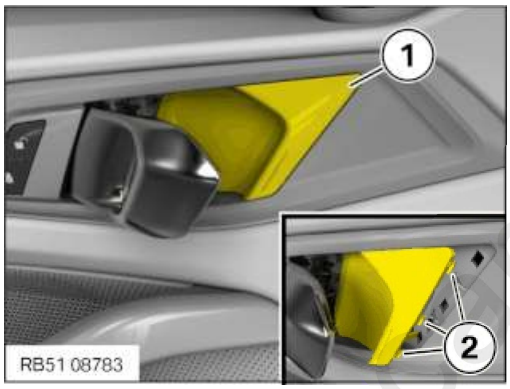
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

17 – Connecting all battery earth leads



- See additional information.

18 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

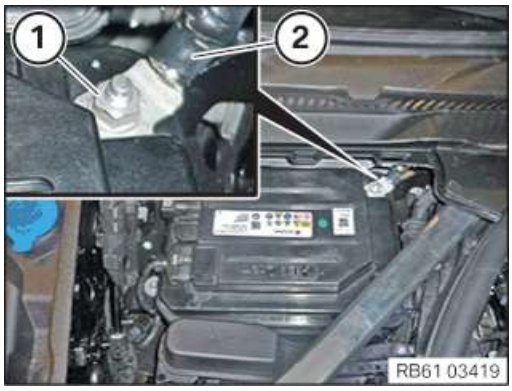
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

19 – Adjusting door window glass

Prerequisite

Vehicle is supported on all wheels at ground level.

Front door has been correctly fitted.

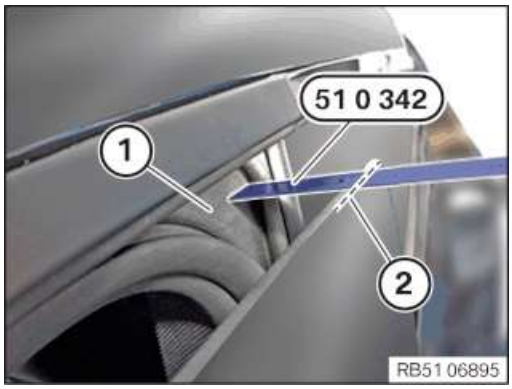
Battery charger is connected (during adjustment work, the complete operability of the power window regulator is only guaranteed with external voltage supply).

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

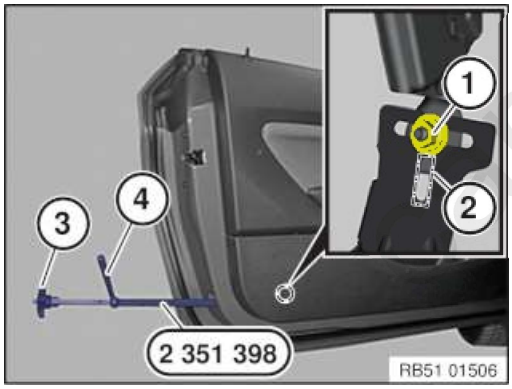


- Open door; move door window glass into uppermost position, if necessary.
- Insert special tool with the special tool in the rotary striker of the door lock and lock the rotary striker manually (door window glass moves fully upwards).
- Carefully close the door until the special tool lies on the striker (defined opening angle for the measurement).



- Do not exert any force on the door or door window glass during measurement.
- Abut special tool to the seal (1) and the door window glass (2).
- Determine dimension for preload between the seal (1) and outer edge of door window glass (2).

  Nominal dimension = 55 ± 1 mm



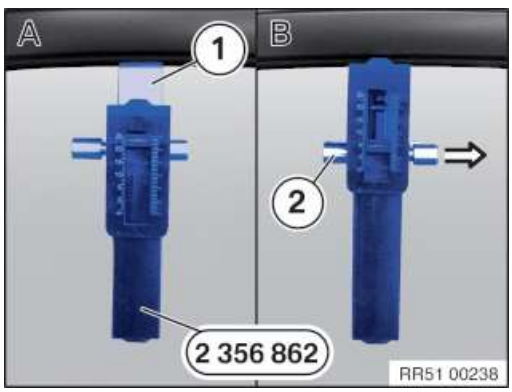
- Open door and remove sealing cap from door frame.
- Feed in special tool into the door and position at the nut (1) and the guide (2).
- Slacken nut (1) with knob (3).
- Turning the lever (4) to set the preload.

  Nominal dimension = 55 ± 1 mm
- Tighten nut (1).

Power window regulator to inner door panel

M6			9,5 Nm

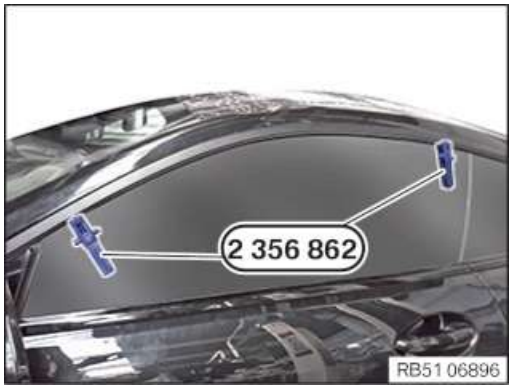
- Check setting, repeat process if necessary.
- Remove special tool and fit the seal plug.
- Remove the special tool from the rotary striker of the door lock.



- Connect the special tool 2 356 862 to the holder (5 mm)(1) on the door window glass when it is locked (A).

  Close the door and release the lock (2) (B).

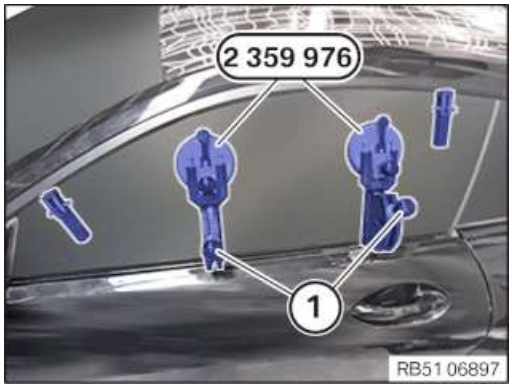
rdiagn.com



- Open door.
- Place special tool 2 356 862 as shown on the door window glass.

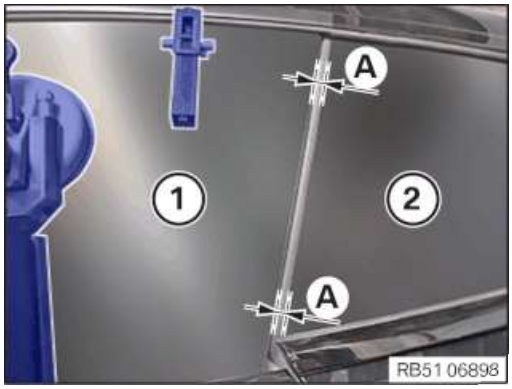
  Approx. displaced by 40 mm inwards in each case.
- Close door.
- Measure retraction depth.

  Nominal dimension: 5.5 ± 1 mm



- Attach special tool 2 359 976 on the door window glass so that the multi-tooth screws of the door window glass are still accessible.
- Release adjustment lever (1) by twisting.
- Set the retraction depth of the side window glass by moving the adjustment lever (1).

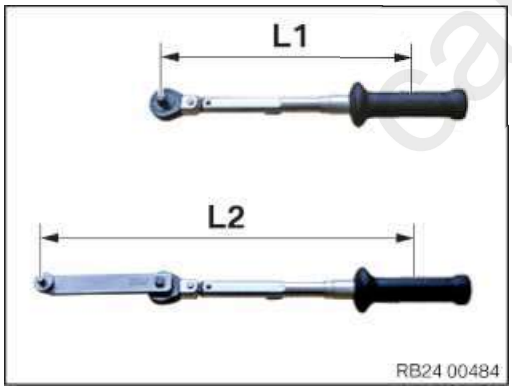
  Nominal dimension: 5.5 ± 1 mm
- Tighten adjustment lever (1).



- Adjust door window panel (1) parallel to the rear side window (2).

  Dimension (A) = 8.0 ± 1 mm

▸ Tighten the front door window glass



TECHNICAL INFORMATION

While using the special tool, that extends the lever arm of the torque wrench, the setpoint torque deviates from the torque to be set.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

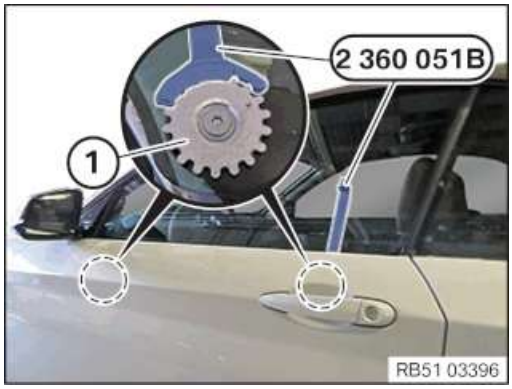
- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool

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- Tighten multi-point nuts (1) on the door window glass in the front using special tool **B** and a torque wrench.

Toothed nut of side window

Toothed nut		Tightening torque	11 Nm

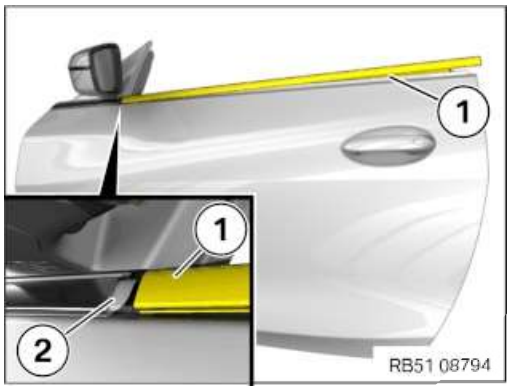
20 – Install outer weather strip

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

Additional Information

Overview of Tightening Torques

Door lock to door — Used in step 11

Screw		Tightening torque	8,8 Nm

Outside door handle support to door — Used in step 11

Screw		Tightening torque	2,6 Nm

Attachment bell to outside door handle support — Used in step 11

Screw		Tightening torque	3 Nm

Power window regulator to inner door panel — Used in step 1219

M6			9,5 Nm

Door window glass to power window regulator — Used in step 13

Screw		Tightening torque	0.25 Nm

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Clamping bolt for door handle Used in step 14

Screw		Tightening torque	2 Nm

Outer door handle to door Used in step 14

Clamping bolt		Tightening torque	3 Nm

Module carrier to the front door Used in step 15

Oval-head screwM6		Tightening torque	9 Nm

Door trim panel Used in step 16

Oval-head screw		Tightening torque	3 Nm

Negative battery cable to 48-V battery Used in step 18

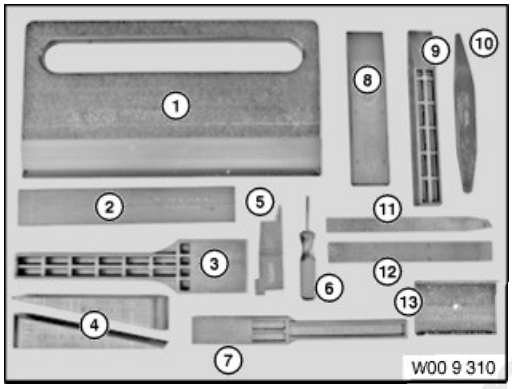
Nut M8		Tightening torque	19 Nm

Toothed nut of side window Used in step 19

Toothed nut		Tightening torque	11 Nm

Overview of Special Tools

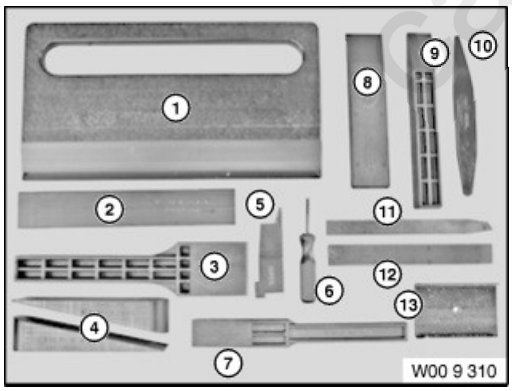
0 493 752 (00 9 329) Case



Common Used in step 3

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 495 484 (00 9 324) Panel wedge

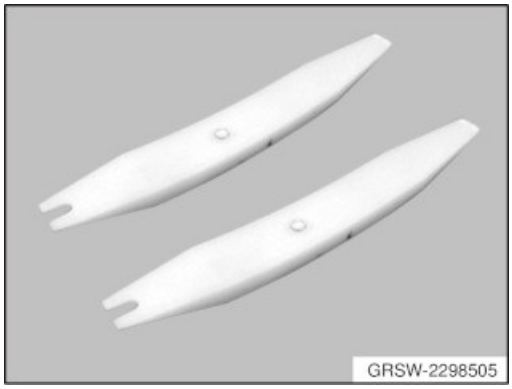


Common Used in step 5

Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

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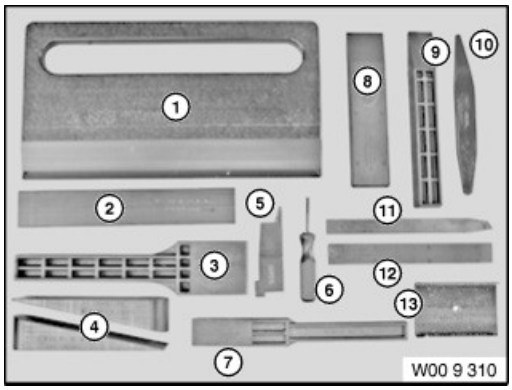
2 298 505 Wedge



Common Used in step 5

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)

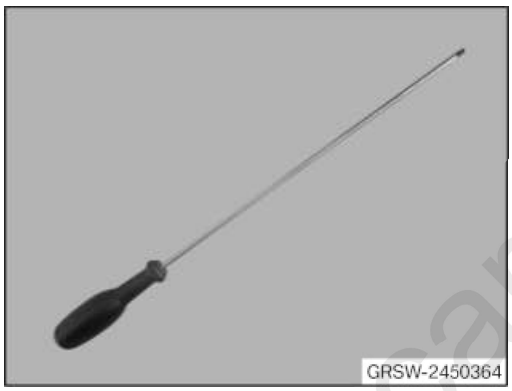
0 490 538 (00 9 321) Folding stick



Common Used in step 5

Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 450 364 Torx



Common Used in step 714

Usage	for releasing the outside door handles
Included in the tool or work	
Storage location	A5
Replaced by	
In connection with	
SI-Number	01 22 16 (440)

2 356 862 Device



Common Used in step 19

Usage	Device for measuring the side window retraction depth. Also valid for: BMW i Aftersales Basic. This tool set replaces the tool 2304553
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 29 13 (998)

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2 359 976 Siphon



Common	Used in step 19
Usage	For fixing and adjusting frameless side/door window glass. Also valid for: BMW i Aftersales Basic
Included in the tool or work	
Storage location	A73
Replaced by	
In connection with	
SI-Number	01 27 14 (129)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	118

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	217
61 20 900 Disconnecting and connecting battery earth lead	217
61 20 900 Disconnecting and connecting battery earth lead	217
61 20 900 Disconnecting and connecting battery earth lead	217
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	217
61 20 900 Disconnecting and connecting battery earth lead	217
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	217
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	217
61 20 900 Disconnecting and connecting battery earth lead	217
61 20 900 Disconnecting and connecting battery earth lead	217

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61 20 900 Disconnecting and connecting battery earth lead	217
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61 20 900 Disconnecting and connecting battery earth lead	217
61 20 900 Disconnecting and connecting battery earth lead	217

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This documentation refers to special tools that were not yet available when going to press.

51 21 111 Removing and installing/replacing the door lock of the front passenger door

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove front door trim panel

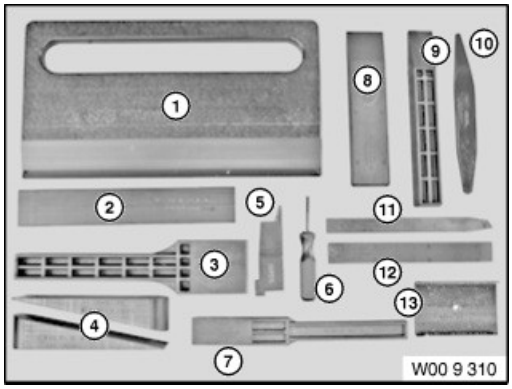
RISK OF DAMAGE

Damage of high-quality surfaces.

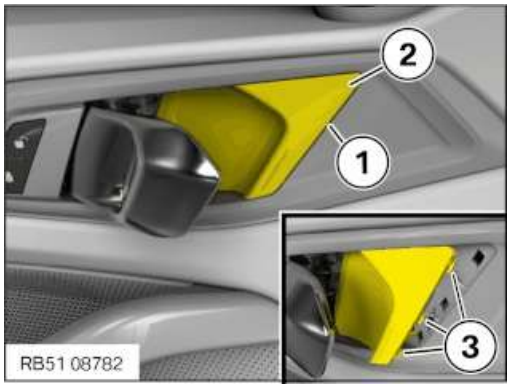
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

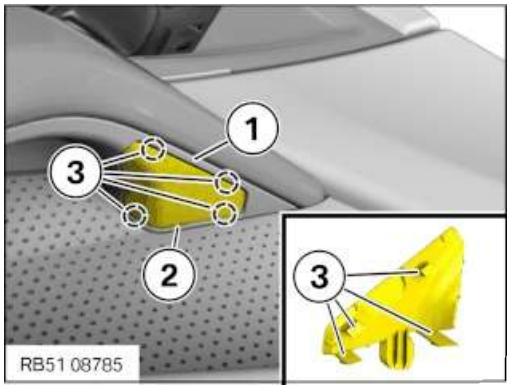
cardiag.com



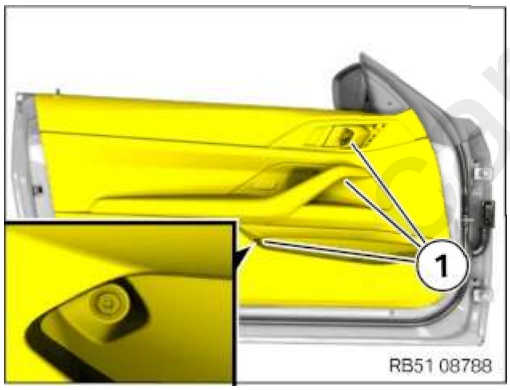
- Have the set of special tools 0 493 752 (00 9 329) ready.



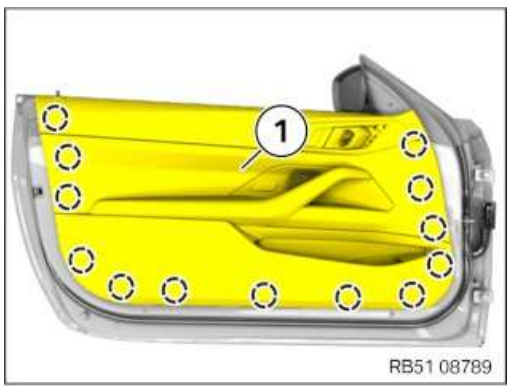
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

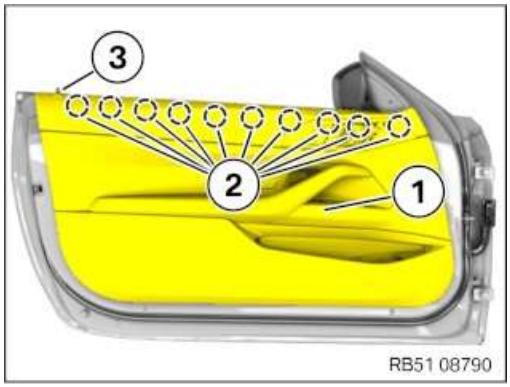


- Loosen screws (1).

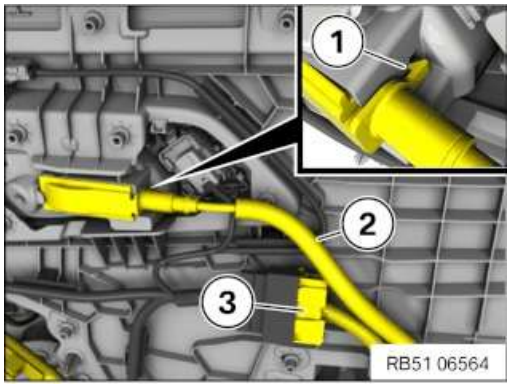


- Unclip the door trim panel (1) with the suitable special tool at the marked places.

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- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



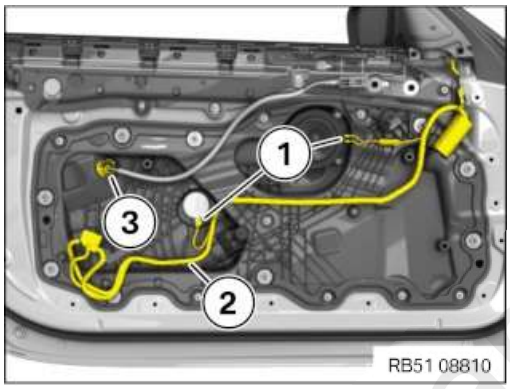
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

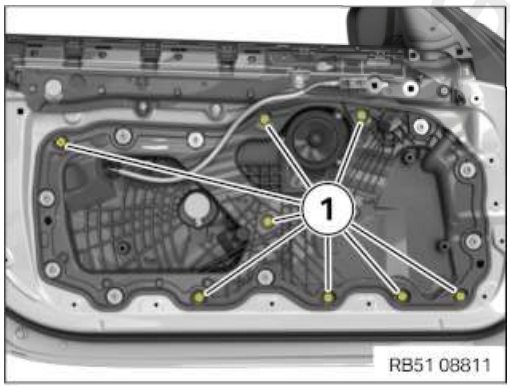
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

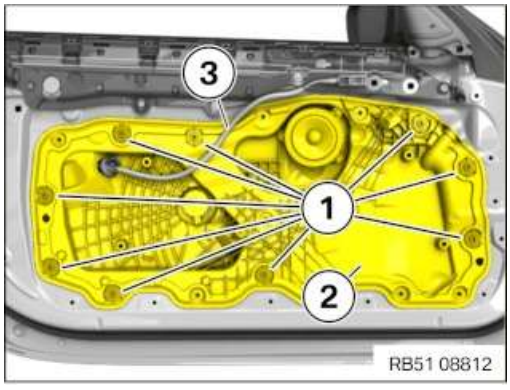
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).



- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

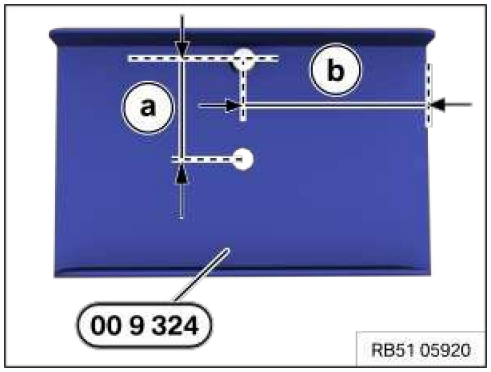
  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

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5 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

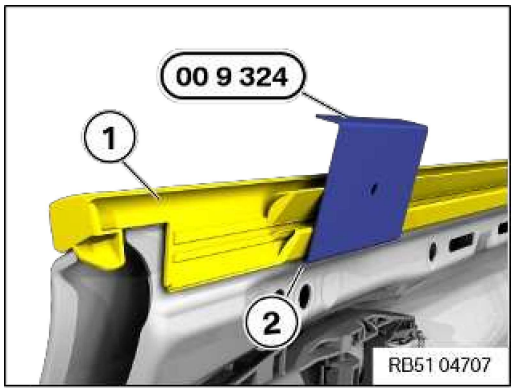
- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

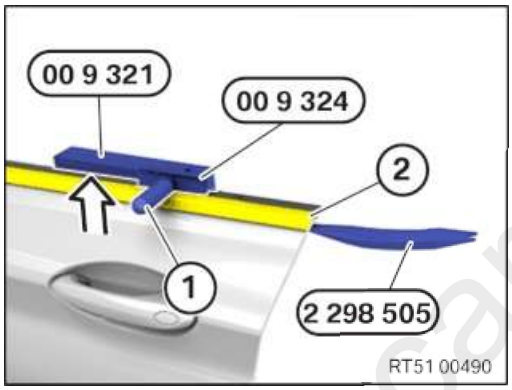
  Dimension (b) = 50 mm from the outer edge of the special tool



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

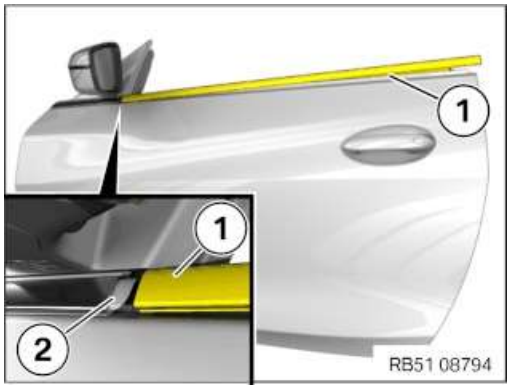
- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.

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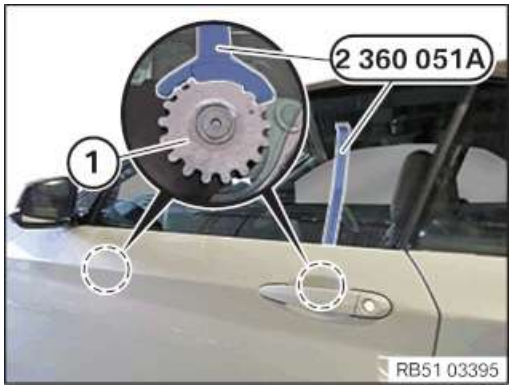


- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

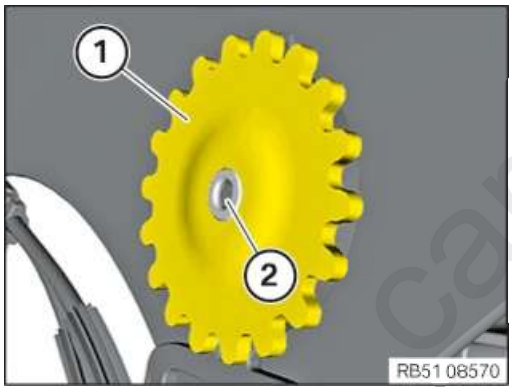
6 – Release door window at front

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

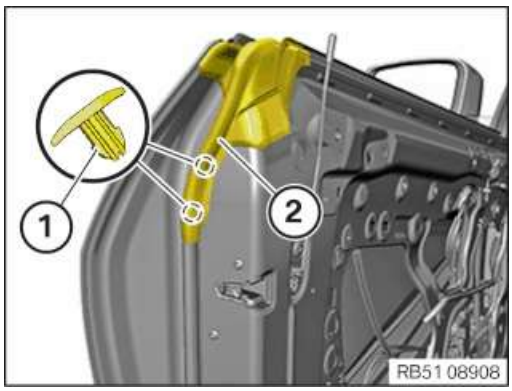


- Undo multi-tooth nuts (1) on side window glass with special tool **A**. (Observe next operation.)



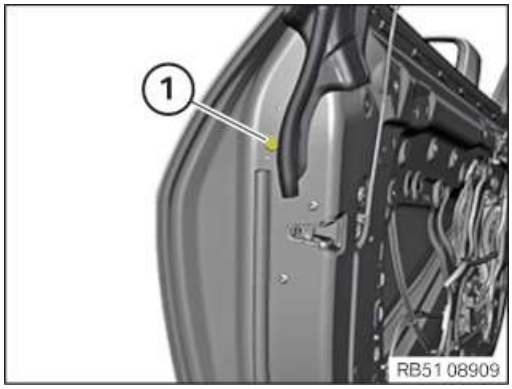
- Only undo the multi-tooth nut (1) to the extent it is flush with the socket (2).
- Lower front door window glass half way.

7 – Remove the outside door handle

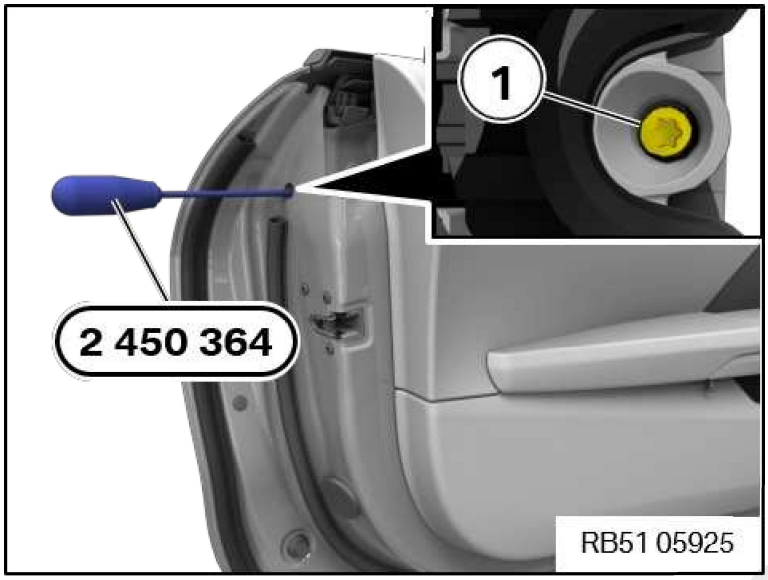


- Release the seal (2) at the clips (1) and move is slightly to the side.

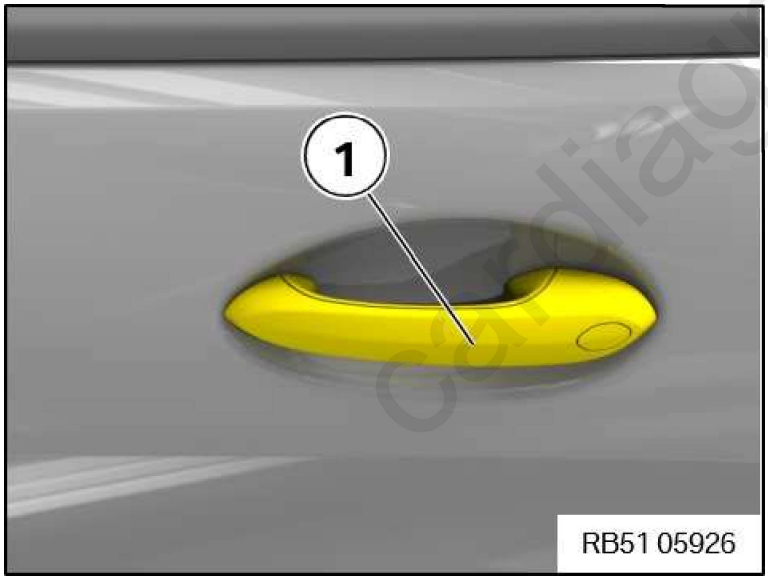
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- Remove the seal plug (1).

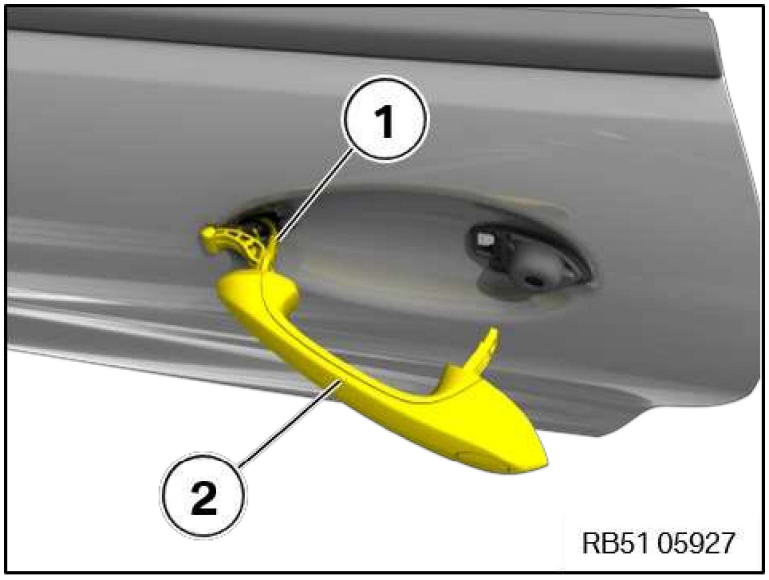


- Release the clamping bolt (1) from the outside door handle support with the special tool 2 450 364.



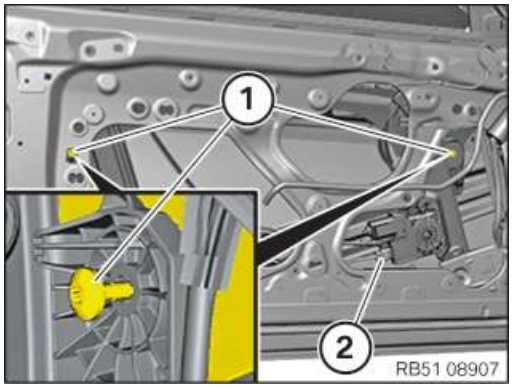
- Pull the rear outside door handle (1) to the outside and remove it in the process.
- Pivot the outside door handle (1) further towards the outside and in this process, remove it at the front.

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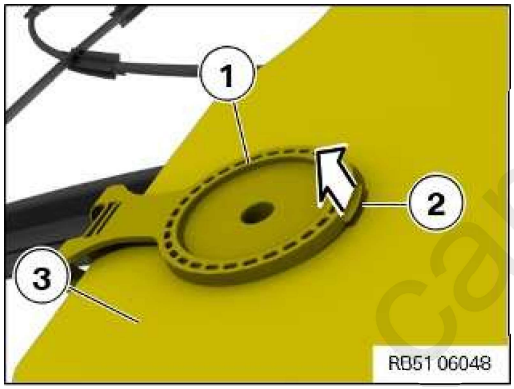


- Unlock and disconnect plug connections (1).
- Remove the outside door handle (2).

8 – Removing front door window glass



- Open the front door window glass so that the screws (1) are accessible.
- Unlock plug connection (2) and disconnect.
- Unscrew the screws (1) so far until the disassembly of the front door window glass is possible.

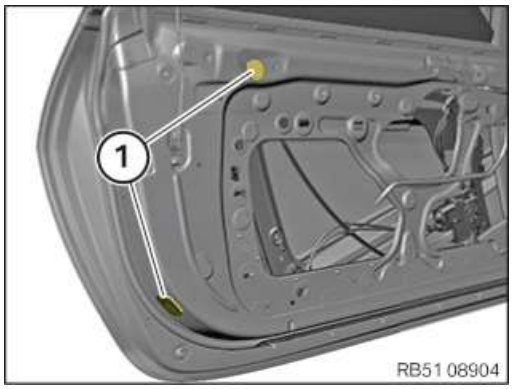


NOTICE

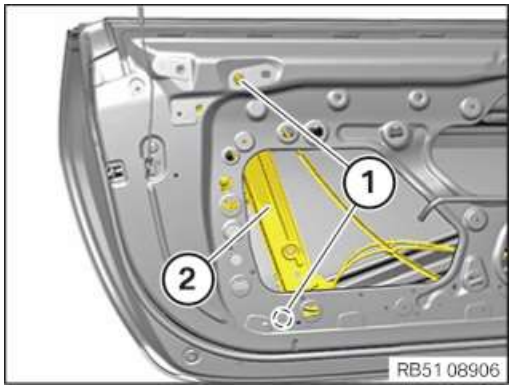
To provide a better overview: Schematic diagram with partially hidden components.

- Lift holder (1) on the tab (2) in the direction of arrow.
- Feed out the front door window glass (3) from the door upwards.

9 – Removing front door power window regulator



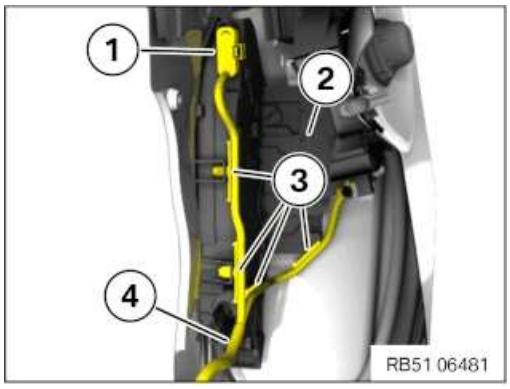
- Remove plug (1).



- Release nuts (1).
- Carefully push the power window (2) to the side.

MAIN WORK

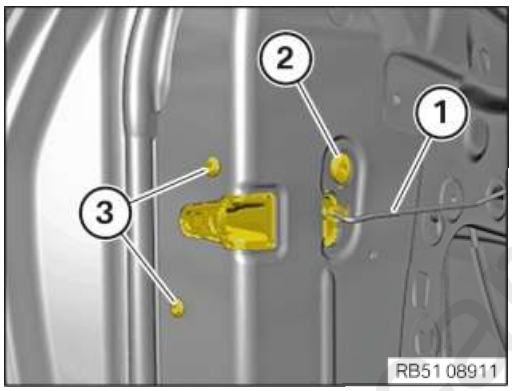
10 – Removing the door lock of the front passenger door



NOTICE

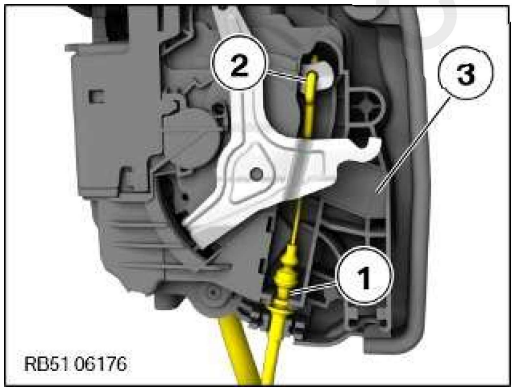
To provide a better overview: Schematic diagram with partially hidden components.

- Unlock and disconnect the plug connection (1)on the door lock (2).
- Unclip clips (3).
- Remove the wiring harness (4) and put to one side.

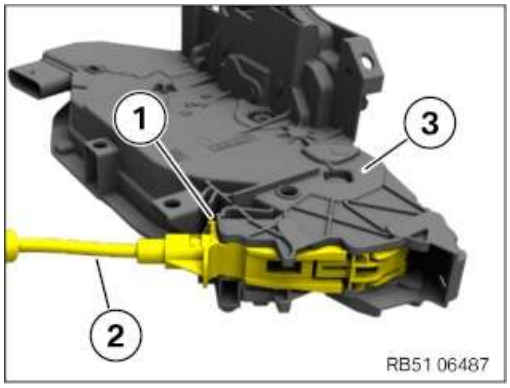


- Unclip locking rod (1).
- Release the screws (2) and (3).
- Feed the door lock out of the door.

  Make sure that the seal of the door lock is not damaged.

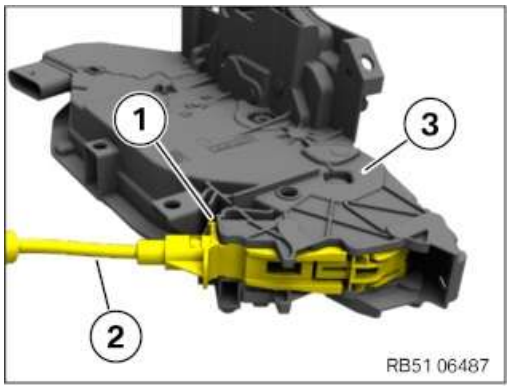


- Unclip the Bowden cable (1) on the door lock (3).
- Detach the Bowden cable nipple (2) on the door lock (3).

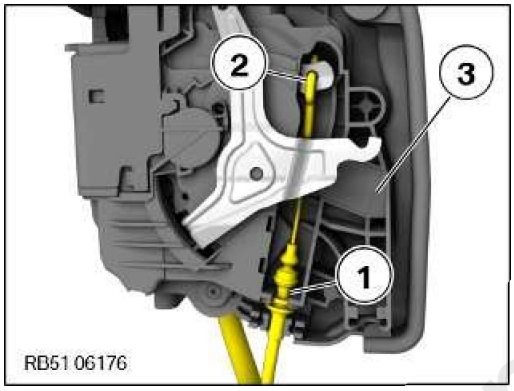


- Unclip the clip (1) on the Bowden cable (2) for the inner door handle.
- Remove the Bowden cable (2) for the inner door handle from the door lock (3).

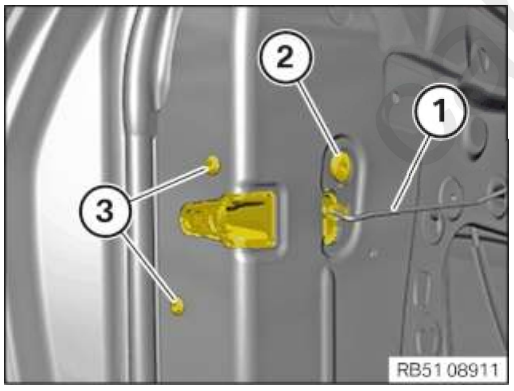
11 – Installing the door lock in the front passenger door



- Install the Bowden cable (2) for the inner door handle in the door lock (3).
- Clip in clip (1).



- Attach Bowden cable nipple (2) to door lock (3).
- Clip Bowden cable (1) into door lock (3).



- Feed the door lock into the door and position it correctly.

  Make sure that the seal of door locks is not damaged.
- Screw in screws (2) and (3) a few turns.
- Tighten the screws (3).

Door lock to door

Screw		Tightening torque	8,8 Nm

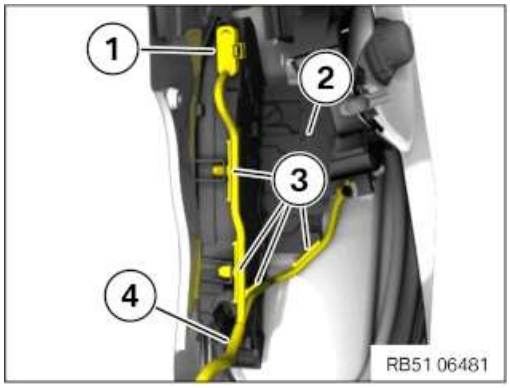
- Tighten down screw (2).

Door lock to door

Screw		Tightening torque	8,8 Nm

- Clip in locking rod (1).

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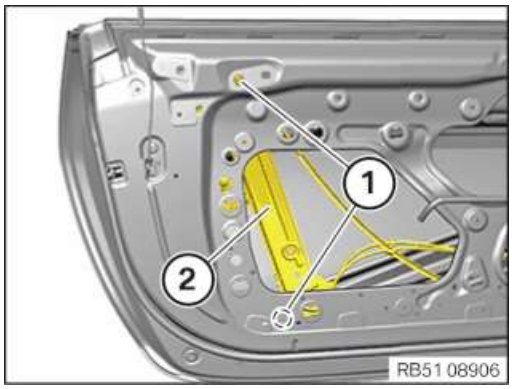
NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Insert the wiring harness (4).
- Connect connector (1) at the door lock (2) and lock.
- Clip in clips (3).

POSTPROCESSES

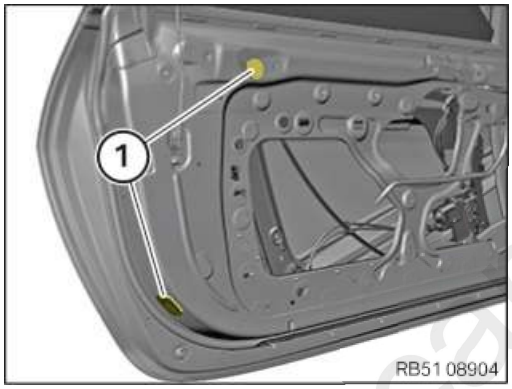
12 – Partially installing the window regulator of the front door



- Correctly position the window regulator (2).
- Tighten nuts (1).

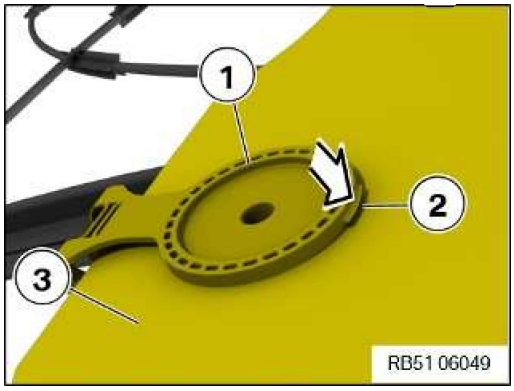
Power window regulator to inner door panel

M6		9,5 Nm



- Install the plug (1).

13 – Installing front door window glass

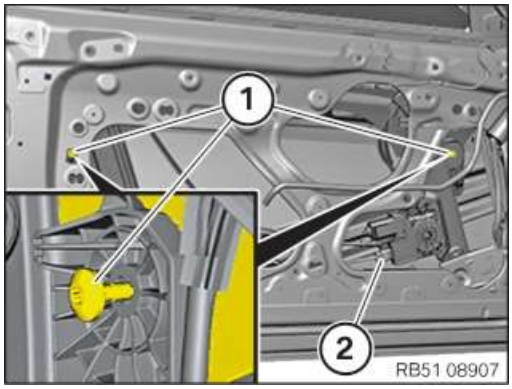


NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Insert door window glass front (3) from the top.
- Press holder (1) on the tab (2) in direction of arrow and lock.

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- Screw in the screws (1) and tighten them.

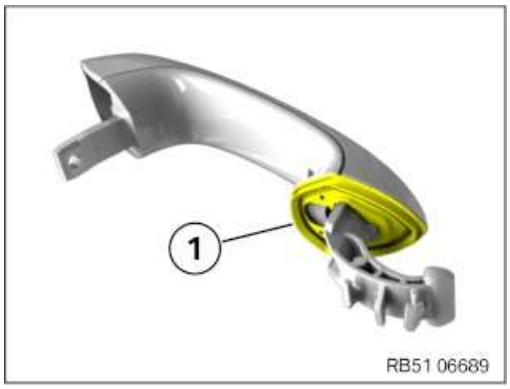
  In this process, counter support the multi-tooth nuts of the electric window.

Door window glass to power window regulator

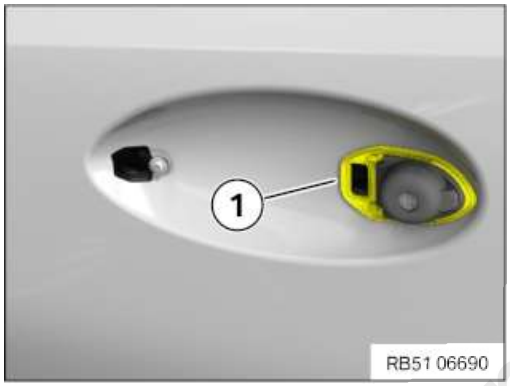
Screw		Tightening torque	0.25 Nm

- Connect connectors (2) and lock.

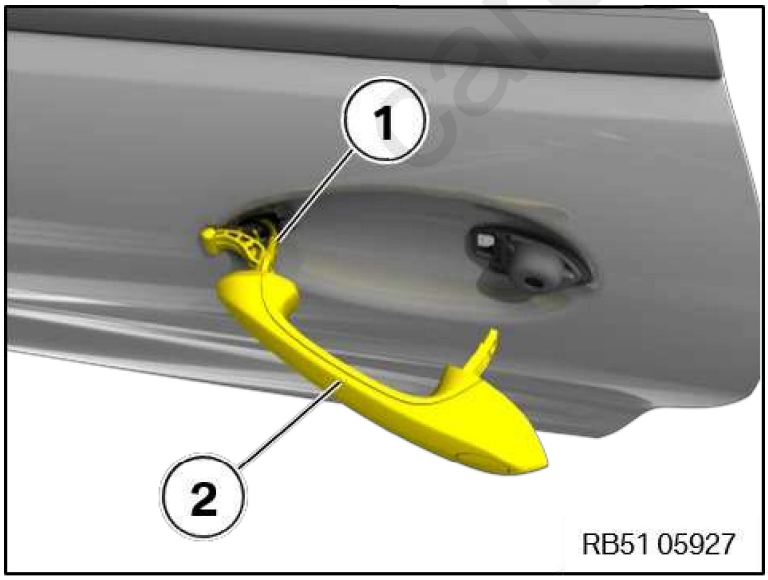
14 – Installing the outside door handle



- Check the seal (1) for damage and renew if necessary.

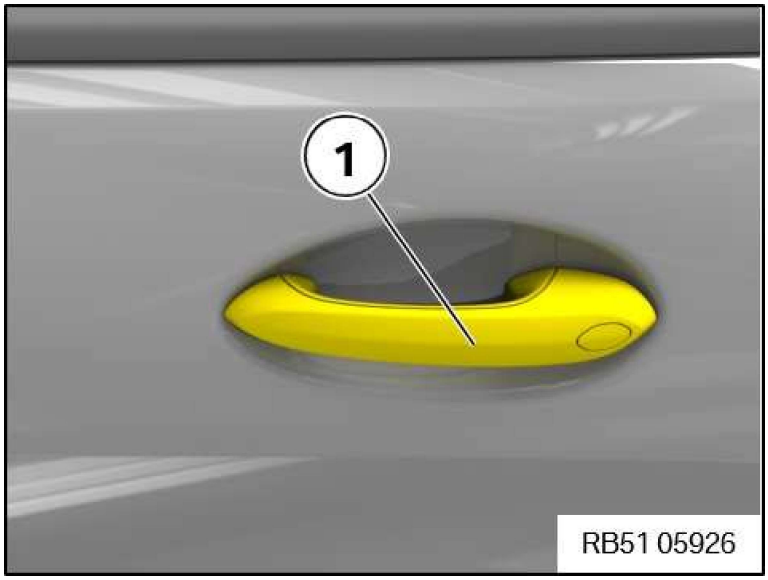


- Check the seal (1) for damage and renew if necessary.

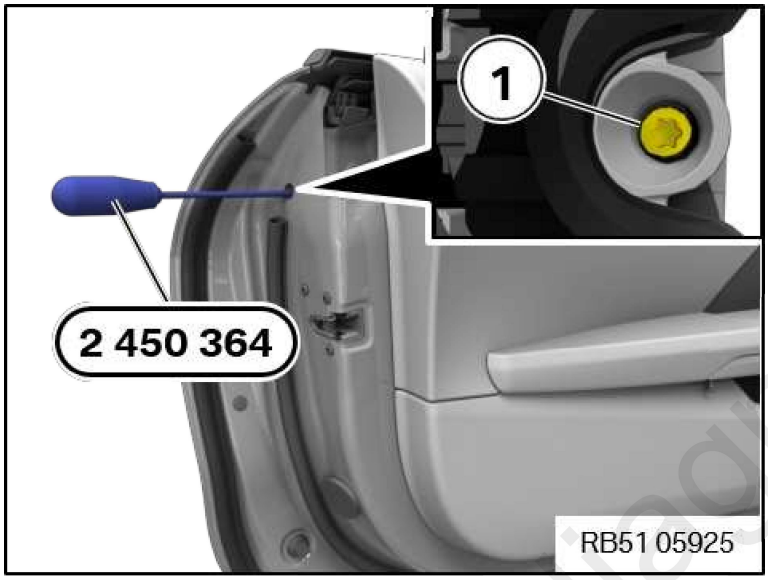


- Insert the front outside door handle (2).
- Connect connectors (1) and lock.

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- Insert the rear outside door handle (1).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

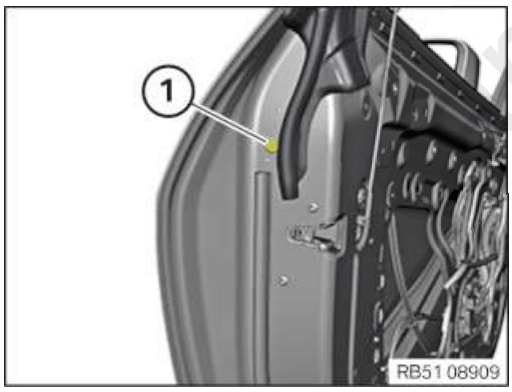
- Tighten the clamping bolt (1) on the outside door handle support with the special tool 2 450 364.

Clamping bolt for door handle

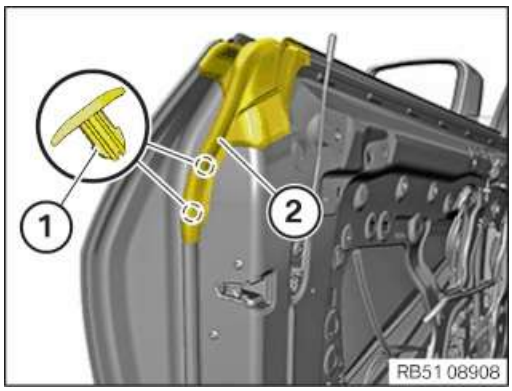
Screw		Tightening torque	2 Nm

Outer door handle to door

Clamping bolt		Tightening torque	3 Nm



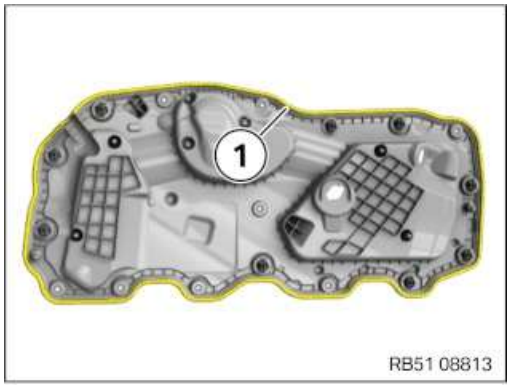
- Install seal plug (1).



- Fasten the seal (2) with the clips (1).

15 – Installing the module carrier on the front door

Check



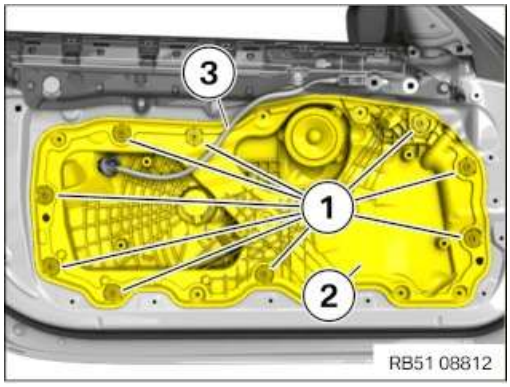
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

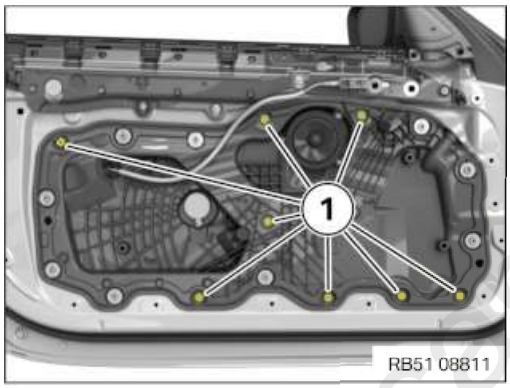
Measure

- Renew the module carrier on the front door.



- Position the module carrier on the front door (2).

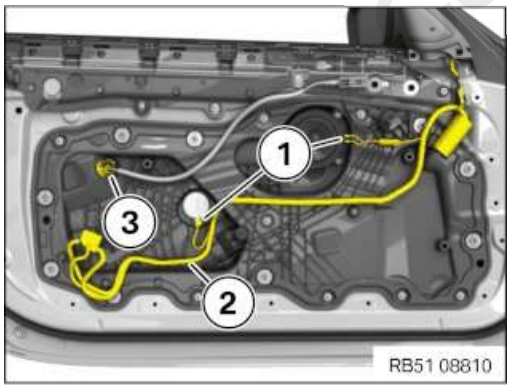
  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

Module carrier to the front door

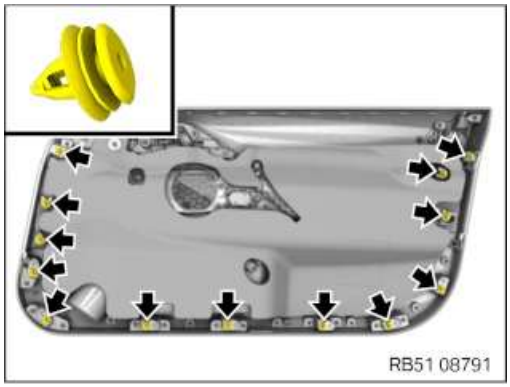
Oval-head screwM6	Tightening torque	9 Nm



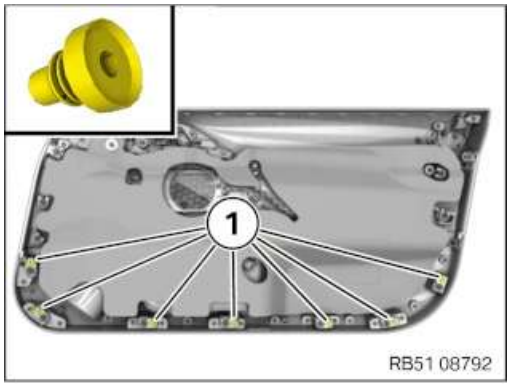
- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

16 – Install front door trim panel

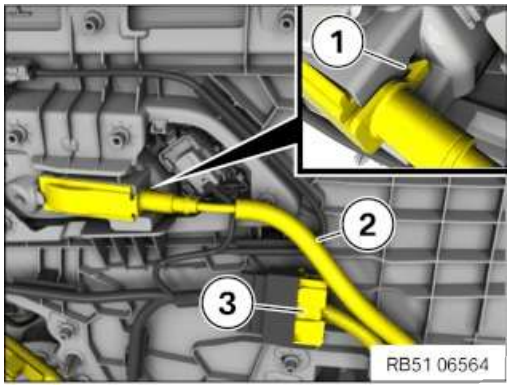
partdiagn.com



- Check clips (arrows) for damage and, if necessary, renew them.



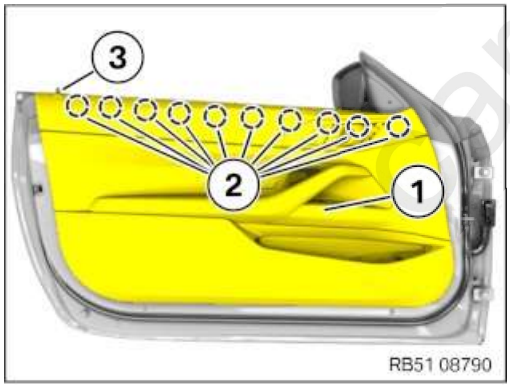
- Check the stop pad (1) for damage, renew if necessary.



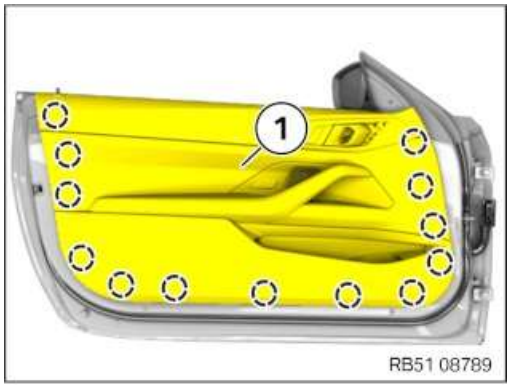
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

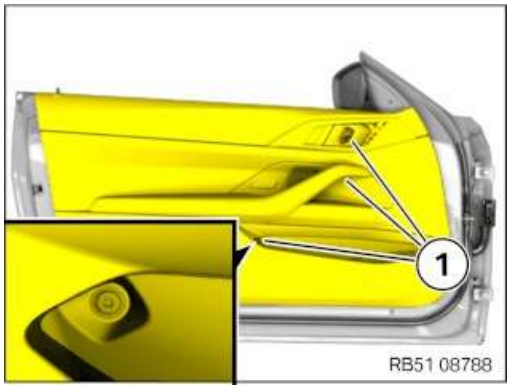
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



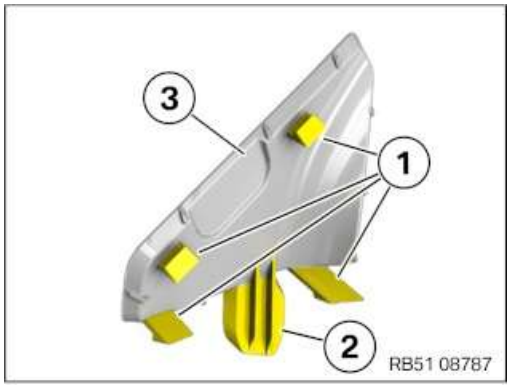
- Clip in the door trim panel (1) at the marked places.



- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm



Check

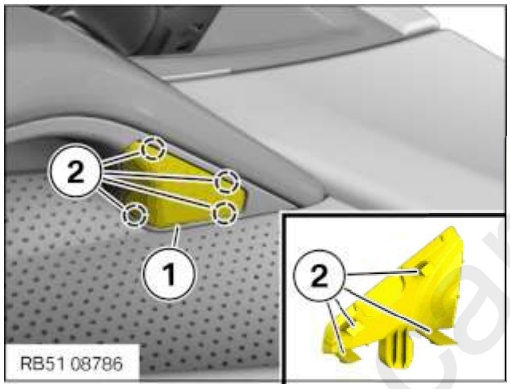
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

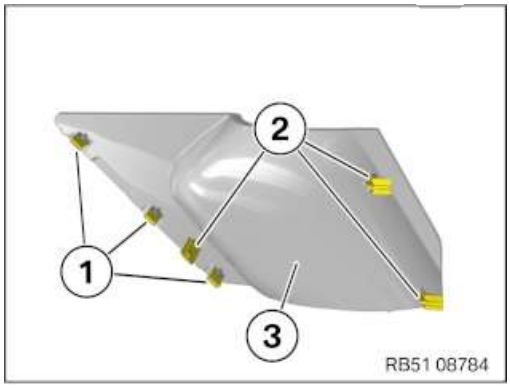
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.



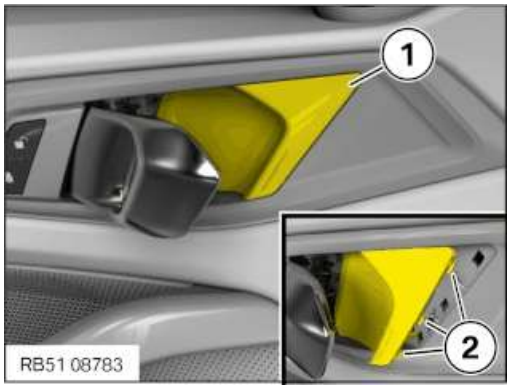
Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).

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- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

17 – Connecting all battery earth leads



- See additional information.

18 – Activating the 48 V electrical system

Prerequisite

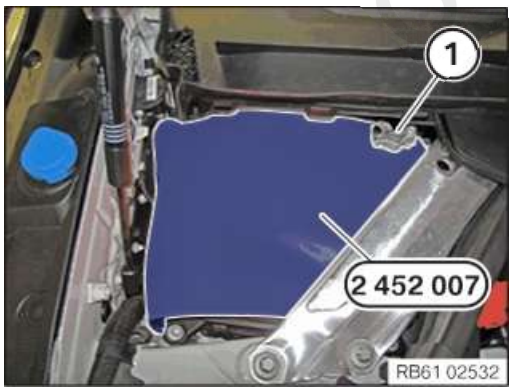
Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .

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- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

19 – Adjusting door window glass

Prerequisite

Vehicle is supported on all wheels at ground level.

Front door has been correctly fitted.

Battery charger is connected (during adjustment work, the complete operability of the power window regulator is only guaranteed with external voltage supply).

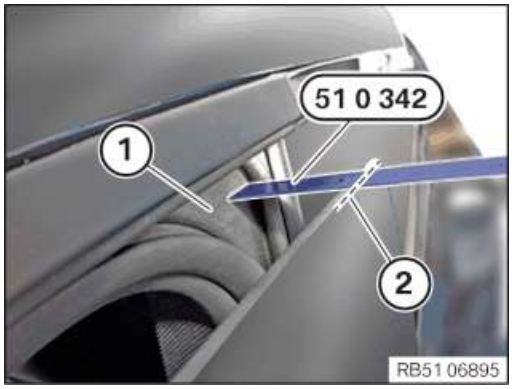
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



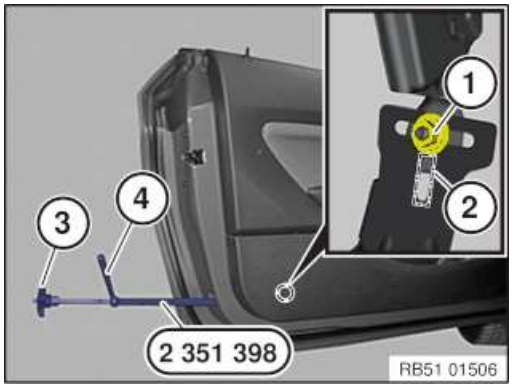
- Open door; move door window glass into uppermost position, if necessary.
- Insert special tool with the special tool in the rotary striker of the door lock and lock the rotary striker manually (door window glass moves fully upwards).
- Carefully close the door until the special tool lies on the striker (defined opening angle for the measurement).

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- Do not exert any force on the door or door window glass during measurement.
- Abut special tool to the seal (1) and the door window glass (2).
- Determine dimension for preload between the seal (1) and outer edge of door window glass (2).

  Nominal dimension = 55 ± 1 mm



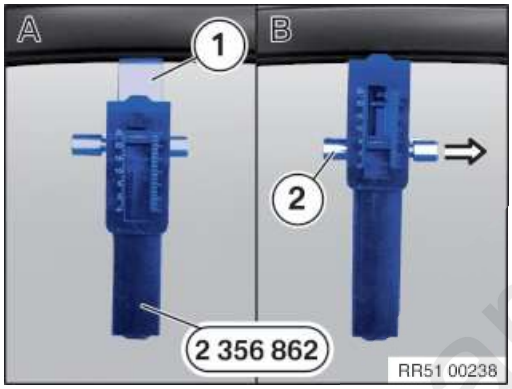
- Open door and remove sealing cap from door frame.
- Feed in special tool into the door and position at the nut (1) and the guide (2).
- Slacken nut (1) with knob (3).
- Turning the lever (4) to set the preload.

  Nominal dimension = 55 ± 1 mm
- Tighten nut (1).

Power window regulator to inner door panel

M6		9,5 Nm

- Check setting, repeat process if necessary.
- Remove special tool and fit the seal plug.
- Remove the special tool from the rotary striker of the door lock.



- Connect the special tool 2 356 862 to the holder (5 mm)(1) on the door window glass when it is locked (A).

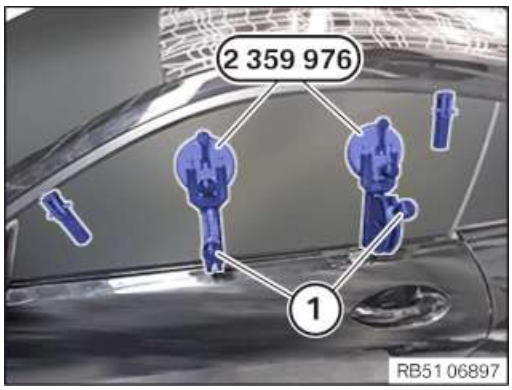
  Close the door and release the lock (2) (B).



- Open door.
- Place special tool 2 356 862 as shown on the door window glass.

  Approx. displaced by 40 mm inwards in each case.
- Close door.
- Measure retraction depth.

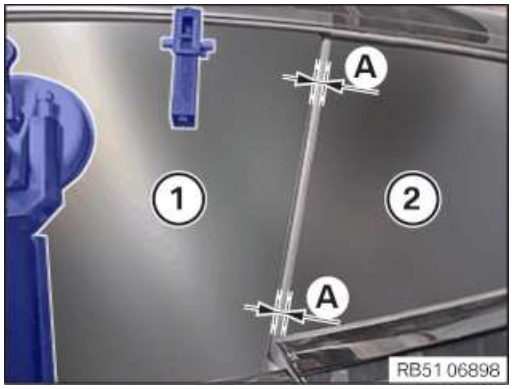
  Nominal dimension: 5.5 ± 1 mm



- Attach special tool 2 359 976 on the door window glass so that the multi-tooth screws of the door window glass are still accessible.
- Release adjustment lever (1) by twisting.
- Set the retraction depth of the side window glass by moving the adjustment lever (1).

  Nominal dimension: 5.5 ± 1 mm
- Tighten adjustment lever (1).

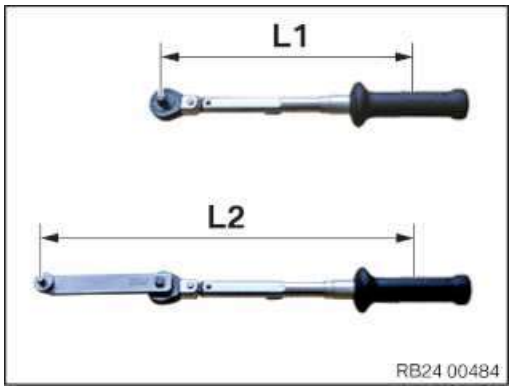
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- Adjust door window panel (1) parallel to the rear side window (2).

  Dimension (A) = 8.0 ± 1 mm

▸ **Tighten the front door window glass**



TECHNICAL INFORMATION

While using the special tool, that extends the lever arm of the torque wrench, the setpoint torque deviates from the torque to be set.

NOTICE

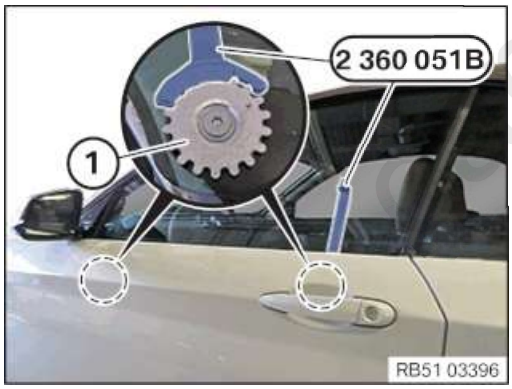
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten multi-point nuts (1) on the door window glass in the front using special tool **B** and a torque wrench.

Toothed nut of side window

Toothed nut		Tightening torque	11 Nm

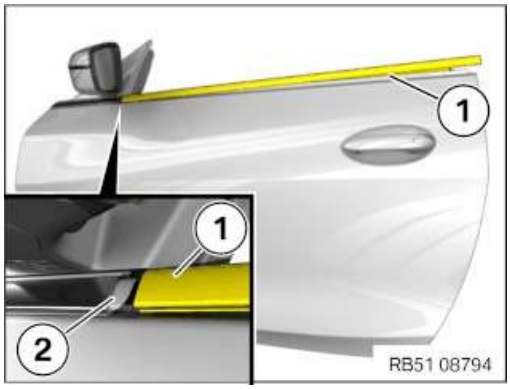
20 – Install outer weather strip

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

Additional Information

Overview of Tightening Torques

Door lock to door			Used in step 11
Screw		Tightening torque	8,8 Nm

Power window regulator to inner door panel			Used in step 1219
M6			9,5 Nm

Door window glass to power window regulator			Used in step 13
Screw		Tightening torque	0.25 Nm

Clamping bolt for door handle			Used in step 14
Screw		Tightening torque	2 Nm

Outer door handle to door			Used in step 14
Clamping bolt		Tightening torque	3 Nm

Module carrier to the front door			Used in step 15
Oval-head screwM6		Tightening torque	9 Nm

Door trim panel			Used in step 16
Oval-head screw		Tightening torque	3 Nm

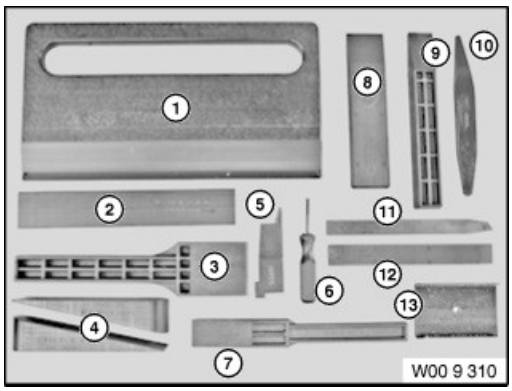
Negative battery cable to 48-V battery			Used in step 18
Nut M8		Tightening torque	19 Nm

Toothed nut of side window			Used in step 19
Toothed nut		Tightening torque	11 Nm

Overview of Special Tools

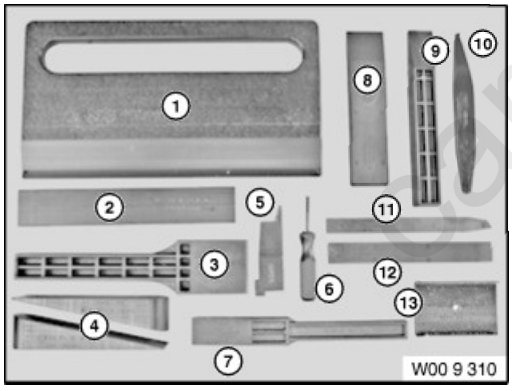
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0 493 752 (00 9 329) Case



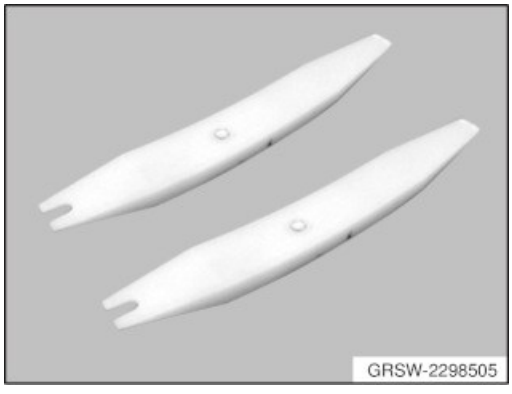
Common	Used in step 3
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 495 484 (00 9 324) Panel wedge



Common	Used in step 5
Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

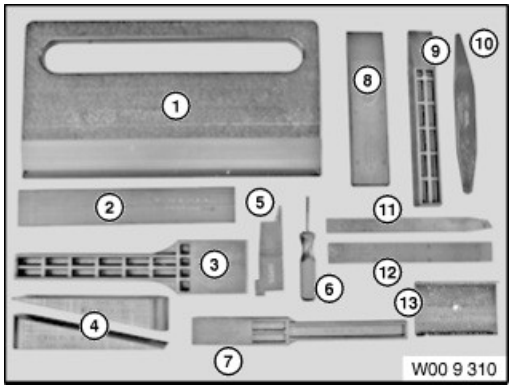
2 298 505 Wedge



Common	Used in step 5
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)

bmwdiagn.com

0 490 538 (00 9 321) Folding stick



Common	Used in step 5
Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 450 364 Torx



Common	Used in step 714
Usage	for releasing the outside door handles
Included in the tool or work	
Storage location	A5
Replaced by	
In connection with	
SI-Number	01 22 16 (440)

2 356 862 Device



Common	Used in step 19
Usage	Device for measuring the side window retraction depth. Also valid for: BMW i Aftersales Basic. This tool set replaces the tool 2304553
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 29 13 (998)

2 359 976 Siphon



Common	Used in step 19
Usage	For fixing and adjusting frameless side/door window glass. Also valid for: BMW i Aftersales Basic
Included in the tool or work	
Storage location	A73
Replaced by	
In connection with	
SI-Number	01 27 14 (129)

Links

Repair instructions (PRE)	Used in step

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Notes on 48-V battery	118

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	217
61 20 900 Disconnecting and connecting battery earth lead	217
61 20 900 Disconnecting and connecting battery earth lead	217
61 20 900 Disconnecting and connecting battery earth lead	217
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	217
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	217
61 20 900 Disconnecting and connecting battery earth lead	217
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	217
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	217
61 20 900 Disconnecting and connecting battery earth lead	217
61 20 900 Disconnecting and connecting battery earth lead	217
61 20 900 Disconnecting and connecting battery earth lead	217
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61 20 900 Disconnecting and connecting battery earth lead	217
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	217
61 20 900 Disconnecting and connecting battery earth lead	217
61 20 900 Disconnecting and connecting battery earth lead	217
61 20 900 Disconnecting and connecting battery earth lead	217

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51 21 225 Removing and installing/replacing the inner door opener on the left or right front door

PRELIMINARY WORK

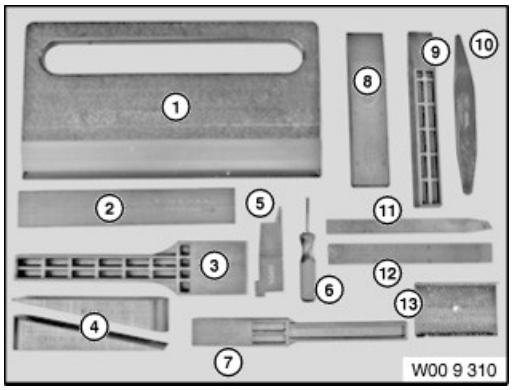
1 – Remove front door trim panel

RISK OF DAMAGE

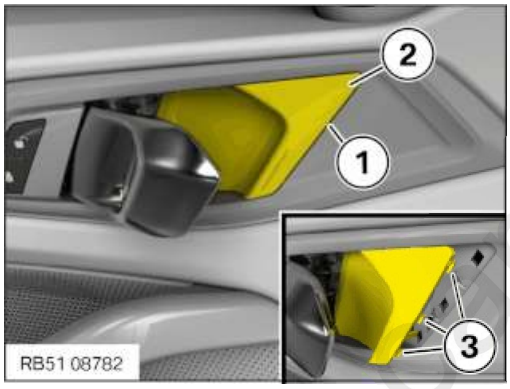
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

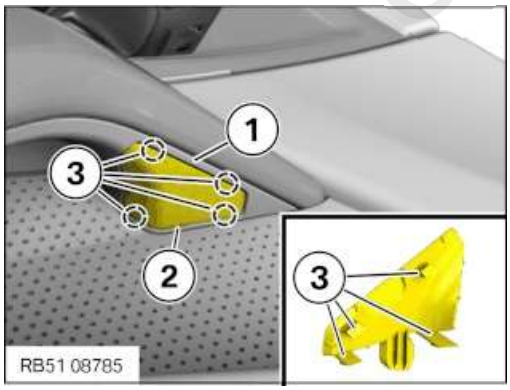
- Protect surfaces from damage.



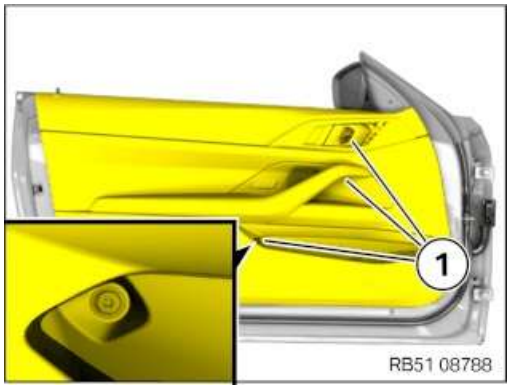
- Have the set of special tools 0 493 752 (00 9 329) ready.



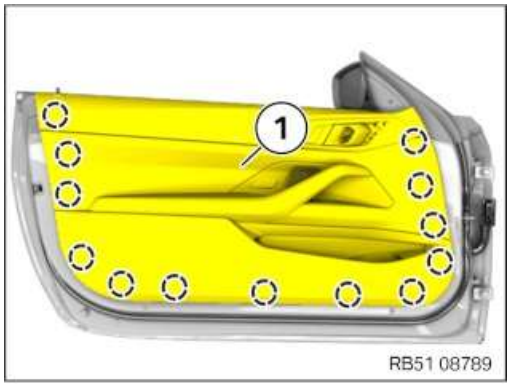
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



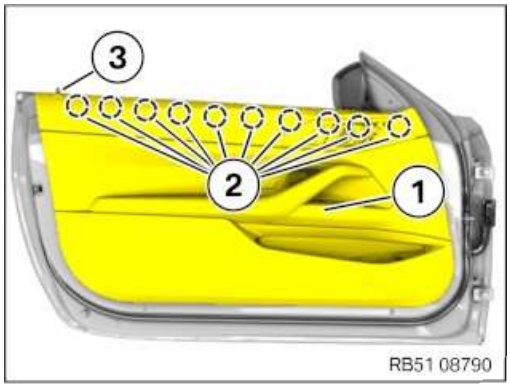
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.



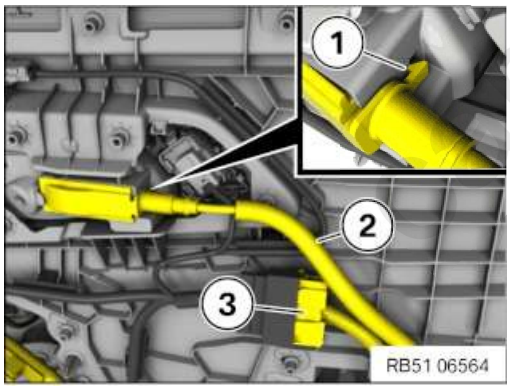
- Loosen screws (1).



- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



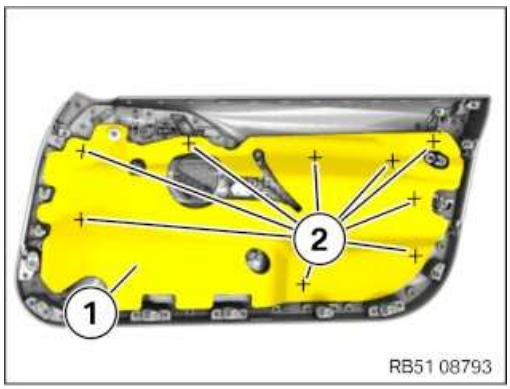
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

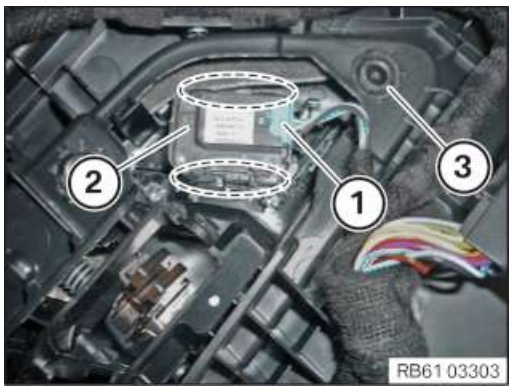
  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

2 – Removing the sound insulation on the front door trim panel



- Detach and remove the sound insulation from the front door trim panel (1) at the mountings (2) .

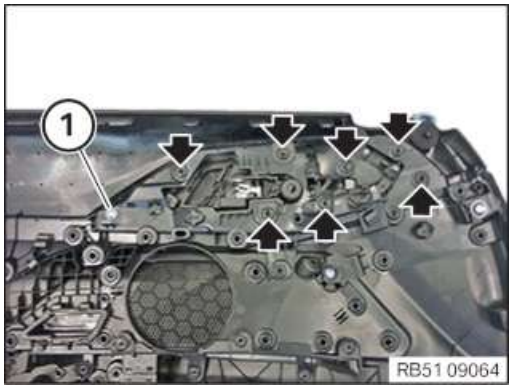
3 – Remove the central locking button



- Disconnect the connector (1) .
- Release the latch mechanisms in the marked areas.
- Remove the central locking button (2)from door trim panel (3).

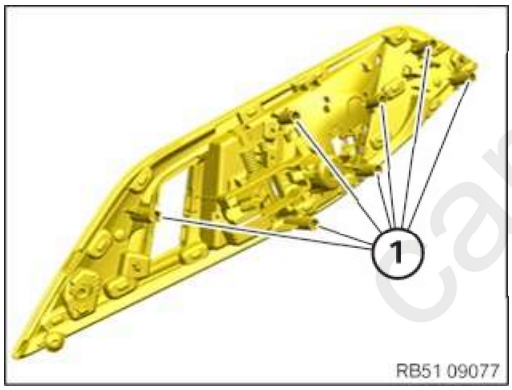
MAIN WORK

4 – Removing the inside door opener

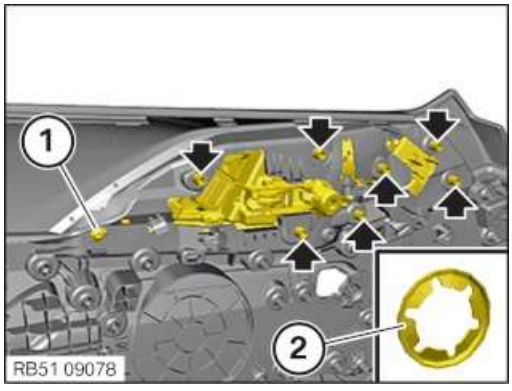


- Remove the existing LED module if necessary.
- Drill out spot-welds (arrows) carefully using special tool 5 A3C D25.
- Release the screw (1).
- Guide out and remove the inner door opener from the door trim panel.

5 – Installing the inner door opener



- Shorten all welding pins (1) by 6 mm.



- Remove welding remnants on door trim panel with a scalpel.
- Install the door handle in the door trim panel.
- Secure all welding pins (arrows) with the lock washers (2).
- Tighten down screw (1).

Inner door opener on door trim panel

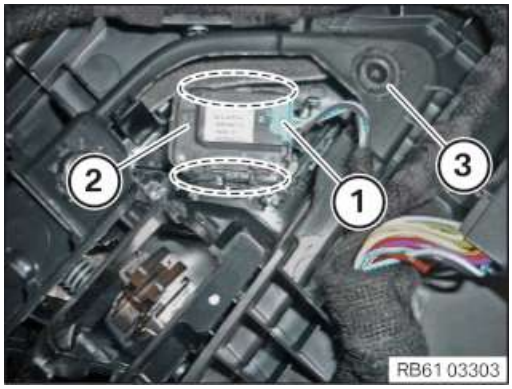
Oval-head screw		Tightening torque	2.0 Nm

- Install the existing LED modules if necessary.

POSTPROCESSES

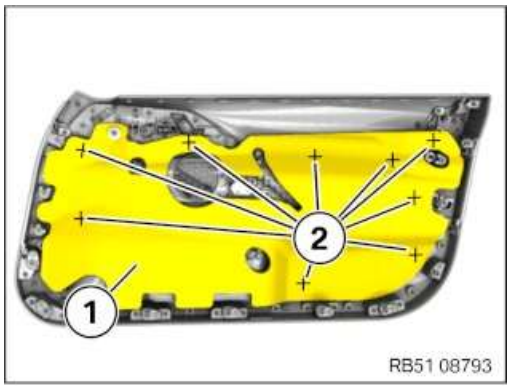
6 – Install the central locking button

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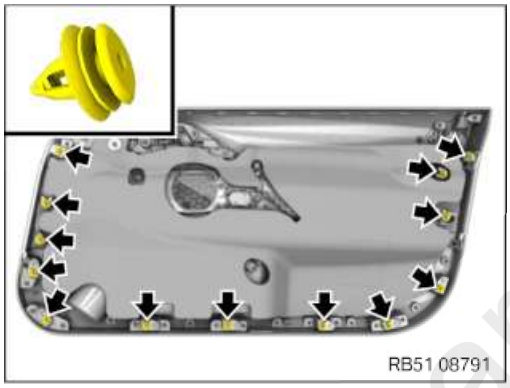
- Position central locking button (2) on door trim panel (3) and clip it in the latch mechanisms in the marked area.
- Connect connector (1).

7 – Installing the sound insulation on front door trim panel

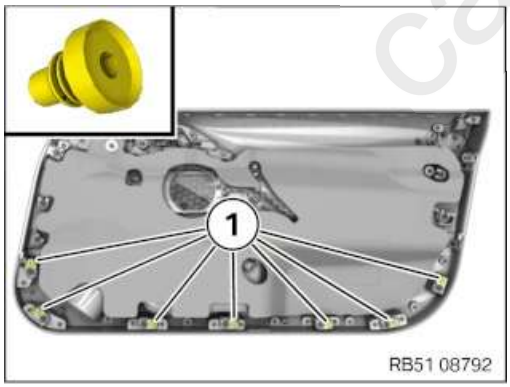


- Position the sound insulation on the front door trim panel (1) and attach to the mountings (2) .

8 – Install front door trim panel

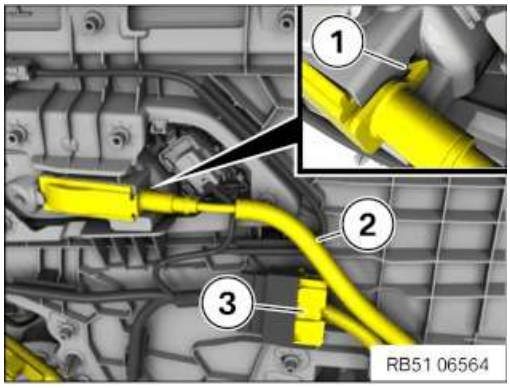


- Check clips (arrows) for damage and, if necessary, renew them.



- Check the stop pad (1) for damage, renew if necessary.

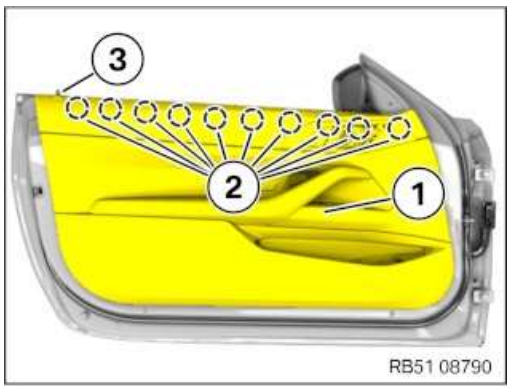
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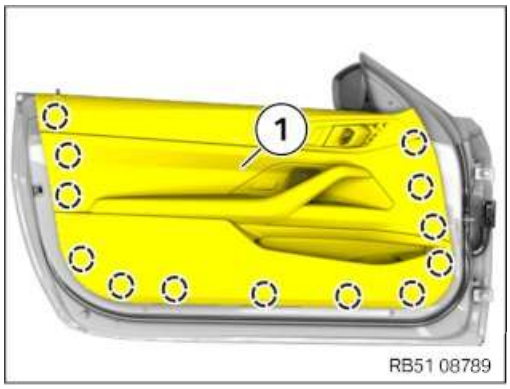
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

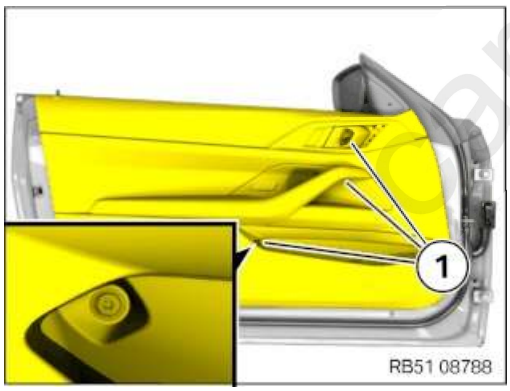
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

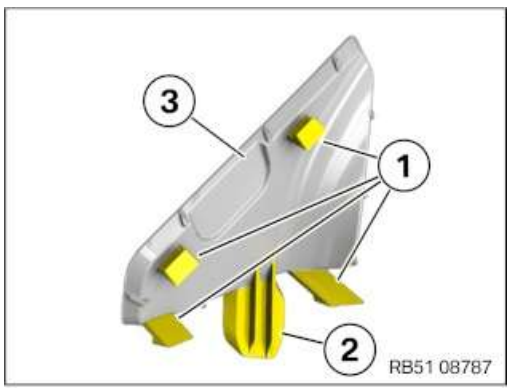


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

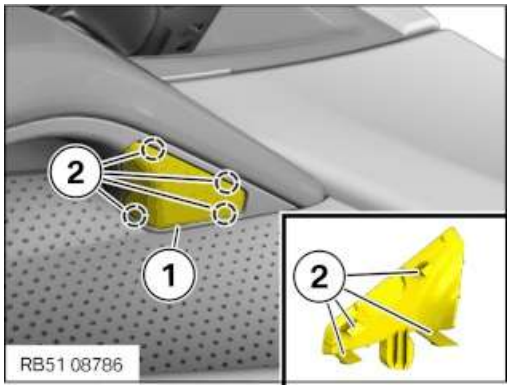
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Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

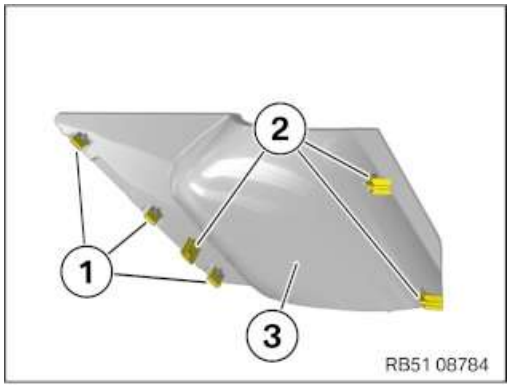
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

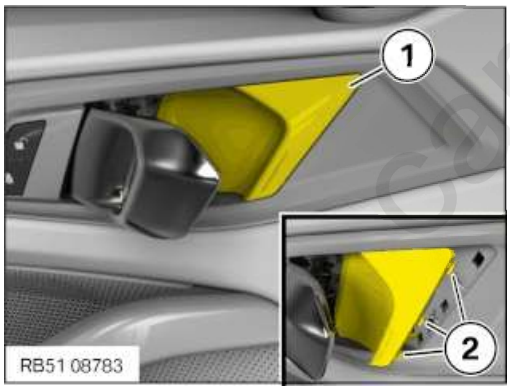


Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

Additional Information

Overview of Tightening Torques

Inner door opener on door trim panel Used in step 5

Oval-head screw		Tightening torque	2.0 Nm

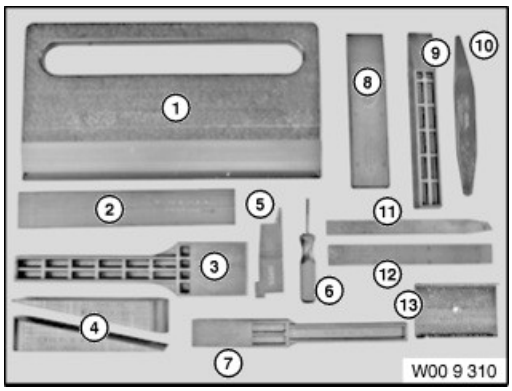
Door trim panel Used in step 8

Oval-head screw		Tightening torque	3 Nm

Overview of Special Tools

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0 493 752 (00 9 329) Case



Common	Used in step 1
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

5 A3C D25 Milling cutter



Common	Used in step 4
Usage	Forstner bit Ø 15 mm for drilling out the welding pins, e.g. for door trim panels
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	01 03 21 (806)

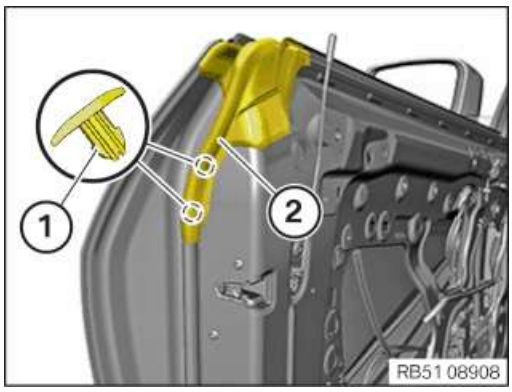
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51 21 170 Removing and installing/replacing the outside door handle at the front left or right

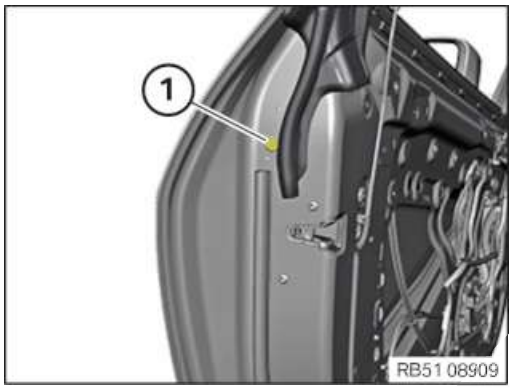
NOTICE

Description is for left component only. Procedure on the right side is identical.

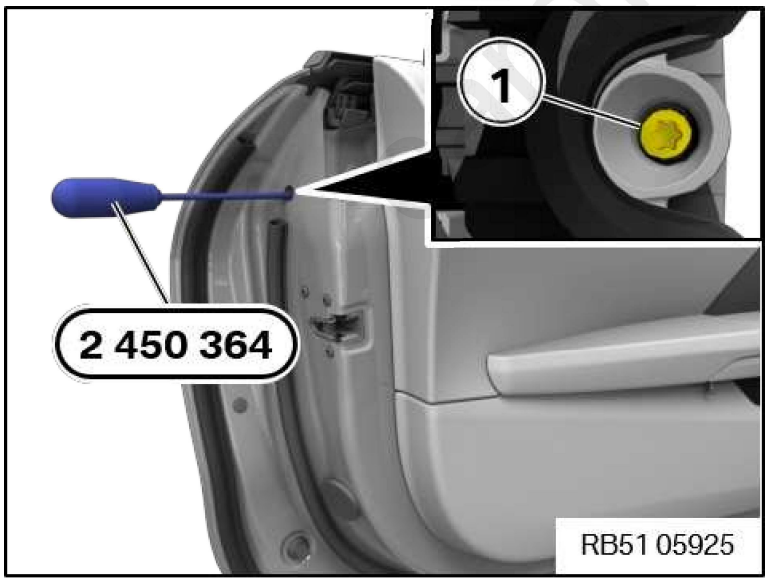
1 – Remove the outside door handle



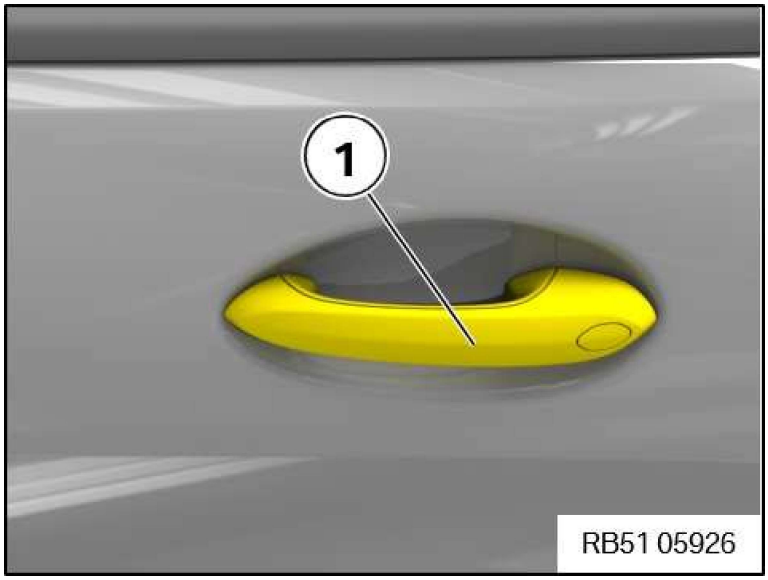
- Release the seal (2) at the clips (1) and move is slightly to the side.



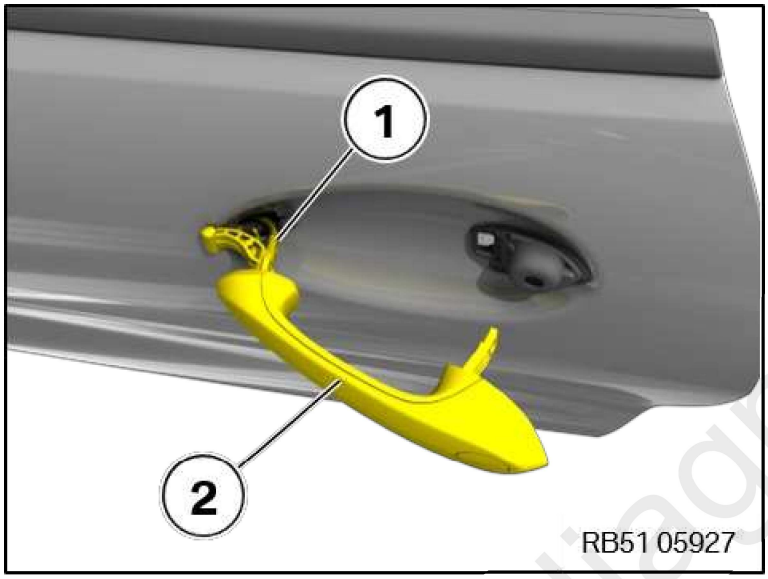
- Remove the seal plug (1).



- Release the clamping bolt (1) from the outside door handle support with the special tool 2 450 364.

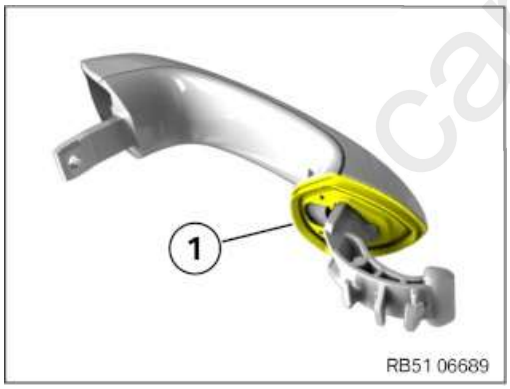


- Pull the rear outside door handle (1) to the outside and remove it in the process.
- Pivot the outside door handle (1) further towards the outside and in this process, remove it at the front.

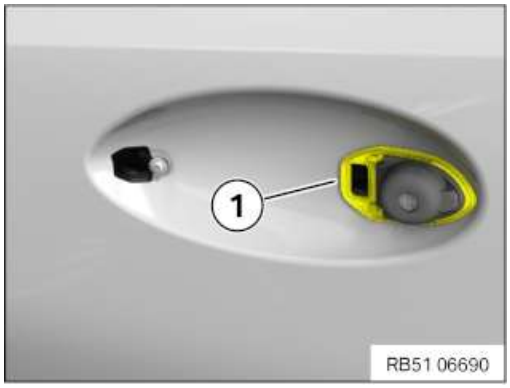


- Unlock and disconnect plug connections (1).
- Remove the outside door handle (2).

2 – Installing the outside door handle

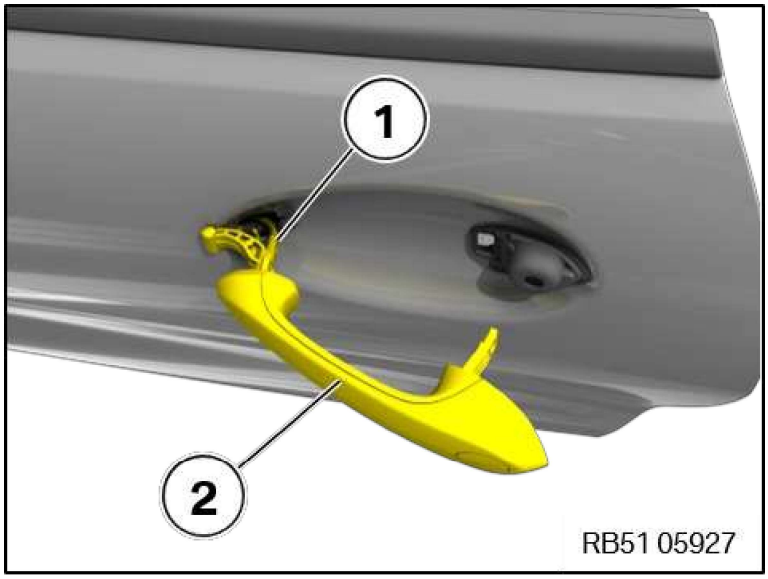


- Check the seal (1) for damage and renew if necessary.

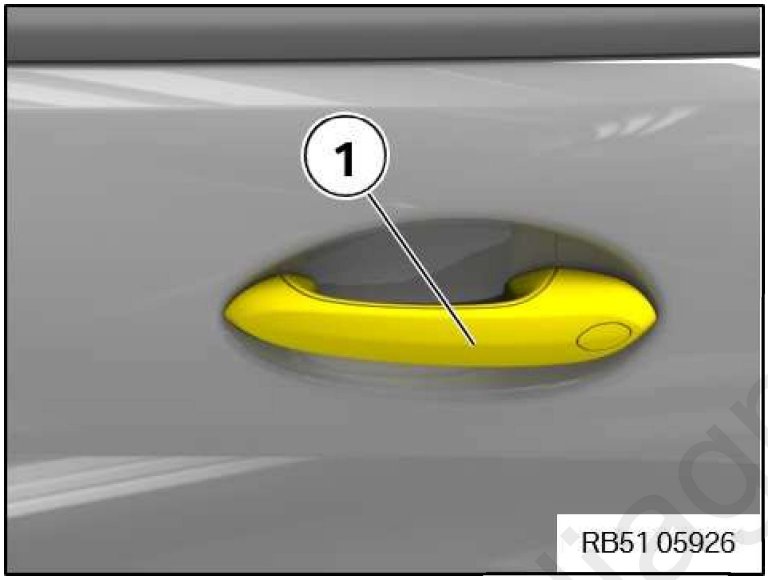


- Check the seal (1) for damage and renew if necessary.

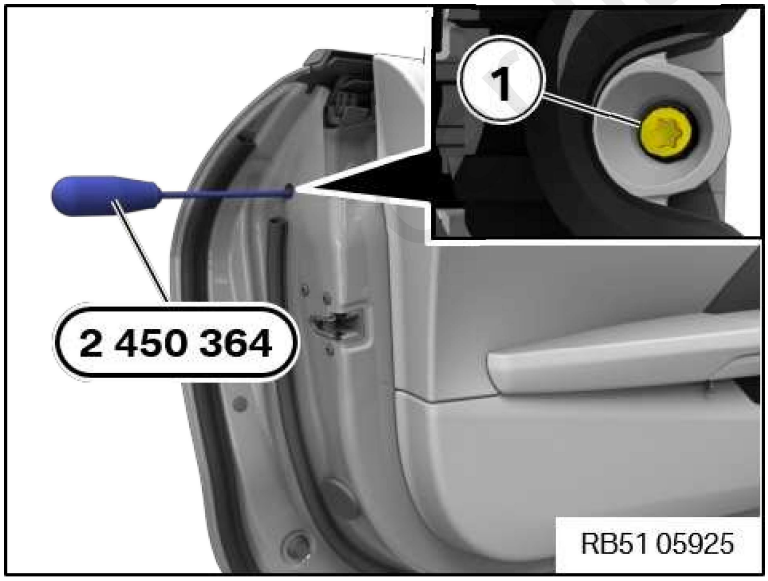
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- Insert the front outside door handle (2).
- Connect connectors (1) and lock.



- Insert the rear outside door handle (1).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

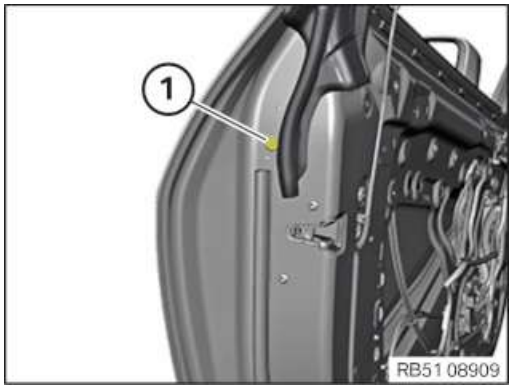
- Tighten the clamping bolt (1) on the outside door handle support with the special tool 2 450 364.

Clamping bolt for door handle

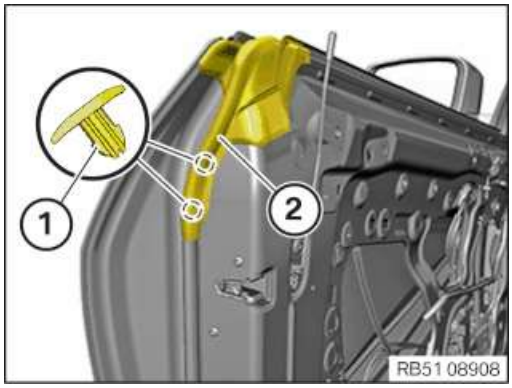
Screw		Tightening torque	2 Nm

Outer door handle to door

Clamping bolt		Tightening torque	3 Nm



- Install seal plug (1).



- Fasten the seal (2) with the clips (1).

Additional Information

Overview of Tightening Torques

Clamping bolt for door handle — Used in step 2

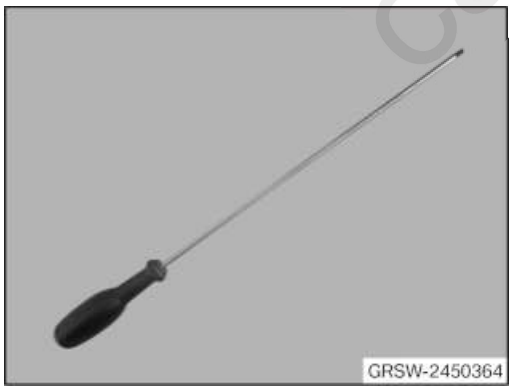
Screw		Tightening torque	2 Nm

Outer door handle to door — Used in step 2

Clamping bolt		Tightening torque	3 Nm

Overview of Special Tools

2 450 364 Torx



Common — Used in step 12

Usage	for releasing the outside door handles
Included in the tool or work	
Storage location	A5
Replaced by	
In connection with	
SI-Number	01 22 16 (440)

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This documentation refers to special tools that were not yet available when going to press.

51 21 125 Removing and installing/replacing the outside door handle support including lock barrel, left or right

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

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RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

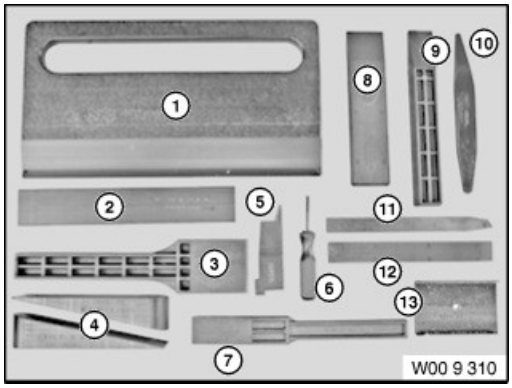
3 – Remove front door trim panel

RISK OF DAMAGE

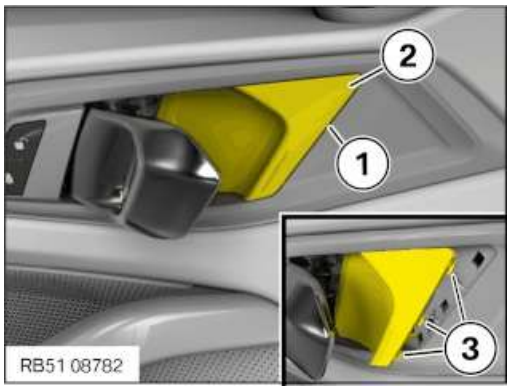
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

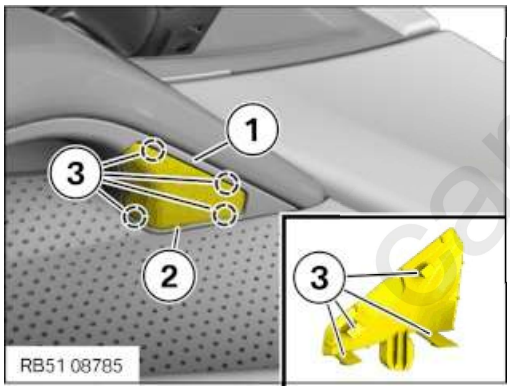
- Protect surfaces from damage.



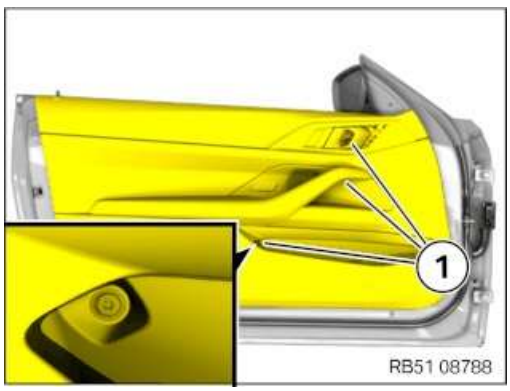
- Have the set of special tools 0 493 752 (00 9 329) ready.



- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.

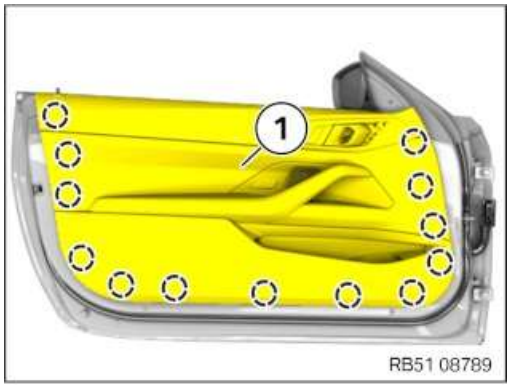


- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

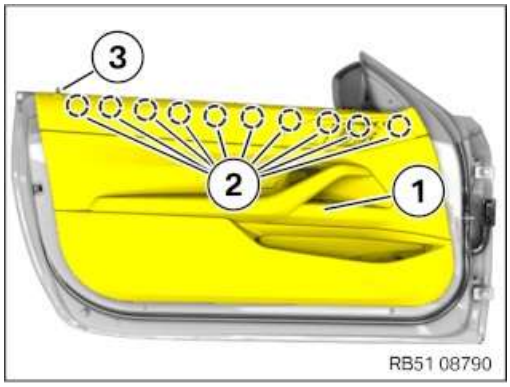


- Loosen screws (1).

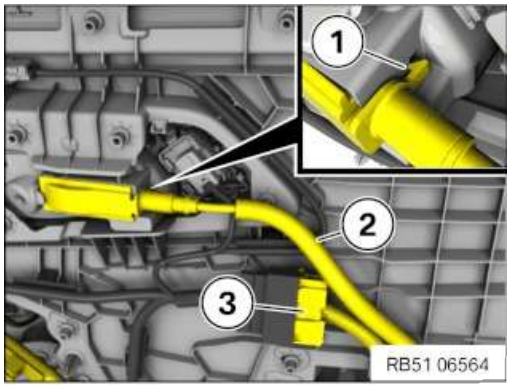
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- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



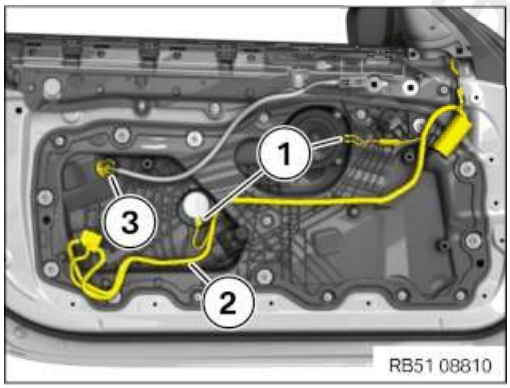
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

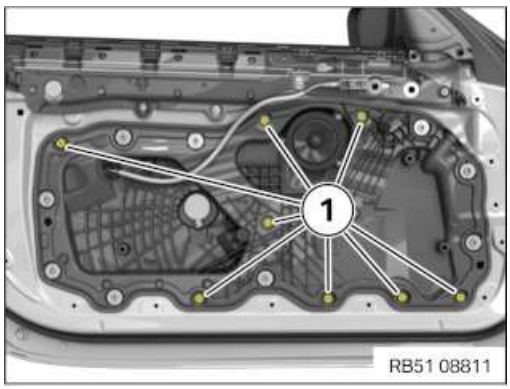
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

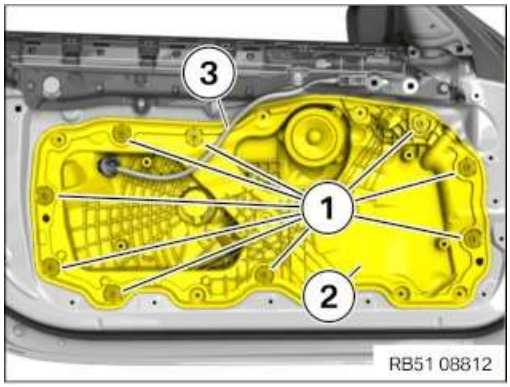
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).



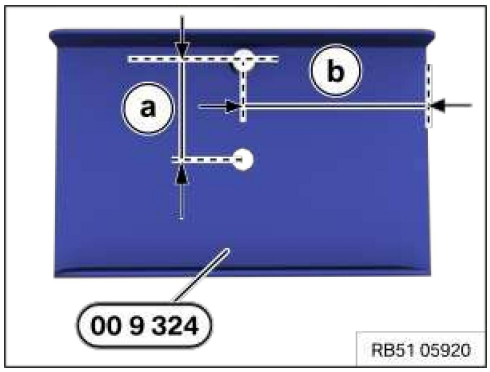
- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

5 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

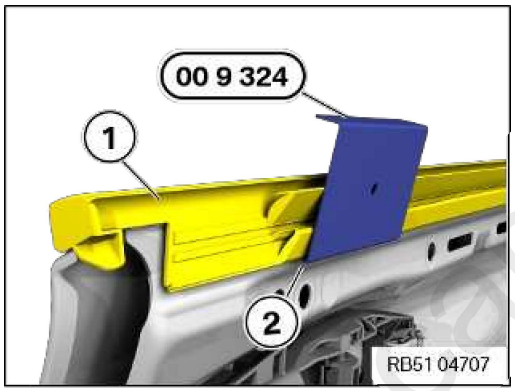
- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

  Dimension (b) = 50 mm from the outer edge of the special tool

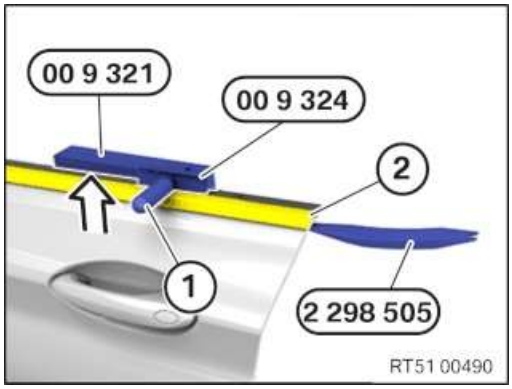


NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

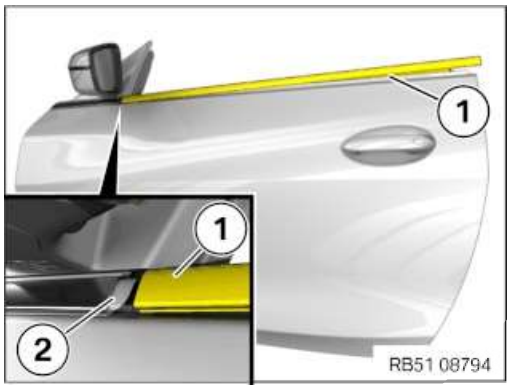
- Protect working area.
- Handle tools and components carefully.

- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.

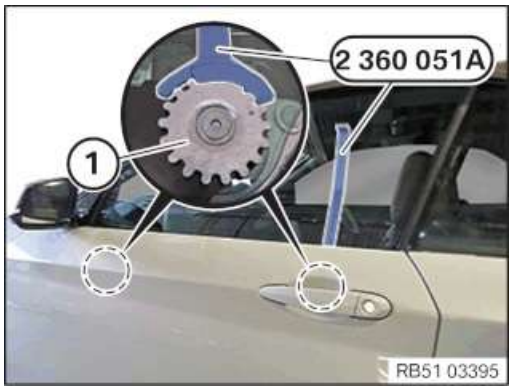


- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

6 – Release door window at front

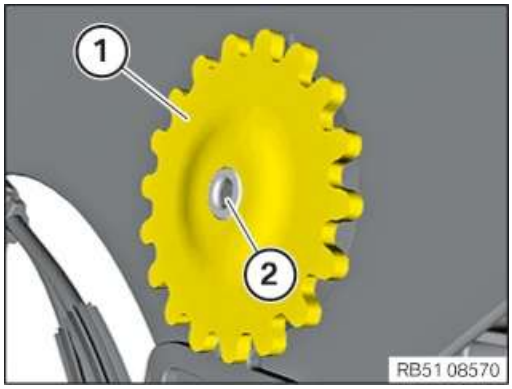
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



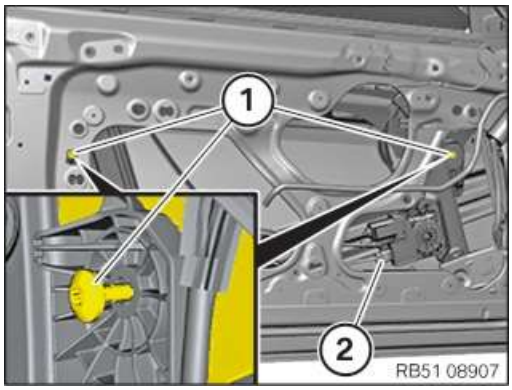
- Undo multi-tooth nuts (1) on side window glass with special tool **A**. (Observe next operation.)

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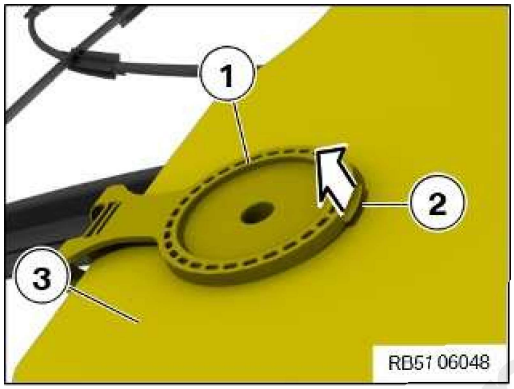


- Only undo the multi-tooth nut (1) to the extent it is flush with the socket (2).
- Lower front door window glass half way.

7 – Removing front door window glass



- Open the front door window glass so that the screws (1) are accessible.
- Unlock plug connection (2) and disconnect.
- Unscrew the screws (1) so far until the disassembly of the front door window glass is possible.

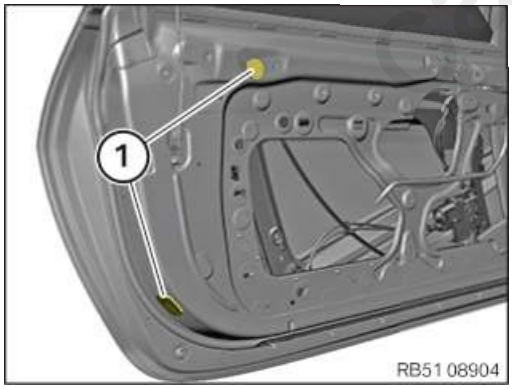


NOTICE

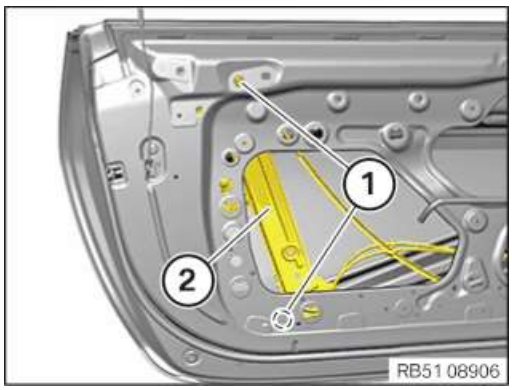
To provide a better overview: Schematic diagram with partially hidden components.

- Lift holder (1) on the tab (2) in the direction of arrow.
- Feed out the front door window glass (3) from the door upwards.

8 – Removing front door power window regulator

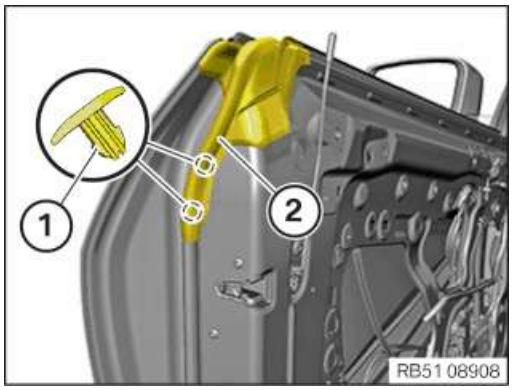


- Remove plug (1).

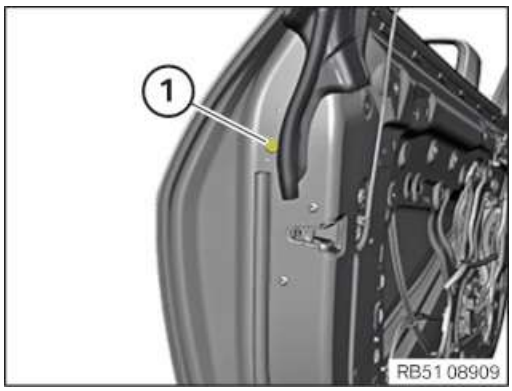


- Release nuts (1).
- Carefully push the power window (2) to the side.

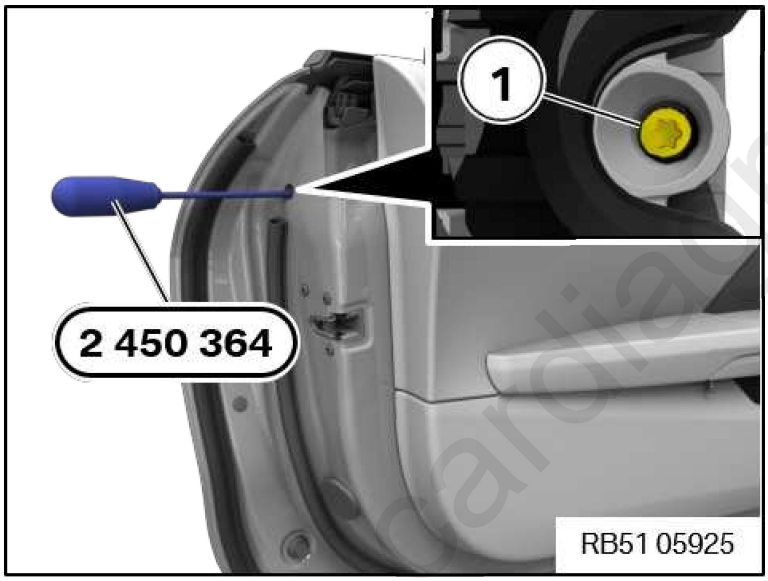
9 – Remove the outside door handle



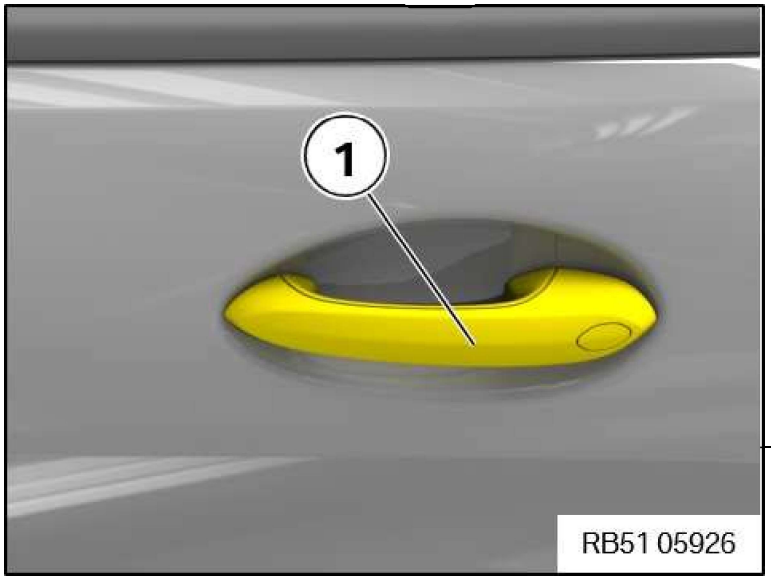
- Release the seal (2) at the clips (1) and move is slightly to the side.



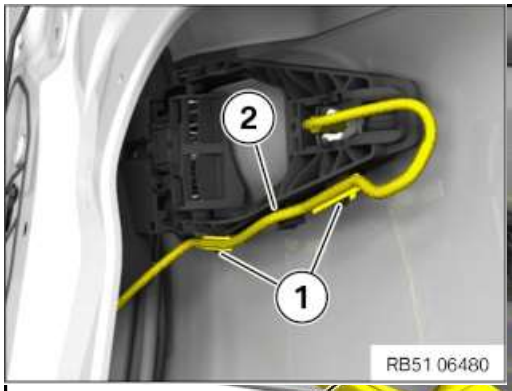
- Remove the seal plug (1).



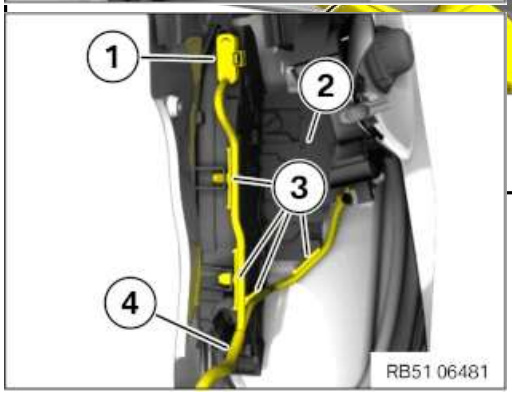
- Release the clamping bolt (1) from the outside door handle support with the special tool 2 450 364.



- Pull the rear outside door handle (1) to the outside and remove it in the process.
- Pivot the outside door handle (1) further towards the outside and in this process, remove it at the front.



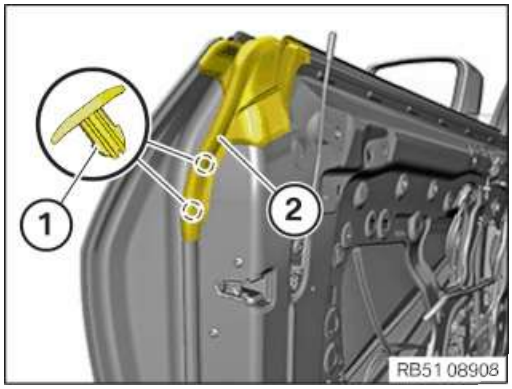
- Unclip clips (1) and place wiring harness (2) aside.
- Unlock and disconnect the plug connections (1).
- Remove the outside door handle (2).



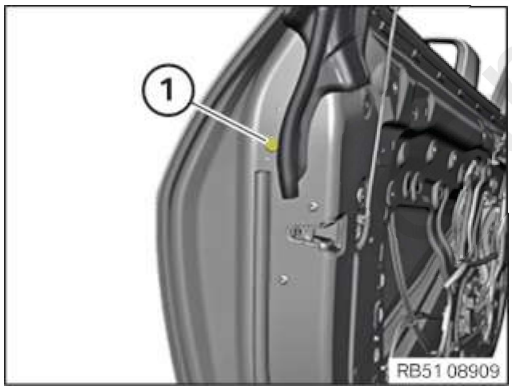
NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

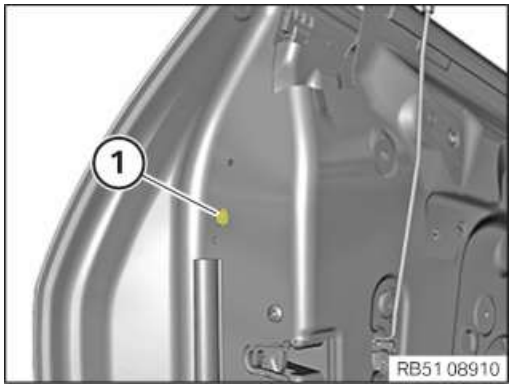
- Unlock and disconnect the plug connection (1)on the door lock (2).
- Unclip clips (3).
- Remove the wiring harness (4) and put to one side.



- Release the seal (2) at the clips (1) and move is slightly to the side.

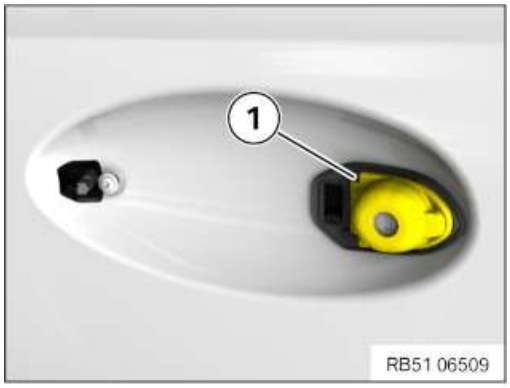


- Remove the seal plug (1).

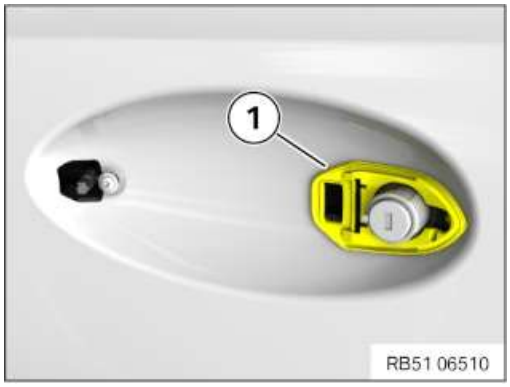


- Loosen screw (1).

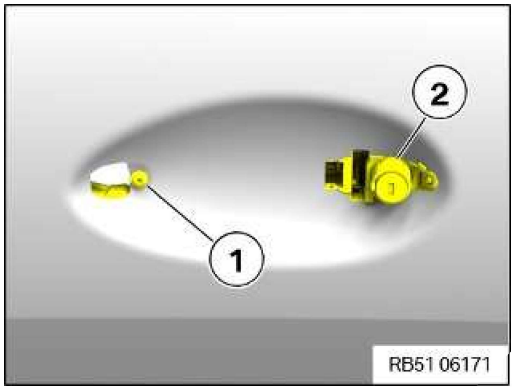
rdiagn.com



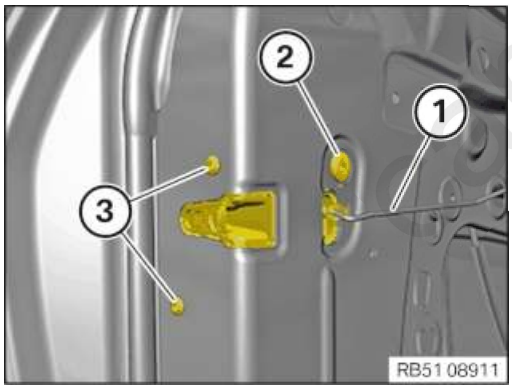
- Remove the cover (1).



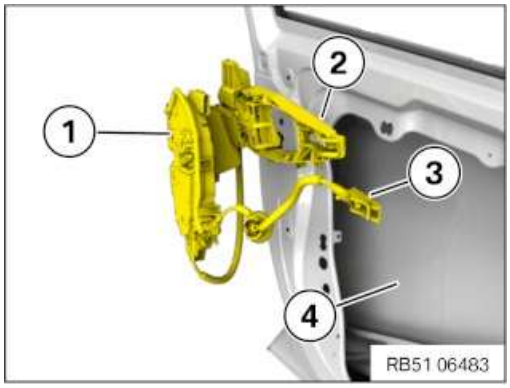
- Remove seal (1) for the outside door handle.



- Loosen screw (1).
- Slide the outside door handle support (2) forward and thread out to the inside.



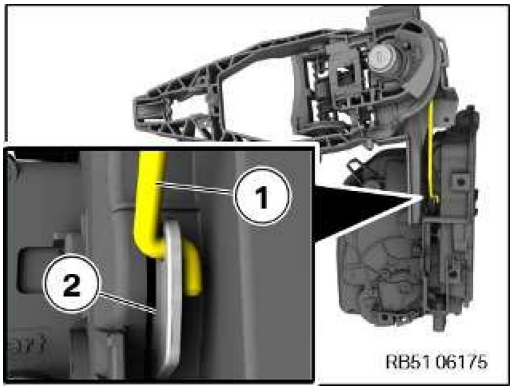
- Unclip locking rod (1).
- Release the screws (2) and (3).



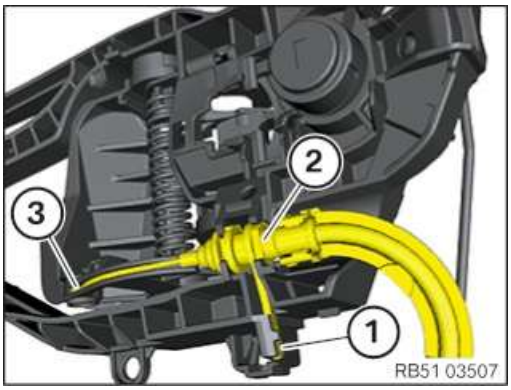
- Feed out the door lock (1) along with the outside door handle support (2) and the Bowden cable for inner door handle (3) from the door(4) .

  Make sure that the seal of door lock (1) is not damaged.

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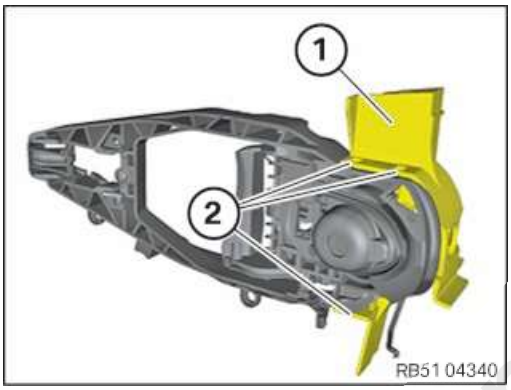


- Detach the linkage (1) from the door lock (2).

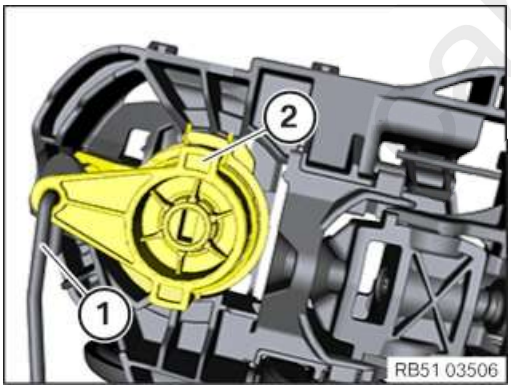


- Lift tab (1) over the latch mechanisms and turn upwards.
- Detach the Bowden cable (2) for the outside door handle.
- Detach the Bowden cable nipple (3).

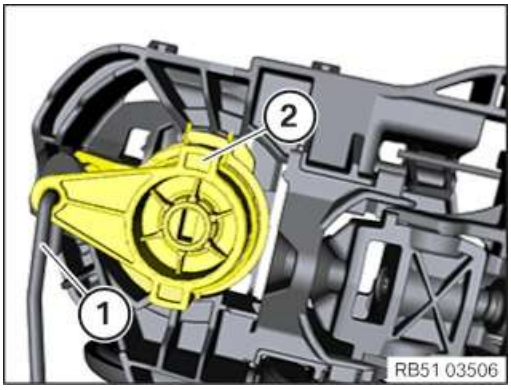
11 – Replacing outside door handle support



- Unclip the cover (1) at the points (2).
- Remove cover (1).

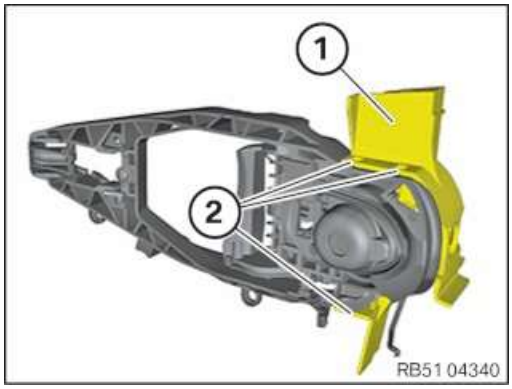


- Detach the locking rod (1).
- Turn lock barrel (2) in the clockwise direction and remove it from the outside door handle support.



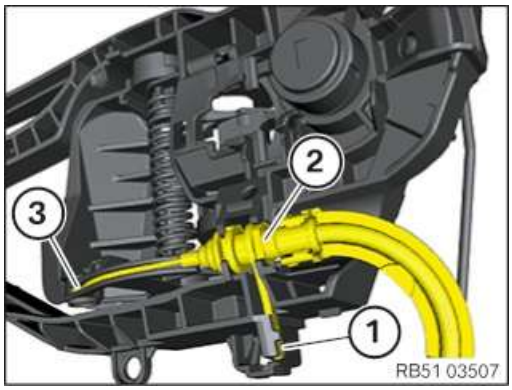
- Screw lock barrel (2) in the anticlockwise direction into the new outside door handle support.
- Attach locking rod (1) in lock barrel (2).

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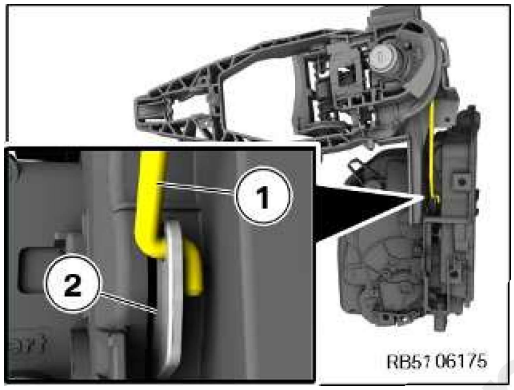


- Clip in the cover (1) at the points (2).

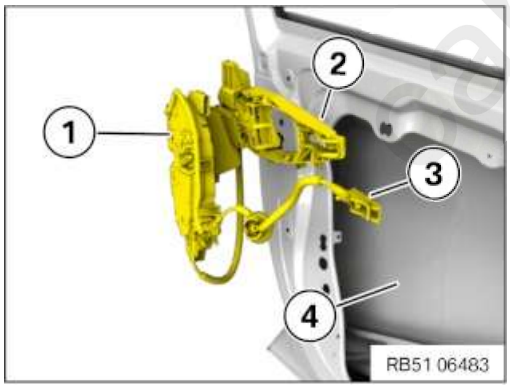
12 – Installing the outer door handle support



- Hook the Bowden cable nipple (3) of the Bowden cable (2).
- Hook the new Bowden cable (2).
- Twist and engage the tab (1).

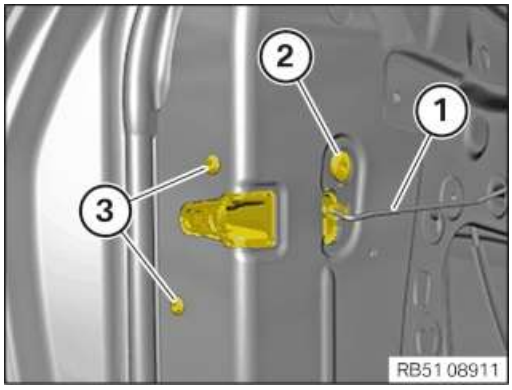


- Attach the linkage (1) in the door lock (2).



- Feed in the door lock (1) along with the outside door handle support (2) and the Bowden cable (3) for the inner door handle into the door (4).

  Make sure that the seal of door lock (1) is not damaged.



- Screw in screws (2) and (3) a few turns.
- Tighten the screws (3).

Door lock to door

Screw		Tightening torque	8,8 Nm

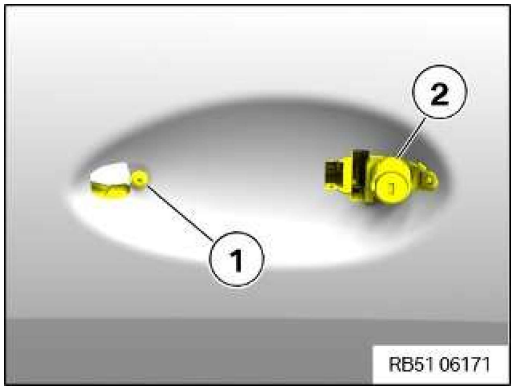
- Tighten down screw (2).

Door lock to door

Screw		Tightening torque	8,8 Nm

- Clip in locking rod (1).

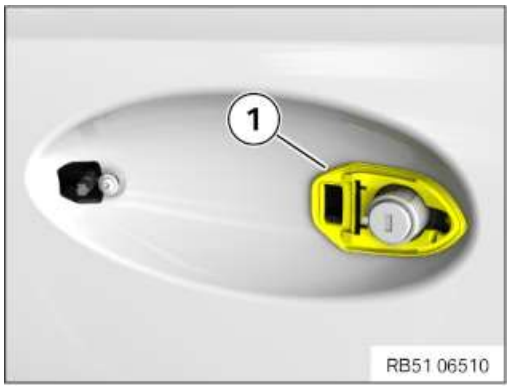
cardiagn.com



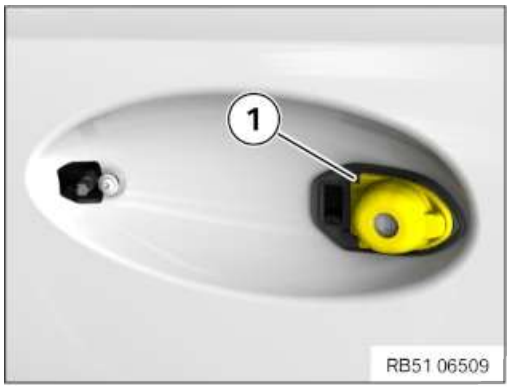
- Feed in outside door handle support (2) and position correctly.
- Tighten down screw (1).

Outside door handle support to door

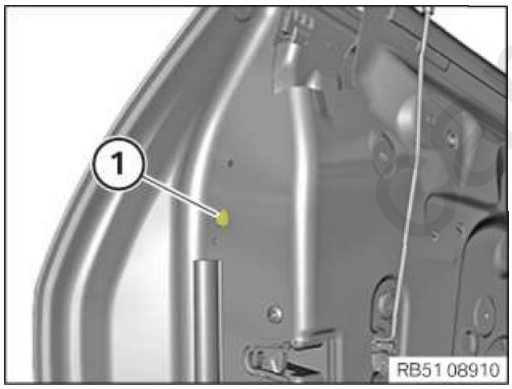
Screw		Tightening torque	2,6 Nm



- Install seal (1) for the outside door handle.



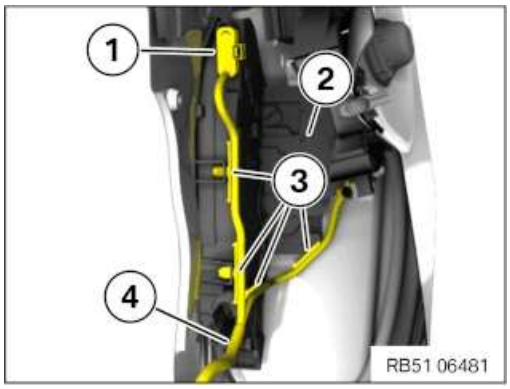
- Install the cover (1) .



- Tighten down screw (1).

Attachment bell to outside door handle support

Screw		Tightening torque	3 Nm

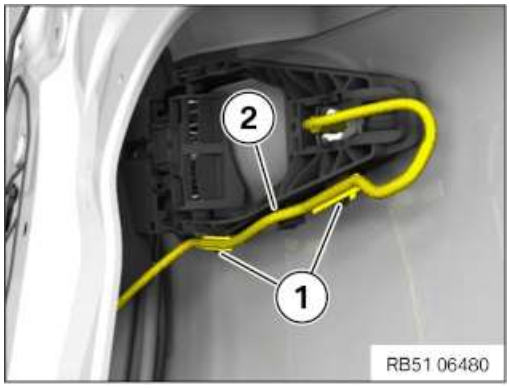


NOTICE

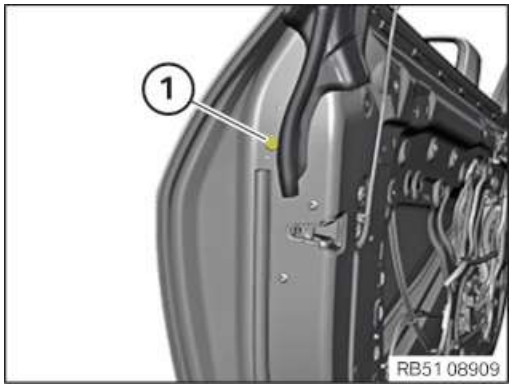
To provide a better overview: Schematic diagram with partially hidden components.

- Insert the wiring harness (4).
- Connect connector (1) at the door lock (2) and lock.
- Clip in clips (3).

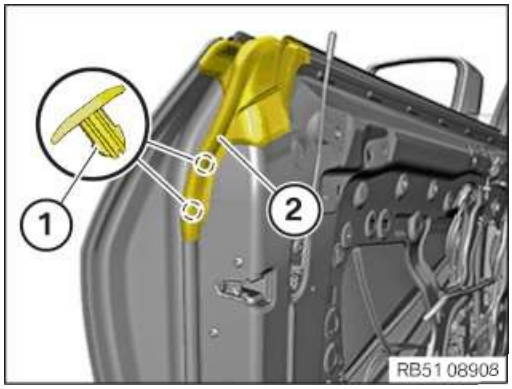
carjdiagn.com



- Route the wiring harness (2) correctly.
- Clip in clips (1).



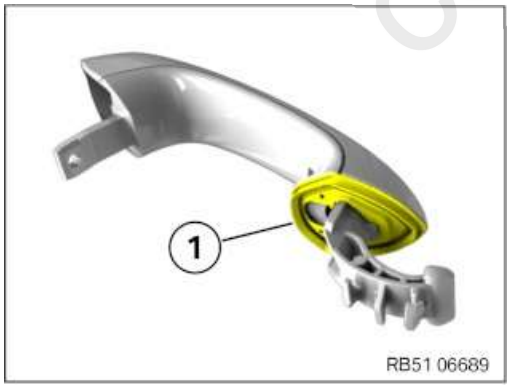
- Install seal plug (1).



- Secure the seal (2) with the clips (1).

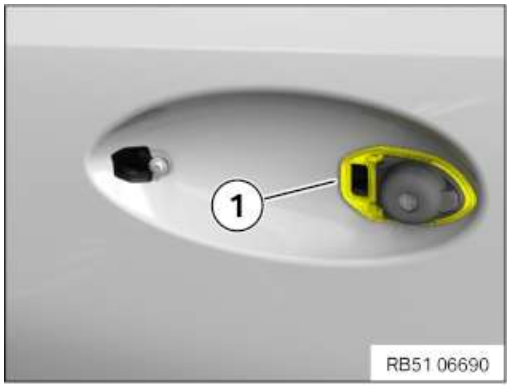
POSTPROCESSES

13 – Installing the outside door handle

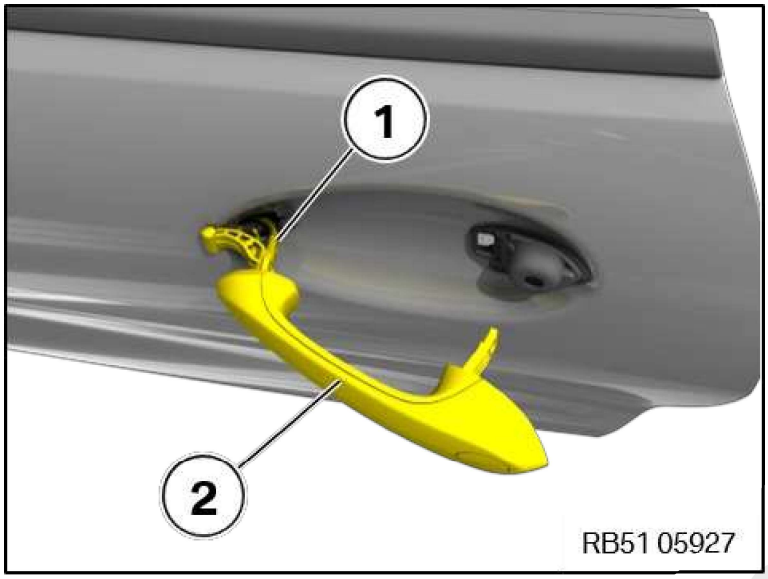


- Check the seal (1) for damage and renew if necessary.

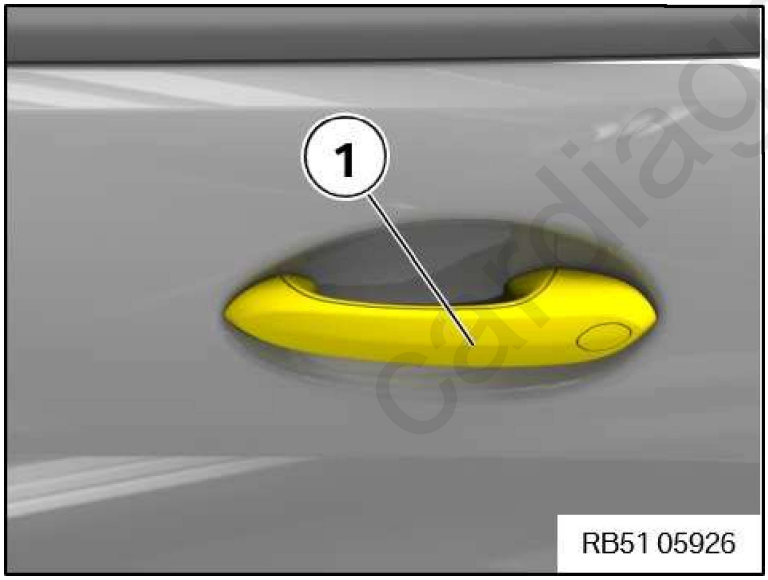
cardiagn.com



- Check the seal (1) for damage and renew if necessary.

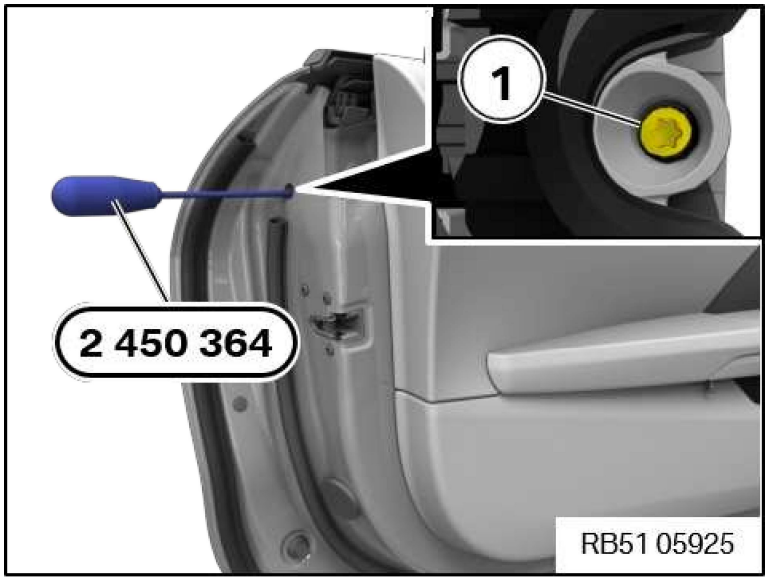


- Insert the front outside door handle (2).
- Connect connectors (1) and lock.



- Insert the rear outside door handle (1).

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

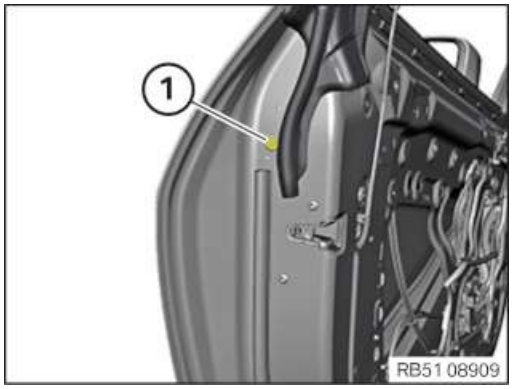
- Tighten the clamping bolt (1) on the outside door handle support with the special tool 2 450 364.

Clamping bolt for door handle

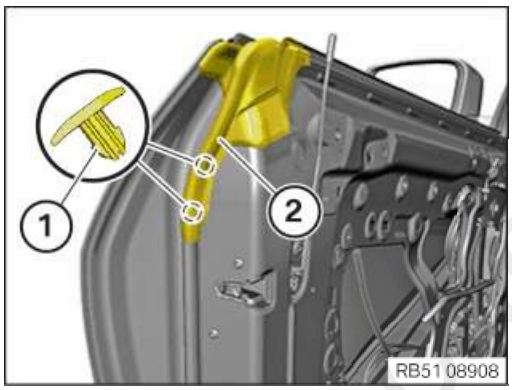
Screw		Tightening torque	2 Nm

Outer door handle to door

Clamping bolt		Tightening torque	3 Nm

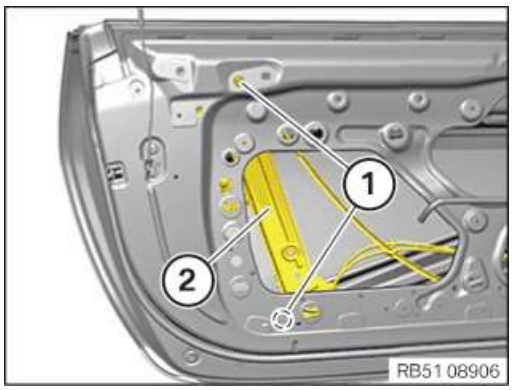


- Install seal plug (1).



- Fasten the seal (2) with the clips (1).

14 – Partially installing the window regulator of the front door

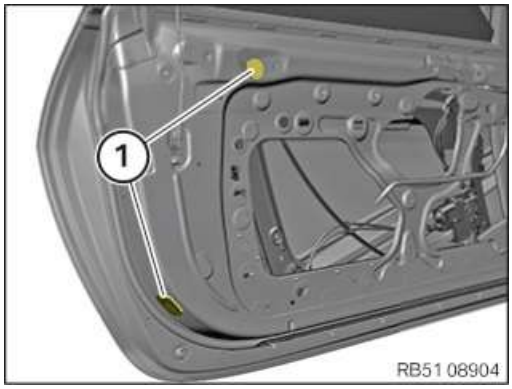


- Correctly position the window regulator (2).
- Tighten nuts (1).

Power window regulator to inner door panel

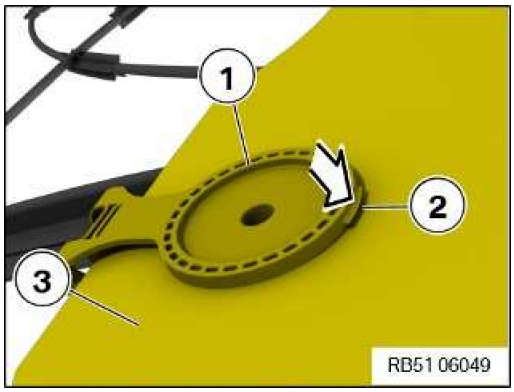
M6			9,5 Nm

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- Install the plug (1).

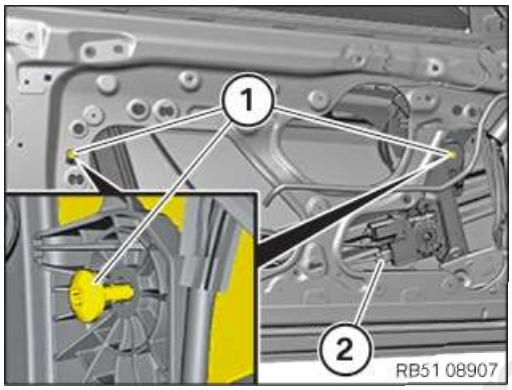
15 – Installing front door window glass



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Insert door window glass front (3) from the top.
- Press holder (1) on the tab (2) in direction of arrow and lock.



- Screw in the screws (1) and tighten them.

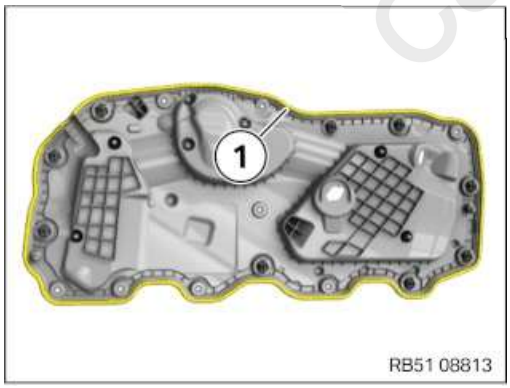
  In this process, counter support the multi-tooth nuts of the electric window.

Door window glass to power window regulator

Screw	Tightening torque	0.25 Nm

- Connect connectors (2) and lock.

16 – Installing the module carrier on the front door



Check

- Check the seal (1) of the module carrier on the front door for damage.

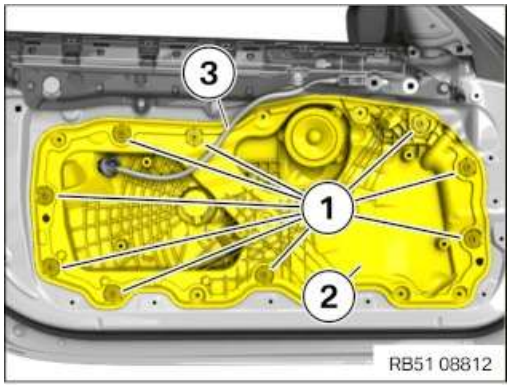
Result

» Seal (1) is damaged.

Measure

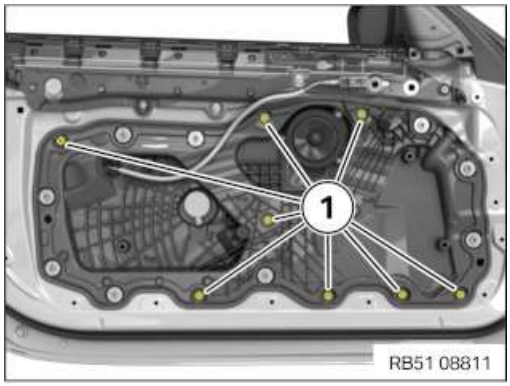
- Renew the module carrier on the front door.

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- Position the module carrier on the front door (2).

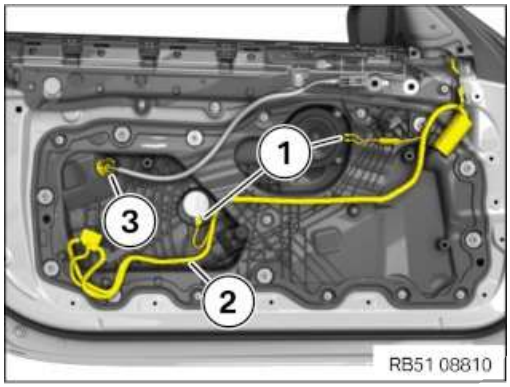
  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

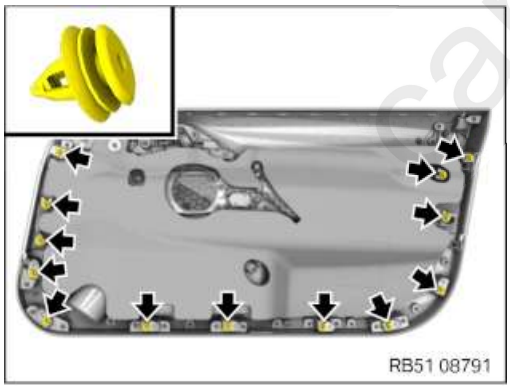
Module carrier to the front door

Oval-head screwM6		Tightening torque	9 Nm

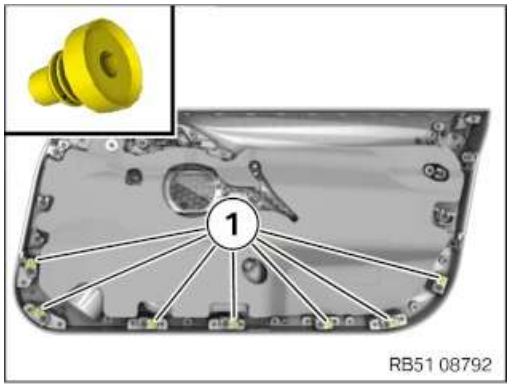


- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

17 – Install front door trim panel

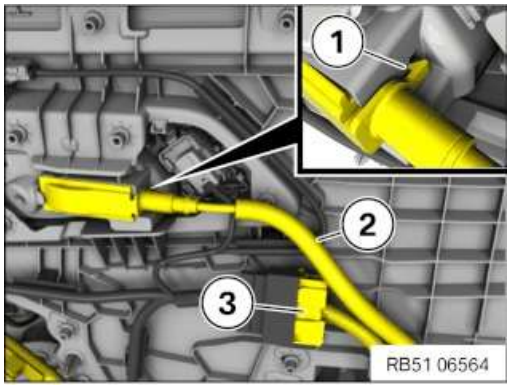


- Check clips (arrows) for damage and, if necessary, renew them.



- Check the stop pad (1) for damage, renew if necessary.

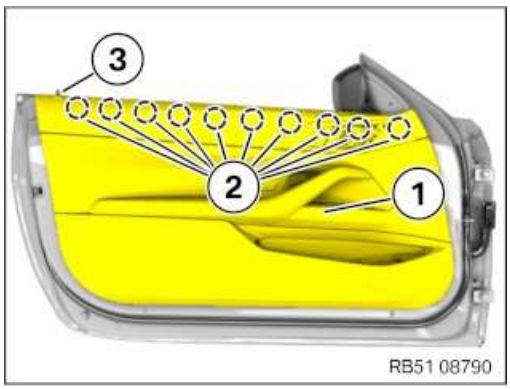
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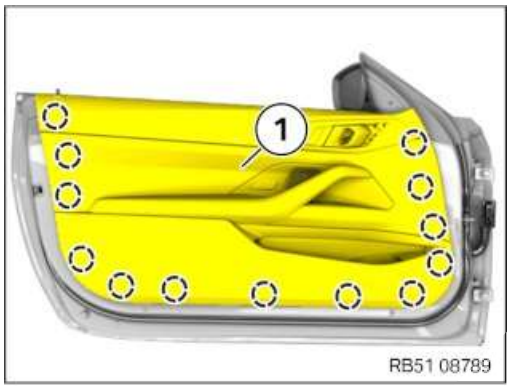
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

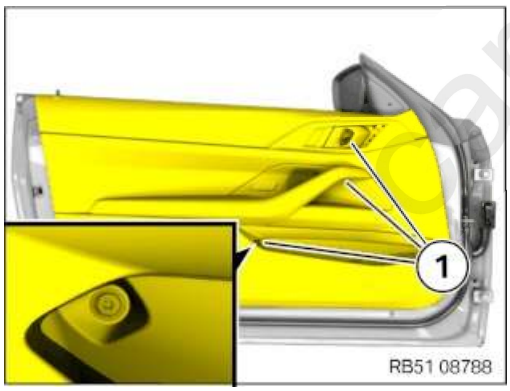
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

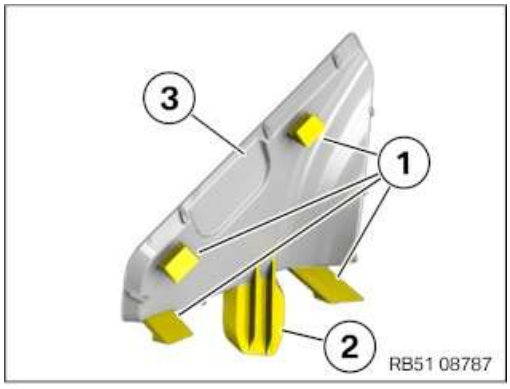


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

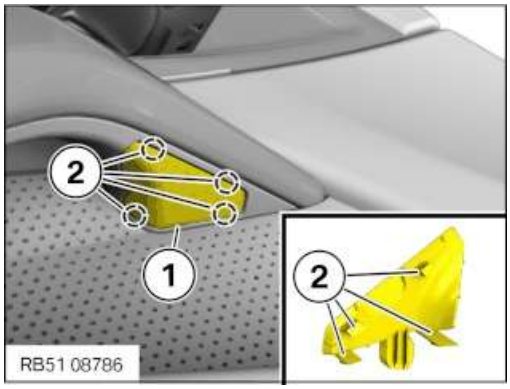
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Result

» The latch mechanisms (1) or the guides (2) are damaged.

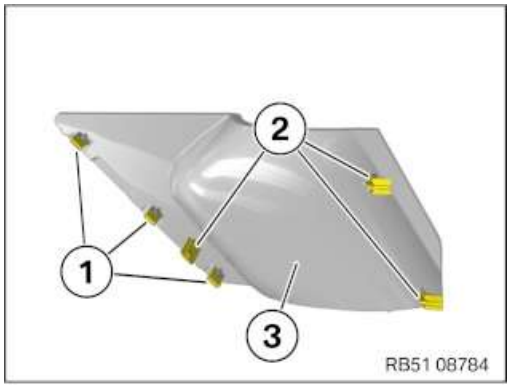
Measure

- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check



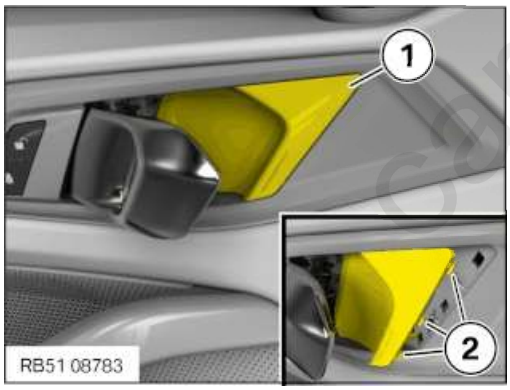
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

18 – Connecting all battery earth leads



- See additional information.

19 – Activating the 48 V electrical system

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Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



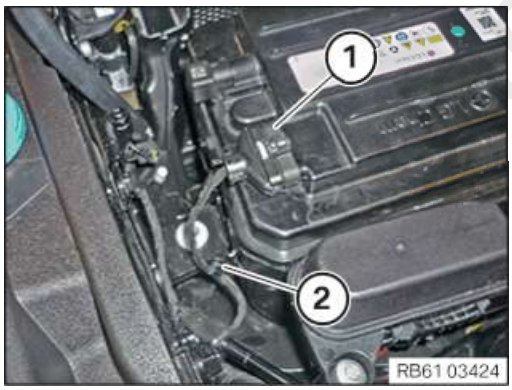
- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8	Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

Prerequisite

Vehicle is supported on all wheels at ground level.

Front door has been correctly fitted.

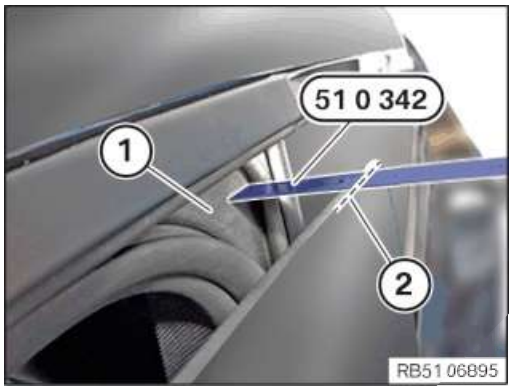
Battery charger is connected (during adjustment work, the complete operability of the power window regulator is only guaranteed with external voltage supply).

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

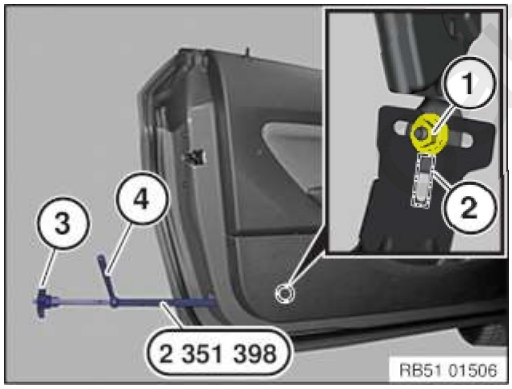


- Open door; move door window glass into uppermost position, if necessary.
- Insert special tool with the special tool in the rotary striker of the door lock and lock the rotary striker manually (door window glass moves fully upwards).
- Carefully close the door until the special tool lies on the striker (defined opening angle for the measurement).



- Do not exert any force on the door or door window glass during measurement.
- Abut special tool to the seal (1) and the door window glass (2).
- Determine dimension for preload between the seal (1) and outer edge of door window glass (2).

  Nominal dimension = 55 ± 1 mm



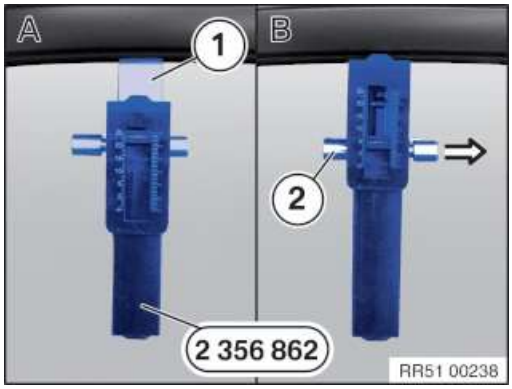
- Open door and remove sealing cap from door frame.
- Feed in special tool into the door and position at the nut (1) and the guide (2).
- Slacken nut (1) with knob (3).
- Turning the lever (4) to set the preload.

  Nominal dimension = 55 ± 1 mm
- Tighten nut (1).

Power window regulator to inner door panel

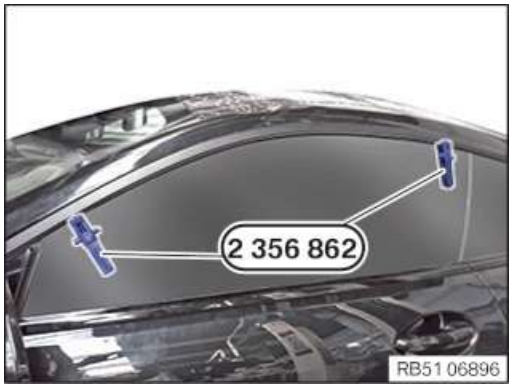
M6			9,5 Nm

- Check setting, repeat process if necessary.
- Remove special tool and fit the seal plug.
- Remove the special tool from the rotary striker of the door lock.



- Connect the special tool 2 356 862 to the holder (5 mm)(1) on the door window glass when it is locked (A).

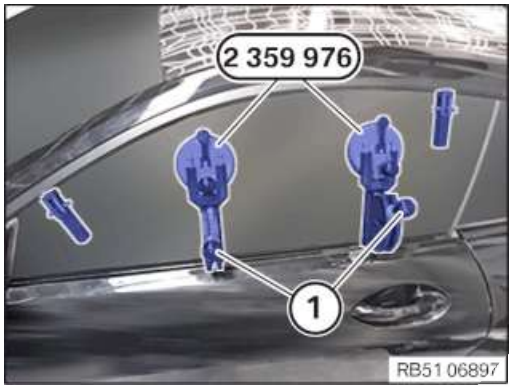
  Close the door and release the lock (2) (B).



- Open door.
- Place special tool 2 356 862 as shown on the door window glass.

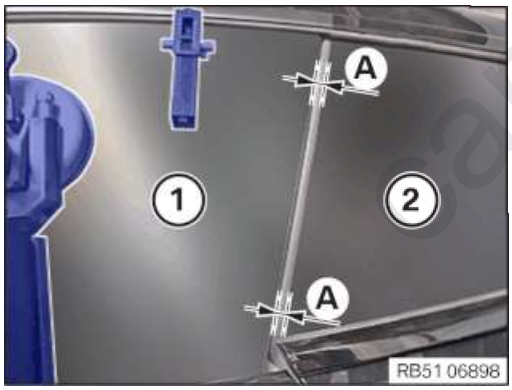
  Approx. displaced by 40 mm inwards in each case.
- Close door.
- Measure retraction depth.

  Nominal dimension: 5.5 ± 1 mm



- Attach special tool 2 359 976 on the door window glass so that the multi-tooth screws of the door window glass are still accessible.
- Release adjustment lever (1) by twisting.
- Set the retraction depth of the side window glass by moving the adjustment lever (1).

  Nominal dimension: 5.5 ± 1 mm
- Tighten adjustment lever (1).

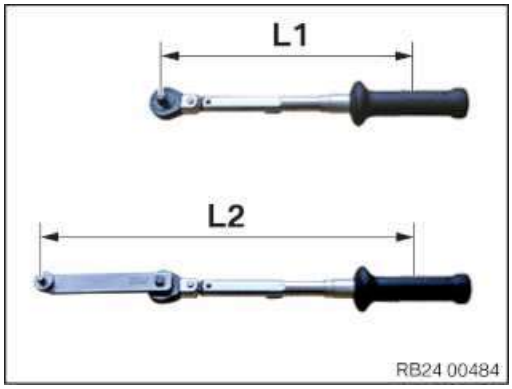


- Adjust door window panel (1) parallel to the rear side window (2).

  Dimension (A) = 8.0 ± 1 mm

▸ **Tighten the front door window glass**

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TECHNICAL INFORMATION

While using the special tool, that extends the lever arm of the torque wrench, the setpoint torque deviates from the torque to be set.

NOTICE

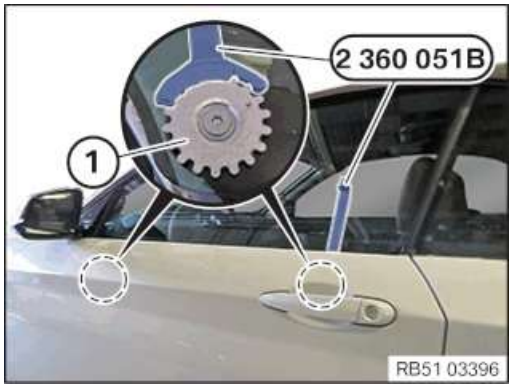
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten multi-point nuts (1) on the door window glass in the front using special tool **B** and a torque wrench.

Toothed nut of side window

Toothed nut		Tightening torque	11 Nm

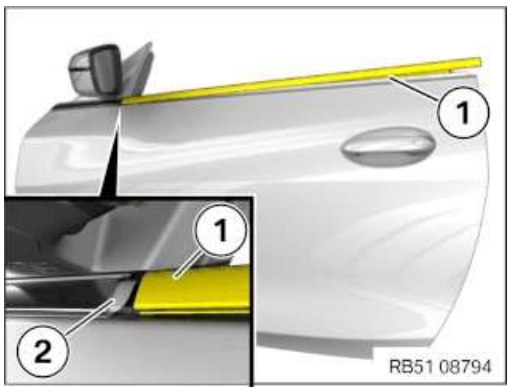
21 – Install outer weather strip

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

Additional Information

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Overview of Tightening Torques

Door lock to door			Used in step 12
Screw		Tightening torque	8,8 Nm

Outside door handle support to door			Used in step 12
Screw		Tightening torque	2,6 Nm

Attachment bell to outside door handle support			Used in step 12
Screw		Tightening torque	3 Nm

Clamping bolt for door handle			Used in step 13
Screw		Tightening torque	2 Nm

Outer door handle to door			Used in step 13
Clamping bolt		Tightening torque	3 Nm

Power window regulator to inner door panel			Used in step 1420
M6			9,5 Nm

Door window glass to power window regulator			Used in step 15
Screw		Tightening torque	0.25 Nm

Module carrier to the front door			Used in step 16
Oval-head screwM6		Tightening torque	9 Nm

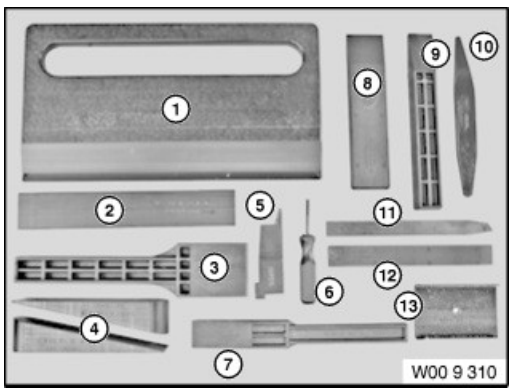
Door trim panel			Used in step 17
Oval-head screw		Tightening torque	3 Nm

Negative battery cable to 48-V battery			Used in step 19
Nut M8		Tightening torque	19 Nm

Toothed nut of side window			Used in step 20
Toothed nut		Tightening torque	11 Nm

Overview of Special Tools

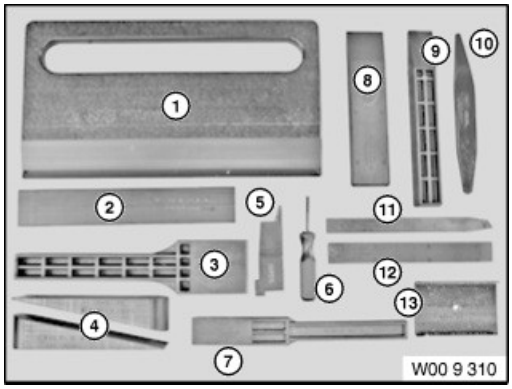
0 493 752 (00 9 329) Case



Common	Used in step 3
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

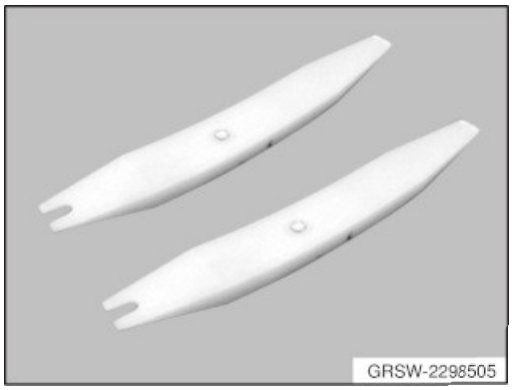
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0 495 484 (00 9 324) Panel wedge



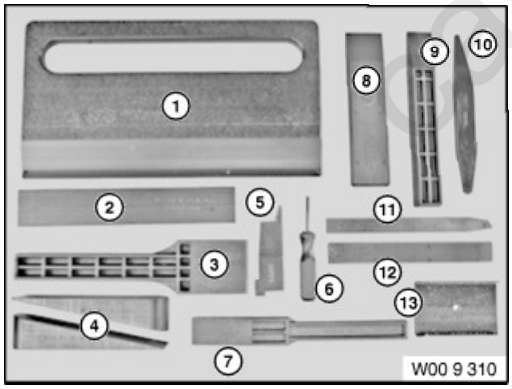
Common	Used in step 5
Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

2 298 505 Wedge



Common	Used in step 5
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)

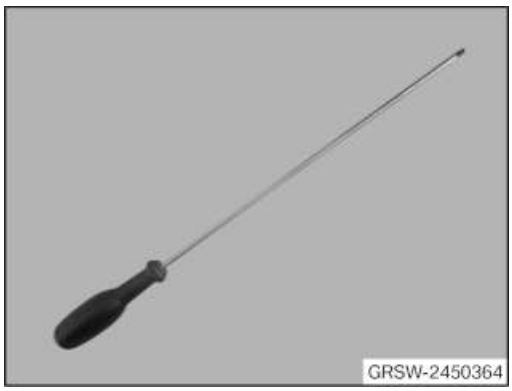
0 490 538 (00 9 321) Folding stick



Common	Used in step 5
Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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2 450 364 Torx



Common Used in step 913

Usage	for releasing the outside door handles
Included in the tool or work	
Storage location	A5
Replaced by	
In connection with	
SI-Number	01 22 16 (440)

2 356 862 Device



Common Used in step 20

Usage	Device for measuring the side window retraction depth. Also valid for: BMW i Aftersales Basic. This tool set replaces the tool 2304553
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 29 13 (998)

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2 359 976 Siphon



Common	Used in step 20
Usage	For fixing and adjusting frameless side/door window glass. Also valid for: BMW i Aftersales Basic
Included in the tool or work	
Storage location	A73
Replaced by	
In connection with	
SI-Number	01 27 14 (129)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	119

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 218
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle) 218
61 20 900 Disconnecting and connecting battery earth lead 218
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 218
61 20 900 Disconnecting and connecting battery earth lead 218
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61 20 900 Disconnecting and connecting battery earth lead 218

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This documentation refers to special tools that were not yet available when going to press.

51 21 126 Removing and installing/replacing the outside door handle support without lock barrel, left or right

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

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RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

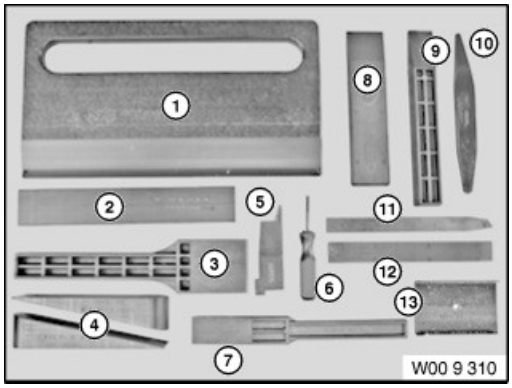
3 – Remove front door trim panel

RISK OF DAMAGE

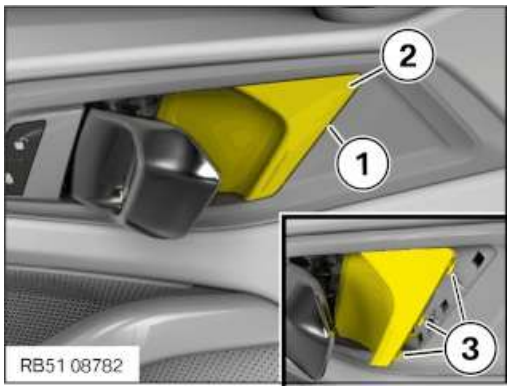
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

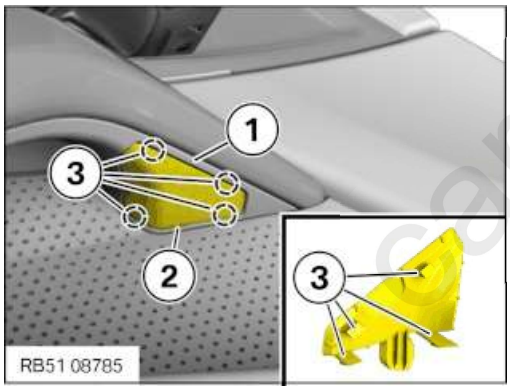
- Protect surfaces from damage.



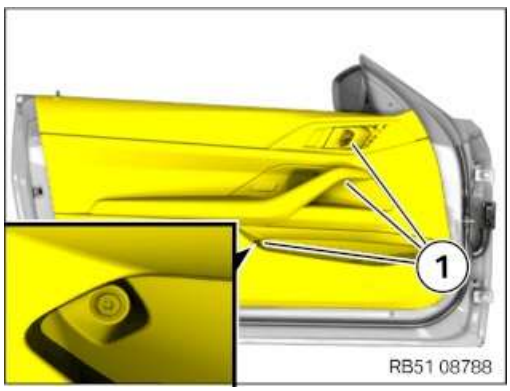
- Have the set of special tools 0 493 752 (00 9 329) ready.



- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.

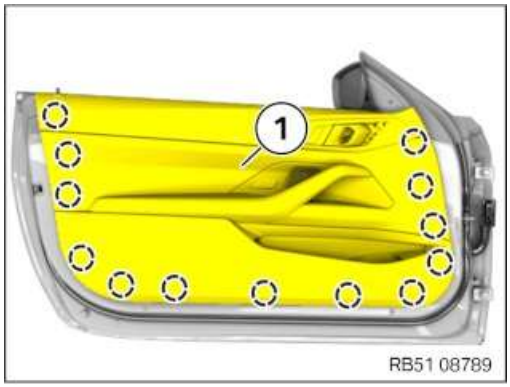


- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

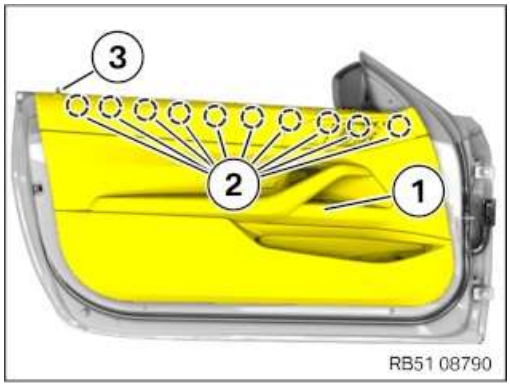


- Loosen screws (1).

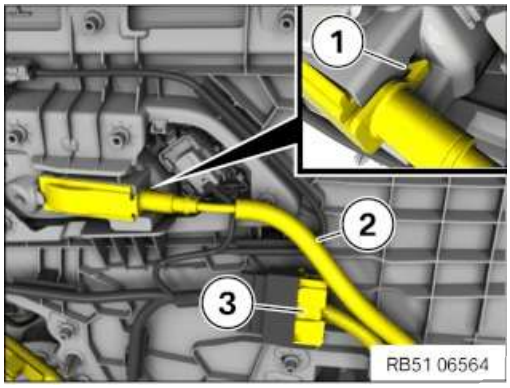
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- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



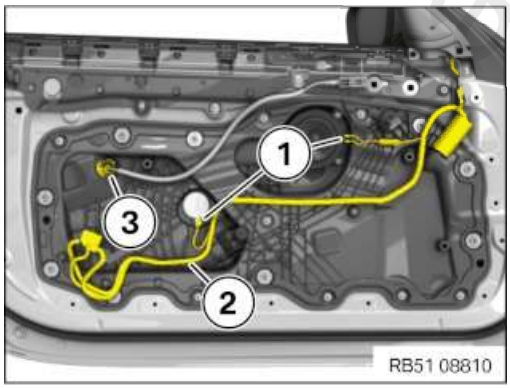
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

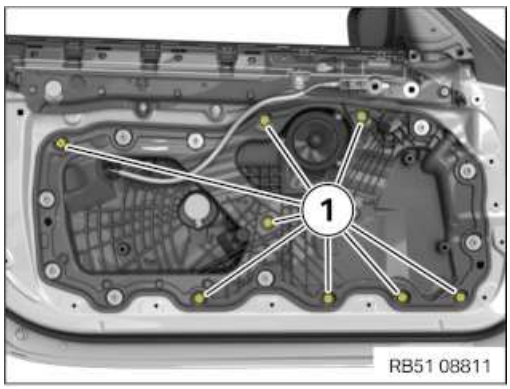
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

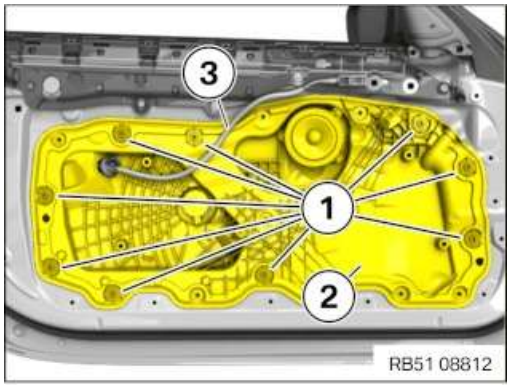
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).



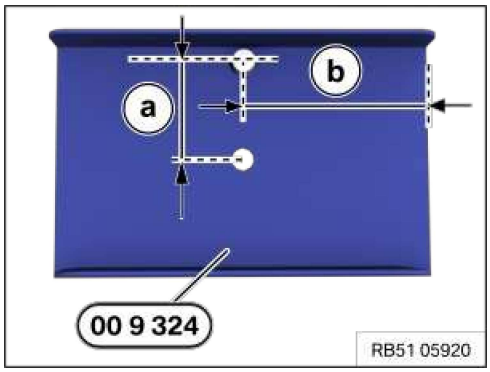
- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

5 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

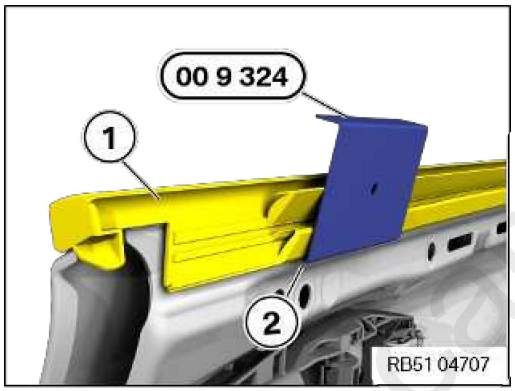
- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

  Dimension (b) = 50 mm from the outer edge of the special tool

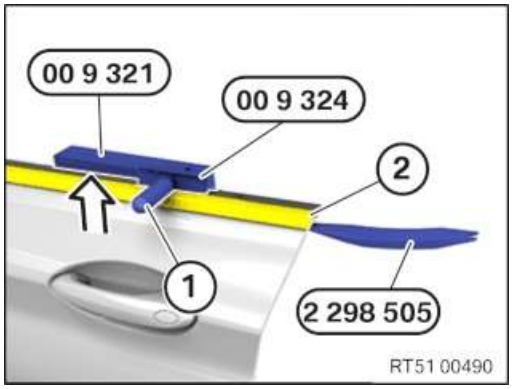


NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

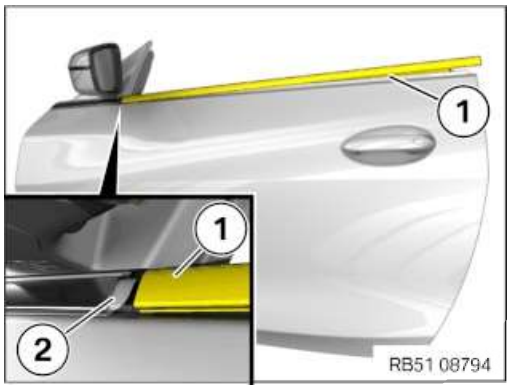
- Protect working area.
- Handle tools and components carefully.

- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.

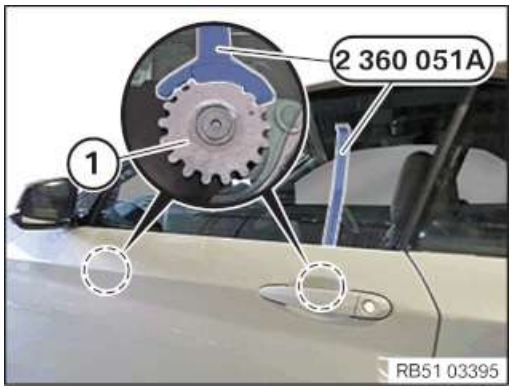


- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

6 – Release door window at front

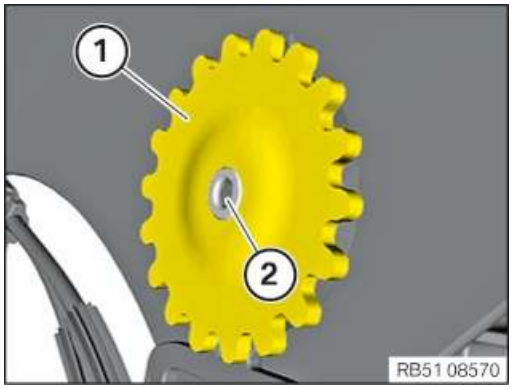
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



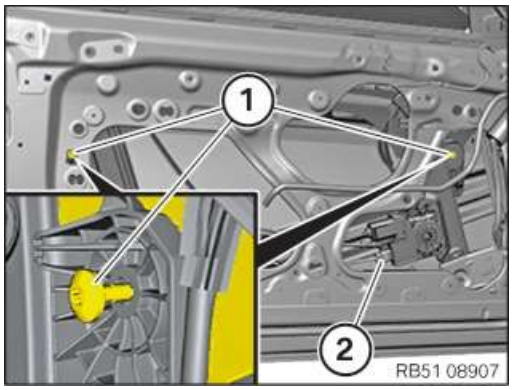
- Undo multi-tooth nuts (1) on side window glass with special tool **A**. (Observe next operation.)

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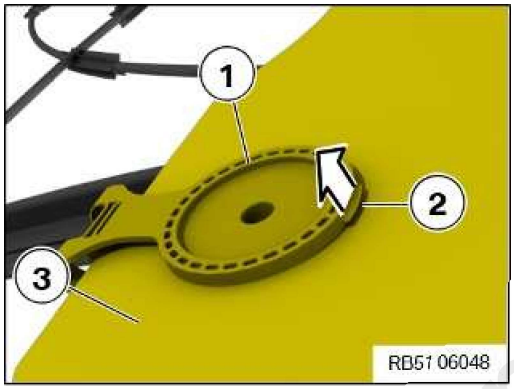


- Only undo the multi-tooth nut (1) to the extent it is flush with the socket (2).
- Lower front door window glass half way.

7 – Removing front door window glass



- Open the front door window glass so that the screws (1) are accessible.
- Unlock plug connection (2) and disconnect.
- Unscrew the screws (1) so far until the disassembly of the front door window glass is possible.

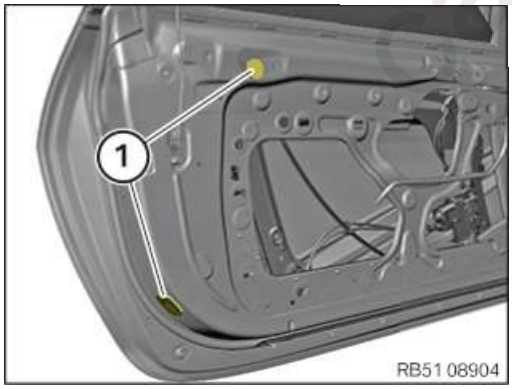


NOTICE

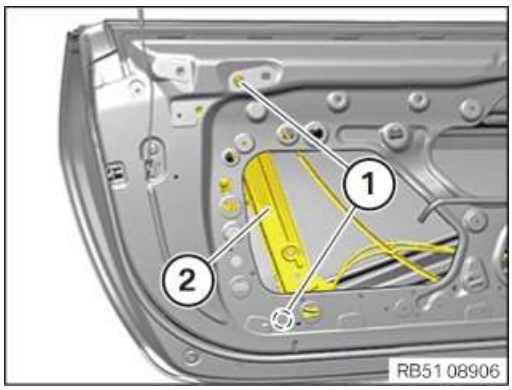
To provide a better overview: Schematic diagram with partially hidden components.

- Lift holder (1) on the tab (2) in the direction of arrow.
- Feed out the front door window glass (3) from the door upwards.

8 – Removing front door power window regulator

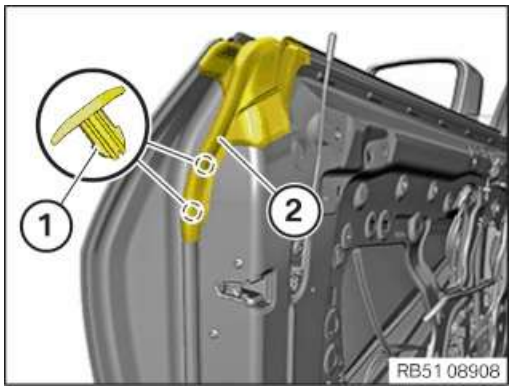


- Remove plug (1).

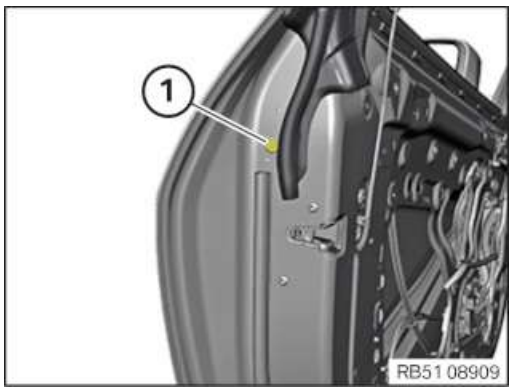


- Release nuts (1).
- Carefully push the power window (2) to the side.

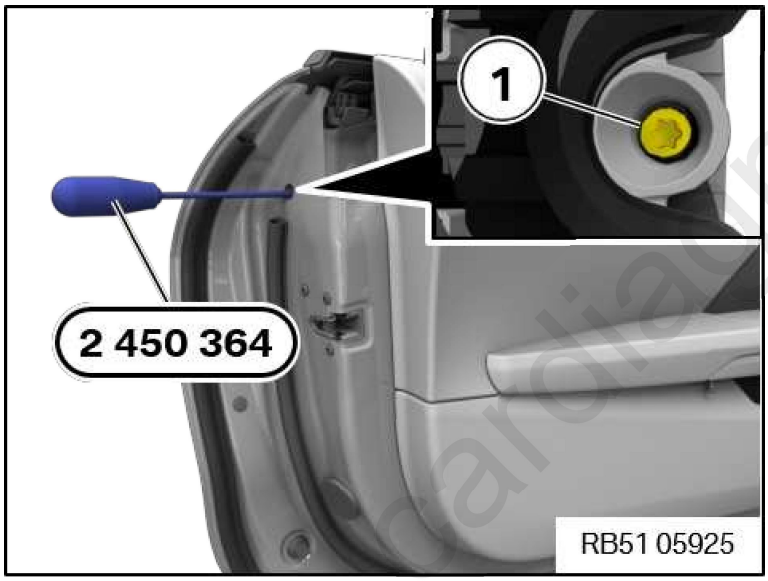
9 – Remove the outside door handle



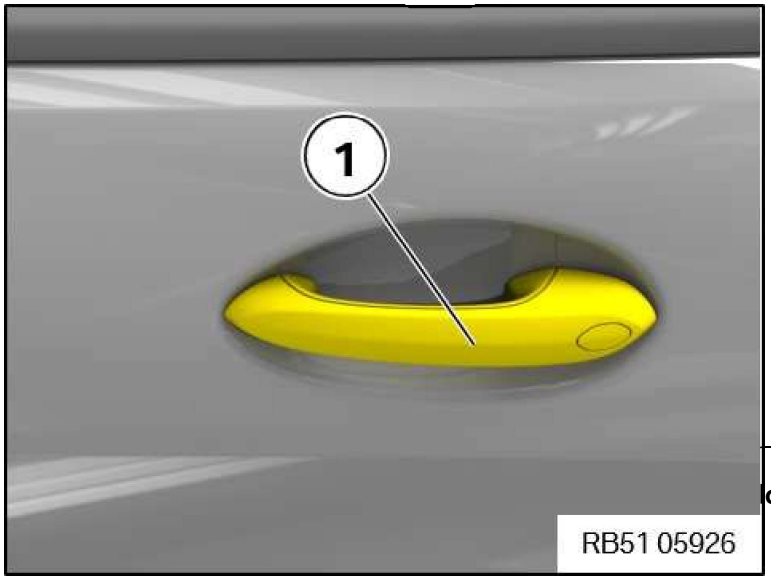
- Release the seal (2) at the clips (1) and move is slightly to the side.



- Remove the seal plug (1).

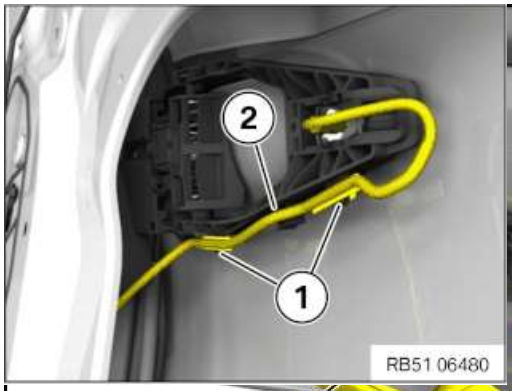


- Release the clamping bolt (1) from the outside door handle support with the special tool 2 450 364.

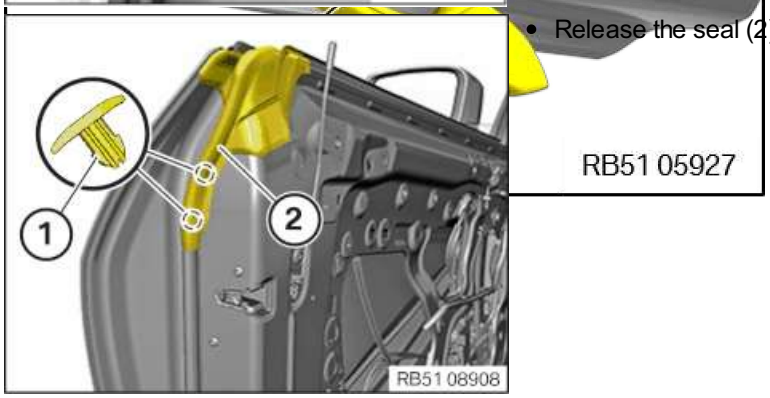


- Pull the rear outside door handle (1) to the outside and remove it in the process.
- Pivot the outside door handle (1) further towards the outside and in this process, remove it at the front.

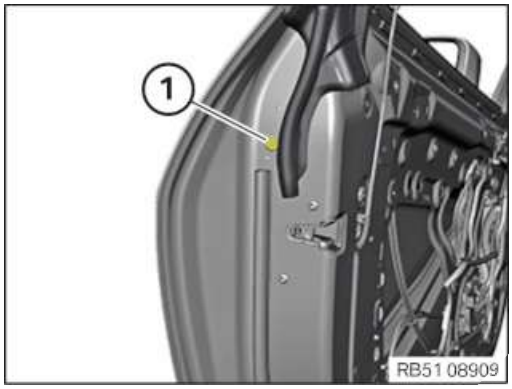
ock barrel



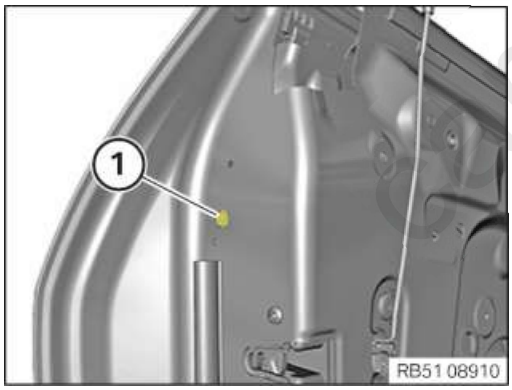
- Unclip clips (1) and pull locking mechanism (2) aside.
- Unplug the harness connections (1).
- Remove the outside door handle (2).



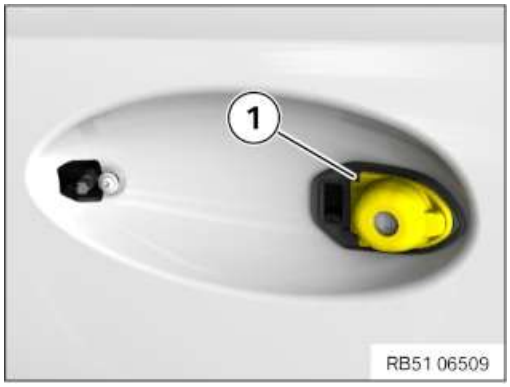
- Release the seal (2) at the clips (1) and bend slightly to one side.



- Remove the seal plug (1).

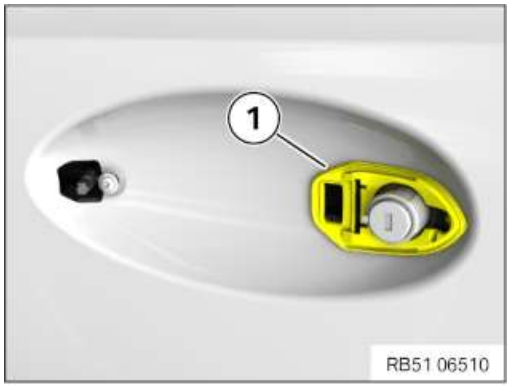


- Loosen screw (1).

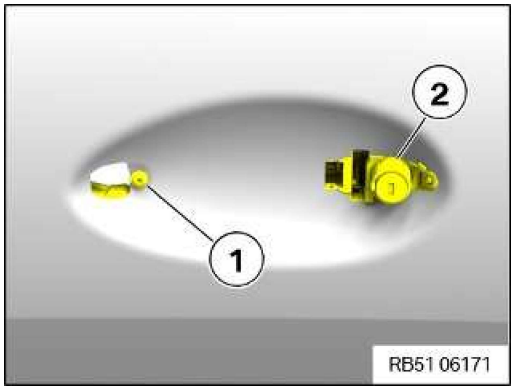


- Remove the cover (1).

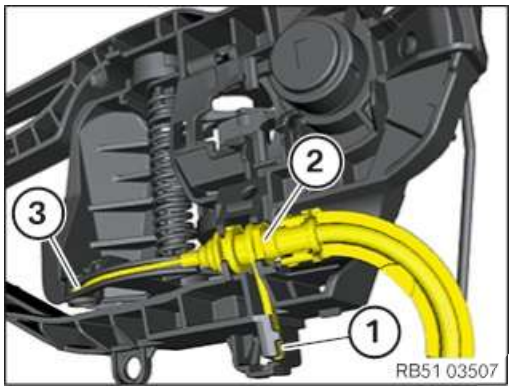
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- Remove seal (1) for the outside door handle.

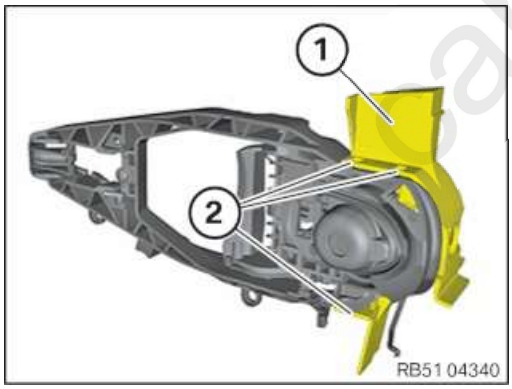


- Loosen screw (1).
- Slide the outside door handle support (2) forward and feed out from the door inwards.

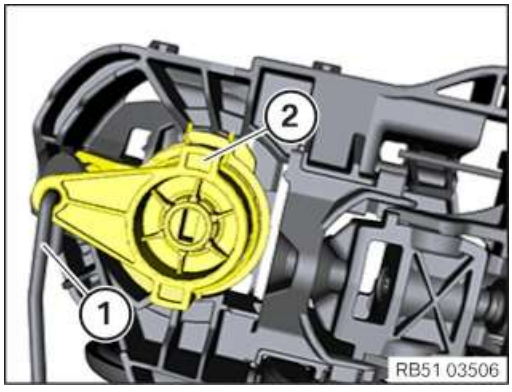


- Lift tab (1) over the latch mechanisms and turn upwards.
- Detach the Bowden cable for outside door handle (2).
- Detach the Bowden cable nipple (3).

11 – Replacing outside door handle support

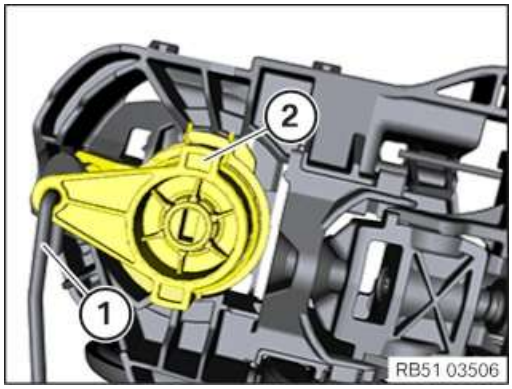


- Unclip the cover (1) at the points (2).
- Remove cover (1).

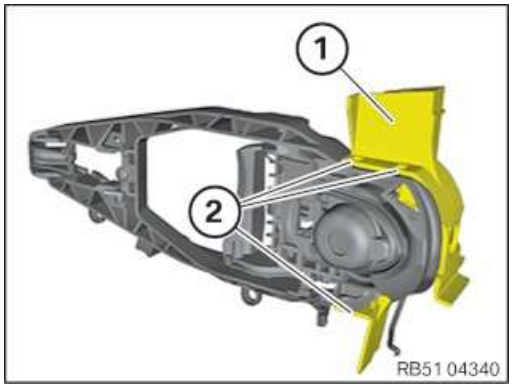


- Detach the locking rod (1).
- Turn lock barrel (2) in the clockwise direction and remove it from the outside door handle support.

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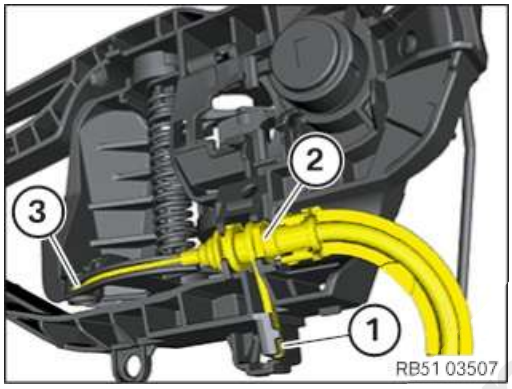


- Screw lock barrel (2) in the anticlockwise direction into the new outside door handle support.
- Attach locking rod (1) in lock barrel (2).

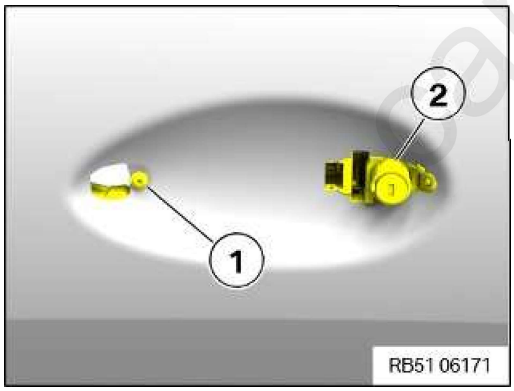


- Clip in the cover (1) at the points (2).

12 – Install the outside door handle support without the lock barrel



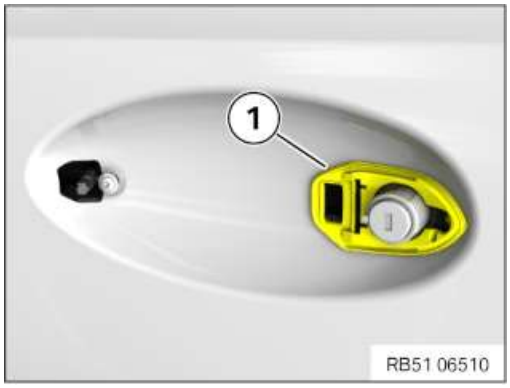
- Install the outside door handle support.
- Attach Bowden cable nipple (3) of the Bowden cable for the outside door handle (2).
- Attach the new Bowden cable for outside door handle (2).
- Twist and engage the tab (1).



- Feed in outside door handle support (2) and position correctly.
- Tighten down screw (1).

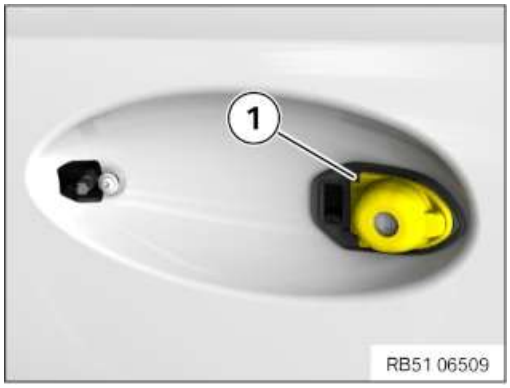
Outside door handle support to door

Screw		Tightening torque	2,6 Nm

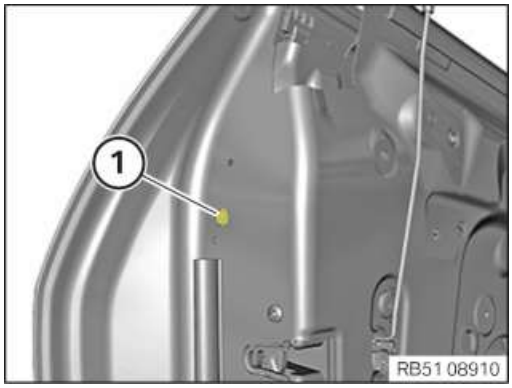


- Install seal (1) for the outside door handle.

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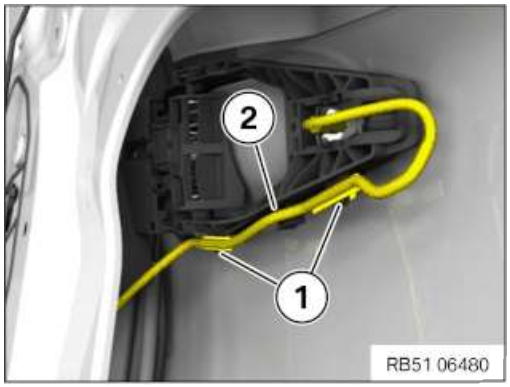
- Install the cover (1) .



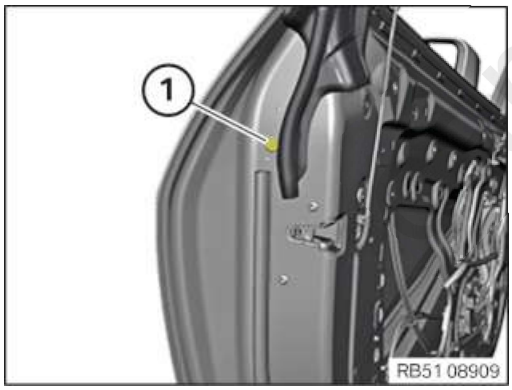
- Tighten down screw (1).

Attachment bell to outside door handle support

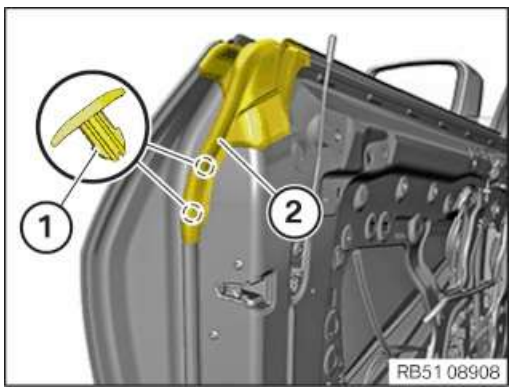
Screw		Tightening torque	3 Nm



- Route the wiring harness (2) correctly.
- Clip in clips (1).



- Install seal plug (1).

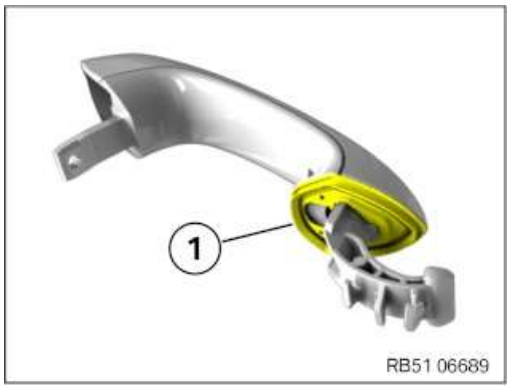


- Fasten the seal (2) with the clips (1).

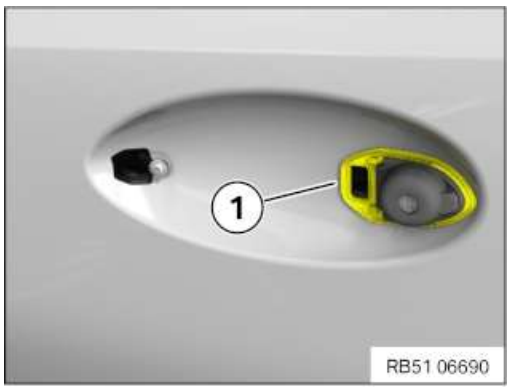
POSTPROCESSES

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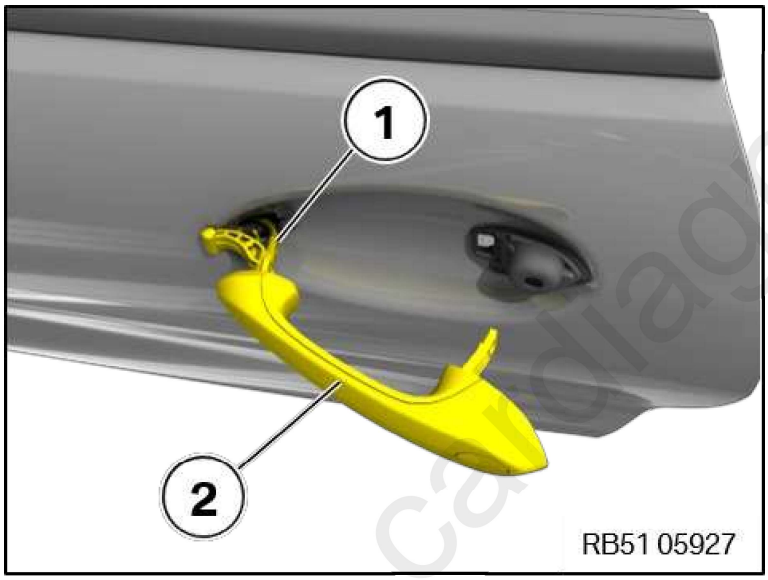
13 – Installing the outside door handle



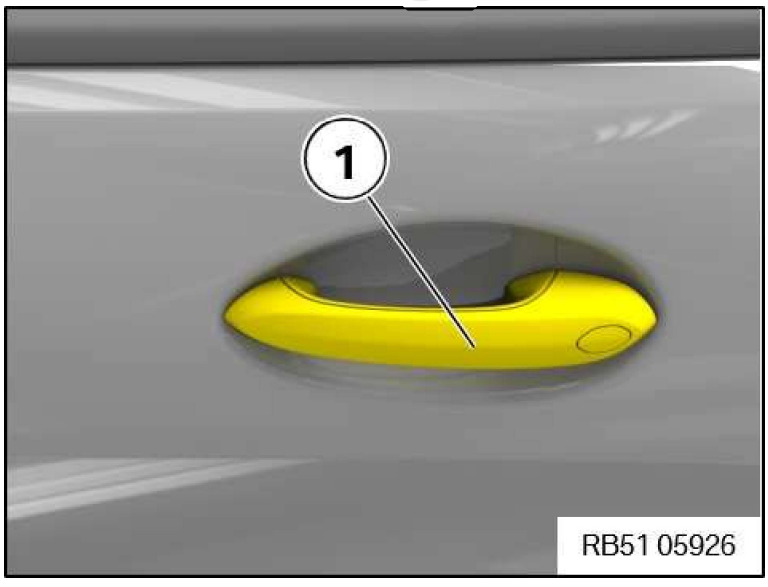
- Check the seal (1) for damage and renew if necessary.



- Check the seal (1) for damage and renew if necessary.

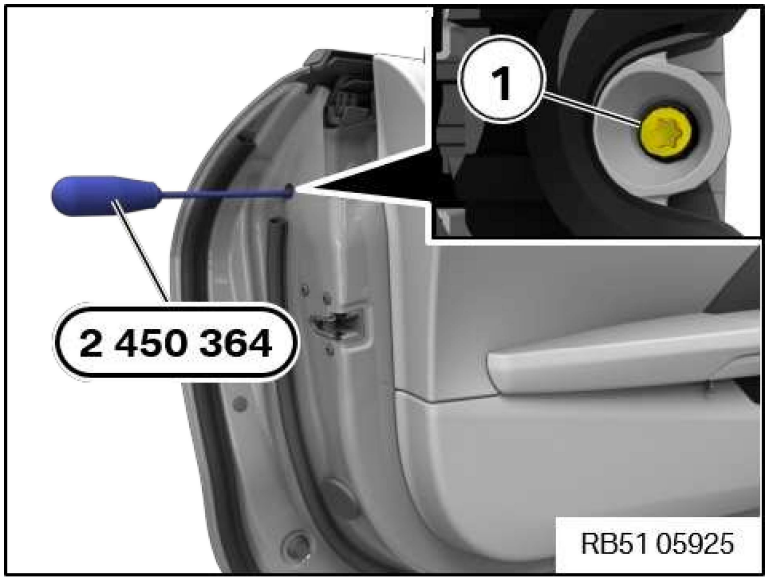


- Insert the front outside door handle (2).
- Connect connectors (1) and lock.



- Insert the rear outside door handle (1).

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

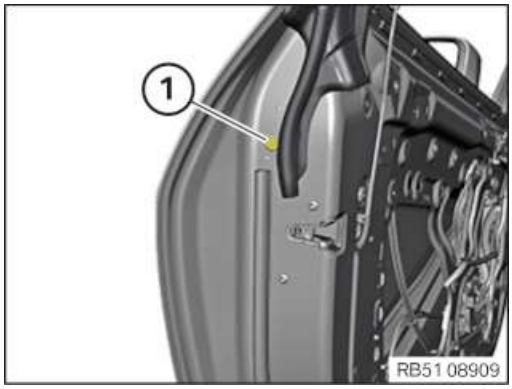
- Tighten the clamping bolt (1) on the outside door handle support with the special tool 2 450 364.

Clamping bolt for door handle

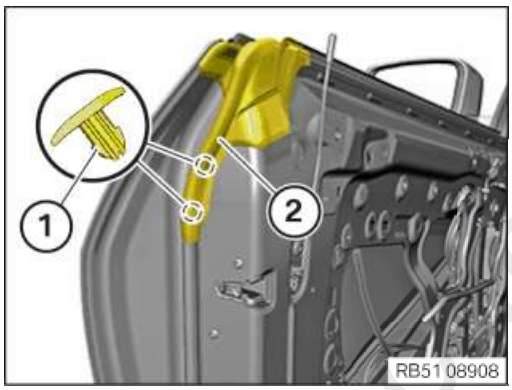
Screw		Tightening torque	2 Nm

Outer door handle to door

Clamping bolt		Tightening torque	3 Nm

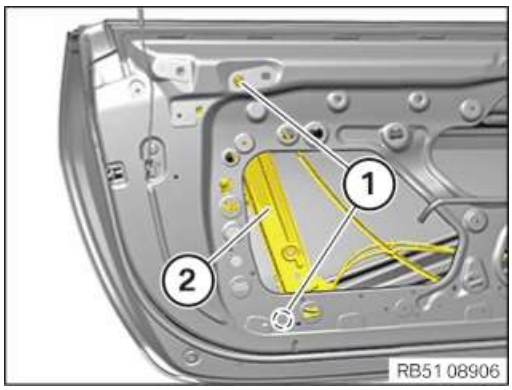


- Install seal plug (1).



- Fasten the seal (2) with the clips (1).

14 – Partially installing the window regulator of the front door

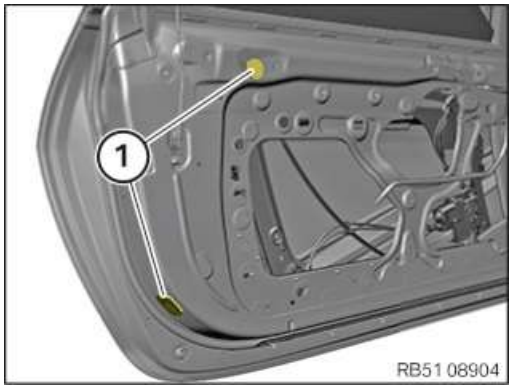


- Correctly position the window regulator (2).
- Tighten nuts (1).

Power window regulator to inner door panel

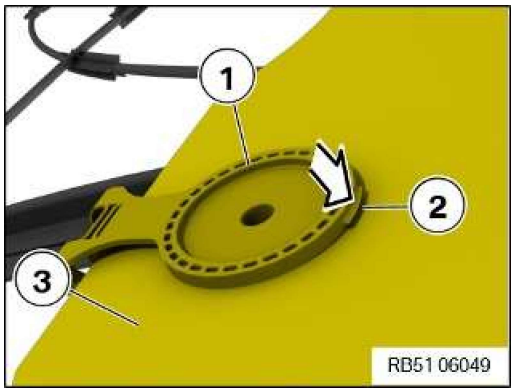
M6			9,5 Nm

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- Install the plug (1).

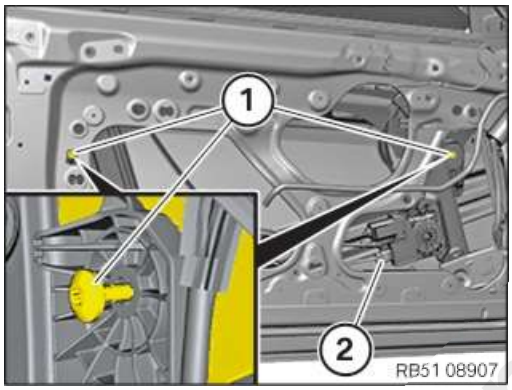
15 – Installing front door window glass



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Insert door window glass front (3) from the top.
- Press holder (1) on the tab (2) in direction of arrow and lock.



- Screw in the screws (1) and tighten them.

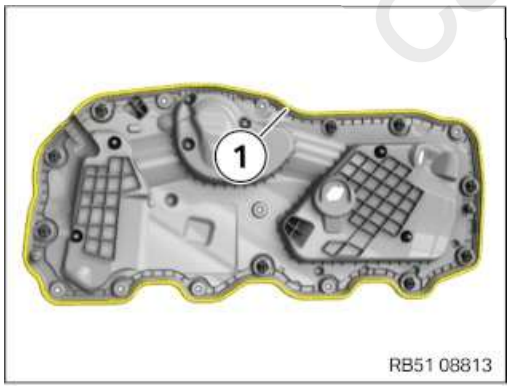
  In this process, counter support the multi-tooth nuts of the electric window.

Door window glass to power window regulator

Screw	Tightening torque	0.25 Nm

- Connect connectors (2) and lock.

16 – Installing the module carrier on the front door



Check

- Check the seal (1) of the module carrier on the front door for damage.

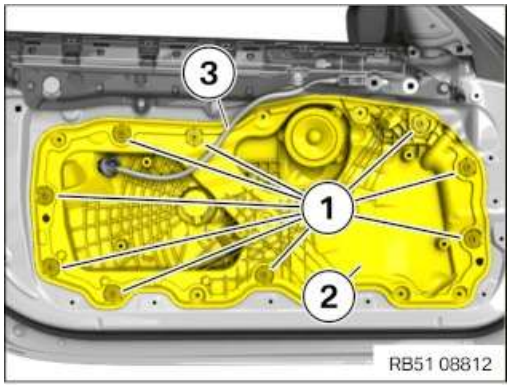
Result

» Seal (1) is damaged.

Measure

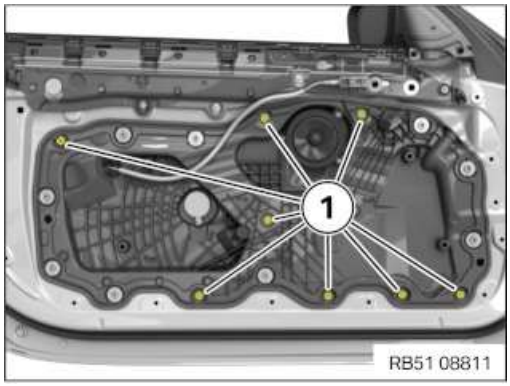
- Renew the module carrier on the front door.

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- Position the module carrier on the front door (2).

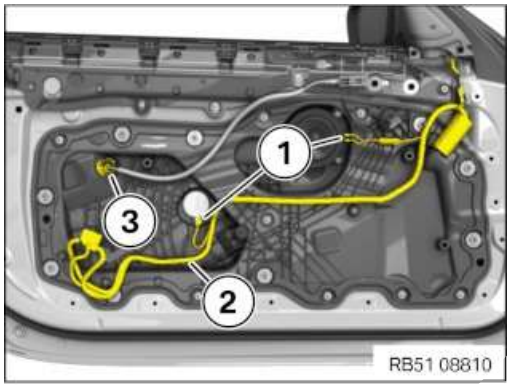
  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

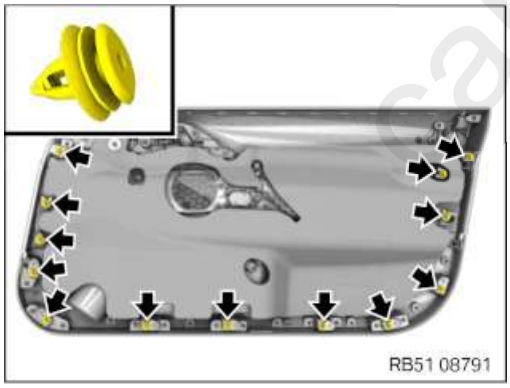
Module carrier to the front door

Oval-head screwM6		Tightening torque	9 Nm

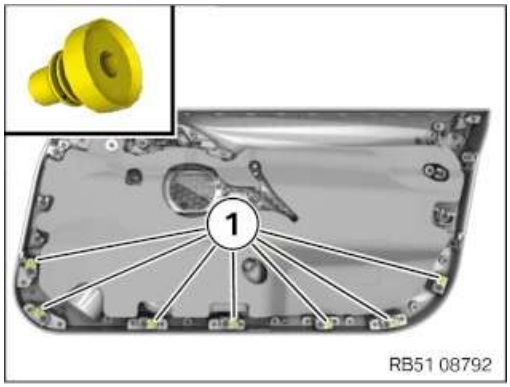


- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

17 – Install front door trim panel

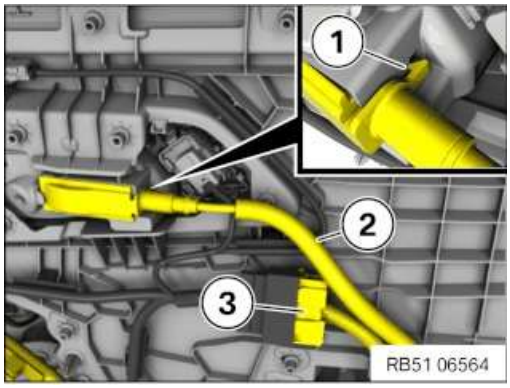


- Check clips (arrows) for damage and, if necessary, renew them.



- Check the stop pad (1) for damage, renew if necessary.

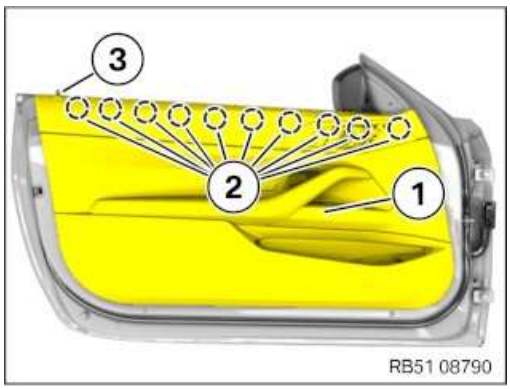
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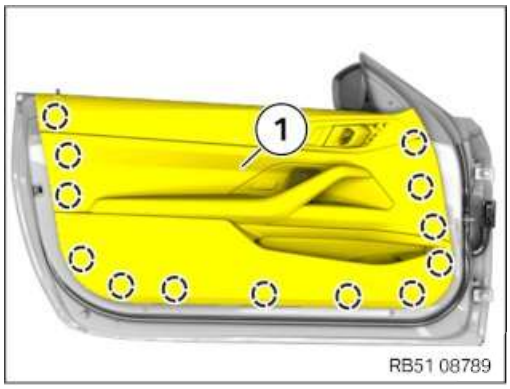
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

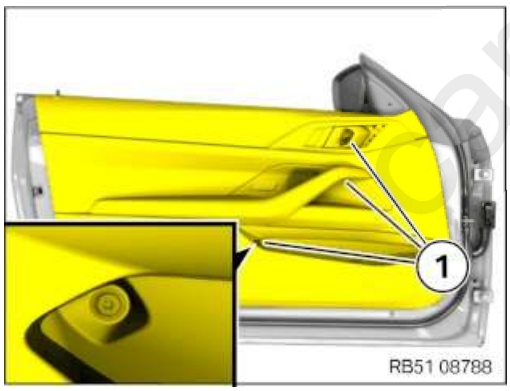
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

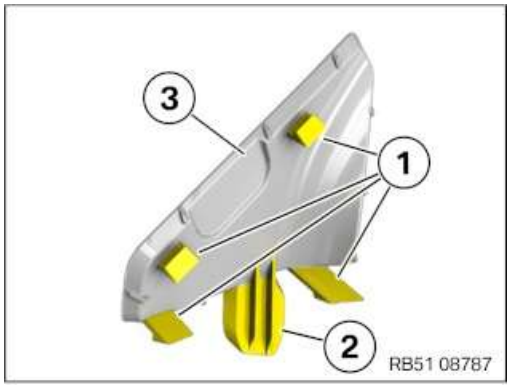


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

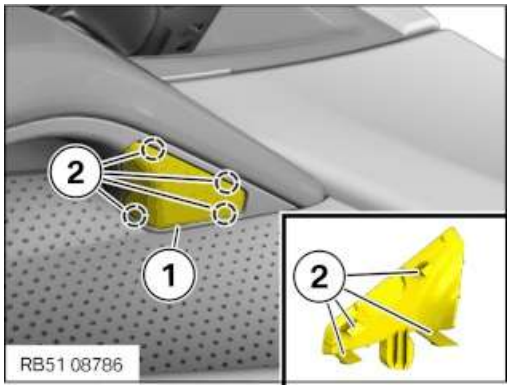
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Result

» The latch mechanisms (1) or the guides (2) are damaged.

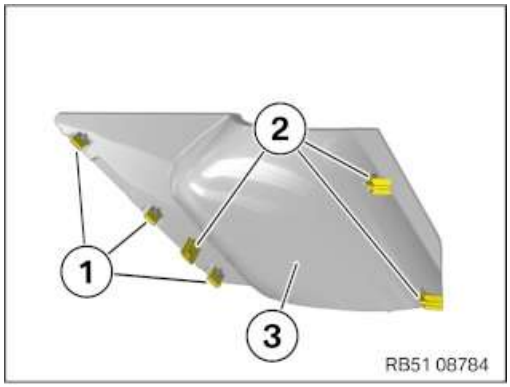
Measure

- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check



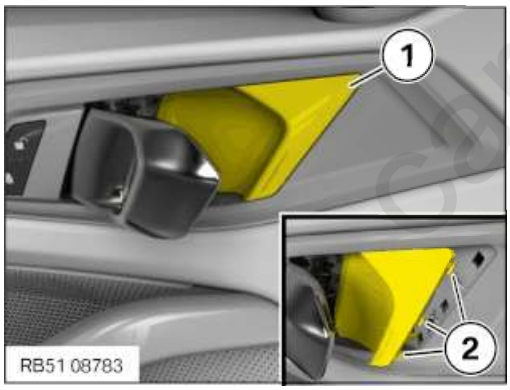
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

18 – Connecting all battery earth leads



- See additional information.

19 – Activating the 48 V electrical system

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Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



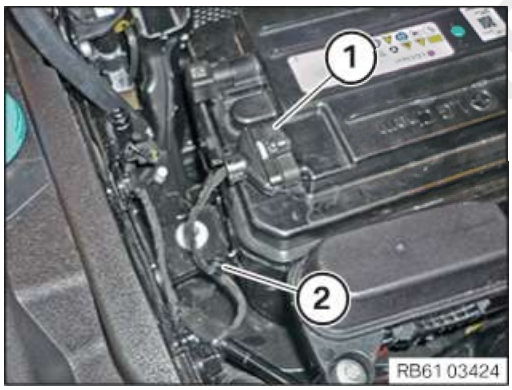
- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8	Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

Prerequisite

Vehicle is supported on all wheels at ground level.

Front door has been correctly fitted.

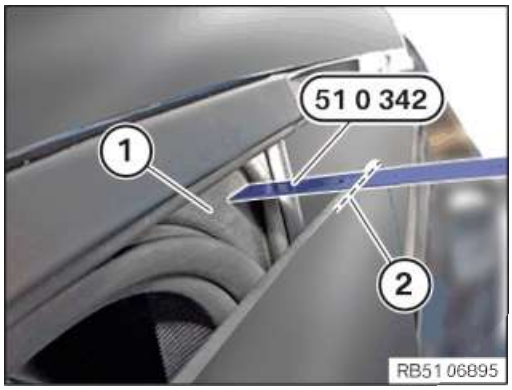
Battery charger is connected (during adjustment work, the complete operability of the power window regulator is only guaranteed with external voltage supply).

NOTICE

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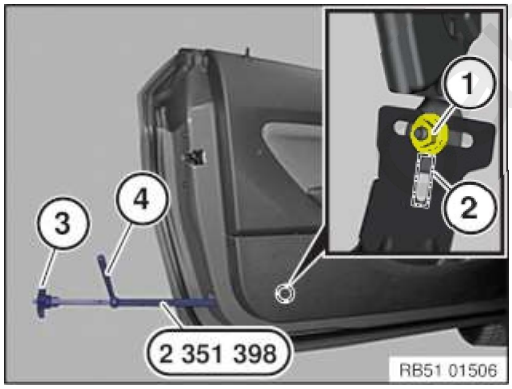


- Open door; move door window glass into uppermost position, if necessary.
- Insert special tool with the special tool in the rotary striker of the door lock and lock the rotary striker manually (door window glass moves fully upwards).
- Carefully close the door until the special tool lies on the striker (defined opening angle for the measurement).



- Do not exert any force on the door or door window glass during measurement.
- Abut special tool to the seal (1) and the door window glass (2).
- Determine dimension for preload between the seal (1) and outer edge of door window glass (2).

  Nominal dimension = 55 ± 1 mm



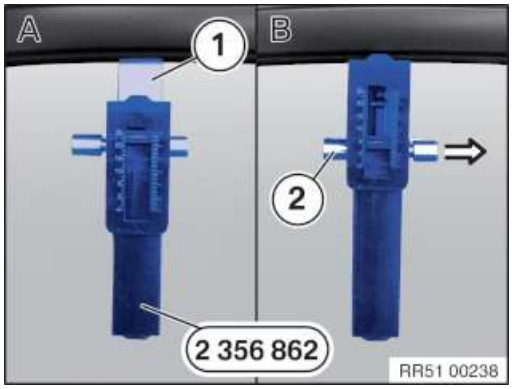
- Open door and remove sealing cap from door frame.
- Feed in special tool into the door and position at the nut (1) and the guide (2).
- Slacken nut (1) with knob (3).
- Turning the lever (4) to set the preload.

  Nominal dimension = 55 ± 1 mm
- Tighten nut (1).

Power window regulator to inner door panel

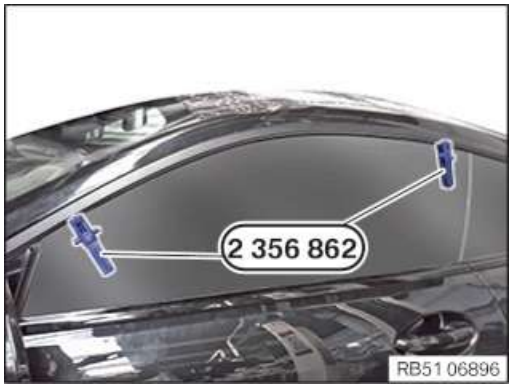
M6			9,5 Nm

- Check setting, repeat process if necessary.
- Remove special tool and fit the seal plug.
- Remove the special tool from the rotary striker of the door lock.



- Connect the special tool 2 356 862 to the holder (5 mm)(1) on the door window glass when it is locked (A).

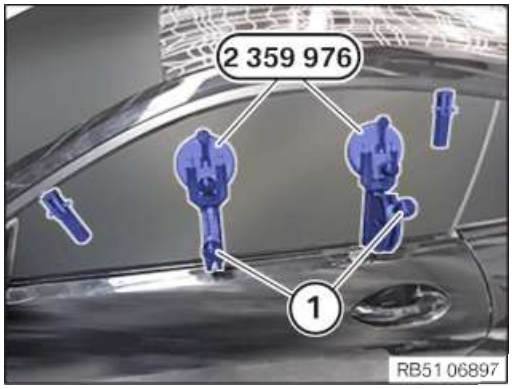
  Close the door and release the lock (2) (B).



- Open door.
- Place special tool 2 356 862 as shown on the door window glass.

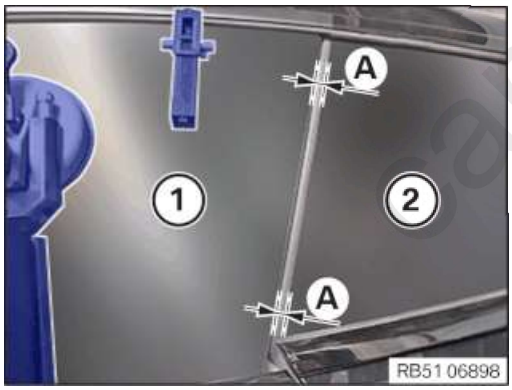
  Approx. displaced by 40 mm inwards in each case.
- Close door.
- Measure retraction depth.

  Nominal dimension: 5.5 ± 1 mm



- Attach special tool 2 359 976 on the door window glass so that the multi-tooth screws of the door window glass are still accessible.
- Release adjustment lever (1) by twisting.
- Set the retraction depth of the side window glass by moving the adjustment lever (1).

  Nominal dimension: 5.5 ± 1 mm
- Tighten adjustment lever (1).

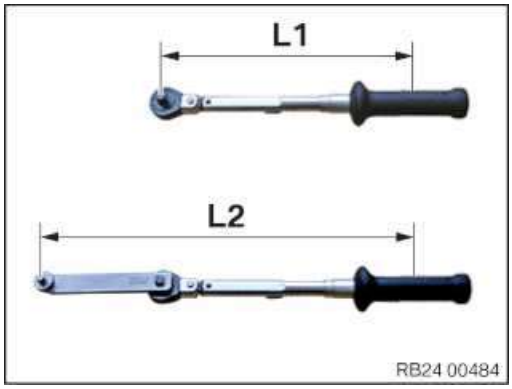


- Adjust door window panel (1) parallel to the rear side window (2).

  Dimension (A) = 8.0 ± 1 mm

▸ **Tighten the front door window glass**

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TECHNICAL INFORMATION

While using the special tool, that extends the lever arm of the torque wrench, the setpoint torque deviates from the torque to be set.

NOTICE

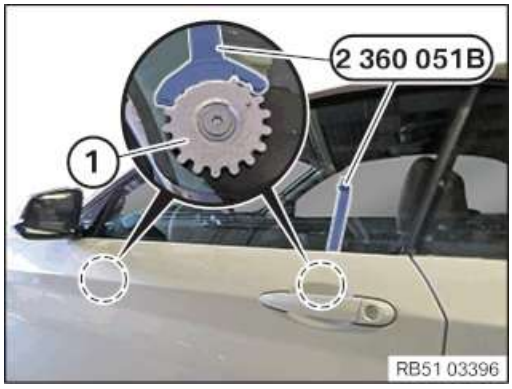
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten multi-point nuts (1) on the door window glass in the front using special tool **B** and a torque wrench.

Toothed nut of side window

Toothed nut		Tightening torque	11 Nm

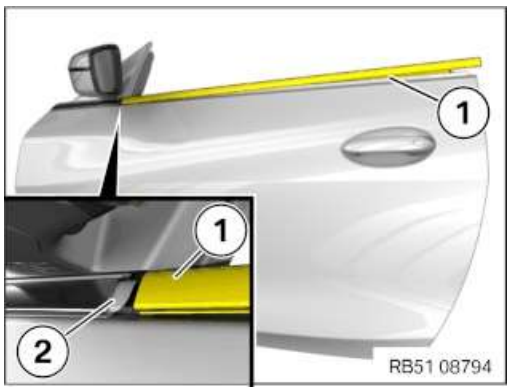
21 – Install outer weather strip

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

Additional Information

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Overview of Tightening Torques

Outside door handle support to door — Used in step 12

Screw		Tightening torque	2,6 Nm

Attachment bell to outside door handle support — Used in step 12

Screw		Tightening torque	3 Nm

Clamping bolt for door handle — Used in step 13

Screw		Tightening torque	2 Nm

Outer door handle to door — Used in step 13

Clamping bolt		Tightening torque	3 Nm

Power window regulator to inner door panel — Used in step 1420

M6			9,5 Nm

Door window glass to power window regulator — Used in step 15

Screw		Tightening torque	0.25 Nm

Module carrier to the front door — Used in step 16

Oval-head screwM6		Tightening torque	9 Nm

Door trim panel — Used in step 17

Oval-head screw		Tightening torque	3 Nm

Negative battery cable to 48-V battery — Used in step 19

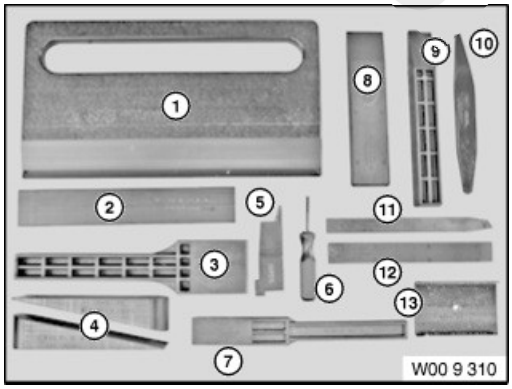
Nut M8		Tightening torque	19 Nm

Toothed nut of side window — Used in step 20

Toothed nut		Tightening torque	11 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case

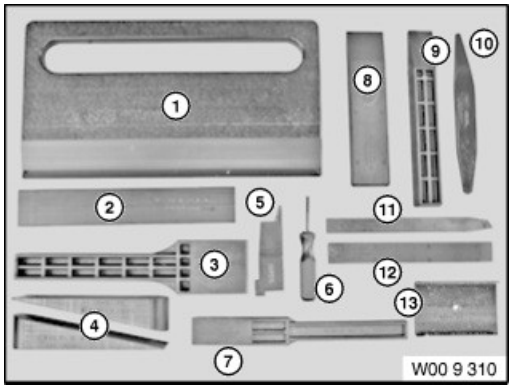


Common — Used in step 3

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

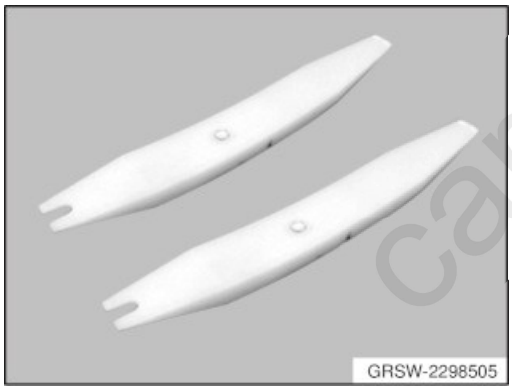
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0 495 484 (00 9 324) Panel wedge



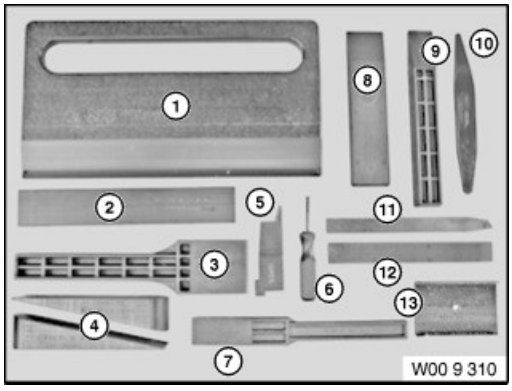
Common	Used in step 5
Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

2 298 505 Wedge



Common	Used in step 5
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)

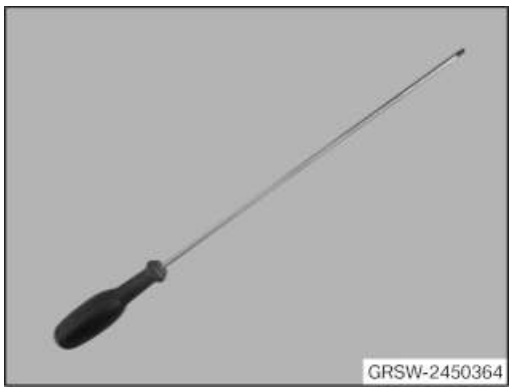
0 490 538 (00 9 321) Folding stick



Common	Used in step 5
Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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2 450 364 Torx



Common	Used in step 913
Usage	for releasing the outside door handles
Included in the tool or work	
Storage location	A5
Replaced by	
In connection with	
SI-Number	01 22 16 (440)

2 356 862 Device



Common	Used in step 20
Usage	Device for measuring the side window retraction depth. Also valid for: BMW i Aftersales Basic. This tool set replaces the tool 2304553
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 29 13 (998)

2 359 976 Siphon



Common	Used in step 20
Usage	For fixing and adjusting frameless side/door window glass. Also valid for: BMW i Aftersales Basic
Included in the tool or work	
Storage location	A73
Replaced by	
In connection with	
SI-Number	01 27 14 (129)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	119

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218

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61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	218
61 20 900 Disconnecting and connecting battery earth lead

This documentation refers to special tools that were not yet available when going to press.

51 21 330 Removing and installing/replacing the weather strip on the inside of the front door

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

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RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

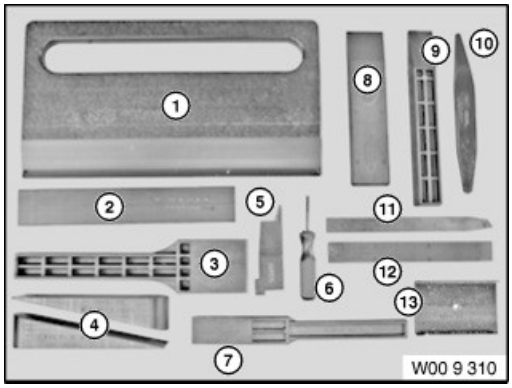
3 – Remove front door trim panel

RISK OF DAMAGE

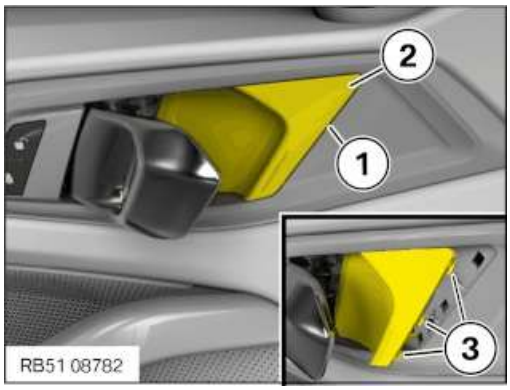
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

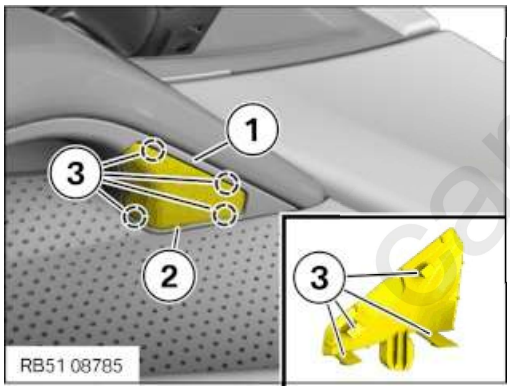
- Protect surfaces from damage.



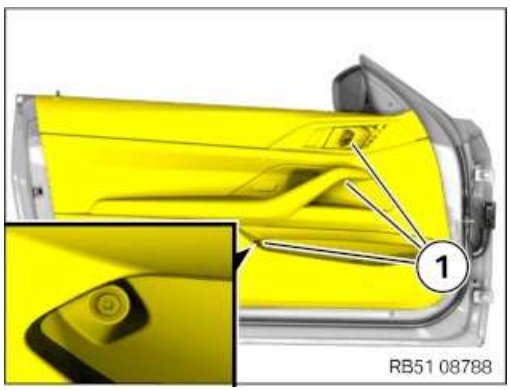
- Have the set of special tools 0 493 752 (00 9 329) ready.



- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.

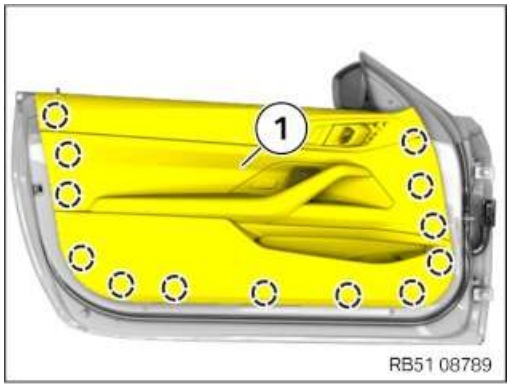


- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

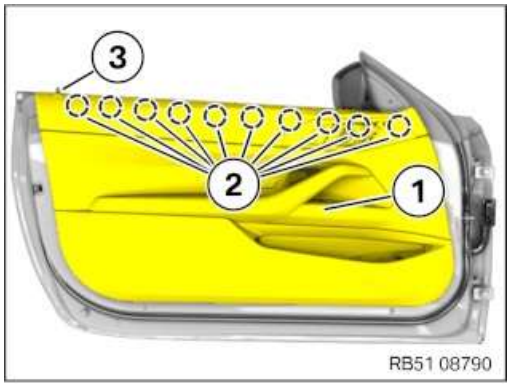


- Loosen screws (1).

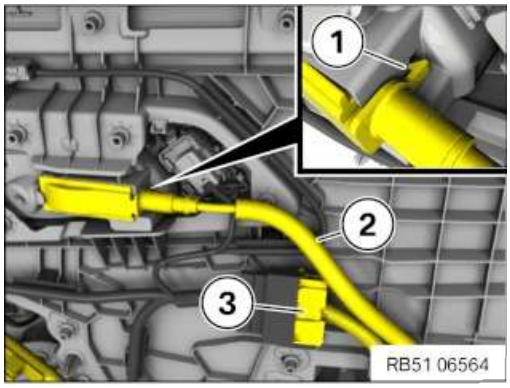
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- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

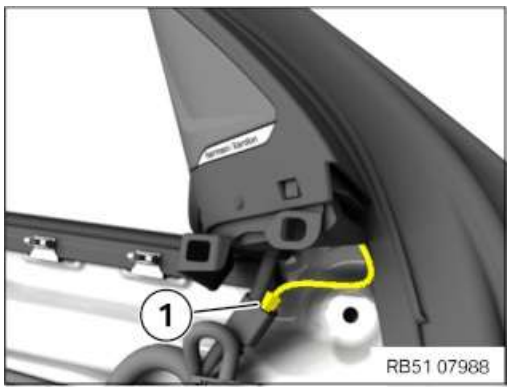
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

4 – Removing mirror triangle

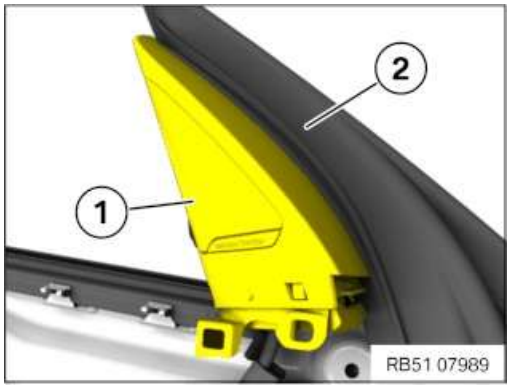
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **For equipment specification with tweeter.**
- Unlock plug connection (1) and disconnect.

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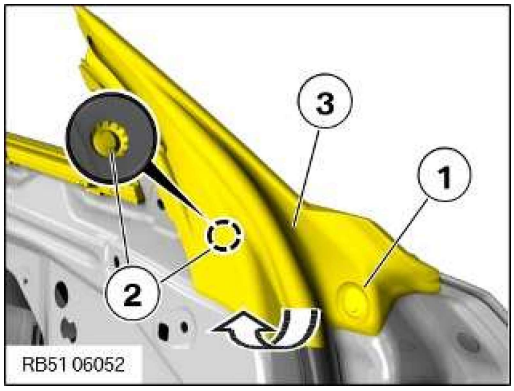


- Feed out the mirror triangle (1) from the inner window recess finisher strip (2) .

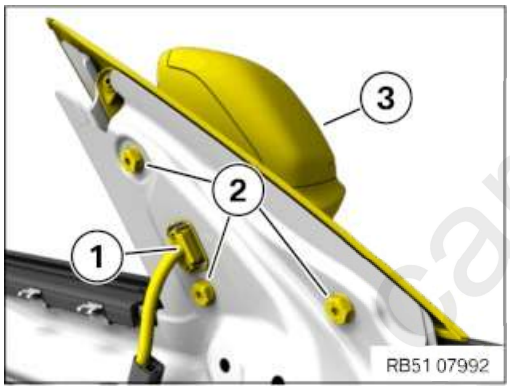
5 – Remove exterior mirror

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Unclip clip (1) with suitable tool.
- Unclip clip (2).
- Partially release the inner window recess finisher strip at the front (3) in the direction of arrow.

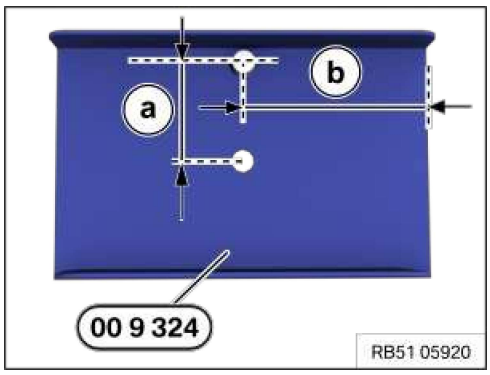


- Unlock plug connection (1) and disconnect.
- Release screws (2) and remove the exterior mirror of the front door (3) .

6 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

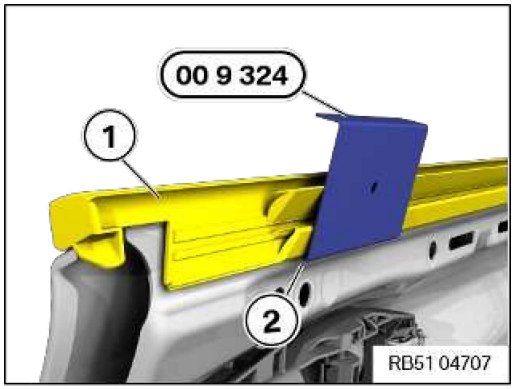
  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

  Dimension (b) = 50 mm from the outer edge of the special tool

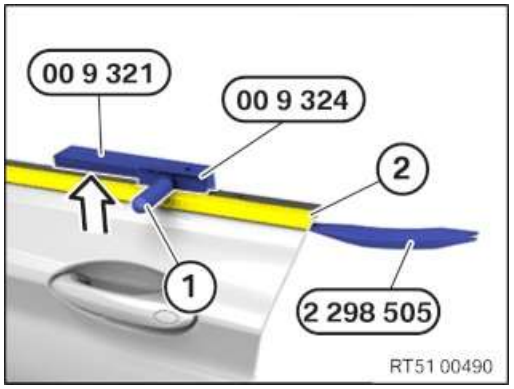
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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

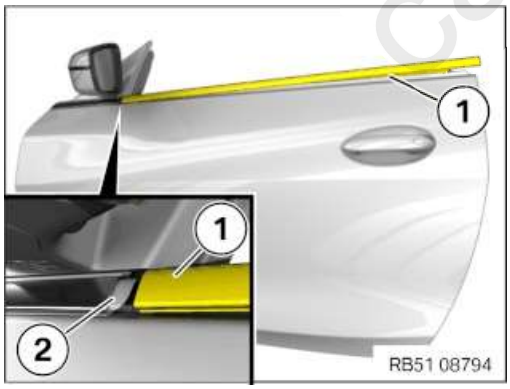
- Protect working area.
- Handle tools and components carefully.

- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.



- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

7 – Remove the weather strip (front) on the front door

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RISK OF DAMAGE

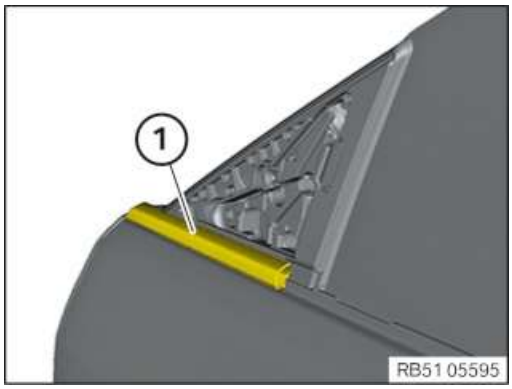
Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

NOTICE

Description is for left component only. Procedure on the right side is identical.

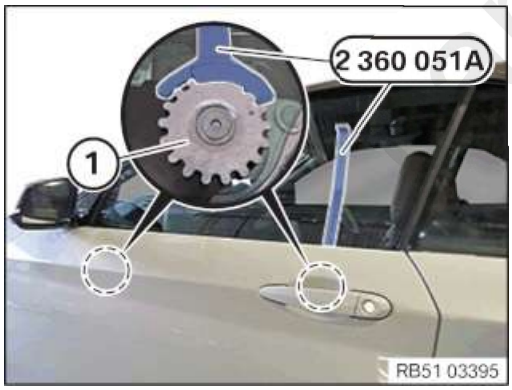


- Carefully release the weather strip (1) from the door with a suitable plastic wedge beginning from the rear to the top.

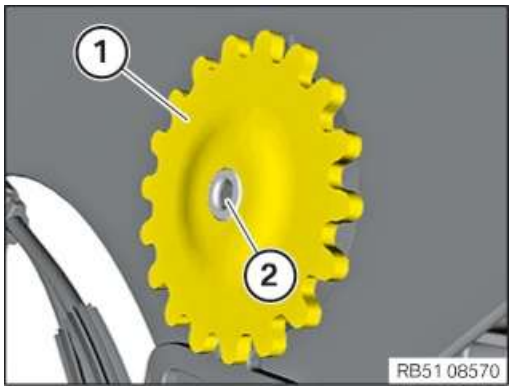
8 – Release door window at front

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

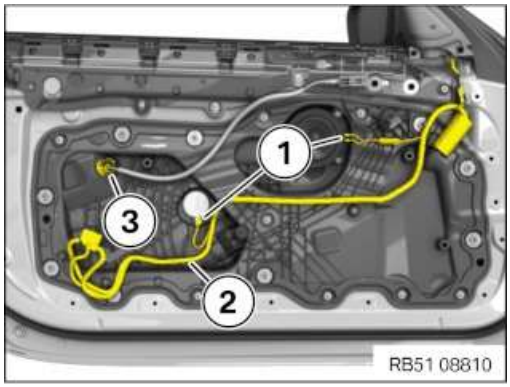


- Undo multi-tooth nuts (1) on side window glass with special tool **A**. (Observe next operation.)

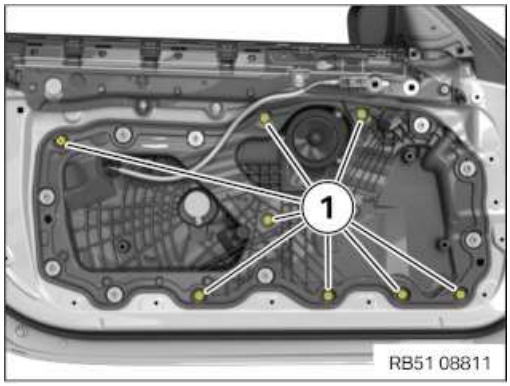


- Only undo the multi-tooth nut (1) to the extent it is flush with the socket (2).
- Lower front door window glass half way.

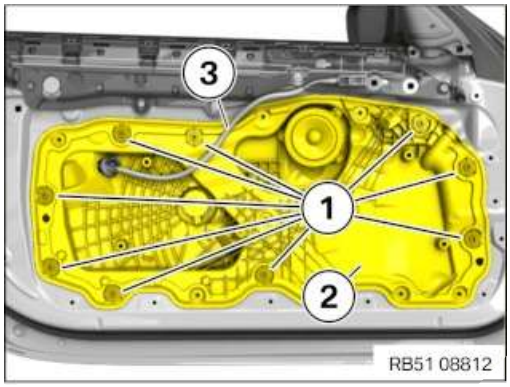
9 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



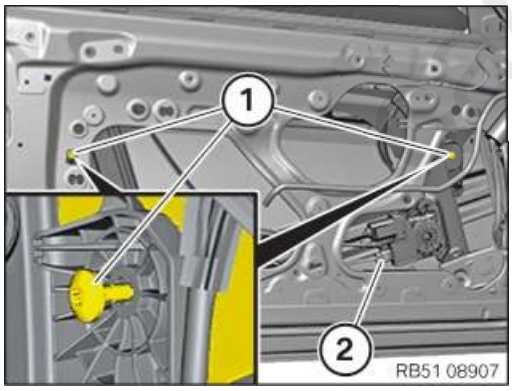
- Loosen screws (1).



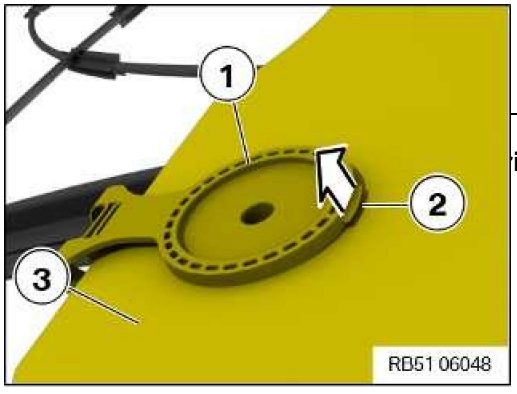
- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

10 – Removing front door window glass



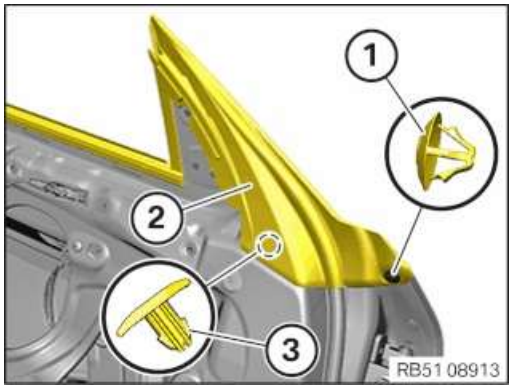
- Open the front door window glass so that the screws (1) are accessible.
- Unlock plug connection (2) and disconnect.
- Unscrew the screws (1) so far until the disassembly of the front door window glass is possible.



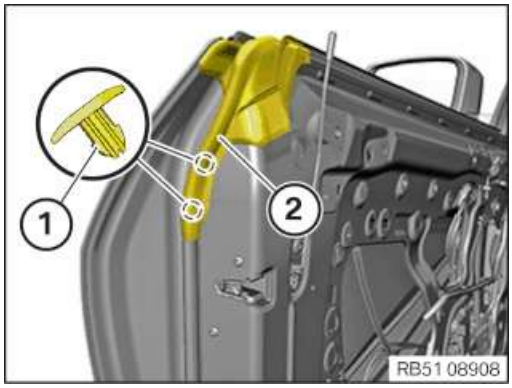
NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

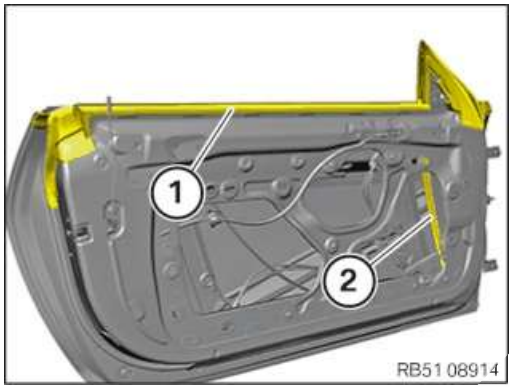
- Lift holder (1) on the tab (2) in the direction of arrow.
- Feed out the front door window glass (3) from the door upwards.



- Release the clip (1).
- Release the window recess finisher strip (2) on to the clip (3).

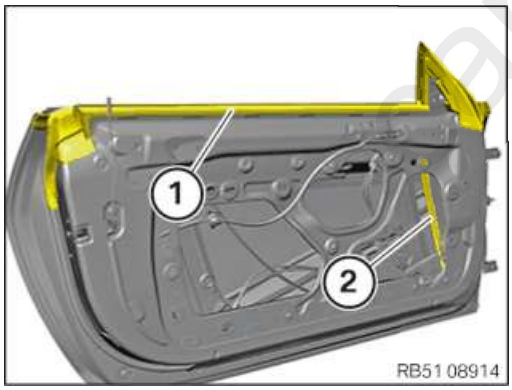


- Release the window recess finisher strip (2) from the clips (1).



- Feed out the window recess finisher strip (1) from the window guide rail (2).
- Carefully feed out the window recess finisher strip (1) upwards from the door and remove it.

12 – Installing front inner weather strip

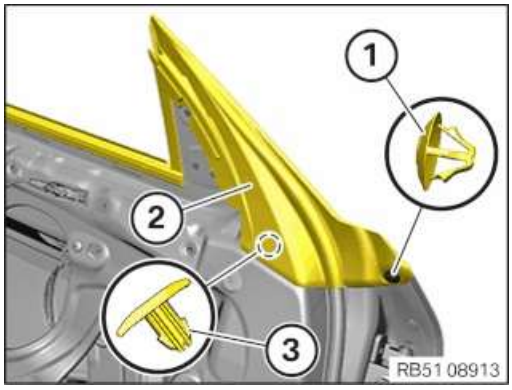


- Coat the window recess finisher strip (1) with the emerging lubricant.

Expendable materials

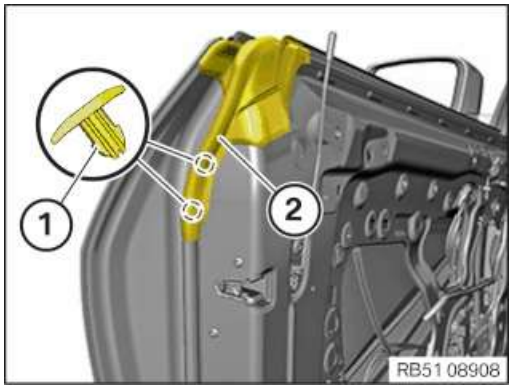
Fitting aid (Circo Light; lubricant)	250 ml, Bottle	83192405829

- Position the window recess finisher strip (1) correctly on the door and install it.
- Install the window recess finisher strip (1) correctly in the window guide rail (2).



- Insert the window recess finisher strip (2) correctly.
- Fasten the window recess finisher strip (2) on the clip (3).
- Mount the clip (1).

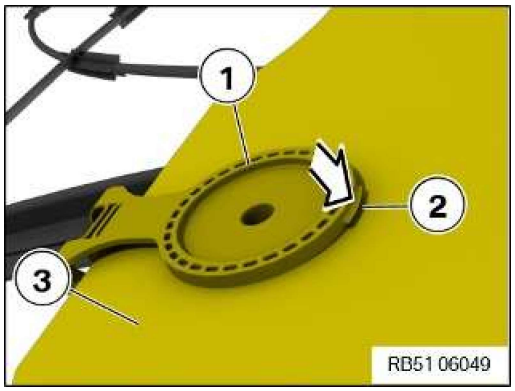
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- Insert the window recess finisher strip (2) correctly.
- Fasten the window recess finisher strip (2) at the clips (1).

POSTPROCESSES

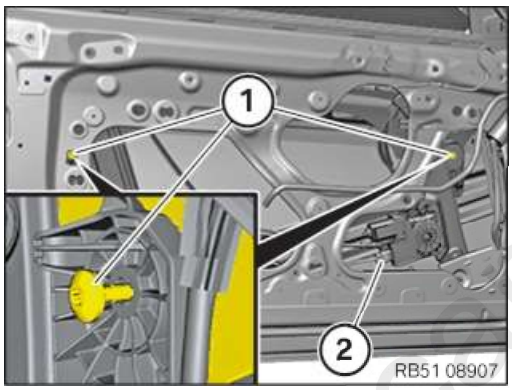
13 – Installing front door window glass



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Insert door window glass front (3) from the top.
- Press holder (1) on the tab (2) in direction of arrow and lock.



- Screw in the screws (1) and tighten them.

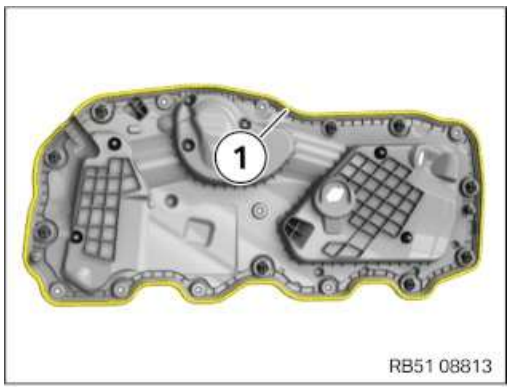
  In this process, counter support the multi-tooth nuts of the electric window.

Door window glass to power window regulator

Screw		Tightening torque	0.25 Nm

- Connect connectors (2) and lock.

14 – Installing the module carrier on the front door



Check

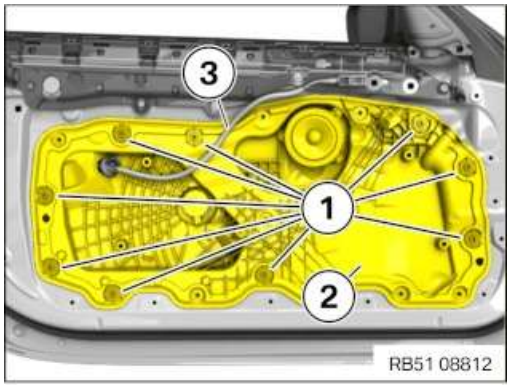
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

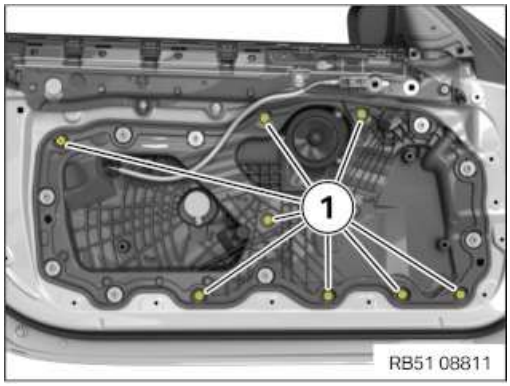
Measure

- Renew the module carrier on the front door.



- Position the module carrier on the front door (2).

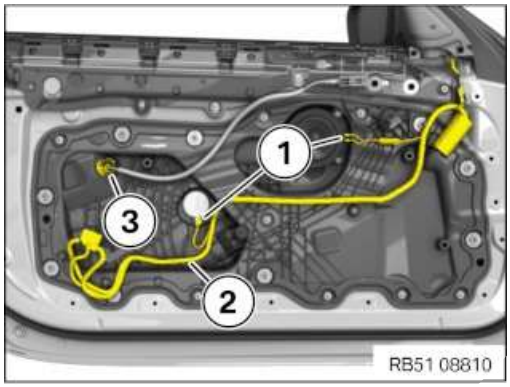
  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

Module carrier to the front door

Oval-head screwM6		Tightening torque	9 Nm



- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

15 – Install the weather strip (front) on the front door

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

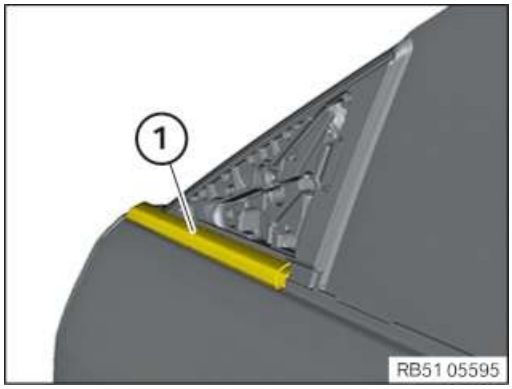
Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

NOTICE

Description is for left component only. Procedure on the right side is identical.

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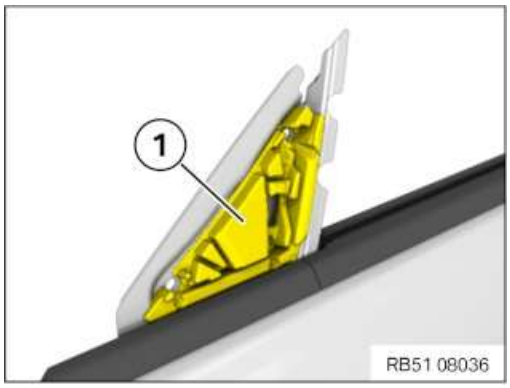


- Coat the weather strip (1) with a suitable lubricant prior to installation.
- Position the weather strip (1) correctly and press down along its entire length.

16 – Fit exterior mirror

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

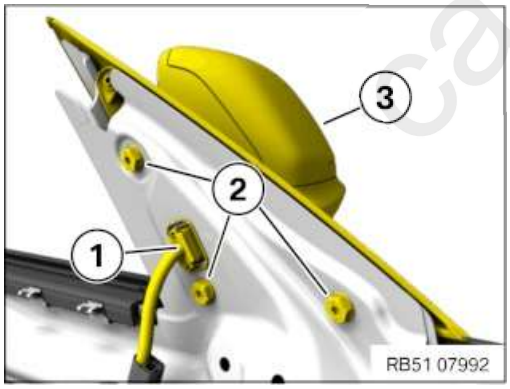
- Check the sealing (1) for the mirror triangle for damage and position it correctly.

Result

» The mirror triangle sealing is damaged.

Measure

- Renew the sealing for the mirror triangle.

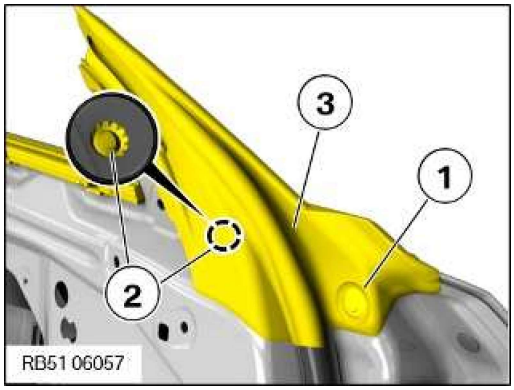


- Position the exterior mirror (3) on the door and tighten the screws (2).

Exterior mirror to door

Screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.



- Position the inner window recess finisher strip at the front (3).
- Clip in clip (1).
- Clip in clip (2).

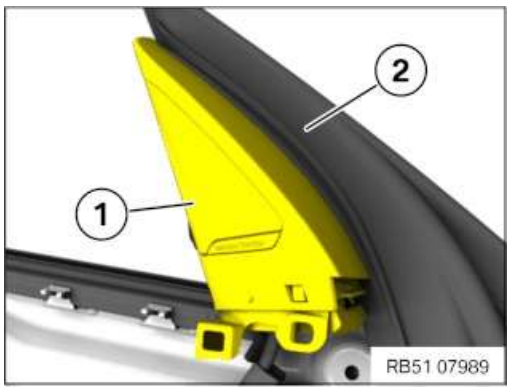
17 – Installing mirror triangle

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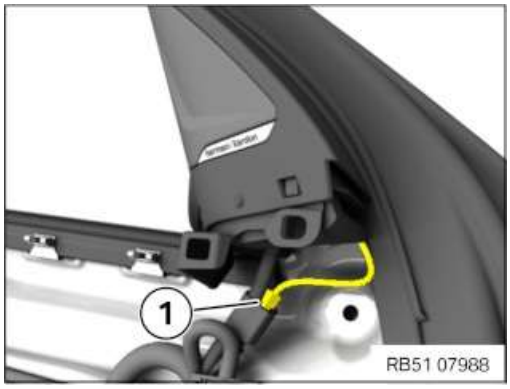
17 – Installing mirror triangle

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

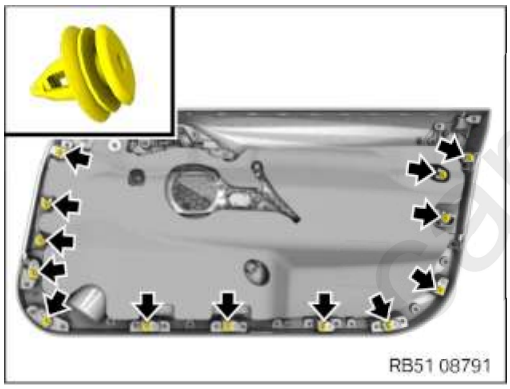


- Insert the mirror triangle (1) into the inner window recess finisher strip (2) and position it correctly.

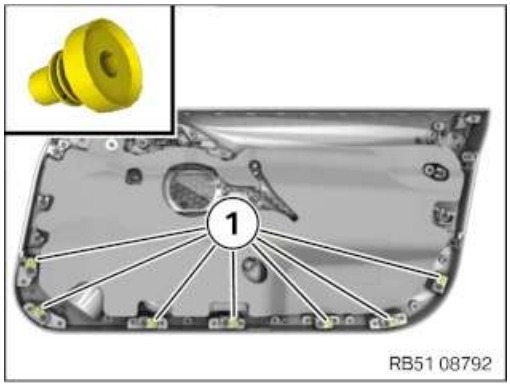


- **For equipment specification with tweeter.**
- Connect connectors (1) and lock.

18 – Install front door trim panel

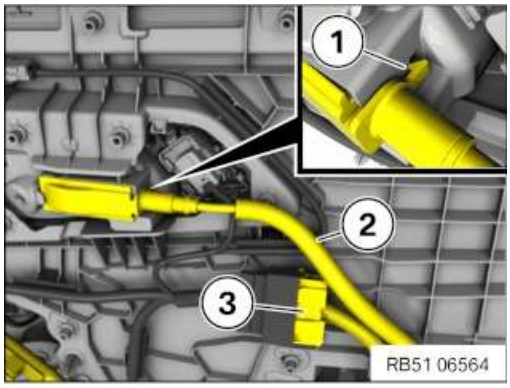


- Check clips (arrows) for damage and, if necessary, renew them.



- Check the stop pad (1) for damage, renew if necessary.

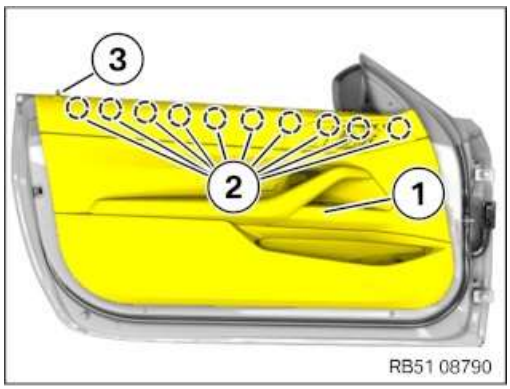
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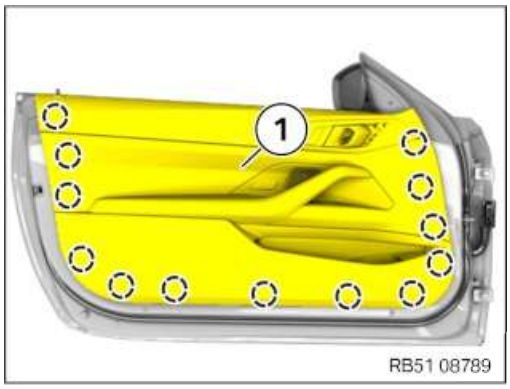
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

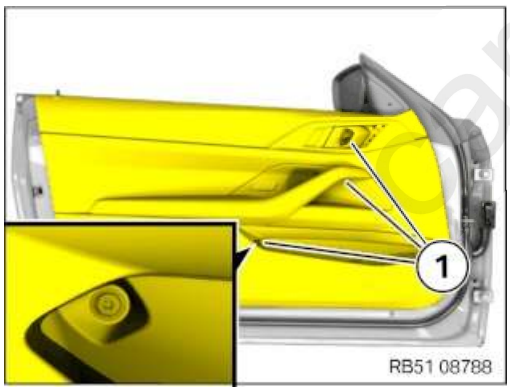
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

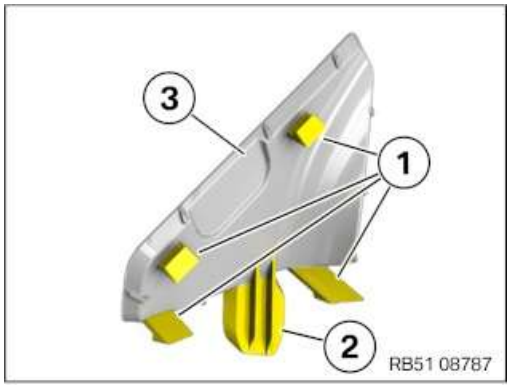


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

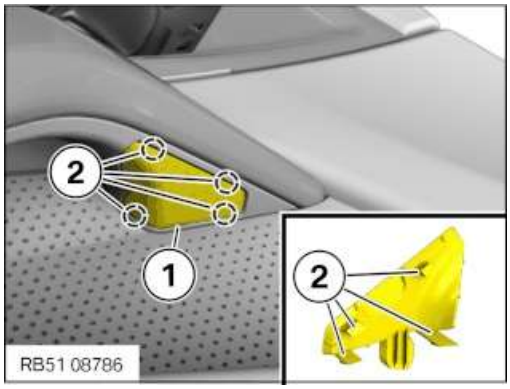
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Result

» The latch mechanisms (1) or the guides (2) are damaged.

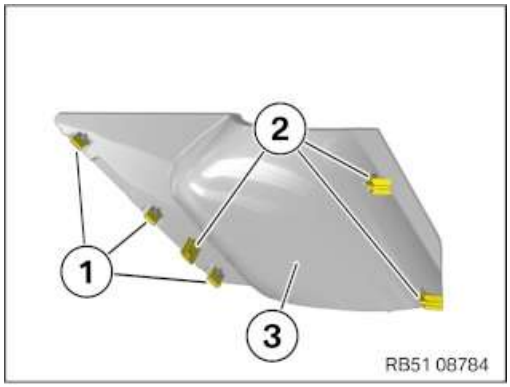
Measure

- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check



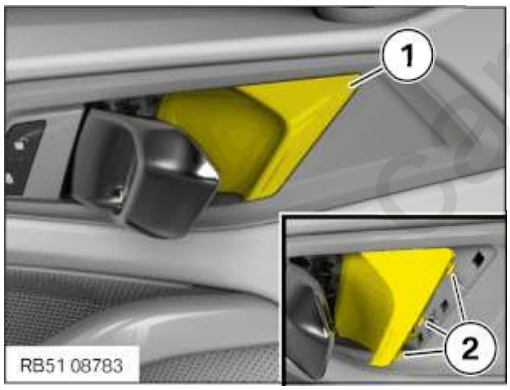
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

19 – Connecting all battery earth leads



- See additional information.

20 – Activating the 48 V electrical system

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Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



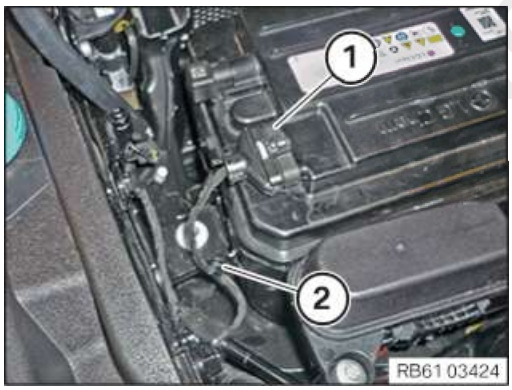
- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8	Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

Prerequisite

Vehicle is supported on all wheels at ground level.

Front door has been correctly fitted.

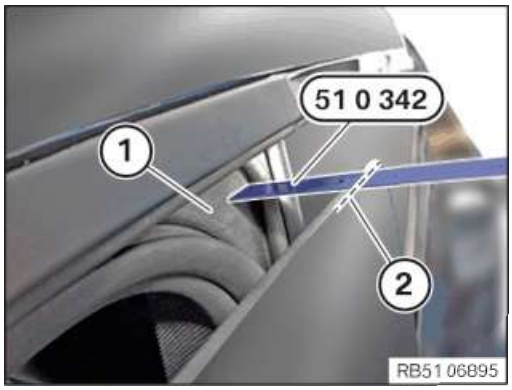
Battery charger is connected (during adjustment work, the complete operability of the power window regulator is only guaranteed with external voltage supply).

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

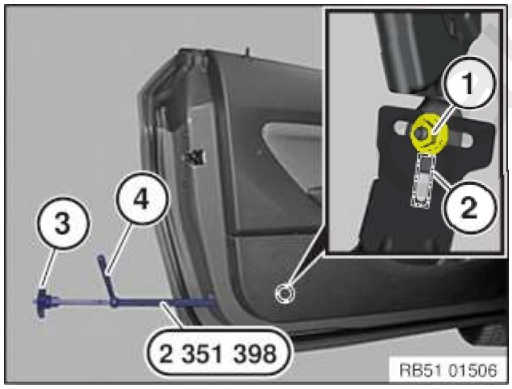


- Open door; move door window glass into uppermost position, if necessary.
- Insert special tool with the special tool in the rotary striker of the door lock and lock the rotary striker manually (door window glass moves fully upwards).
- Carefully close the door until the special tool lies on the striker (defined opening angle for the measurement).



- Do not exert any force on the door or door window glass during measurement.
- Abut special tool to the seal (1) and the door window glass (2).
- Determine dimension for preload between the seal (1) and outer edge of door window glass (2).

  Nominal dimension = 55 ± 1 mm



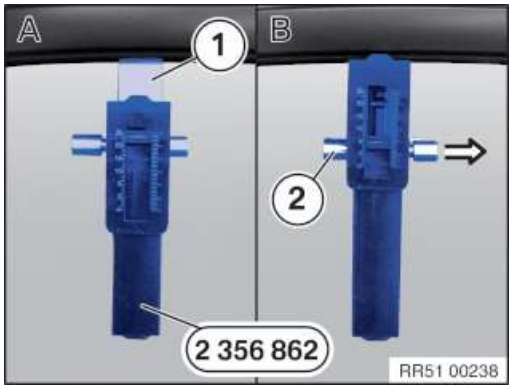
- Open door and remove sealing cap from door frame.
- Feed in special tool into the door and position at the nut (1) and the guide (2).
- Slacken nut (1) with knob (3).
- Turning the lever (4) to set the preload.

  Nominal dimension = 55 ± 1 mm
- Tighten nut (1).

Power window regulator to inner door panel

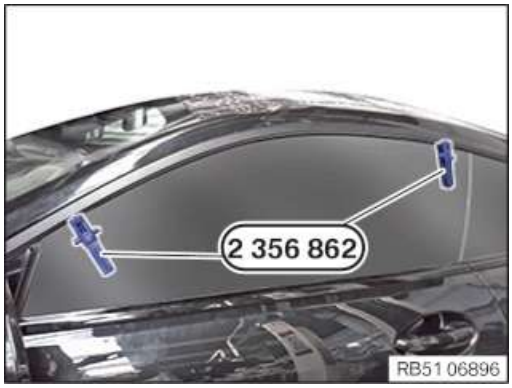
M6			9,5 Nm

- Check setting, repeat process if necessary.
- Remove special tool and fit the seal plug.
- Remove the special tool from the rotary striker of the door lock.



- Connect the special tool 2 356 862 to the holder (5 mm)(1) on the door window glass when it is locked (A).

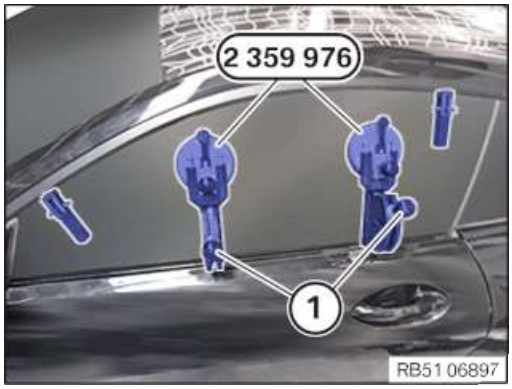
  Close the door and release the lock (2) (B).



- Open door.
- Place special tool 2 356 862 as shown on the door window glass.

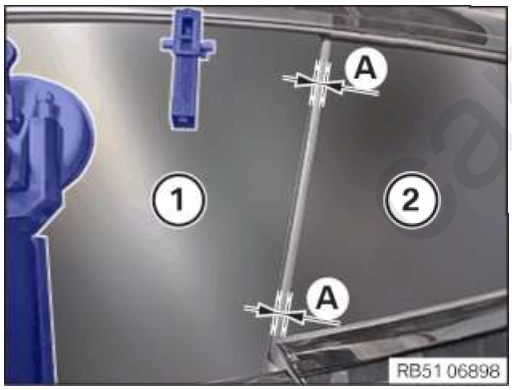
  Approx. displaced by 40 mm inwards in each case.
- Close door.
- Measure retraction depth.

  Nominal dimension: 5.5 ± 1 mm



- Attach special tool 2 359 976 on the door window glass so that the multi-tooth screws of the door window glass are still accessible.
- Release adjustment lever (1) by twisting.
- Set the retraction depth of the side window glass by moving the adjustment lever (1).

  Nominal dimension: 5.5 ± 1 mm
- Tighten adjustment lever (1).

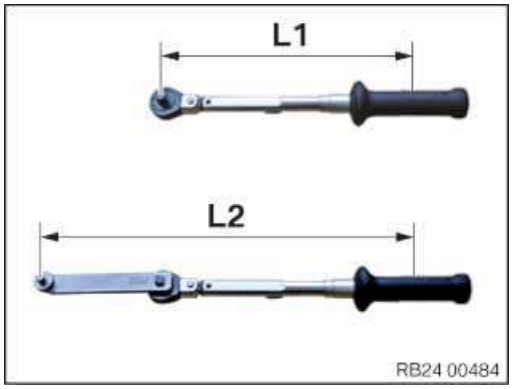


- Adjust door window panel (1) parallel to the rear side window (2).

  Dimension (A) = 8.0 ± 1 mm

▸ **Tighten the front door window glass**

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TECHNICAL INFORMATION

While using the special tool, that extends the lever arm of the torque wrench, the setpoint torque deviates from the torque to be set.

NOTICE

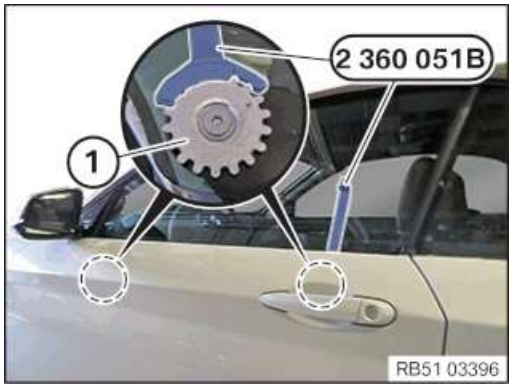
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten multi-point nuts (1) on the door window glass in the front using special tool **B** and a torque wrench.

Toothed nut of side window

Toothed nut		Tightening torque	11 Nm

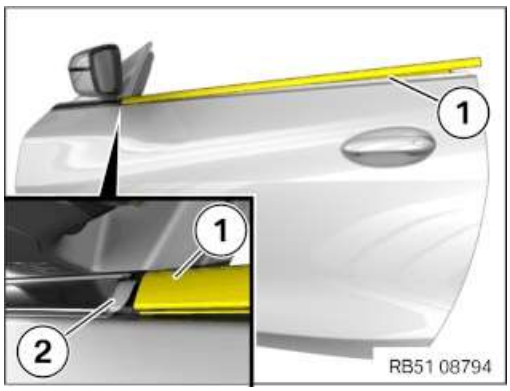
22 – Install outer weather strip

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

Additional Information

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Overview of Tightening Torques

Door window glass to power window regulator — Used in step 13

Screw		Tightening torque	0.25 Nm

Module carrier to the front door — Used in step 14

Oval-head screwM6		Tightening torque	9 Nm

Exterior mirror to door — Used in step 16

Screw		Tightening torque	8 Nm

Door trim panel — Used in step 18

Oval-head screw		Tightening torque	3 Nm

Negative battery cable to 48-V battery — Used in step 20

Nut M8		Tightening torque	19 Nm

Power window regulator to inner door panel — Used in step 21

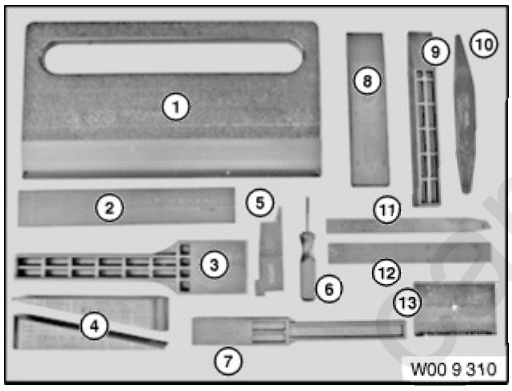
M6			9,5 Nm

Toothed nut of side window — Used in step 21

Toothed nut		Tightening torque	11 Nm

Overview of Special Tools

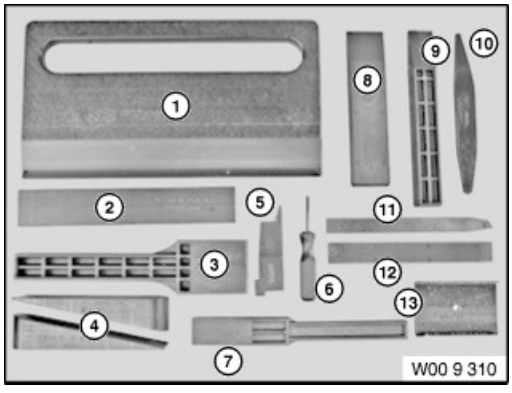
0 493 752 (00 9 329) Case



Common — Used in step 3

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 495 484 (00 9 324) Panel wedge

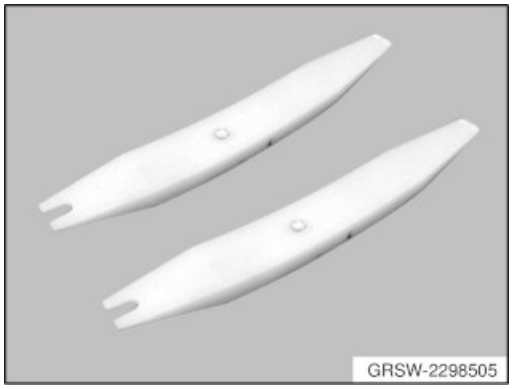


Common — Used in step 6

Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

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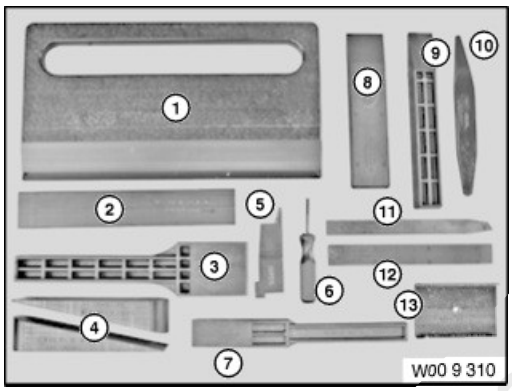
2 298 505 Wedge



Common Used in step 6

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)

0 490 538 (00 9 321) Folding stick



Common Used in step 6

Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 356 862 Device



Common Used in step 21

Usage	Device for measuring the side window retraction depth. Also valid for: BMW i Aftersales Basic. This tool set replaces the tool 2304553
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 29 13 (998)

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2 359 976 Siphon



Common	Used in step 21
Usage	For fixing and adjusting frameless side/door window glass. Also valid for: BMW i Aftersales Basic
Included in the tool or work	
Storage location	A73
Replaced by	
In connection with	
SI-Number	01 27 14 (129)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	120

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	219
61 20 900 Disconnecting and connecting battery earth lead	219
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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle) 219
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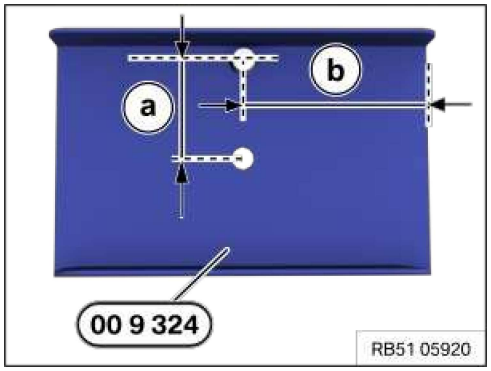
51 21 301 Removing and installing/replacing the weather strip on the outside of the front door

PRELIMINARY WORK

1 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

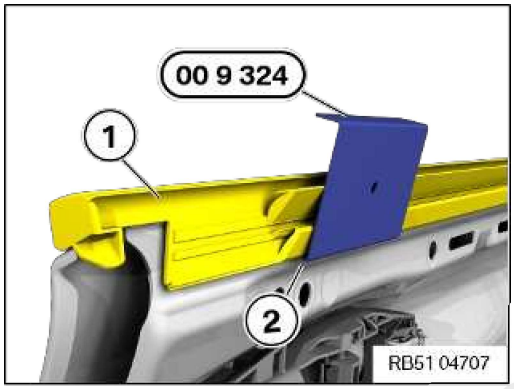
- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

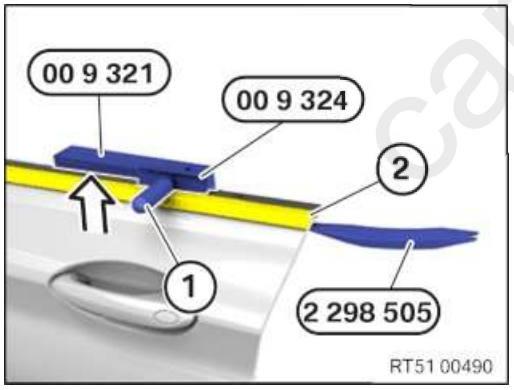
  Dimension (b) = 50 mm from the outer edge of the special tool



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

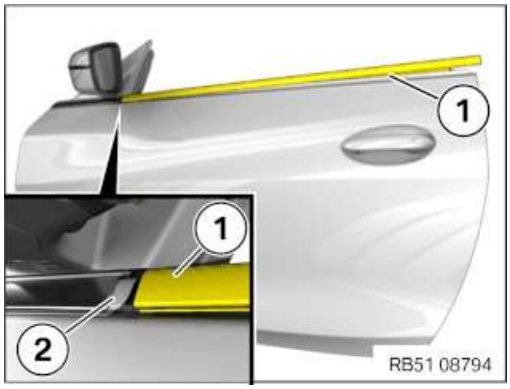
- Protect working area.
- Handle tools and components carefully.

- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.



- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

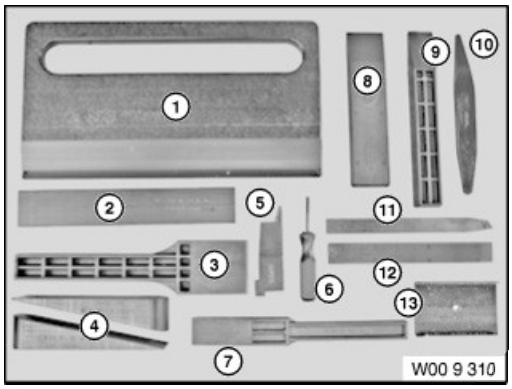
2 – Remove front door trim panel

RISK OF DAMAGE

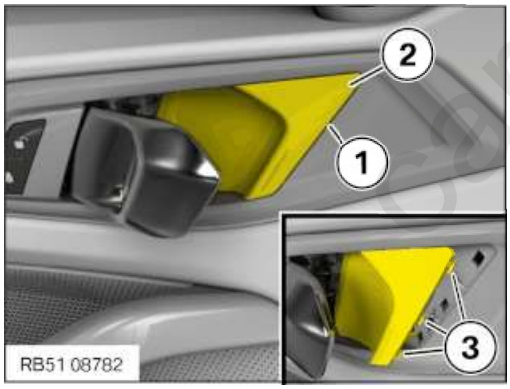
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

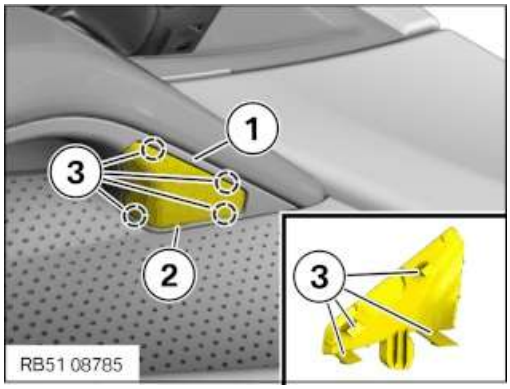
- Protect surfaces from damage.



- Have the set of special tools 0 493 752 (00 9 329) ready.

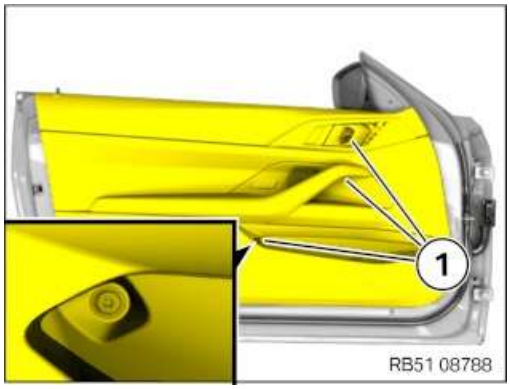


- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.

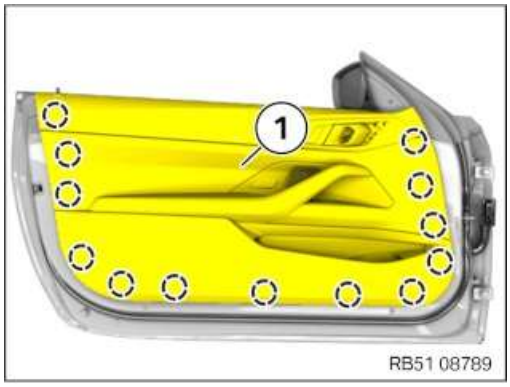


- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

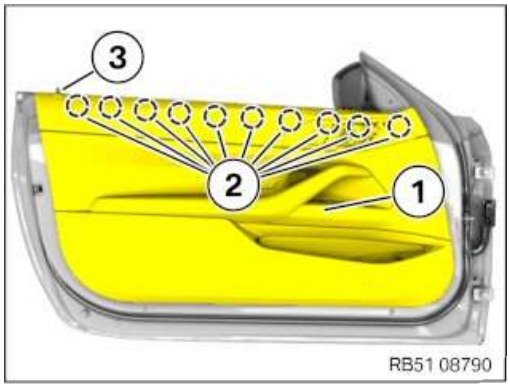
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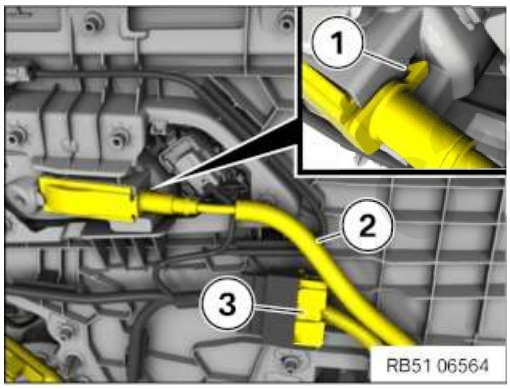
- Loosen screws (1).



- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

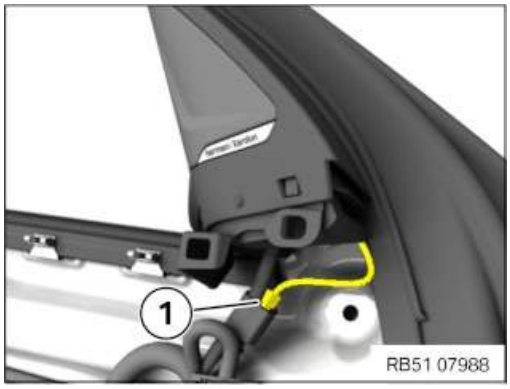
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

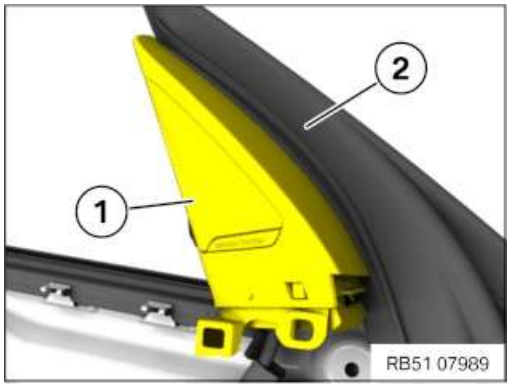
3 – Removing mirror triangle

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **For equipment specification with tweeter.**
- Unlock plug connection (1) and disconnect.

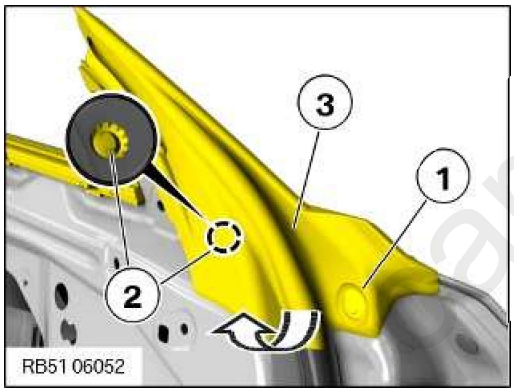


- Feed out the mirror triangle (1) from the inner window recess finisher strip (2) .

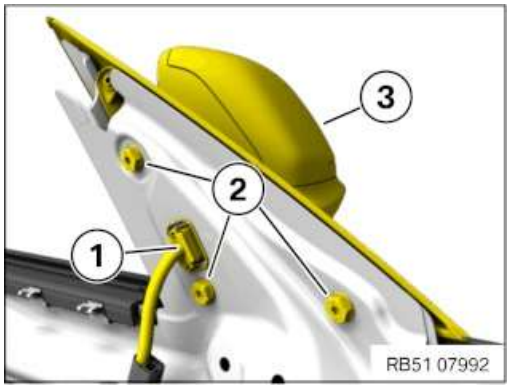
4 – Remove exterior mirror

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Unclip clip (1) with suitable tool.
- Unclip clip (2).
- Partially release the inner window recess finisher strip at the front (3) in the direction of arrow.



- Unlock plug connection (1) and disconnect.
- Release screws (2) and remove the exterior mirror of the front door (3) .

MAIN WORK

5 – Remove the weather strip (front) on the front door

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RISK OF DAMAGE

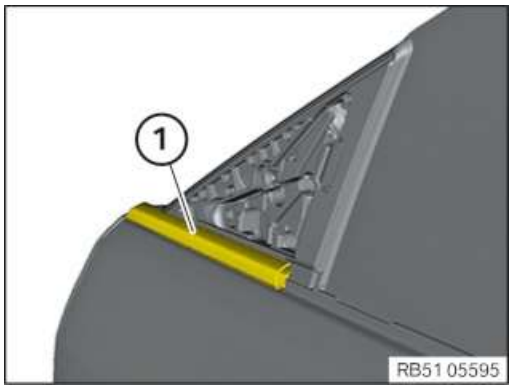
Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Carefully release the weather strip (1) from the door with a suitable plastic wedge beginning from the rear to the top.

6 – Install the weather strip (front) on the front door

RISK OF DAMAGE

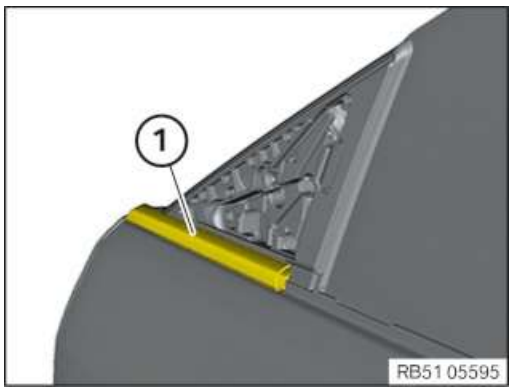
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Coat the weather strip (1) with a suitable lubricant prior to installation.
- Position the weather strip (1) correctly and press down along its entire length.

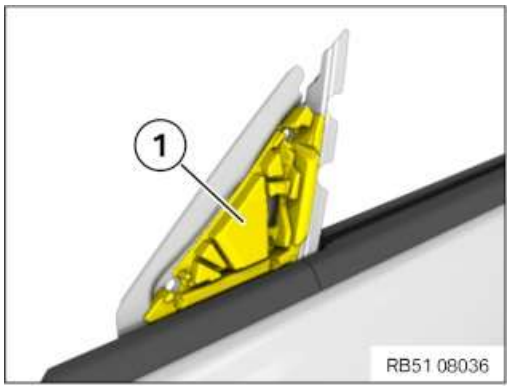
POSTPROCESSES

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7 – Fit exterior mirror

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

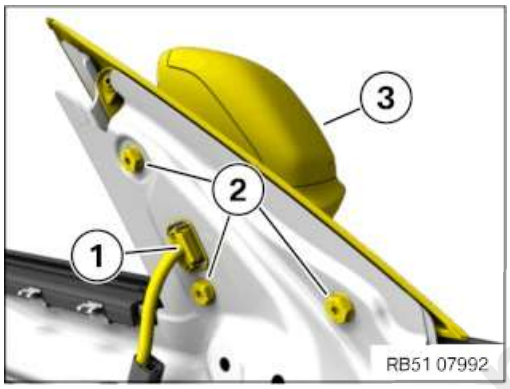
- Check the sealing (1) for the mirror triangle for damage and position it correctly.

Result

» The mirror triangle sealing is damaged.

Measure

- Renew the sealing for the mirror triangle.

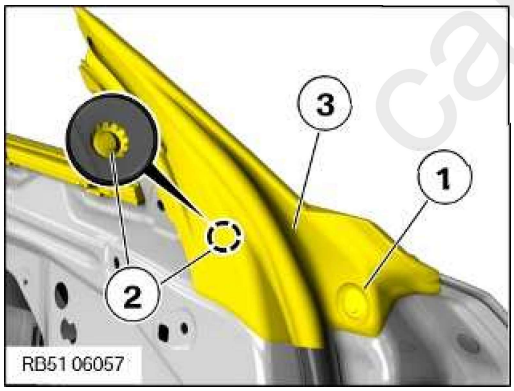


- Position the exterior mirror (3) on the door and tighten the screws (2).

Exterior mirror to door

Screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.



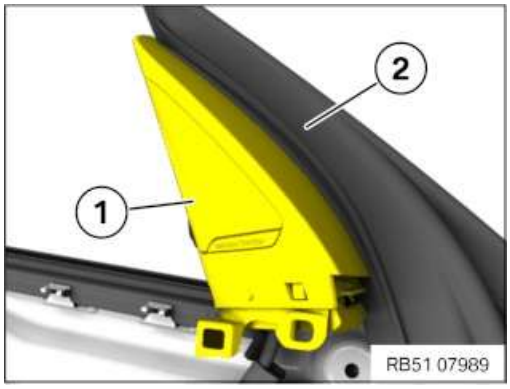
- Position the inner window recess finisher strip at the front (3).
- Clip in clip (1).
- Clip in clip (2).

8 – Installing mirror triangle

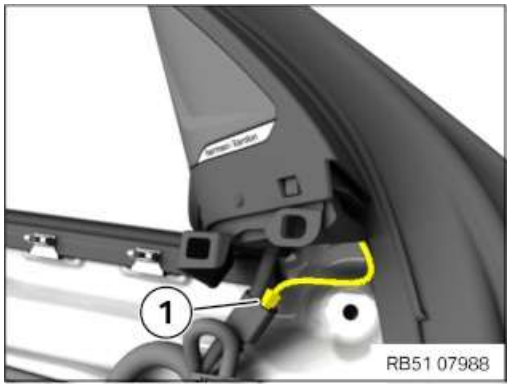
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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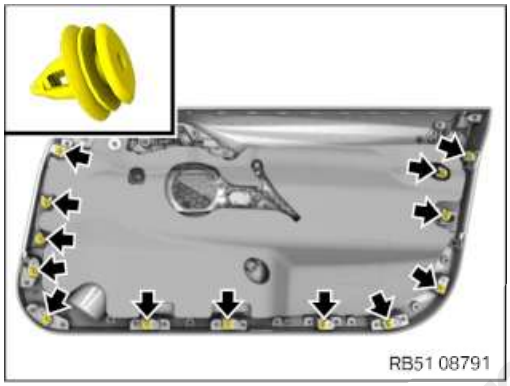


- Insert the mirror triangle (1) into the inner window recess finisher strip (2) and position it correctly.

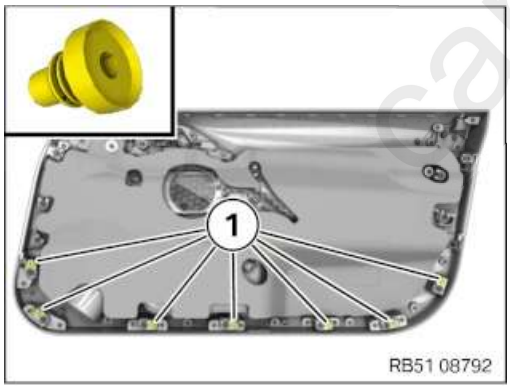


- **For equipment specification with tweeter.**
- Connect connectors (1) and lock.

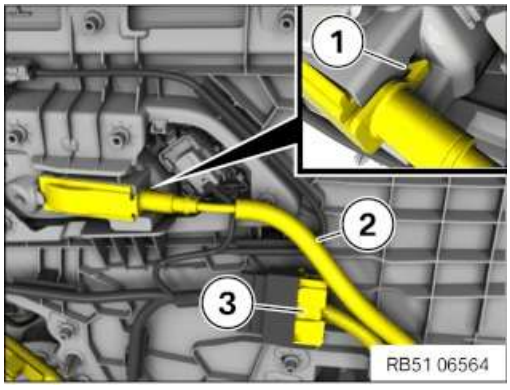
9 – Install front door trim panel



- Check clips (arrows) for damage and, if necessary, renew them.



- Check the stop pad (1) for damage, renew if necessary.

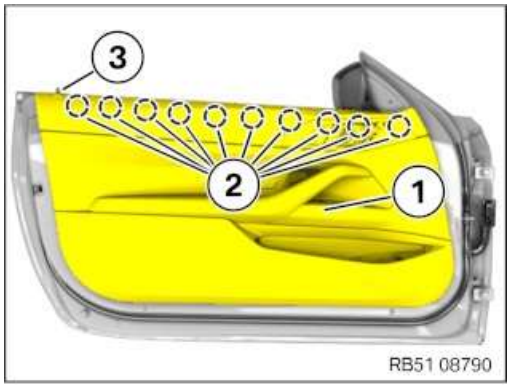


NOTICE

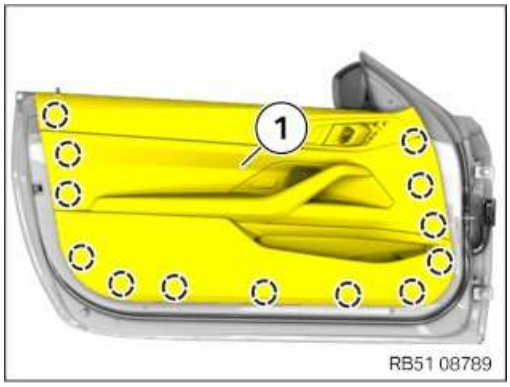
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.

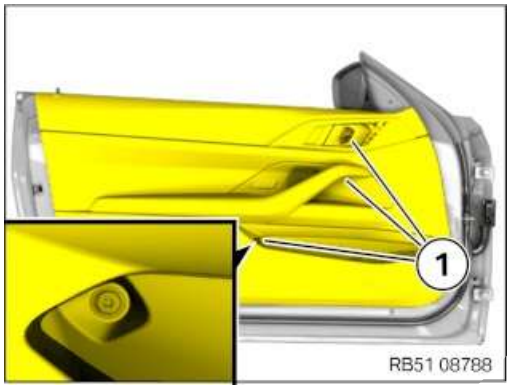
cardiagn.com



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

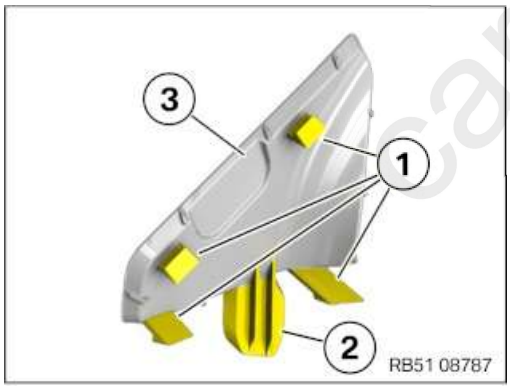


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

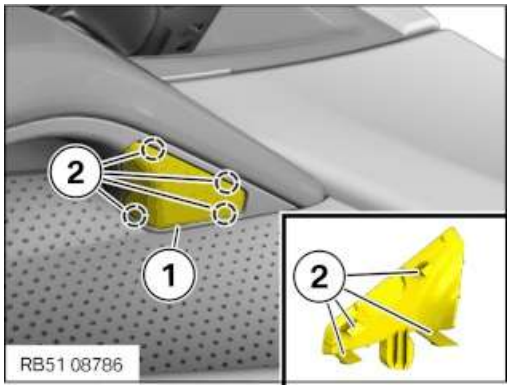
Result

» The latch mechanisms (1) or the guides (2) are damaged.

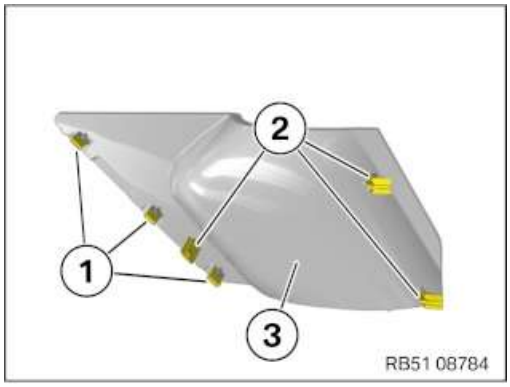
Measure

- Replace the cover (3).

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- Position the cover (1) and clip it in with the latch mechanisms (2) .



Check

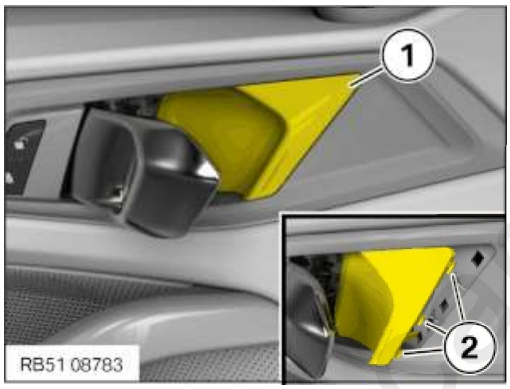
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

10 – Install outer weather strip

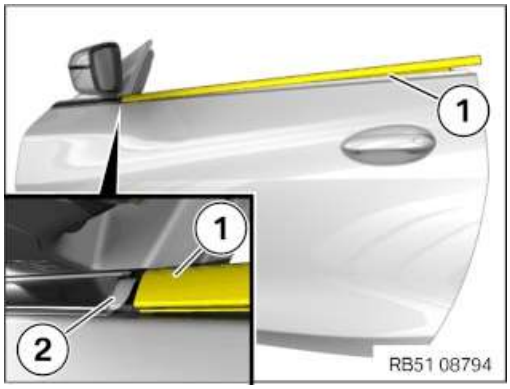
RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

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- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

Additional Information

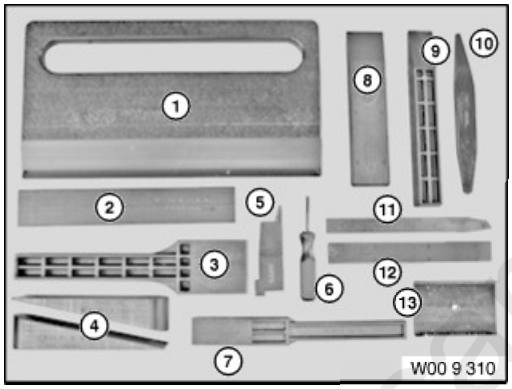
Overview of Tightening Torques

Exterior mirror to door			Used in step 7
Screw		Tightening torque	8 Nm

Door trim panel			Used in step 9
Oval-head screw		Tightening torque	3 Nm

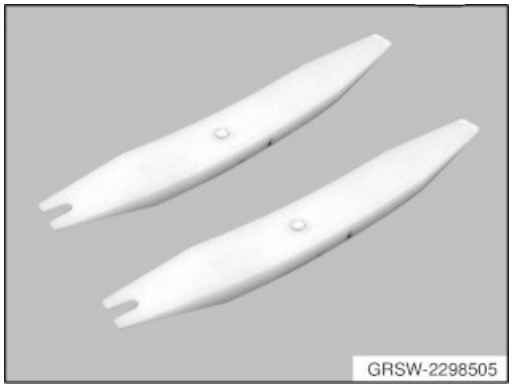
Overview of Special Tools

0 495 484 (00 9 324) Panel wedge



Common	Used in step 1
Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

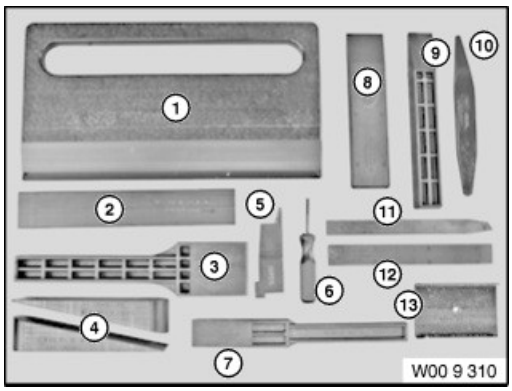
2 298 505 Wedge



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)

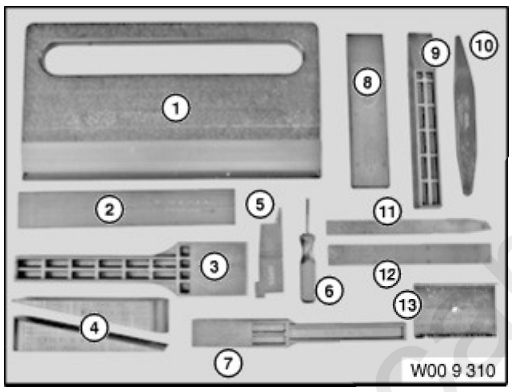
carDiagn.com

0 490 538 (00 9 321) Folding stick



Common	Used in step 1
Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 493 752 (00 9 329) Case



Common	Used in step 2
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

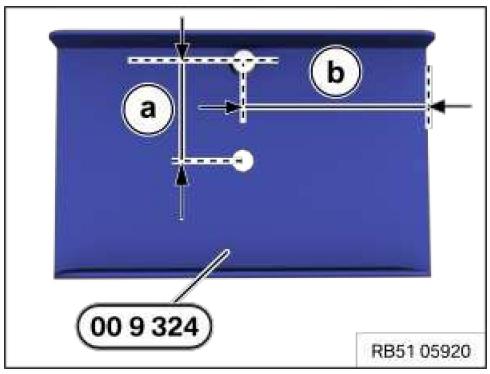
carlagn.com

51 21 300 Removing and installing/replacing weather strip on outside of front door

1 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

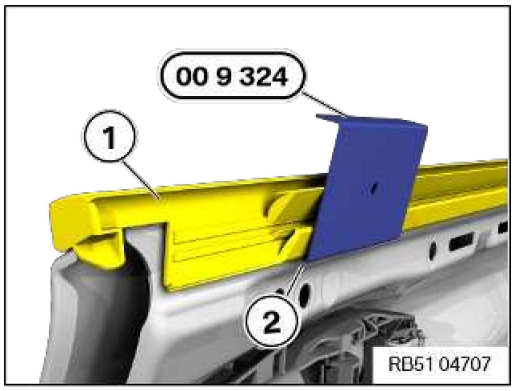
- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

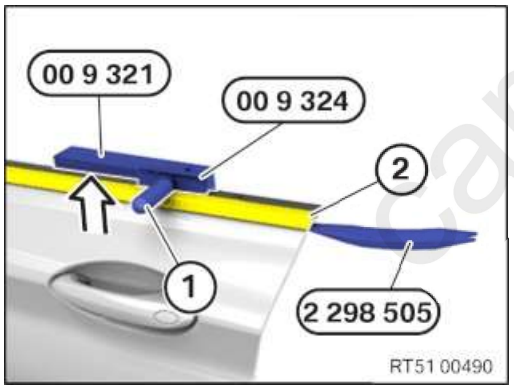
  Dimension (b) = 50 mm from the outer edge of the special tool



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

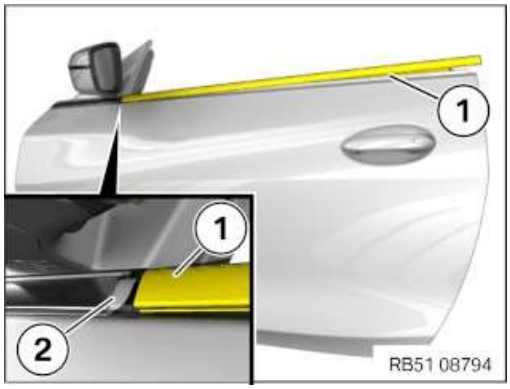
- Protect working area.
- Handle tools and components carefully.

- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.



- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

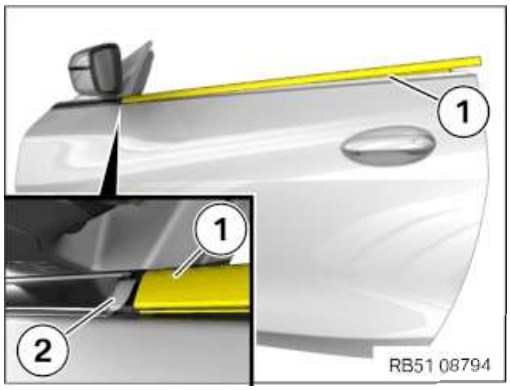
2 – Install outer weather strip

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

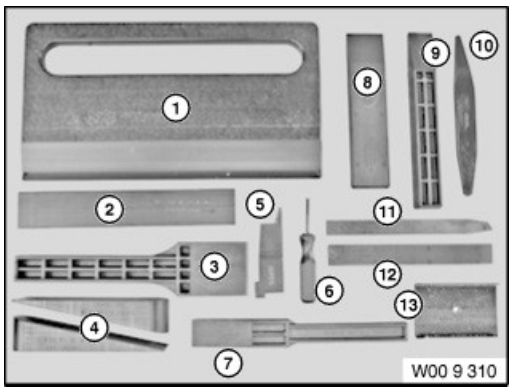


- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

Additional Information

Overview of Special Tools

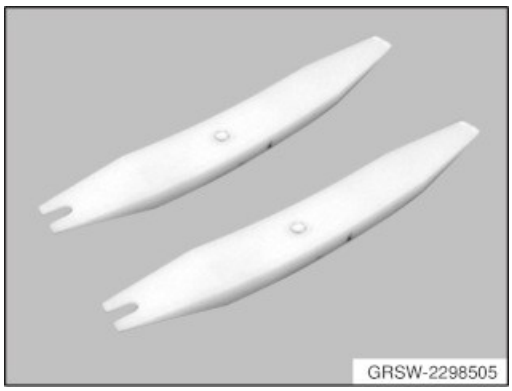
0 495 484 (00 9 324) Panel wedge



Common	Used in step 1
Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

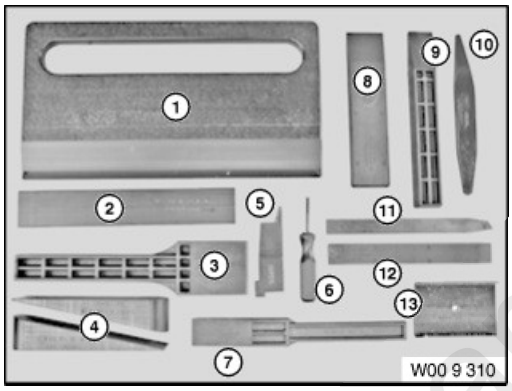
cardiagn.com

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)

0 490 538 (00 9 321) Folding stick

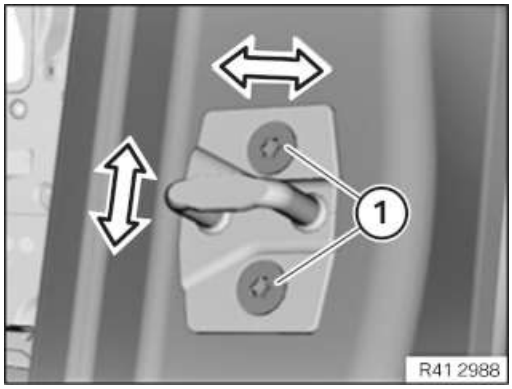


Common	Used in step 1
Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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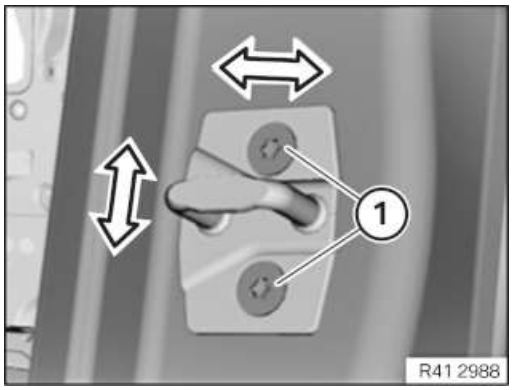
51 21 003 Replacing front left or right lock striker

1 – Removing lock striker



- Loosen screws (1).
- Remove lock striker.

2 – Installing lock striker

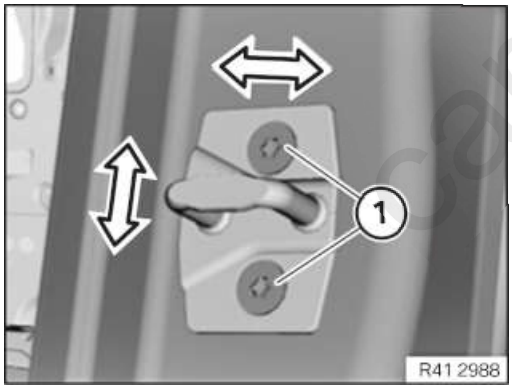


- Position lock striker.
- Tighten down screws (1) until lock striker can still just be moved.

3 – Adjust lock striker

Prerequisite

The screws on lock striker are loosened so far that the lock striker can still be moved.



TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.

For more information see: 41 00 ... Gap dimensions for body

- Adjust the lock striker's height such that the door lock does not bump or rub against anything.
- Move lock striker sideways in order to adjust the gap dimensions between door and rear side panel.
- Tighten the screws (1).

Lock striker

Screw		Tightening torque	21 Nm

Additional Information

Overview of Tightening Torques

Lock striker Used in step 3

Screw		Tightening torque	21 Nm

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Links

Repair instructions (PRE)	Used in step
Gap dimensions, body	3
Gap dimensions, body	3
Gap dimensions, body	3
Gap dimensions, body	3
Gap dimensions, body	3
Gap dimensions, body	3
Gap dimensions, body	3
Gap dimensions, body	3
Gap dimensions, body	3
Gap dimensions, body	3
Gap dimensions, body	3
Gap dimensions, body	3
Gap dimensions, body	
Gap dimensions, body	
Gap dimensions, body	

Repair instructions	Used in step
41 00 ... Gap dimensions, body	3

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66 12 ... Teach in radio remote control/radio remote control with display (BMW display key)

Functional description for teach-in of radio remote control/radio remote control with display (BMW display key).

The service function mentioned in the functional description can be found via the following path:

- Body
- Locking and security functions
- Remote key, key
- Lock and enable remote control key

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51 23 004 Adjusting engine compartment lid catch

1 – Adjusting the striker on the bonnet

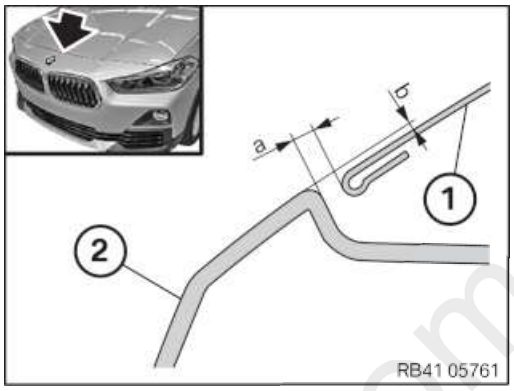


Check

- Check gap dimensions between bonnet and the adjoining components.

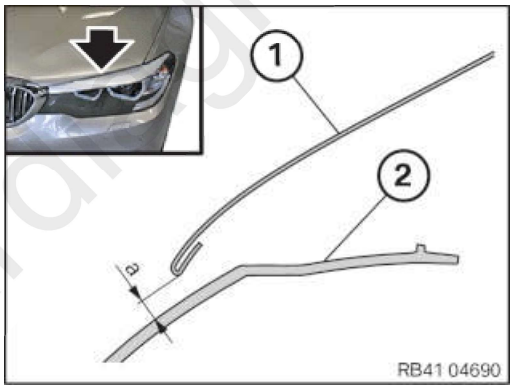
Gap dimension bonnet to bumper panel

1 bonnet; 2 bumper panel	
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



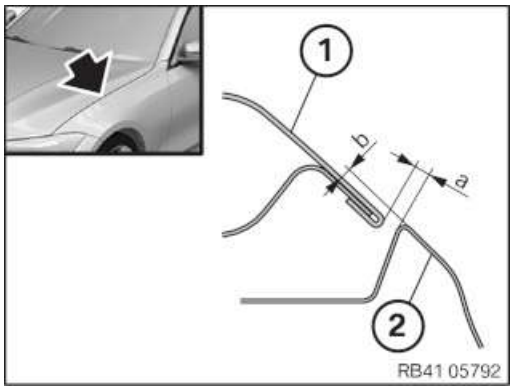
Gap dimension bonnet to headlight

1 bonnet; 2 headlight	
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to front side panel

1 bonnet; 2 front side panel	
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



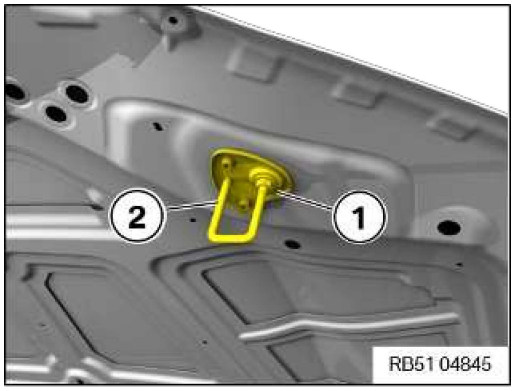
carmanuals.com

Result

» Gap dimensions do not correspond to the specifications.

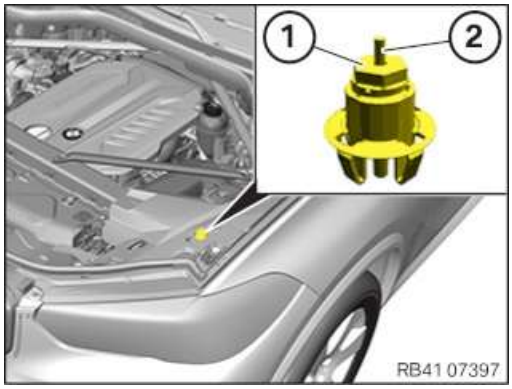
Measure

- Adjust the striker.



- Adjust striker (2) by turning nut (1).

▸ **Adjusting the stop pads of the bonnet**



NOTICE

Perform the operations on the left and right side.

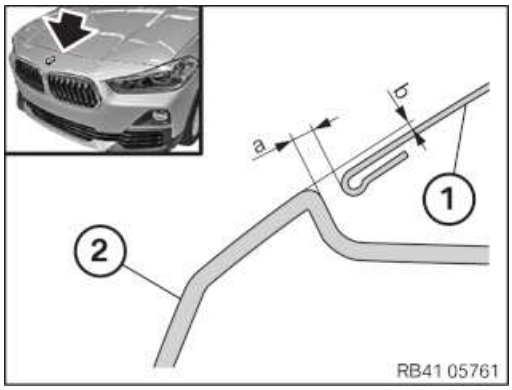
- Screw in stop pads (1) fully until the pin (2) can be pulled out.

  Pull out the pin (2) by approximately 5 mm.
- Slowly close bonnet. Pin (2) is pressed into stop pad (1) .
- Raise bonnet.
- Unscrew stop pad (1) until the stop pad is flush with the upper edge of pin (2).

Additional Information

Overview Technical Data

Gap dimension bonnet to bumper panel	Used in step 1
1 bonnet; 2 bumper panel	
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm

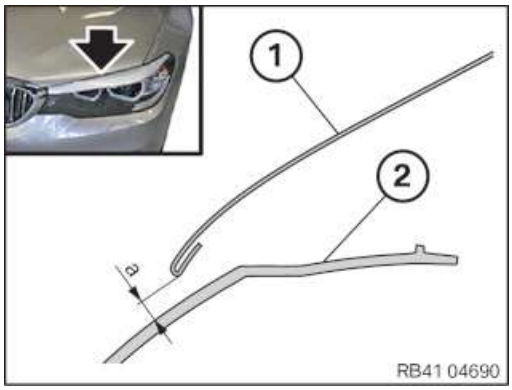


Gap dimension bonnet to headlight	Used in step 1

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1 bonnet; 2 headlight

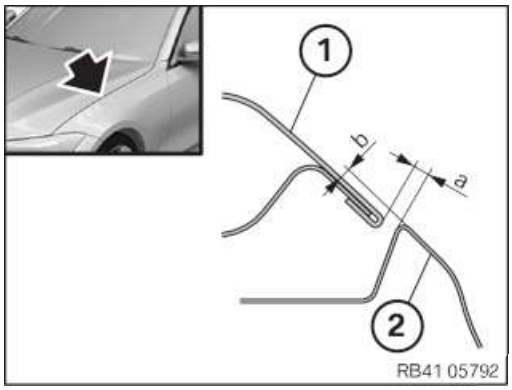
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to front side panel Used in step 1

1 bonnet; 2 front side panel

a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



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51 23 131 Adjusting left or right striker on engine compartment lid

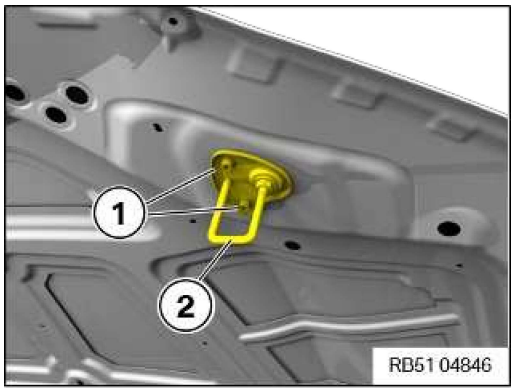
TECHNICAL INFORMATION

The gap dimensions form the basis for these repair instructions and must be observed without fail.
For more information see: 41 00 ... Gap dimensions for body

NOTICE

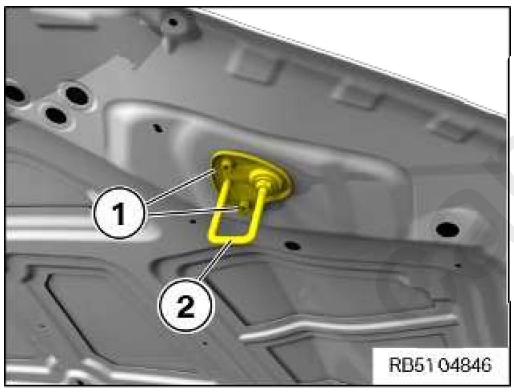
Description is for left component only. Procedure on the right side is identical.

1 – Removing the bonnet striker



- Loosen the screws (1) and remove the striker (2).

2 – Installing the bonnet striker



- Position striker (2) on bonnet and tighten with screws (1).

Striker to bonnet

Screw		Tightening torque	8 Nm

3 – Adjusting the striker on the bonnet

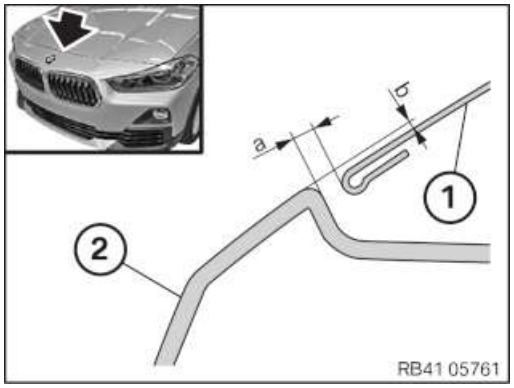
Check



- Check gap dimensions between bonnet and the adjoining components.

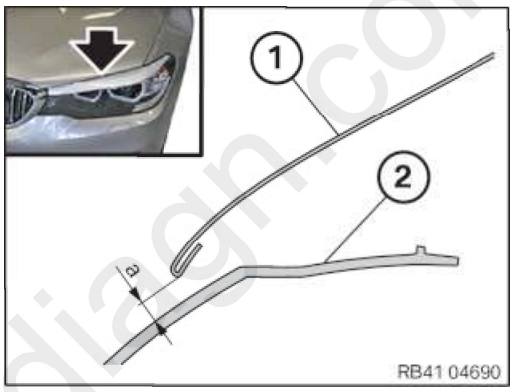
Gap dimension bonnet to bumper panel

1 bonnet; 2 bumper panel	
a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm



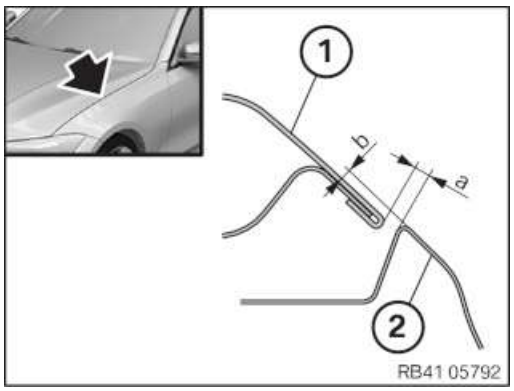
Gap dimension bonnet to headlight

1 bonnet; 2 headlight	
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to front side panel

1 bonnet; 2 front side panel	
a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm



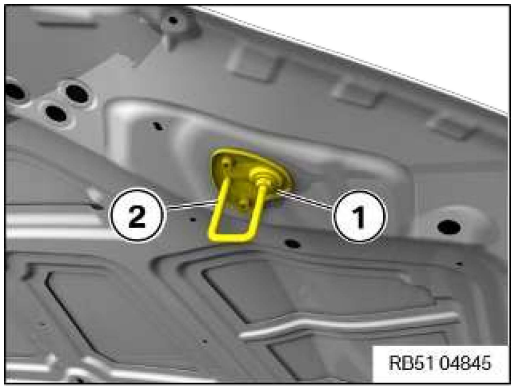
Result

» Gap dimensions do not correspond to the specifications.

Measure

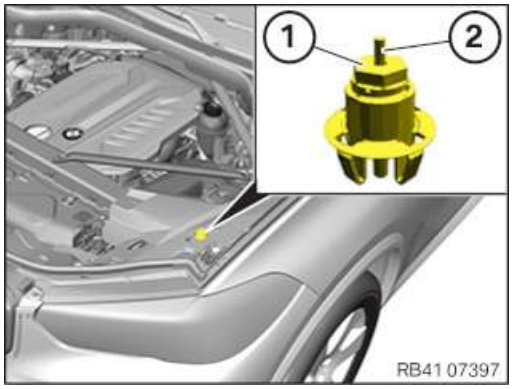
- Adjust the striker.

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- Adjust striker (2) by turning nut (1).

▸ **Adjusting the stop pads of the bonnet**



NOTICE

Perform the operations on the left and right side.

- Screw in stop pads (1) fully until the pin (2) can be pulled out.
  Pull out the pin (2) by approximately 5 mm.
- Slowly close bonnet. Pin (2) is pressed into stop pad (1) .
- Raise bonnet.
- Unscrew stop pad (1) until the stop pad is flush with the upper edge of pin (2).

Additional Information

Overview of Tightening Torques

Striker to bonnet Used in step 2

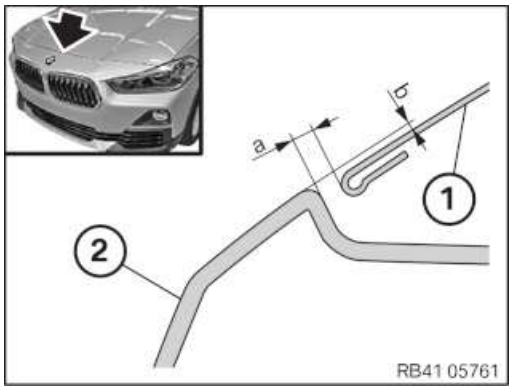
Screw		Tightening torque	8 Nm

Overview Technical Data

Gap dimension bonnet to bumper panel Used in step 3

1 bonnet; 2 bumper panel

a	3.5 (2.3 - 4,7) mm
b	1.0 (-0,5 - 2.5) mm

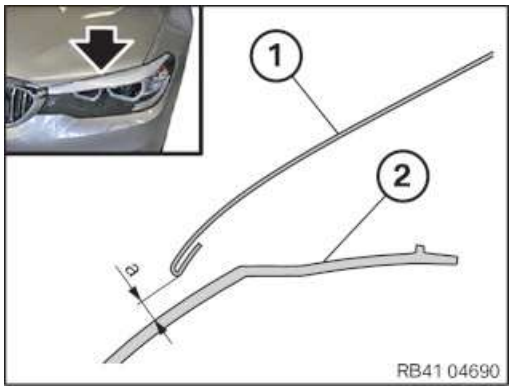


Gap dimension bonnet to headlight Used in step 3

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1 bonnet; 2 headlight

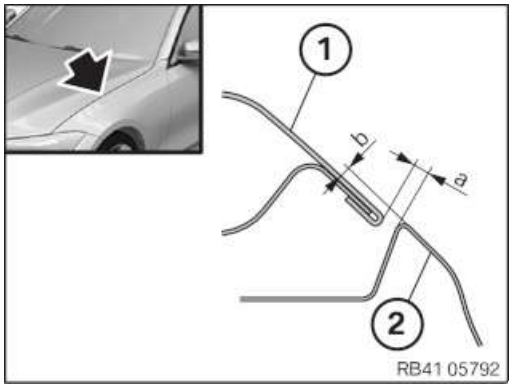
a	5,3 (3,5 - 7,1) mm



Gap dimension bonnet to front side panel Used in step 3

1 bonnet; 2 front side panel

a	3.3 (2.3 - 4,3) mm
b	0,5 (-1,1 - 2.1) mm

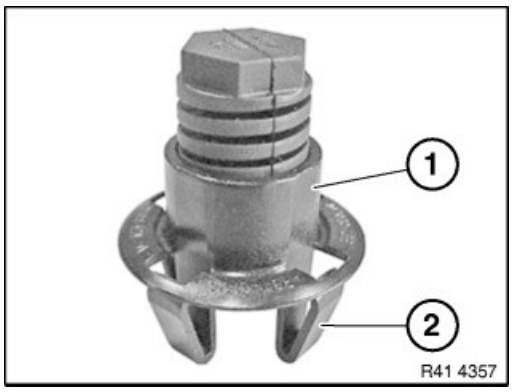


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51 23 ... Adjusting/replacing bump stops

The graphics are schematic representations and are to be applied to the relevant vehicle type.

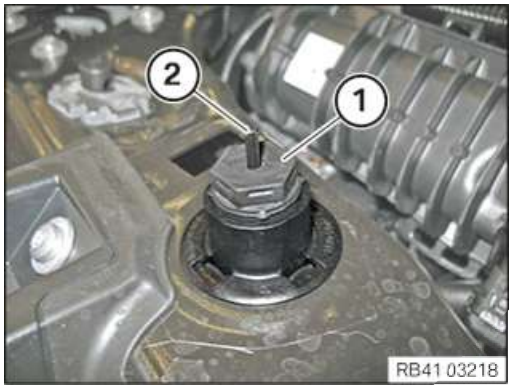
Prerequisite: Lid must be correctly adjusted.



Following parts must not be damaged:

- (1) Bump stop
- (2) Catches

Remove adjusting buffer by pressing latch mechanisms back.



Screw adjusting buffer (1) until the pin (2) can be pulled out.

Slowly pull the pin (2) out approx. 15 mm.

Slowly close engine compartment lid.

The pin (2) is thus pushed into the adjusting buffer (1).

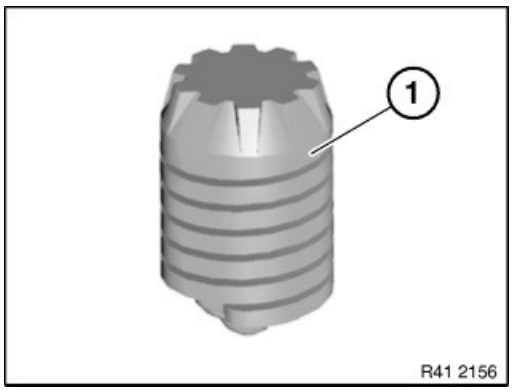


Raise engine compartment lid.

Unscrew the adjusting buffer (1) until it is flush with the upper edge of the pin (2).

51 23 ... Adjusting/replacing stop pads

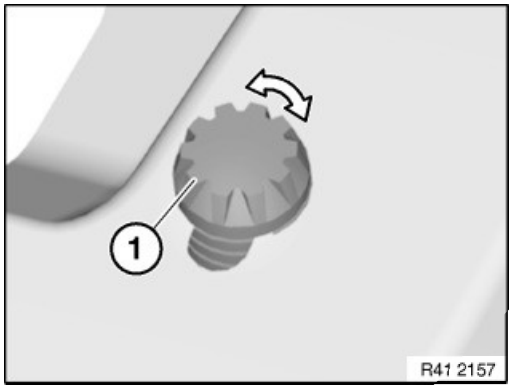
The graphics are schematic representations and are to be applied to the relevant vehicle type.



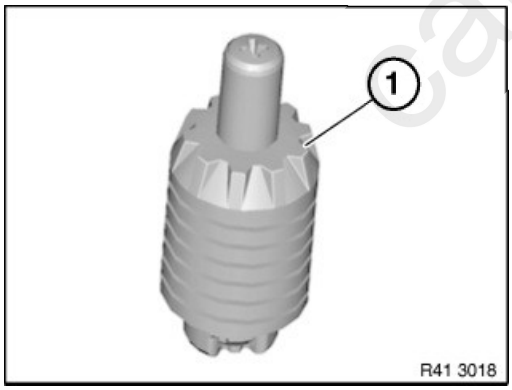
Version 1:

Following parts must not be damaged:

- (1) Stop pads



Adjust stop pads (1) to correct height by turning left or right.

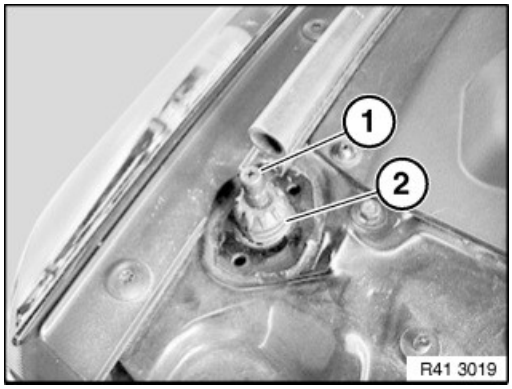


Version 2:

Replacing damaged stop pads (see Electronic Parts Catalogue):

- (1) Stop pads with ejectors

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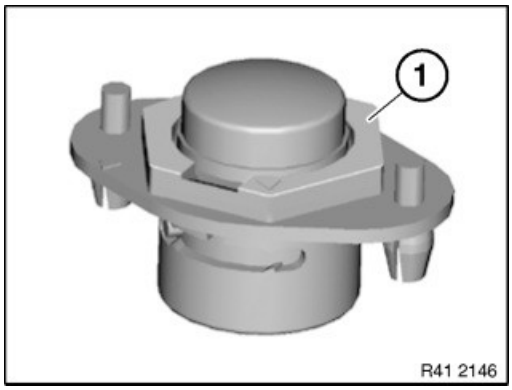


Press ejectors (1) into the stop pads and in this position turn approx. 90° anticlockwise with a Phillips screwdriver.

This locks ejectors (1) in the stop pads.

Adjust stop pad (2) to correct height by turning left or right.

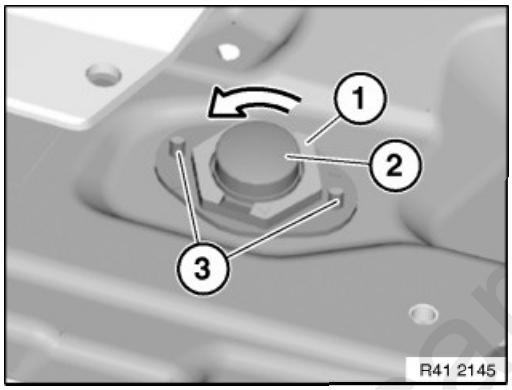
After setting has been made, unlock ejectors (1) again.



<u>Version 3:</u>

Replacing damaged stop pads (see Electronic Parts Catalogue):

- (1) Stop pads



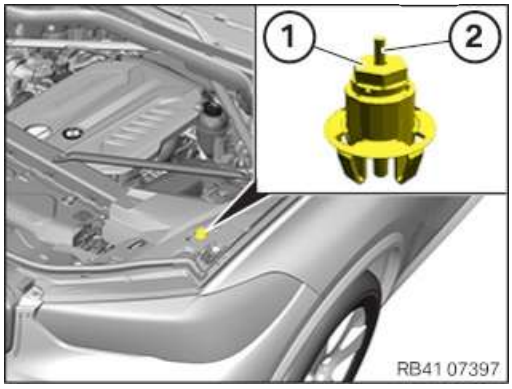
Stop (1) 45° anticlockwise.

Pull stop pad (2) upwards.

Close lid slowly until it is at the same height as the side wall.

Open flap and turn stop (1) clockwise.

Installation note:
Press stop pad into panel and drive in expanding pins (3).



Screw in stop pad (1) completely until pin (2) can be pulled out.

Slowly pull the pin (2) out approx. 5 mm.

Slowly close bonnet. Pin (2) is pressed into the stop pad (1) in the process.

Raise bonnet.

Unscrew stop pad (1) until the stop pad is flush with the upper edge of pin (2).

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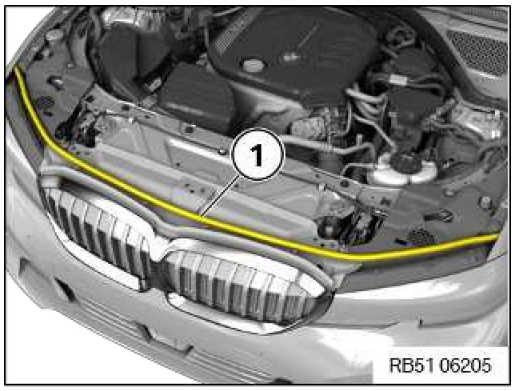
51 23 211 Removing and installing/replacing Bowden cable for front bonnet locks

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



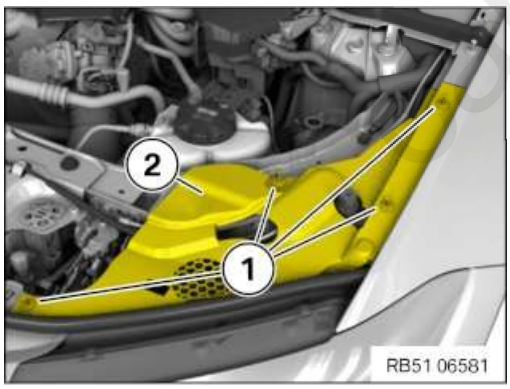
- Pull offfront bonnet seal (1) upwards.

2 – Removing the cover on the left and right side of the engine compartment

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the cover in the engine compartment on top**



- Loosen the expanding rivet (1).
- Remove the cover in the engine compartment on top (2) partially.

3 – Remove the engine compartment lid catch on the left and right

▸ **Only in vehicles with active pedestrian protection**

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

▷ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

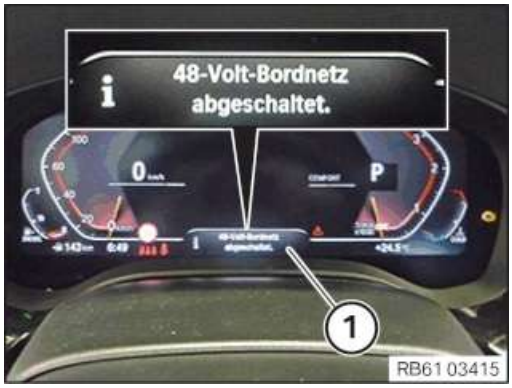
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

◁

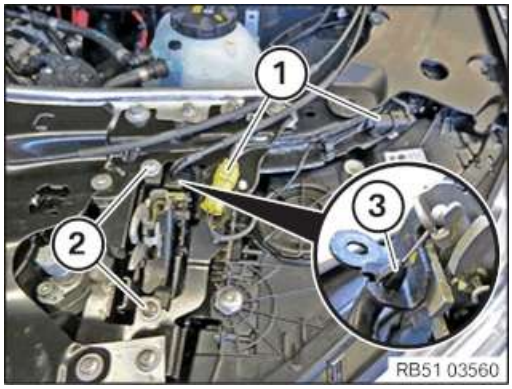
▷ **Disconnecting all battery earth leads**



- See additional information.

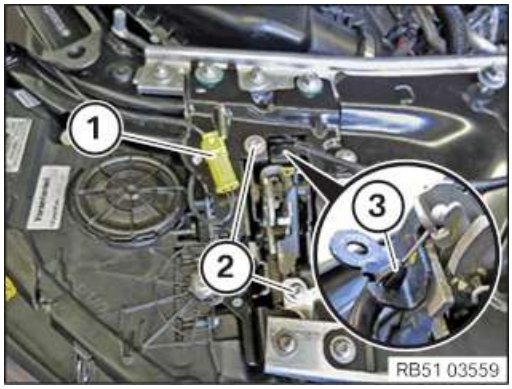
◁

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- Unlock plug connection (1) and disconnect.
- Loosen screws (2).
- Feed out the bonnet lock in an upwards direction.
- Detach the cable (3) and remove the bonnet lock.

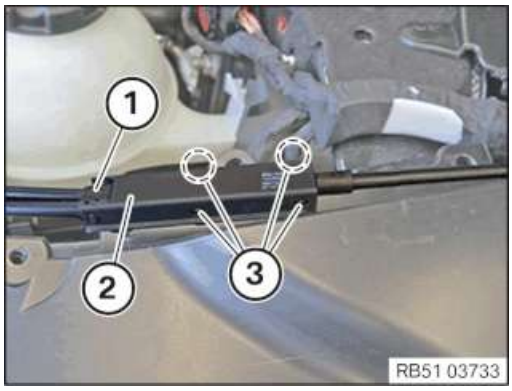
▸ **Removing the right bonnet lock**



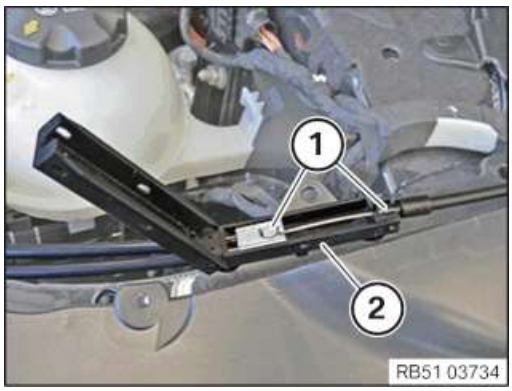
- Unlock plug connection (1) and disconnect.
- Loosen screws (2).
- Feed out the bonnet lock in an upwards direction.
- Detach the cable (3) and remove the bonnet lock.

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4 – Removing Bowden cable of the front bonnet locks

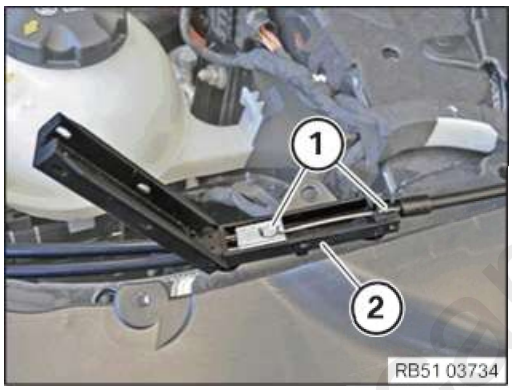


- Unclip Bowden cable bracket (1) from the body.
- Loosen lid (2) on retaining lugs (3) and fold up and to the front.

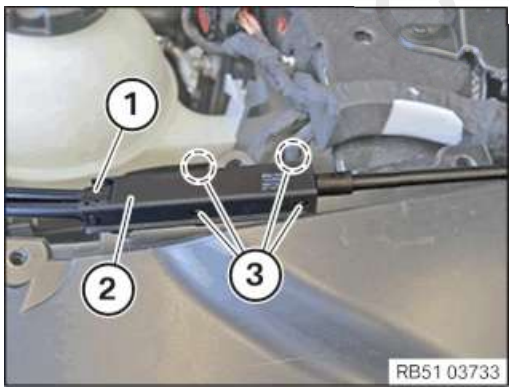


- Detach the Bowden cable (1).
- Remove Bowden cable bracket (2) together with Bowden cables.

5 – Install the Bowden cable for the front bonnet locks

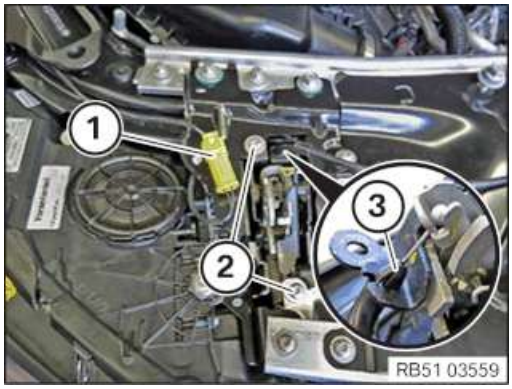


- Install the Bowden cable bracket (2) together with the Bowden cables.
- Attach the Bowden cable (1).



- Clip in the Bowden cable bracket (1) into the body.
- Close the lid (2) and engage with the retaining lugs (3).

6 – Installing left and right hood lock



▸ **Installing the right bonnet lock**

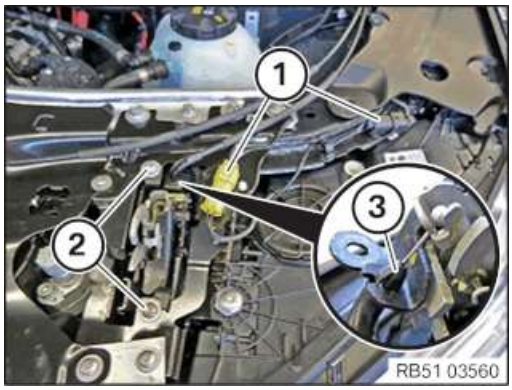
- Attach the cable (3).
- Feed in the bonnet lock.
- Renew screws (2).

  Parts: Screws
- Tighten the screws (2).

Engine compartment lid catch

Screw	Replace screws	Tightening torque	8 Nm

- Connect connectors (1) and lock.



- Attach the cable (3).
- Feed in the bonnet lock.
- Renew screws (2).

  Parts: Screws
- Tighten the screws (2).

Engine compartment lid catch

Screw	Replace screws	Tightening torque	8 Nm

- Connect connectors (1) and lock.

▸ **Only in vehicles with active pedestrian protection**

▹ **Connecting all battery earth leads**



- See additional information.

◃

▹ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

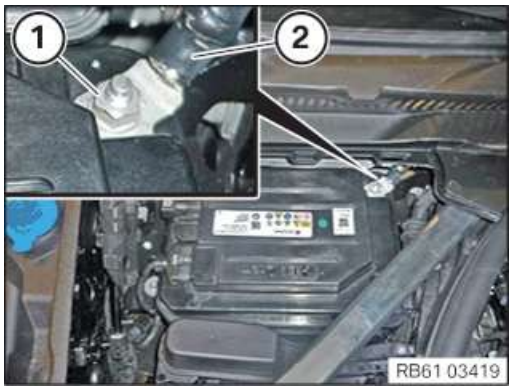
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

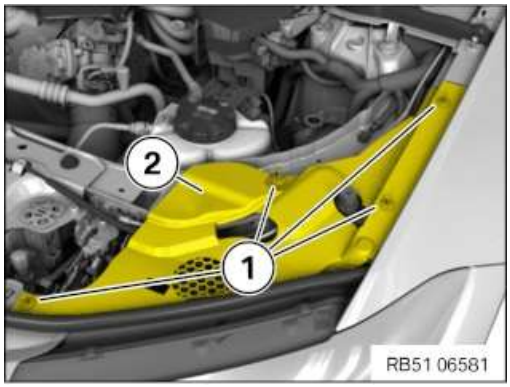
◁

7 – Installing the left and right cover in the engine compartment

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Install the cover in the engine compartment on top**

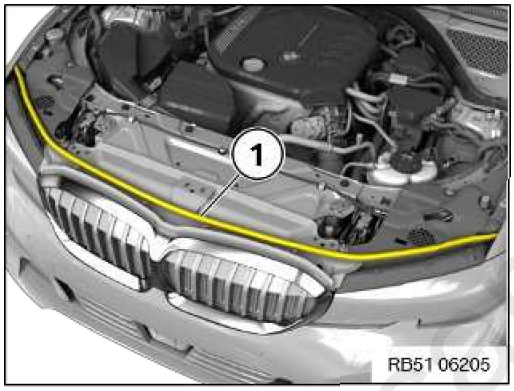


- Install the cover in the engine compartment on top (2).
- Secure expanding rivet (1).

8 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

Additional Information

Overview of Tightening Torques

Engine compartment lid catch			Used in step 6
Screw	Replace screws	Tightening torque	8 Nm

Negative battery cable to 48-V battery			Used in step 6
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	**Used in step**
Notes on 48-V battery	36

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General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	3

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	36
61 20 900 Disconnecting and connecting battery earth lead	36
61 20 900 Disconnecting and connecting battery earth lead	36
61 20 900 Disconnecting and connecting battery earth lead	36
61 20 900 Disconnecting and connecting battery earth lead	36
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	36
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	36
61 20 900 Disconnecting and connecting battery earth lead	36
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	36
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	36
61 20 900 Disconnecting and connecting battery earth lead	36
61 20 900 Disconnecting and connecting battery earth lead	36
61 20 900 Disconnecting and connecting battery earth lead	36
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61 20 900 Disconnecting and connecting battery earth lead	36

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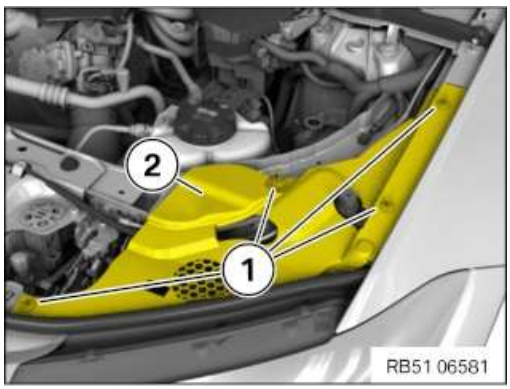
61 20 900 Disconnecting and connecting battery earth lead	36
61 20 900 Disconnecting and connecting battery earth lead	36
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	36
61 20 900 Disconnecting and connecting battery earth lead	36
61 20 900 Disconnecting and connecting battery earth lead	36
61 20 900 Disconnecting and connecting battery earth lead	36

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51 23 110 Removing and installing/replacing left engine compartment lid lock

PRELIMINARY WORK

1 – Remove the cover in the engine compartment on top



- Loosen the expanding rivet (1).
- Remove the cover in the engine compartment on top (2) partially.

MAIN WORK

2 – Remove engine compartment lid catch

▸ **Only in vehicles with active pedestrian protection**

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.

▹ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

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WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

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Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

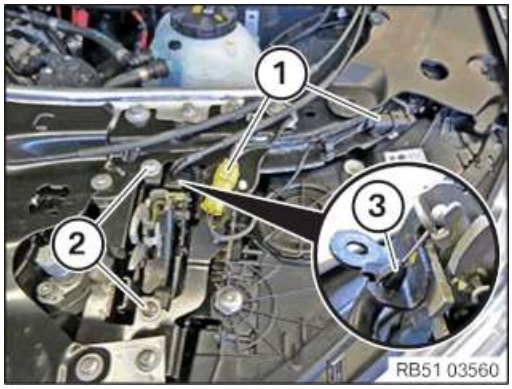
◁

▷ **Disconnecting all battery earth leads**



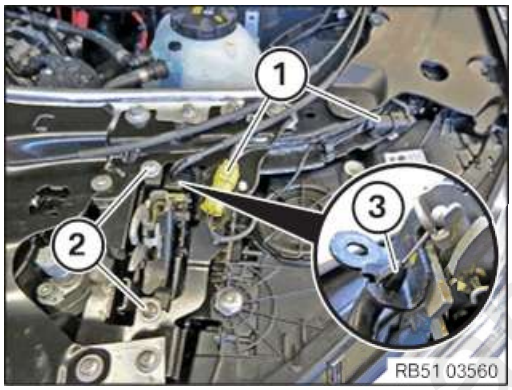
- See additional information.

◁



- Unlock plug connection (1) and disconnect.
- Loosen screws (2).
- Feed out the bonnet lock in an upwards direction.
- Detach the cable (3) and remove the bonnet lock.

3 – Installing bonnet lock



- Attach the cable (3).
- Feed in the bonnet lock.
- Renew screws (2).

  Parts: Bolts
- Tighten the screws (2).

Engine compartment lid catch

Screw	Replace screws	Tightening torque	8 Nm

- Connect plug connection (1) and lock.

▶ **Only in vehicles with active pedestrian protection**

▷ **Connecting all battery earth leads**



- See additional information.

◁

▷ **Activating the 48 V electrical system**

Prerequisite

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Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8	Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).

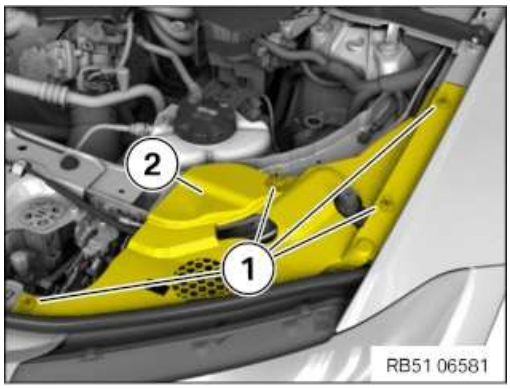


- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

◁

4 – Install the cover in the engine compartment on top



- Install the cover in the engine compartment on top (2).
- Secure expanding rivet (1).

Additional Information

Overview of Tightening Torques

Engine compartment lid catch			Used in step 3
Screw	Replace screws	Tightening torque	8 Nm

Negative battery cable to 48-V battery			Used in step 3
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	23

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	2

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	23
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61 20 900 Disconnecting and connecting battery earth lead	23
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61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	23
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	23
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61 20 900 Disconnecting and connecting battery earth lead	23
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23
61 20 900 Disconnecting and connecting battery earth lead	23

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51 23 265 Removing and installing/replacing left or right gas pressure spring for engine compartment lid

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

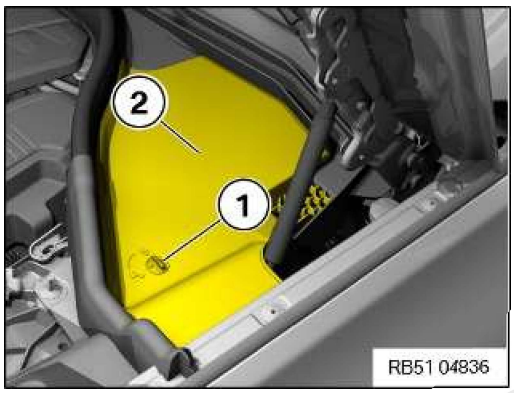
- Support bonnet/tailgate in fully open position with the aid of a suitable device.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Remove the cover of the engine compartment at the rear left

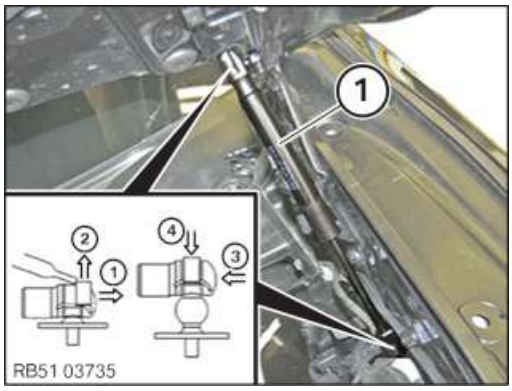


- Loosen the lock (1).
- Remove the cover (2) of the rear left engine compartment.

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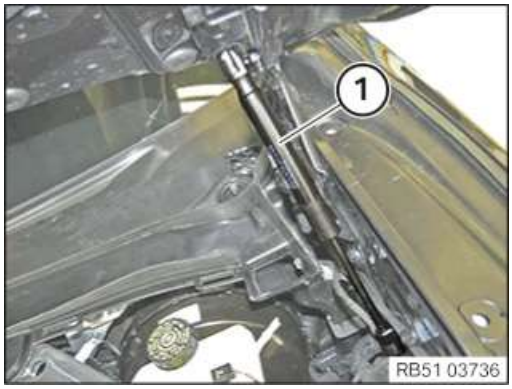
MAIN WORK

2 – Removing the gas pressure spring for engine compartment lid



- Observe the disassembly sequence:
  1. Push on the clamp in the direction of the groove with the screwdriver.
  2. Lift off the ball socket from the ball pin.
  3. Push back the clamp.
  4. Pull off the ball socket from the ball pin.
- Remove gas pressure spring for bonnet (1).

3 – Installing the gas pressure spring for engine compartment lid

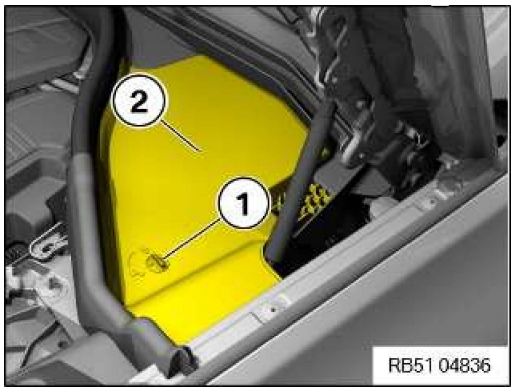


- Place the gas pressure spring for bonnet (1) with the ball sockets on the ball pins and engage it forcefully.

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POSTPROCESSES

4 – Install the cover of the engine compartment on the rear left



- Position the engine compartment cover at the rear left (2) .
- Close lock (1).

51 23 100 Removing and installing/replacing right engine compartment lid lock

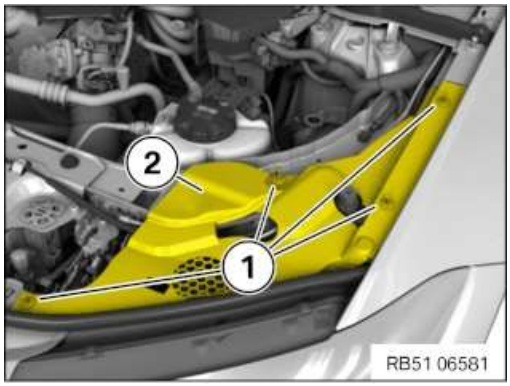
PRELIMINARY WORK

1 – Remove cover in the engine compartment on the top right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the cover in the engine compartment on top**



- Loosen the expanding rivet (1).
- Remove the cover in the engine compartment on top (2) partially.

2 – Only in vehicles with active pedestrian protection

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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▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

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Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

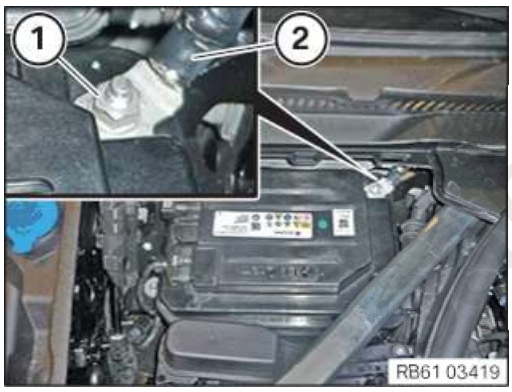
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

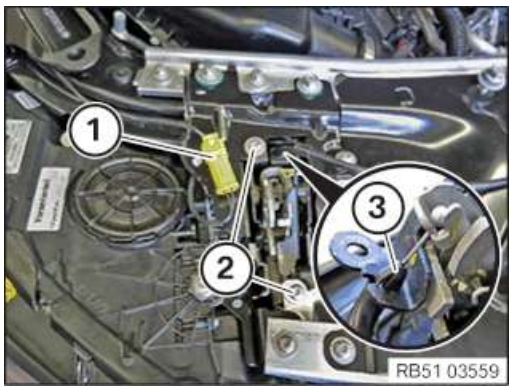
▸ **Disconnecting all battery earth leads**



- See additional information.

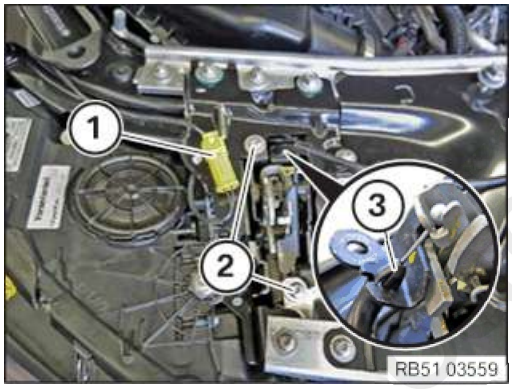
MAIN WORK

3 – Removing the right bonnet lock



- Unlock plug connection (1) and disconnect.
- Loosen screws (2).
- Feed out the bonnet lock in an upwards direction.
- Detach the cable (3) and remove the bonnet lock.

4 – Installing the right bonnet lock



- Attach the cable (3).
- Feed in the bonnet lock.
- Renew screws (2).

  Parts: Screws
- Tighten the screws (2).

Engine compartment lid catch

Screw	Replace screws	Tightening torque	8 Nm

- Connect connectors (1) and lock.

POSTPROCESSES

5 – Only in vehicles with active pedestrian protection

▸ **Connecting all battery earth leads**



- See additional information.

▸ Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



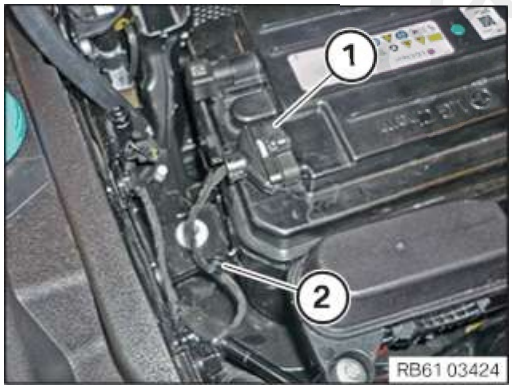
- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



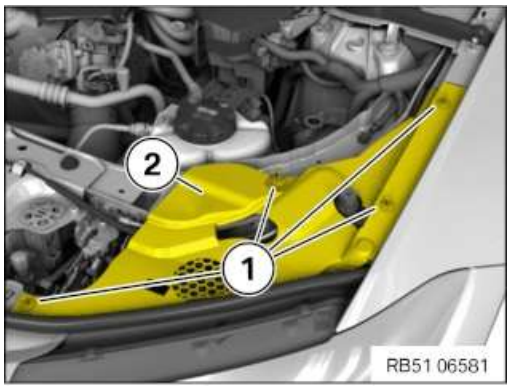
- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

6 – Install the cover in the engine compartment on the top right

NOTICE

Description is for left component only. Procedure on the right side is identical.



▸ **Install the cover in the engine compartment on top**

- Install the cover in the engine compartment on top (2).
- Secure expanding rivet (1).

Additional Information

Overview of Tightening Torques

Engine compartment lid catch			Used in step 4
Screw	Replace screws	Tightening torque	8 Nm

Negative battery cable to 48-V battery			Used in step 5
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	**Used in step**
Notes on 48-V battery	25

General repair instructions	**Used in step**
72 00 ... Safety regulations for handling components with gas generators	2

Repair instructions	**Used in step**
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	25
61 20 900 Disconnecting and connecting battery earth lead	25
61 20 900 Disconnecting and connecting battery earth lead	25
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	25
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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	25
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61 20 900 Disconnecting and connecting battery earth lead	25
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61 20 900 Disconnecting and connecting battery earth lead	25

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51 23 400 Removing and installing/replacing the left or right actuator

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check

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TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

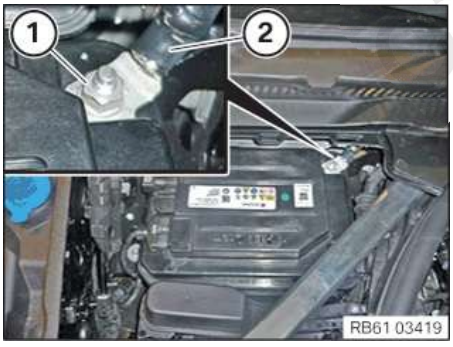
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

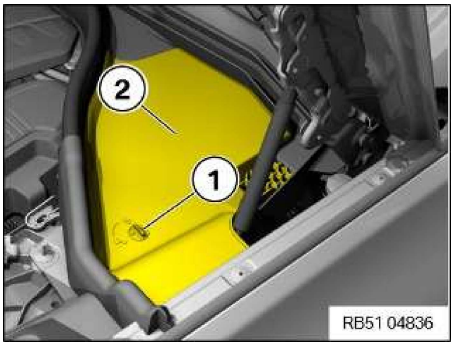
2 – Disconnecting all battery earth leads

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- See additional information.

3 – Remove the cover of the engine compartment at the rear left



- Loosen the lock (1).
- Remove the cover (2) of the rear left engine compartment.

4 – Removing the wiper arm on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

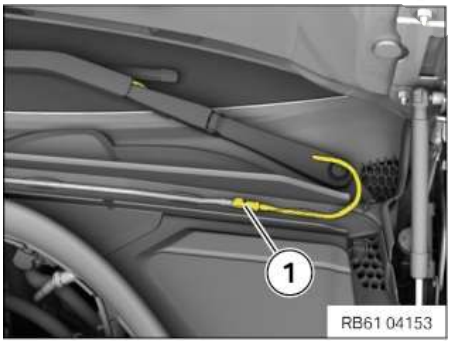
▶ **Remove the wiper arm**

RISK OF DAMAGE

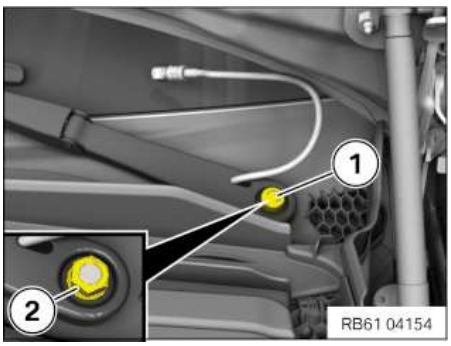
Damage to wiper console.

While removing the wiper arms without using special tool, the wiper console can break.

- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.

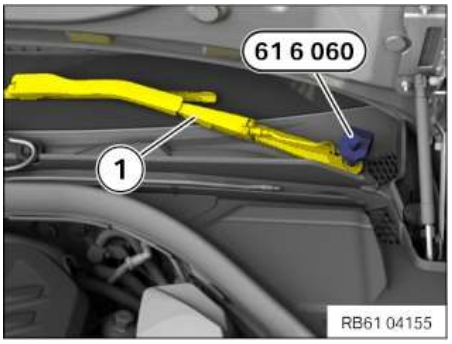


- Disconnect the washer fluid hose (1) at the separation point and feed out from the cowl panel guide.



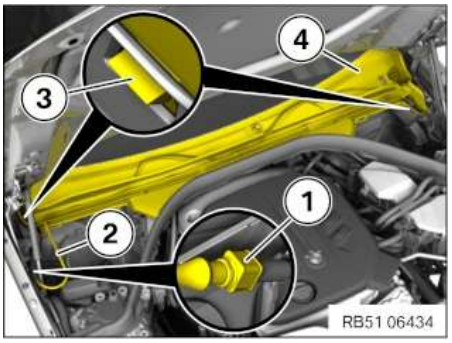
- Remove the protective cap (1).
- Loosen nut (2).

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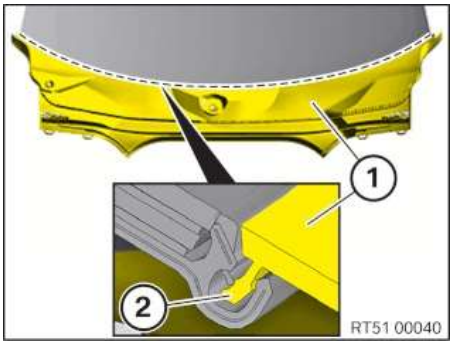


- Pull off the wiper arm (1) using special tool .

5 – Remove cowl panel cover



- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).



- Pull the cowl panel cover (1) upward out of the latch mechanism (2) beginning on the side.

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MAIN WORK

6 – Remove the actuator on the left bonnet hinge

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Loosen screw (1).
- Unlock plug connection (2) and disconnect.
- Slightly pull the actuator (3) forwards in direction of arrow and remove it.

7 – Install the actuator on the left bonnet hinge



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the actuator (1) into the guide pin (2) and push towards the rear up to the limit position in direction of arrow.
- Renew the screw (3).

  Parts: Screw
- Tighten down screw (3).

Actuator to engine compartment lid hinge

M6x12	Renew screw.	8 Nm

- Connect connectors (4) and lock.

POSTPROCESSES

8 – Installing cowl panel cover

RISK OF DAMAGE

Damage caused by water ingress into the vehicle.

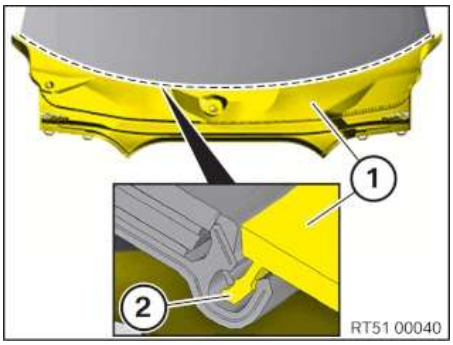
Water ingress into the vehicle may result in damage to components, malfunctions and corrosion.

- Ensure correct installation of the components.
- Only use undamaged components.

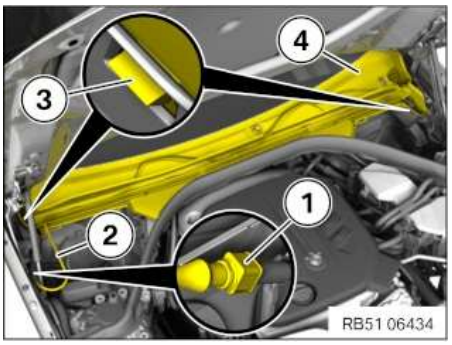
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TECHNICAL INFORMATION

Before installing the cowl panel cover it is **mandatory** to check that the 48 V line is routed correctly and fitted tightly.
An incorrectly laid or attached 48 V line can be damaged by the wiper kinematics.



- Push the cowl panel cover (1) into the latch mechanism (2) beginning on the side.



- Clip cowl panel cover (4)in by means of the latch mechanisms (3).
- Position windscreen wash hose (2) and connect windscreen wash hose (1)quick lock.

9 – Install left and right wiper arm

NOTICE

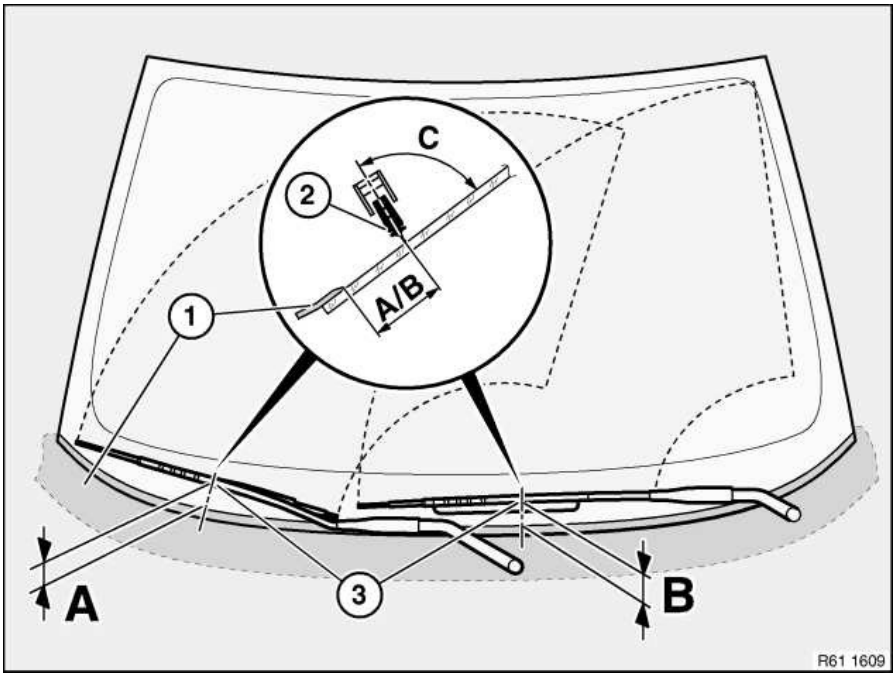
Description is for left component only. Procedure on the right side is identical.

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

The wiper system must be in zero position.
After installing the cowl panel cover and before fitting the wiper arm:
Activate the wiper system once to ensure that it has the correct installation position.

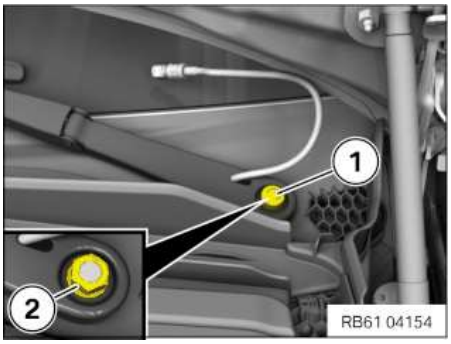
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- Connect the wiper arm (3).
- Correctly position the wiper arm (2) in relation to the window edge (1).

Distance from window pane edge to wiper blade

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

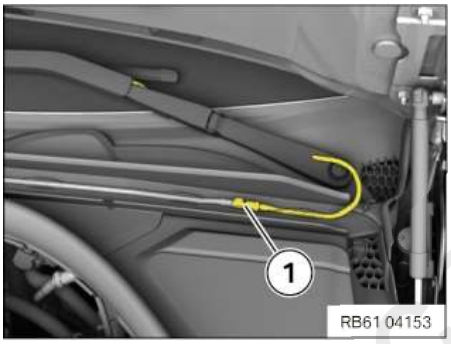


- Tighten nut (2).

Windscreen wiper arm

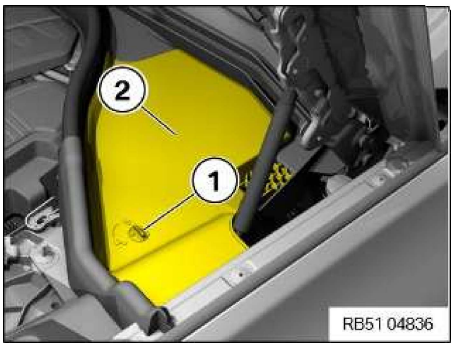
Combination hexagon nut		Tightening torque	35 Nm

- Connect the protective cap (1).



- Feed washer fluid hose (1) into the cowl panel guide and connect at the separation point.

10 – Install the cover of the engine compartment on the rear left



- Position the engine compartment cover at the rear left (2) .
- Close lock (1).

11 – Connecting all battery earth leads

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- See additional information.

12 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).

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- Activate the 48V electrical system by closing the bonnet.
  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

Actuator to engine compartment lid hinge			Used in step 7
M6x12	Renew screw.		8 Nm

Windscreen wiper arm			Used in step 9
Combination hexagon nut		Tightening torque	35 Nm

Negative battery cable to 48-V battery			Used in step 12
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Overview Technical Data

Distance from window pane edge to wiper blade	Used in step 9
Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

Links

Repair instructions (PRE)	**Used in step**
Notes on 48-V battery	112

General repair instructions	**Used in step**
72 00 ... Safety regulations for handling components with gas generators	6

Repair instructions	**Used in step**
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211
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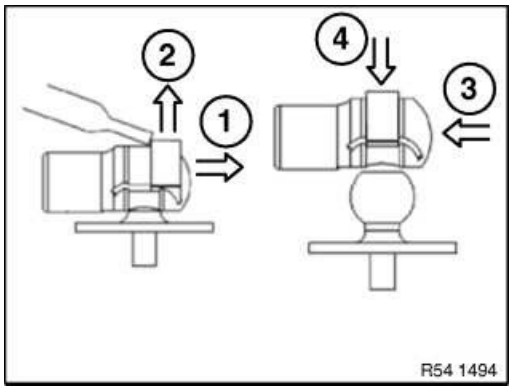
51 23 ... Removing/installing ball sockets with clip

Warning!

Danger of injury! When installed, the gas pressurised shock absorber is under preload. Minimise preload as far as possible before removing.

Caution!

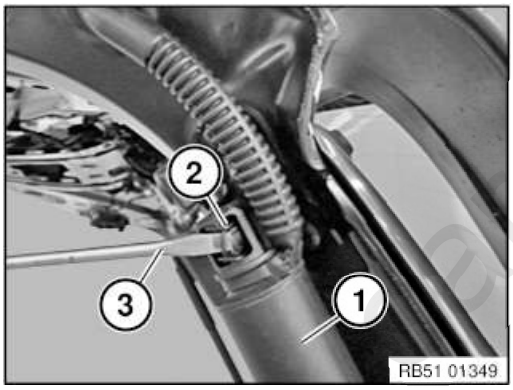
Never lift off ball socket with engaged clamp.



Version A:

1. Push on clamp in direction of groove with screwdriver
2. Lift off ball socket from ball pin
3. Slide clamp back
4. Fit ball socket on ball stud and snap into place with force

Installation note:
Pack grease into two opposite positions in socket. The grease spreads after installation on the ball pin all round in the ball socket.



Version B:

Caution!

Risk of damage!

If you are not careful, retaining spring (2) may be bent to such an extent that the entire drive spindle will have to be replaced.

Press drive spindle (1) against ball pin in order to relieve strain on retaining spring (2) at ball pin.

Pull out retaining spring (2) approx. 2-3 mm with screwdriver (3).

Pull off spindle foot.

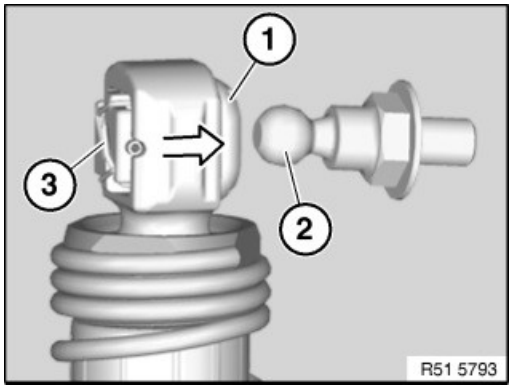
Warning!

Observe warning notices on the damper.

Electrical spindle drive for tailgate is under mechanical spring load!

The component must be secured against falling down.

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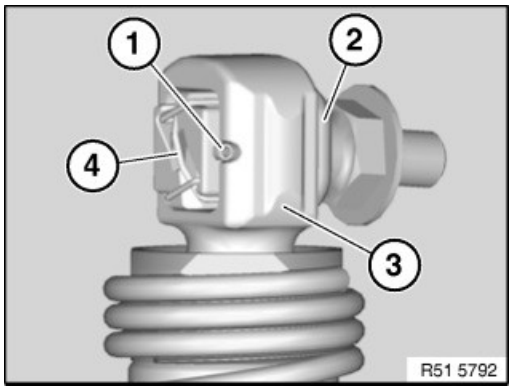


Caution!

Risk of damage!

Do not press on spindle drive at an angle or twisted.

Installation note:
Press ball socket (1) onto ball pin (2) until retaining spring (3) engages correctly (clicking sound).



Caution!

If retaining spring (4) is damaged!

Release pin (1).

Remove spindle drive (3).

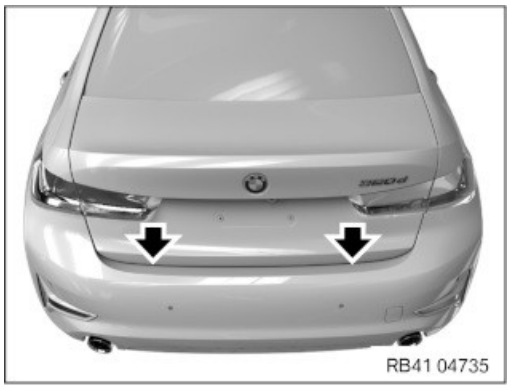
Remove ball socket (2).

Remove retaining spring (4) and replace if necessary.

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51 24 004 Adjusting rear lid lock

1 Installing the lower section of the tailgate lock



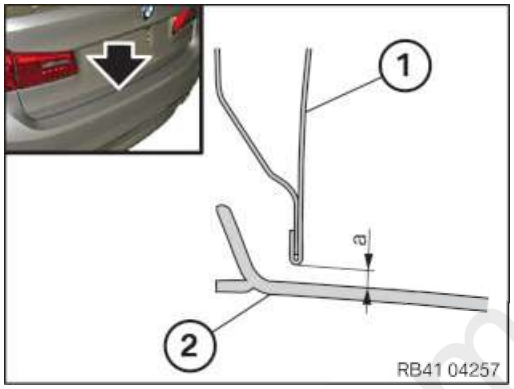
Check

- Check the gap dimensions between the tailgate and bumper panel (arrows).

Gap dimension tailgate to rear bumper panel

1 tailgate; 2 rear bumper panel

a	5,1 (3,6 - 6,6) mm

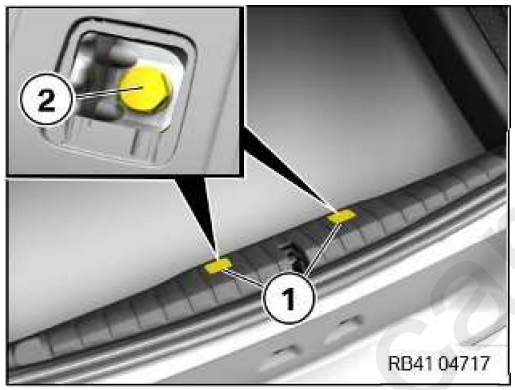


Result

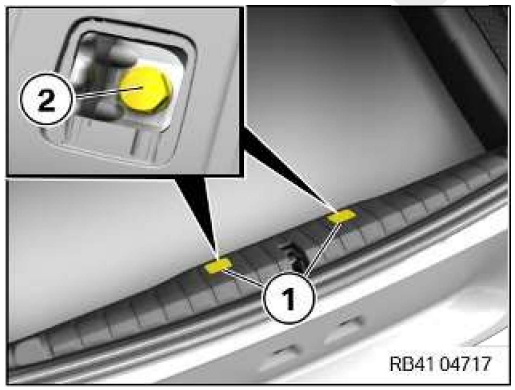
» Gap dimension does not correspond to specifications.

Measure

- Adjusting tailgate lock.



- Lever out the covers (1) with a suitable screwdriver and remove.
- Loosen screws (2) until the tailgate lock can be moved.
- Adjust tailgate lock so that the tailgate has the specified gap dimension to the bumper panel.



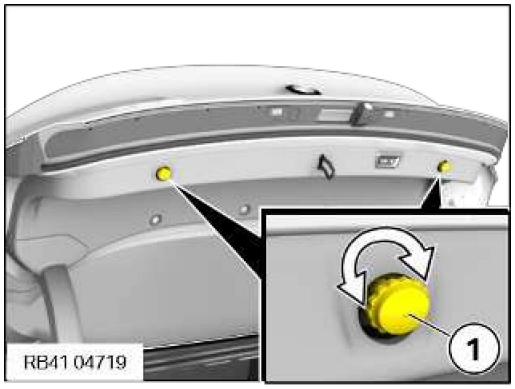
- Tighten the screws (2).

Tailgate lock to body

Hexagon screw M8x20		Tightening torque	19 Nm

- Install and clip in the covers (1).

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- Adjust the stop pad (1) by twisting in arrow direction.

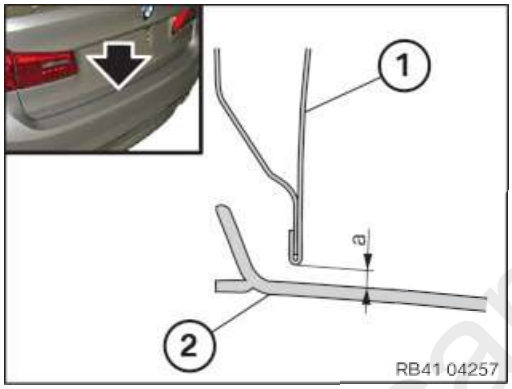
Additional Information

Overview of Tightening Torques

Tailgate lock to body			Used in step 1
Hexagon screw M8x20		Tightening torque	19 Nm

Overview Technical Data

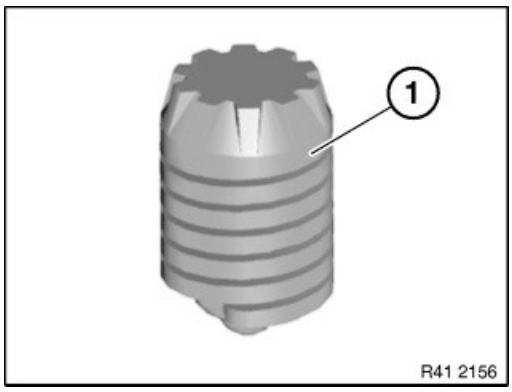
Gap dimension tailgate to rear bumper panel	Used in step 1
1 tailgate; 2 rear bumper panel	
a	5,1 (3,6 - 6,6) mm



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51 23 ... Adjusting/replacing stop pads

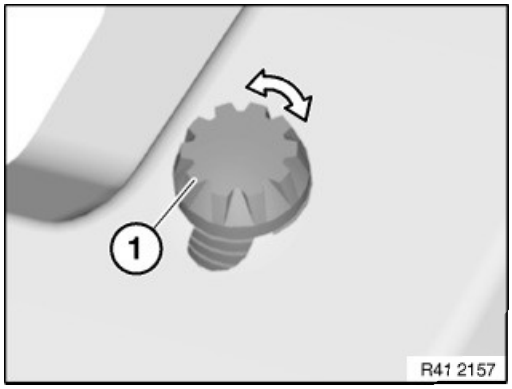
The graphics are schematic representations and are to be applied to the relevant vehicle type.



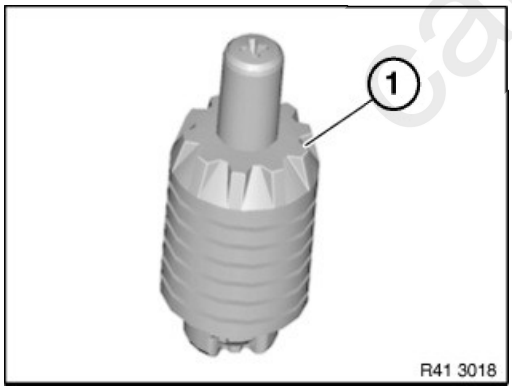
Version 1:

Following parts must not be damaged:

- (1) Stop pads



Adjust stop pads (1) to correct height by turning left or right.

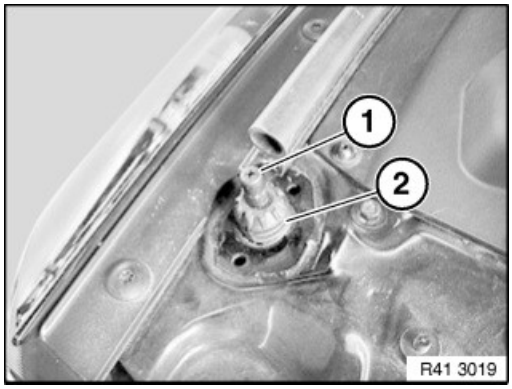


Version 2:

Replacing damaged stop pads (see Electronic Parts Catalogue):

- (1) Stop pads with ejectors

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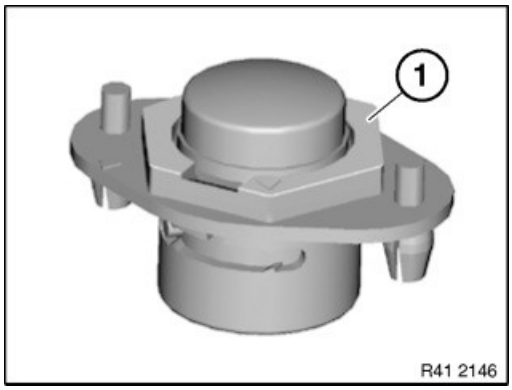


Press ejectors (1) into the stop pads and in this position turn approx. 90° anticlockwise with a Phillips screwdriver.

This locks ejectors (1) in the stop pads.

Adjust stop pad (2) to correct height by turning left or right.

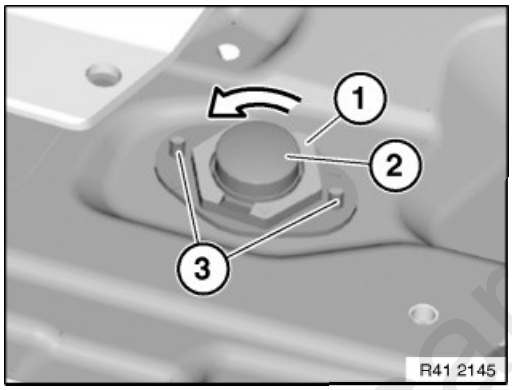
After setting has been made, unlock ejectors (1) again.



<u>Version 3:</u>

Replacing damaged stop pads (see Electronic Parts Catalogue):

- (1) Stop pads



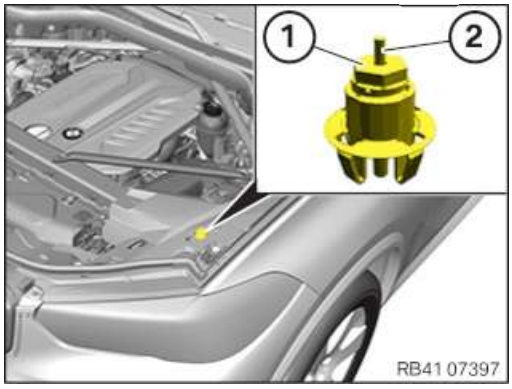
Stop (1) 45° anticlockwise.

Pull stop pad (2) upwards.

Close lid slowly until it is at the same height as the side wall.

Open flap and turn stop (1) clockwise.

Installation note:
Press stop pad into panel and drive in expanding pins (3).



Screw in stop pad (1) completely until pin (2) can be pulled out.

Slowly pull the pin (2) out approx. 5 mm.

Slowly close bonnet. Pin (2) is pressed into the stop pad (1) in the process.

Raise bonnet.

Unscrew stop pad (1) until the stop pad is flush with the upper edge of pin (2).

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51 24 133 Removing and installing/replacing drive for Automatic Soft Close drive on tailgate

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

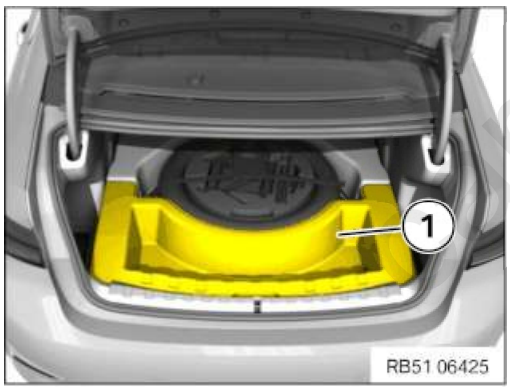
Schematic diagram is for example purposes. Some parts may differ in certain details.



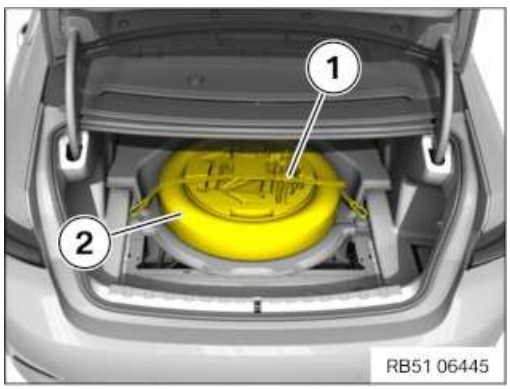
- Remove luggage compartment floor trim panel (1).

2 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).

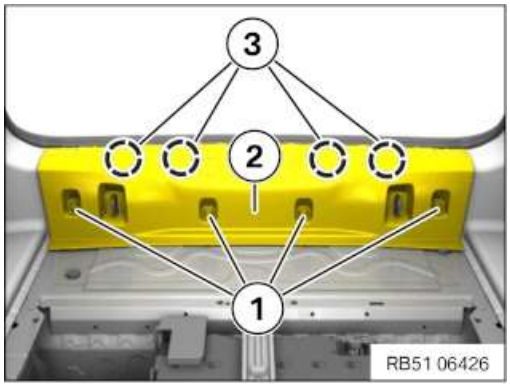


- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

3 – Removing the loading edge trim

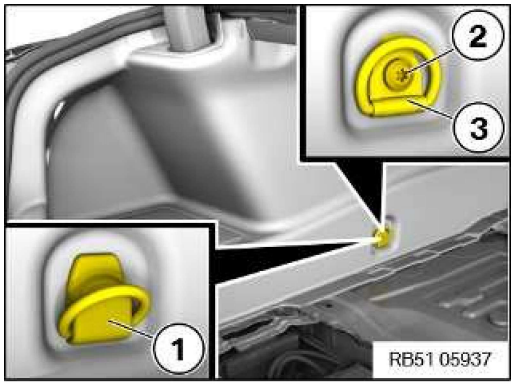
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

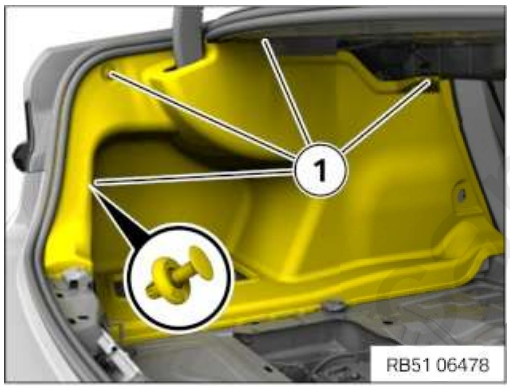


- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

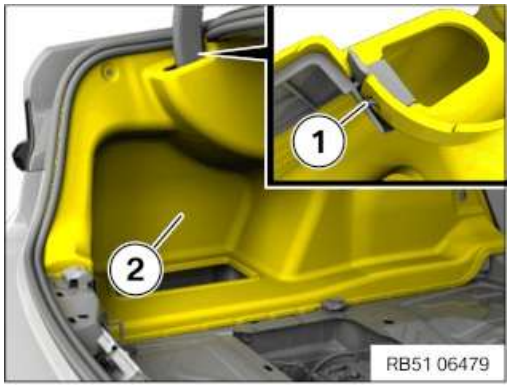
4 – Remove luggage compartment wheel arch trim panel on left.



- Remove the cover (1).
- Loosen screw (2).
- Remove lashing eye (3).



- Reposition left rear seat backrest.
- Loosen the expanding rivet (1).

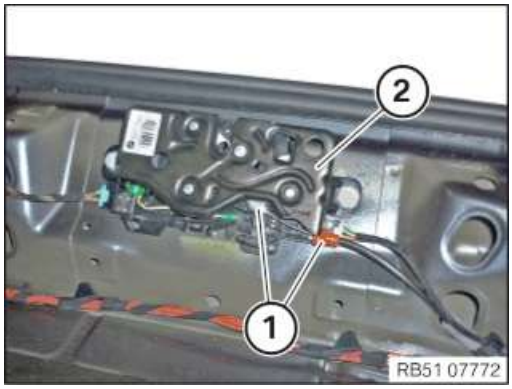


- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip for the tailgate and the side trim panel in the rear passenger compartment.
- Remove luggage compartment wheel arch trim panel (2).

MAIN WORK

5 – Remove Automatic Soft Close drive

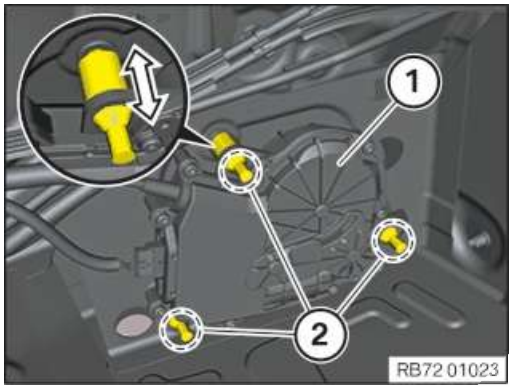
.com



- Unclip the Bowden cable (1) from the tailgate lock (2) and guide it out.

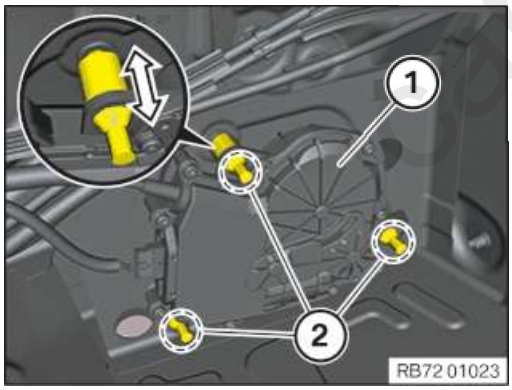


- Disconnect plug connection (1).
- Unclip the Bowden cable (2) from the holders at the tail panel.

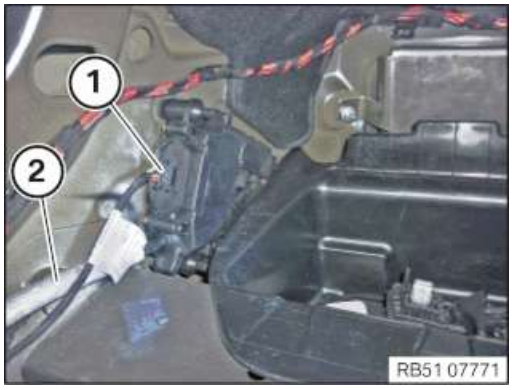


- Lever out the Automatic Soft Close drive (1) from the holders (2) in the direction of arrow and remove.

6 – Installing the Automatic Soft Close drive

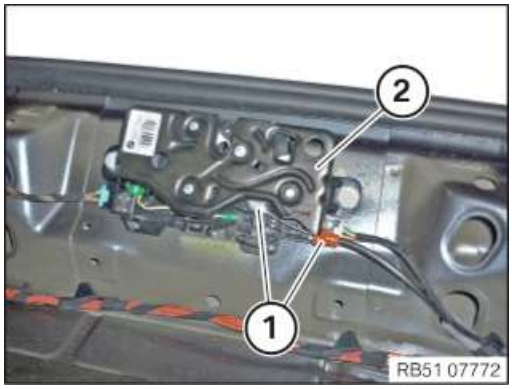


- Engage the Automatic Soft Close drive (1) on the holders (2) in direction of arrow.



- Connect and engage connectors (1).
- Clip in the Bowden cable (2) onto the holders on the tail panel.

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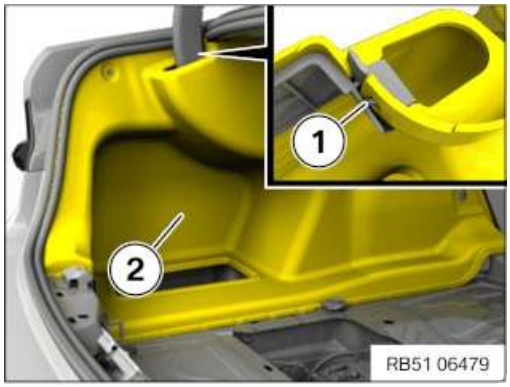
- Mount Bowden cable (1) to tailgate lock. (2)

POSTPROCESSES

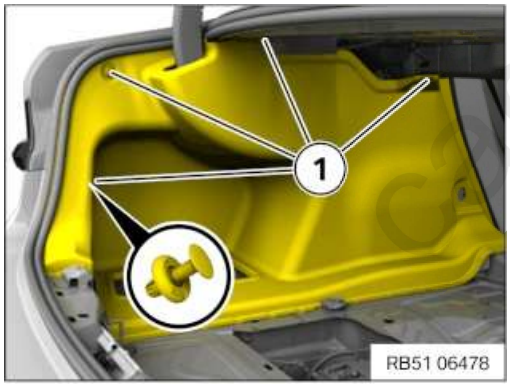
7 – Install luggage compartment wheel arch trim panel at left

NOTICE

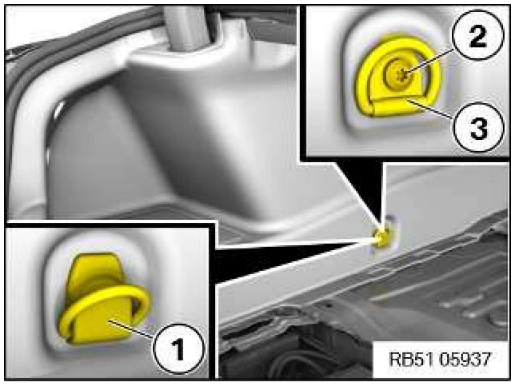
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Feed luggage compartment wheel arch trim panel (2) under the side trim panel in the rear passenger compartment and the sealing lip for the tailgate.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



- Secure expanding rivet (1).
- Raise the link rear seat backrest.



- Position the lashing eye (3).
- Tighten down screw (2).

Lashing eye to body

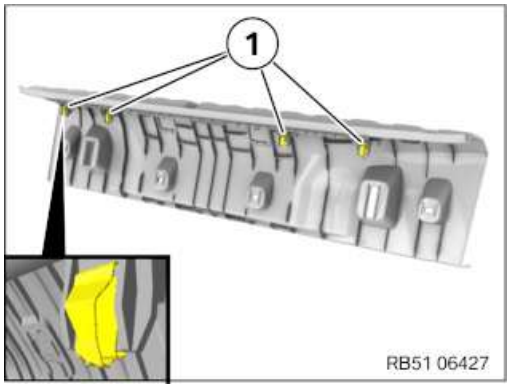
	Tightening torque	19 Nm

- Install the cover (1) .

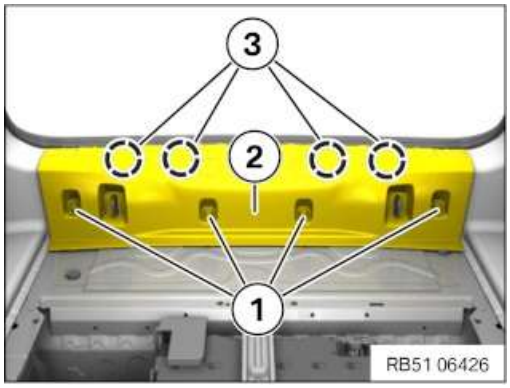
8 – Installing loading edge trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

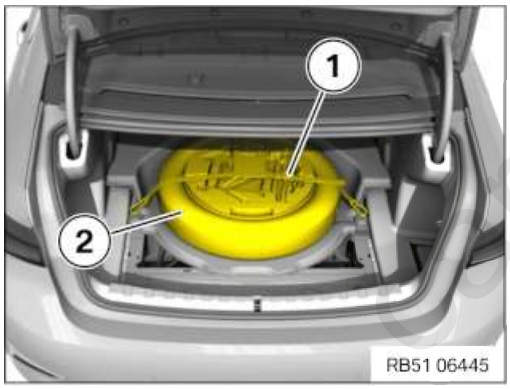


- Check the clamps (1) for damage and renew if necessary.



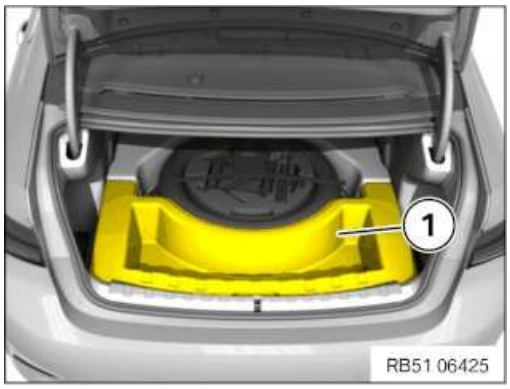
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

9 – If installed: Install the emergency wheel



- Install the emergency wheel (2) with the insert.
- Position the seat belt strap above the emergency wheel and close the buckle on the seat belt strap (1).

▸ **Installing rear luggage compartment well**



- Install rear luggage compartment well (1).

10 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Lashing eye to body — Used in step 7

	Tightening torque	19 Nm

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51 24 301 Removing and installing/replacing gas pressure spring for tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.

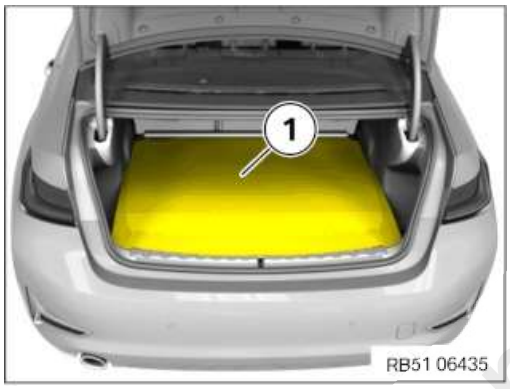
PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

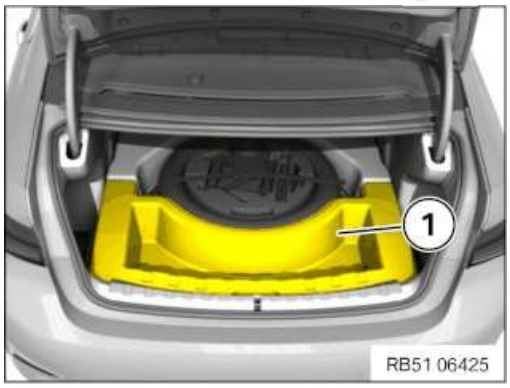
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Remove luggage compartment floor trim panel (1).

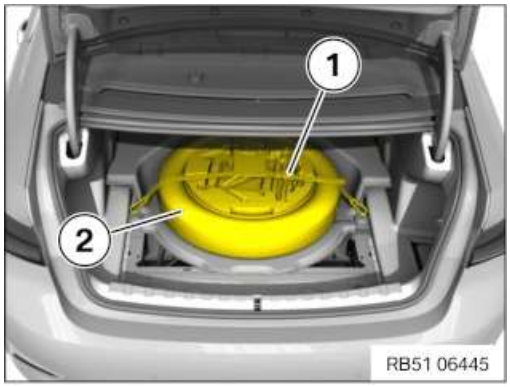
2 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).

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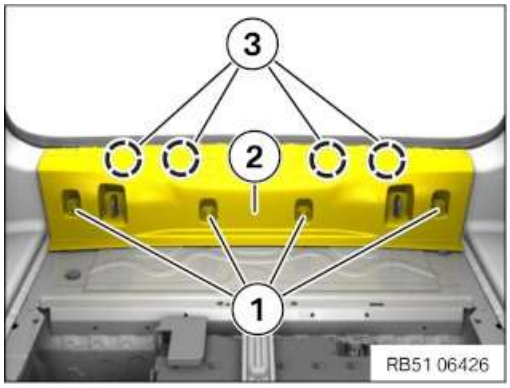


- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

3 – Removing the loading edge trim

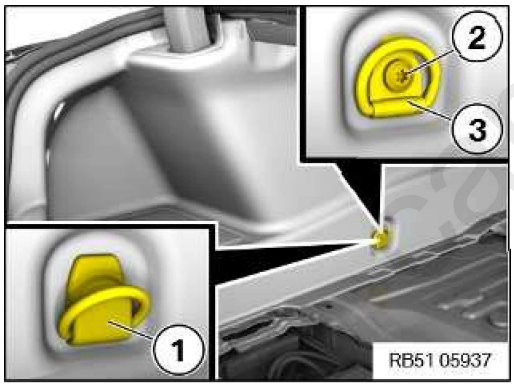
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

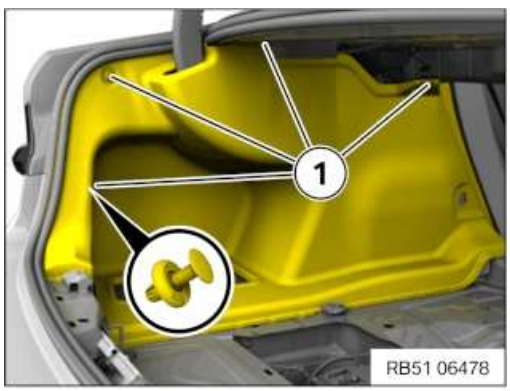


- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

4 – Remove luggage compartment wheel arch trim panel on left.

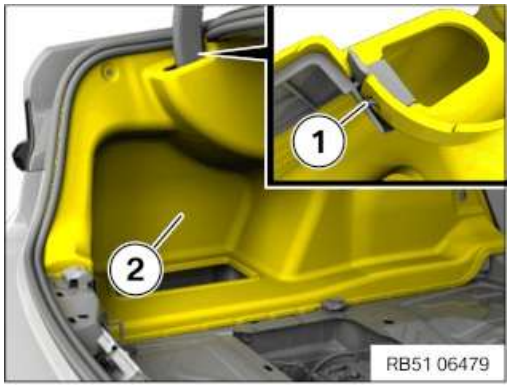


- Remove the cover (1).
- Loosen screw (2).
- Remove lashing eye (3).



- Reposition left rear seat backrest.
- Loosen the expanding rivet (1).

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- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip for the tailgate and the side trim panel in the rear passenger compartment.
- Remove luggage compartment wheel arch trim panel (2).

MAIN WORK

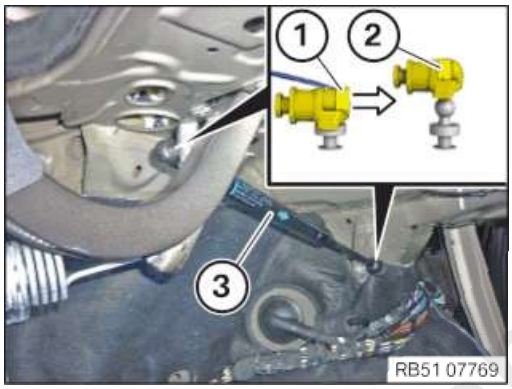
5 – Remove gas pressure spring for tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.



- Disassemble the ball sockets.

  Observe the disassembly sequence:

  1. Push clamp (1) on in the direction of arrow using a screwdriver.
  2. Lift off the ball socket (2) from the ball pin.
  3. Push back the clamp (1).
- Remove spindle drive (3).

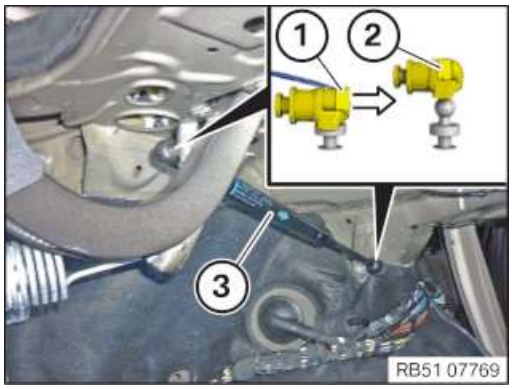
6 – Installing the gas pressure spring for the tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.



- Attach the spindle drive (3) and, together with the ball socket (2), place on the ball pin and engage with force.

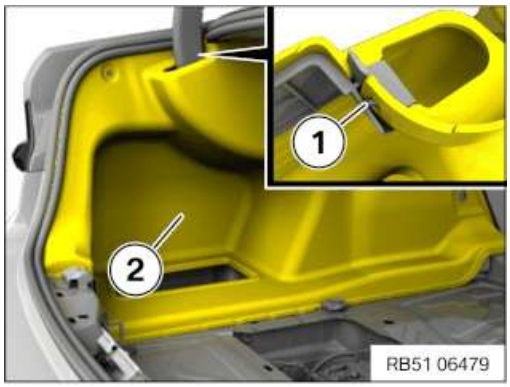
  Check the clamp (1) is fitted correctly.

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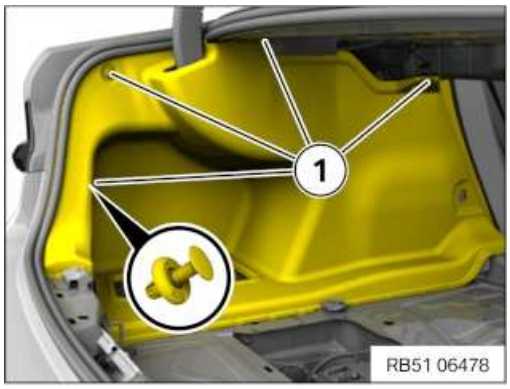
7 – Install luggage compartment wheel arch trim panel at left

NOTICE

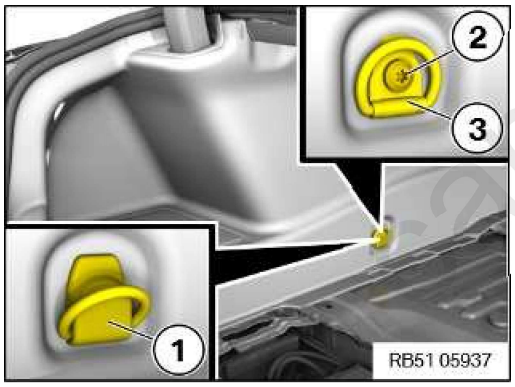
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Feed luggage compartment wheel arch trim panel (2) under the side trim panel in the rear passenger compartment and the sealing lip for the tailgate.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



- Secure expanding rivet (1).
- Raise the link rear seat backrest.



- Position the lashing eye (3).
- Tighten down screw (2).

Lashing eye to body

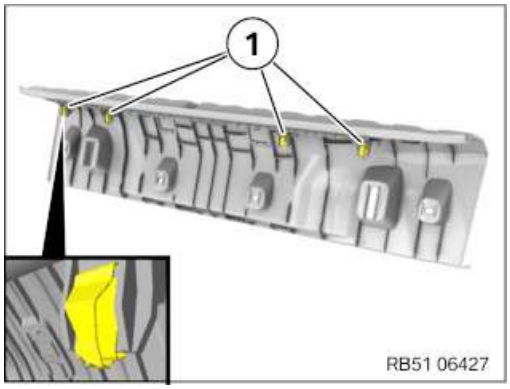
	Tightening torque	19 Nm

- Install the cover (1) .

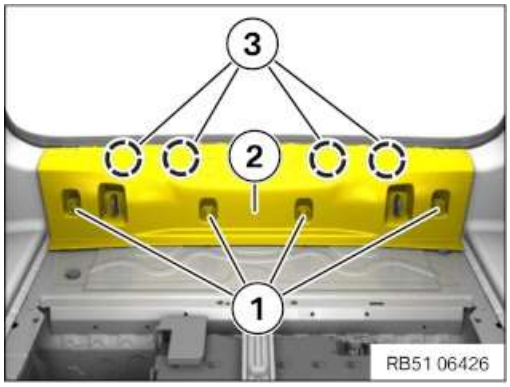
8 – Installing loading edge trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

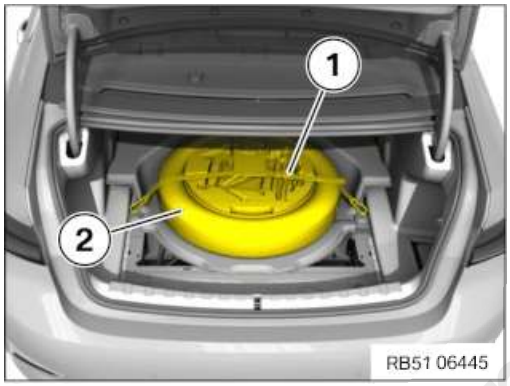


- Check the clamps (1) for damage and renew if necessary.



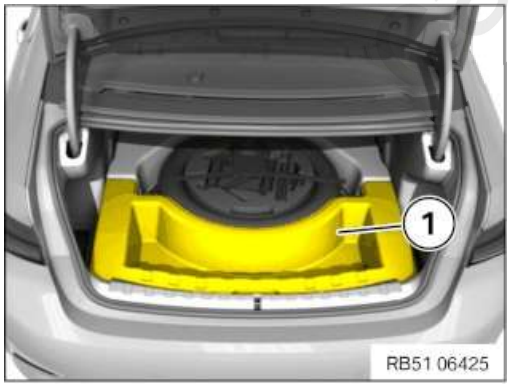
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

9 – If installed: Install the emergency wheel



- Install the emergency wheel (2) with the insert.
- Position the seat belt strap above the emergency wheel and close the buckle on the seat belt strap (1).

▸ **Installing rear luggage compartment well**



- Install rear luggage compartment well (1).

10 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Lashing eye to body		Used in step 7
	Tightening torque	19 Nm

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51 24 325 Removing and installing/replacing left tension spring for tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.

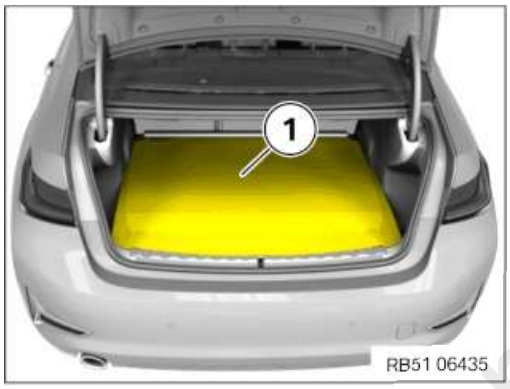
PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

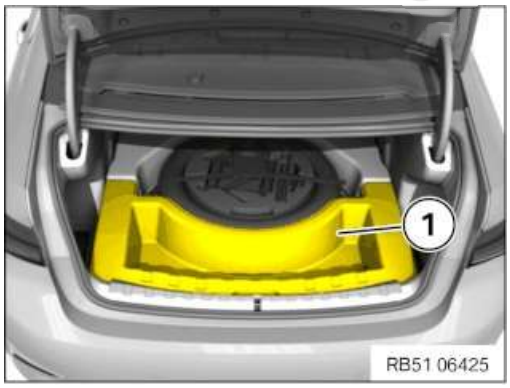
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Remove luggage compartment floor trim panel (1).

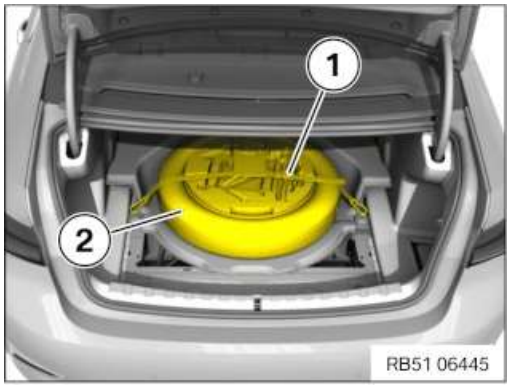
2 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).

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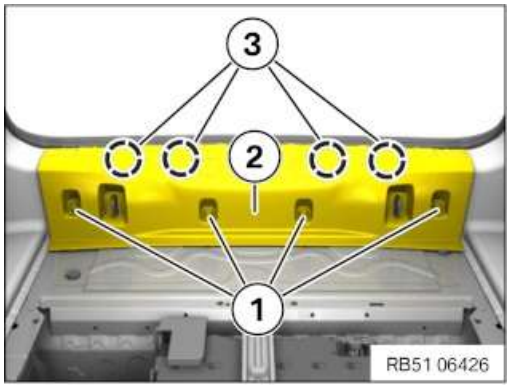


- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

3 – Removing the loading edge trim

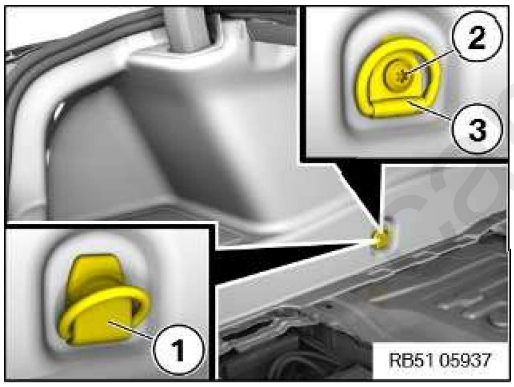
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

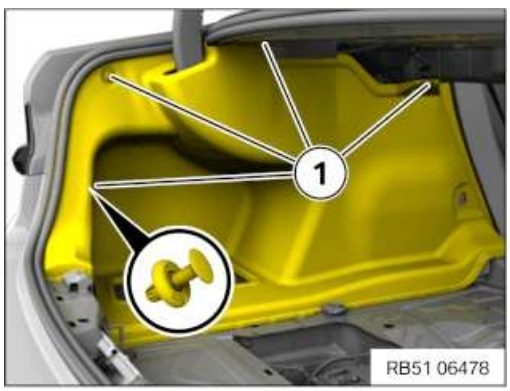


- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

4 – Remove luggage compartment wheel arch trim panel on left.

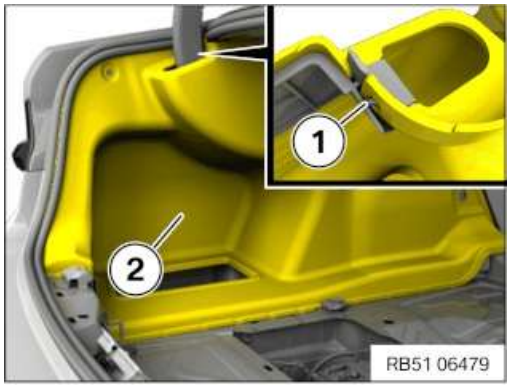


- Remove the cover (1).
- Loosen screw (2).
- Remove lashing eye (3).



- Reposition left rear seat backrest.
- Loosen the expanding rivet (1).

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- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip for the tailgate and the side trim panel in the rear passenger compartment.
- Remove luggage compartment wheel arch trim panel (2).

MAIN WORK

5 – Removing tension spring for tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.

CAUTION

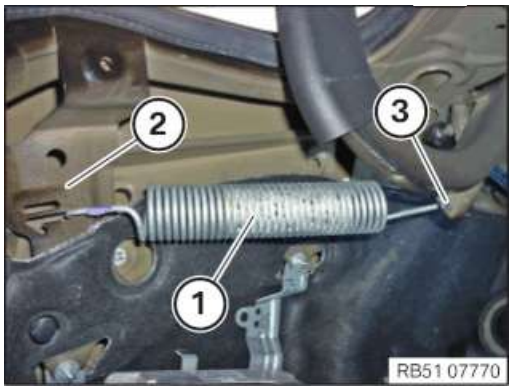
Tension spring.

Danger of injury!

- Wear protective gloves while removing and installing the tension spring.

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Note down position of tension spring (1) at rear holder (2).
- Detach the tension spring (1) from the rear holder (2).
- Feed out tension spring (1) from hinge (3).

6 – Installing the tension spring for tailgate

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CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.

CAUTION

Tension spring.

Danger of injury!

- Wear protective gloves while removing and installing the tension spring.

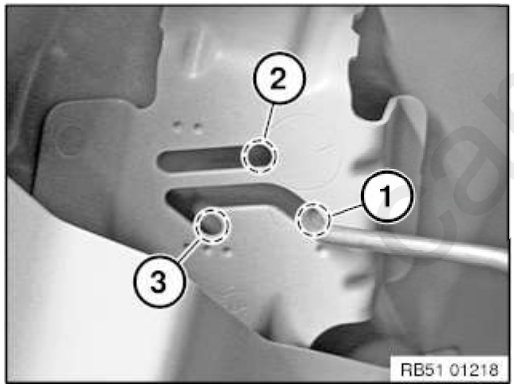
TECHNICAL INFORMATION

Notes for setting up the closing force are a fundamental requirement for these repair instructions and must be complied with at all times.

For additional information see: 51 24 ... Notes for setting up closing force on tailgate

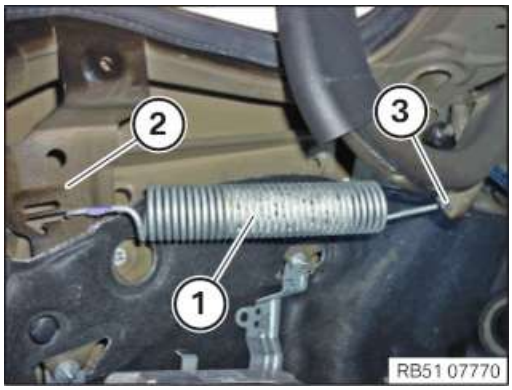
NOTICE

Description is for left component only. Procedure on the right side is identical.



- Positions (1) to (3) influence the closing force of the tension spring.

  If the closing force needs to be changed:see additional information.



- Feed in the tension spring (1) to the hinge (3).

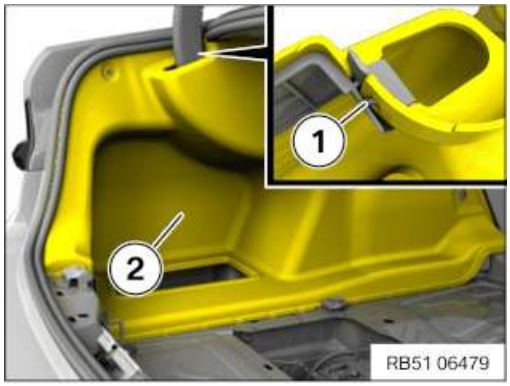
  Mount tension spring (1) to rear holder (2) again in the same position.

POSTPROCESSES

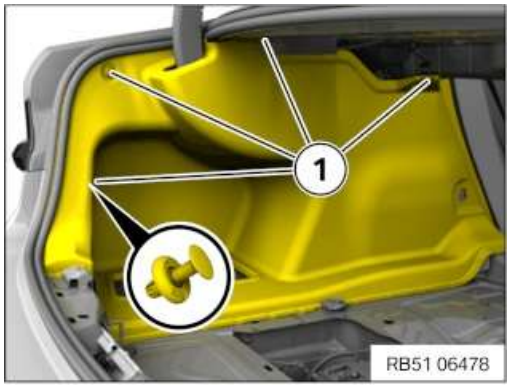
7 – Install luggage compartment wheel arch trim panel at left

NOTICE

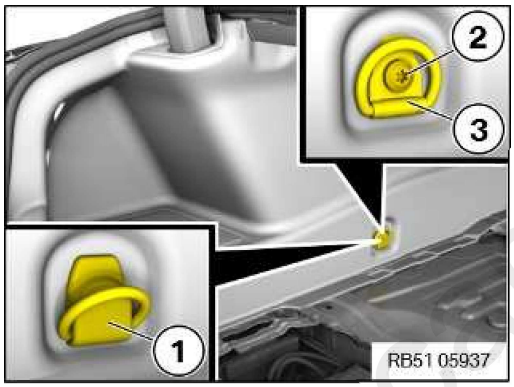
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Feed luggage compartment wheel arch trim panel (2) under the side trim panel in the rear passenger compartment and the sealing lip for the tailgate.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



- Secure expanding rivet (1).
- Raise the link rear seat backrest.



- Position the lashing eye (3).
- Tighten down screw (2).

Lashing eye to body

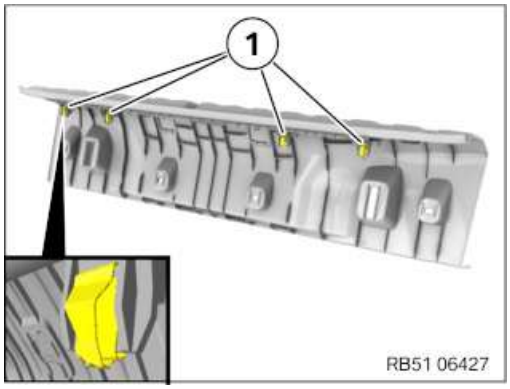
	Tightening torque	19 Nm

- Install the cover (1) .

8 – Installing loading edge trim

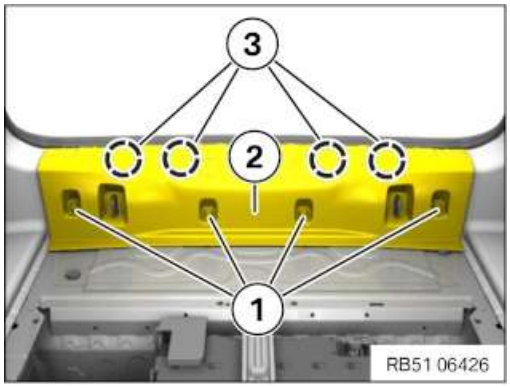
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



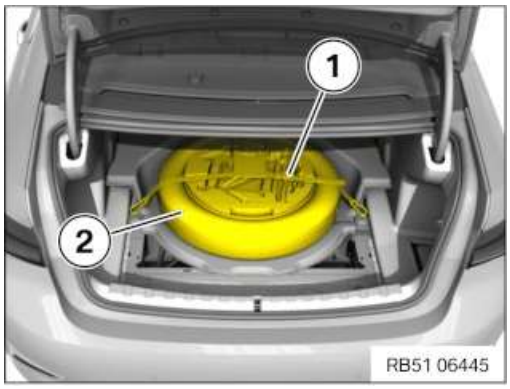
- Check the clamps (1) for damage and renew if necessary.

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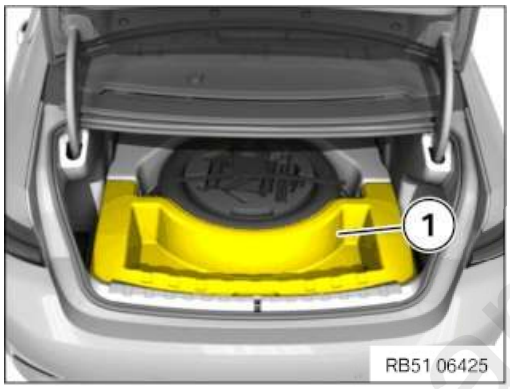
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

9 – If installed: Install the emergency wheel



- Install the emergency wheel (2) with the insert.
- Position the seat belt strap above the emergency wheel and close the buckle on the seat belt strap (1).

▸ **Installing rear luggage compartment well**



- Install rear luggage compartment well (1).

10 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Insert the luggage compartment floor trim panel (1).

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Additional Information

Overview of Tightening Torques

Lashing eye to body		Used in step 7
	Tightening torque	19 Nm

Links

General repair instructions	Used in step
51 24 ... Notes on setting tailgate closing force	6

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51 24 351 Removing and installing/replacing right electrical spindle drive for tailgate

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

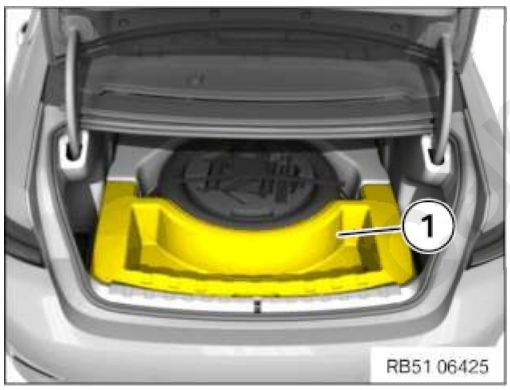
Schematic diagram is for example purposes. Some parts may differ in certain details.



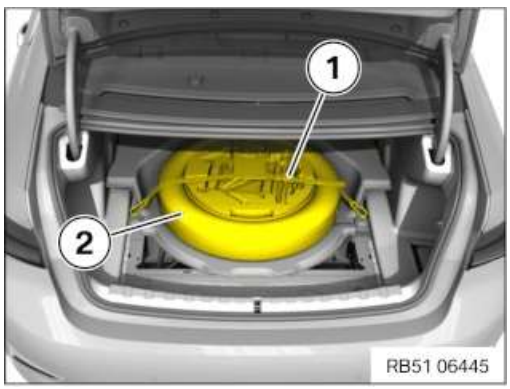
- Remove luggage compartment floor trim panel (1).

2 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).

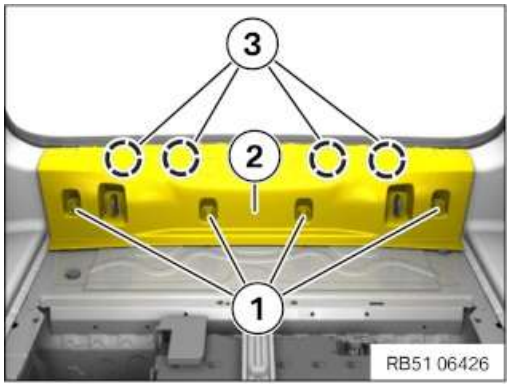


- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

3 – Removing the loading edge trim

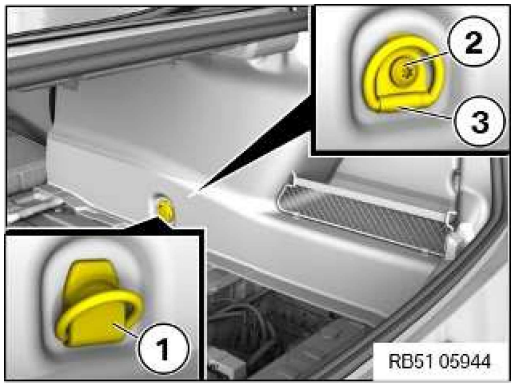
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

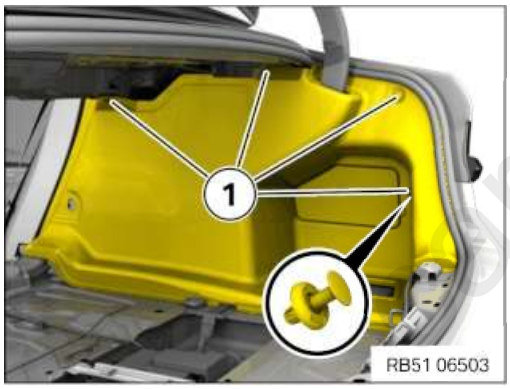


- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

4 – Removing right luggage compartment wheel arch trim panel

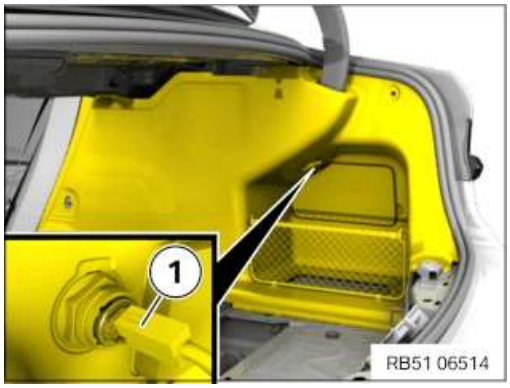


- Remove the cover (1).
- Loosen screw (2).
- Remove the lashing eye (3).

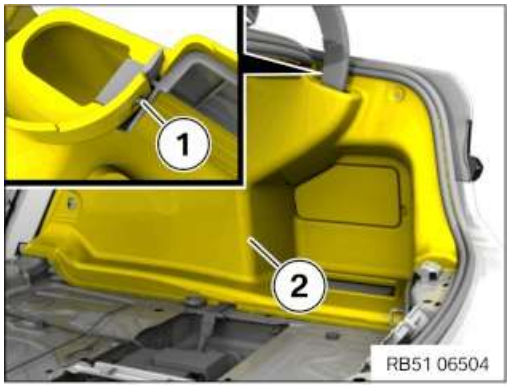


- Reposition the right rear seat backrest.
- Loosen the expanding rivet (1).

▸ If installed: Disconnect plug connection of the 12 V connection (additional work with storage package equipment specification)



- Unlock and disconnect the plug connection (1) of the 12 V power socket.



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip for the tailgate and the side trim panel in the rear passenger compartment.
- Remove luggage compartment wheel arch trim panel (2).

MAIN WORK

5 – Removing the electrical spindle drive for the right tailgate

RISK OF DAMAGE

Damage to the spindle drive.

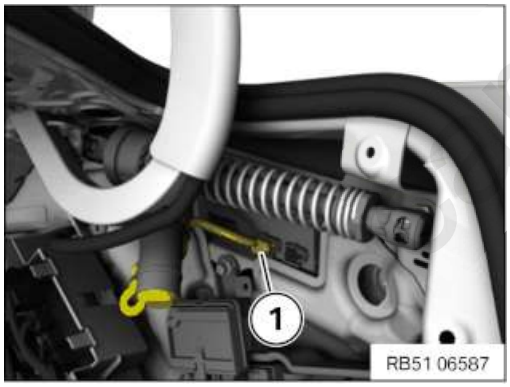
If the tailgate is not opened completely, the spindle drive may be damaged.

- Remove and install the spindle drive only when the Tailgate is open to the maximum extent.

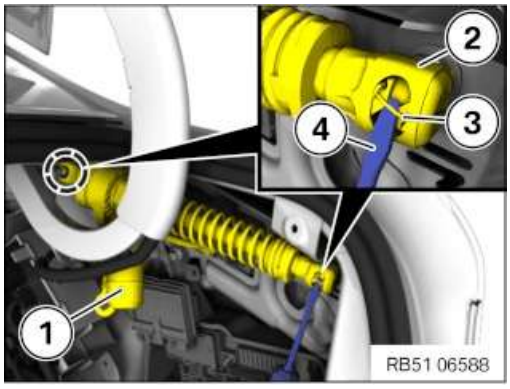
TECHNICAL INFORMATION

The notes on the disassembly and installation of ball sockets with clamps are the basis for these repair instructions and must be observed without fail.

For additional information see: 51 23 ... Note information on disassembly/installation of ball sockets with clamp

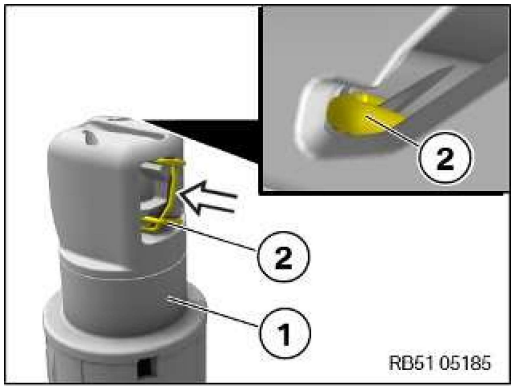


- Unlock plug connection (1) and disconnect.

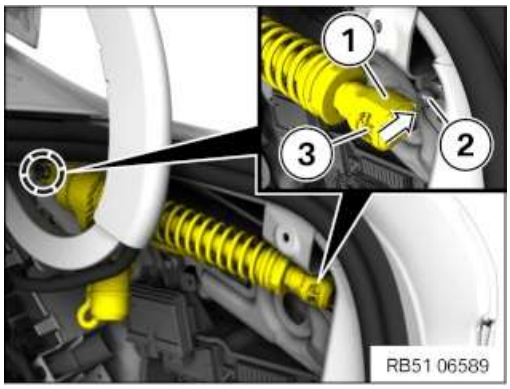


- Before removing the electrical spindle drive (1) for the tailgate on the right, ensure that the ball socket (2) is relieved respectively.
- Release the front ball socket (2) on the tailgate hinge.
- Release the rear ball socket (2) on the body.
- Slightly lift the retaining spring (3) respectively with a small screwdriver (4).
- Pull off the electrical spindle drive (1) for the tailgate on the right from the ball pin and remove it.

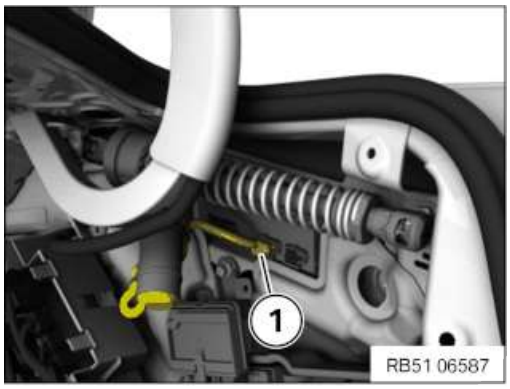
6 – Installing the electrical spindle drive for the right tailgate



- Before installing the electrical spindle drive for right tailgate (1), ensure that retaining spring (2) is in its initial position.



- Press the rear ball socket (1) on the body in the direction of arrow onto the ball pins (2) until the retaining spring (3) engages correctly and audibly.
- Press the front ball socket (1) onto the tailgate hinge on the ball pins (2) until the retaining spring (3) engages correctly and audibly.



- Connect connectors (1) and lock.

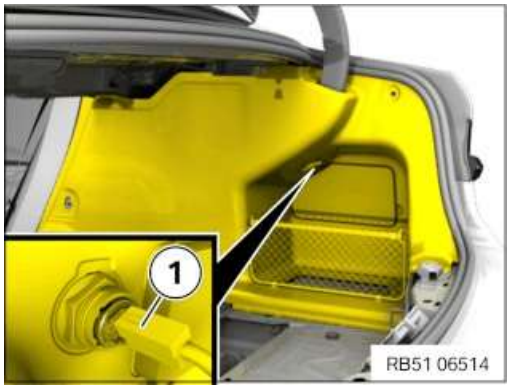
POSTPROCESSES

7 – Installing the luggage compartment wheel arch trim panel on the right

NOTICE

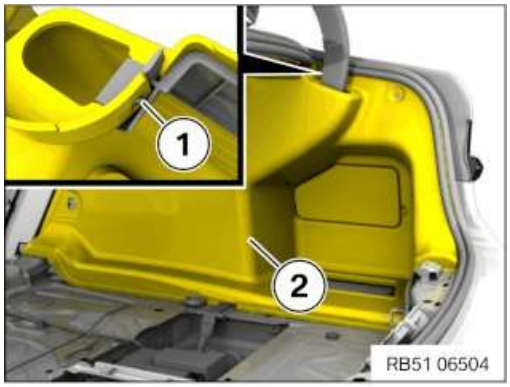
Schematic diagram is for example purposes. Some parts may differ in certain details.

▸ If installed: Connecting plug of the 12 V power socket (additional work for equipment specification with storage package)

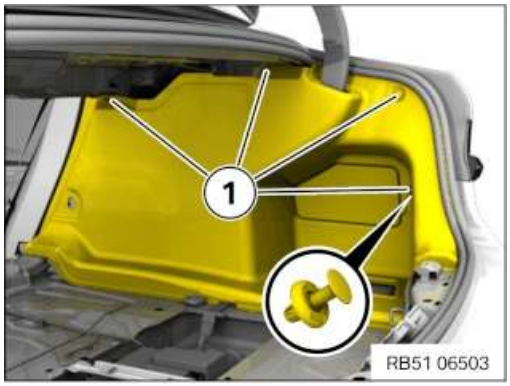


- Connect and lock connector (1) of the 12 V power socket.

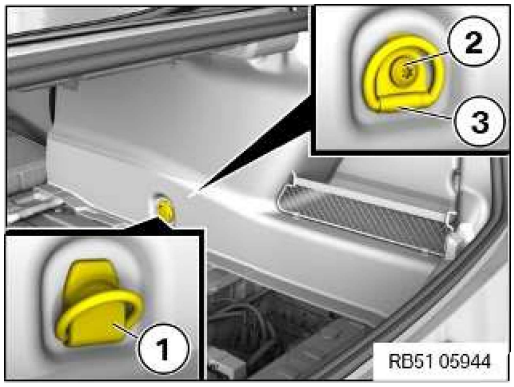
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- Feed luggage compartment wheel arch trim panel (2) under the side trim panel in the rear passenger compartment and the sealing lip for the tailgate.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



- Secure expanding rivet (1).
- Raise the right rear seat backrest.



- Position the lashing eye (3).
- Tighten down screw (2).

Lashing eye to body

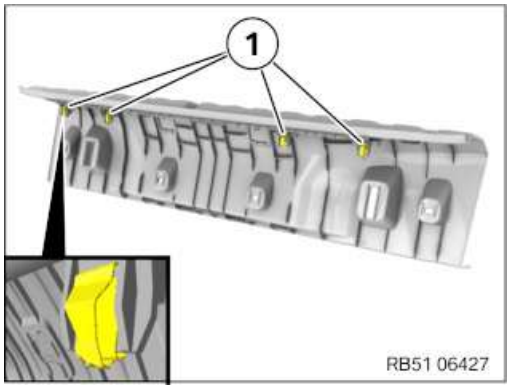
	Tightening torque	19 Nm

- Install the cover (1) .

8 – Installing loading edge trim

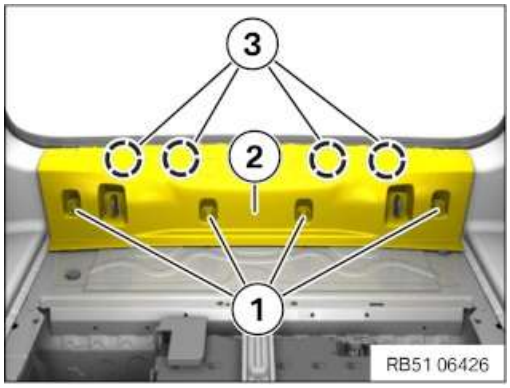
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



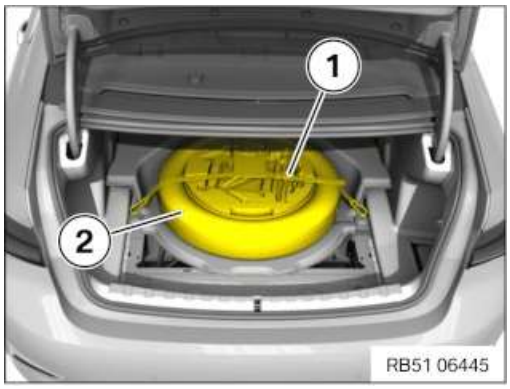
- Check the clamps (1) for damage and renew if necessary.

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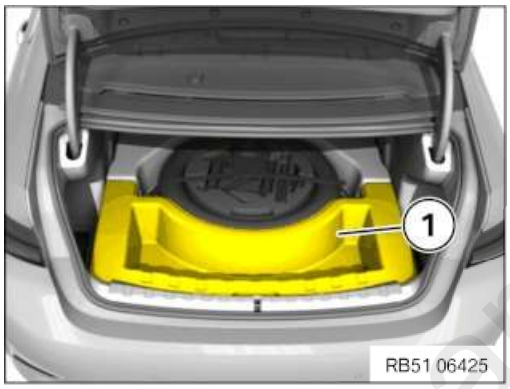
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

9 – If installed: Install the emergency wheel



- Install the emergency wheel (2) with the insert.
- Position the seat belt strap above the emergency wheel and close the buckle on the seat belt strap (1).

▸ **Installing rear luggage compartment well**



- Install rear luggage compartment well (1).

10 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Insert the luggage compartment floor trim panel (1).

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Additional Information

Overview of Tightening Torques

Lashing eye to body		Used in step 7
	Tightening torque	19 Nm

Links

Repair instructions	Used in step
51 23 ... Removing/installing ball sockets with clip	5

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51 24 324 Removing and installing/replacing right tension spring for tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.

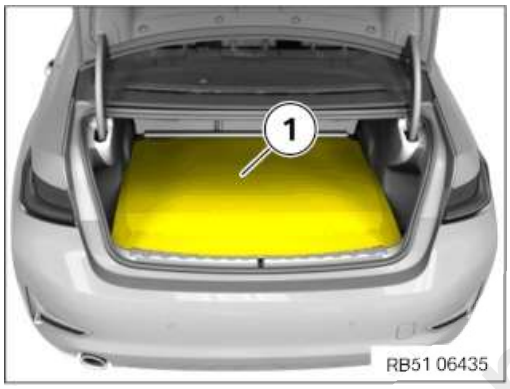
PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

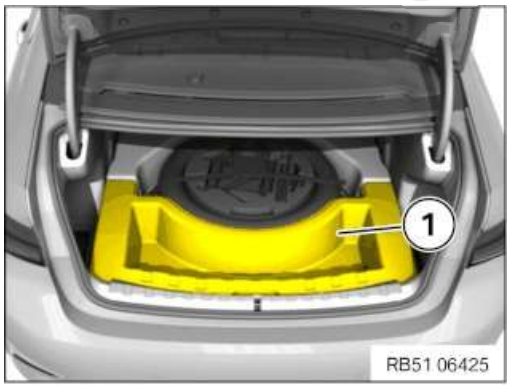
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Remove luggage compartment floor trim panel (1).

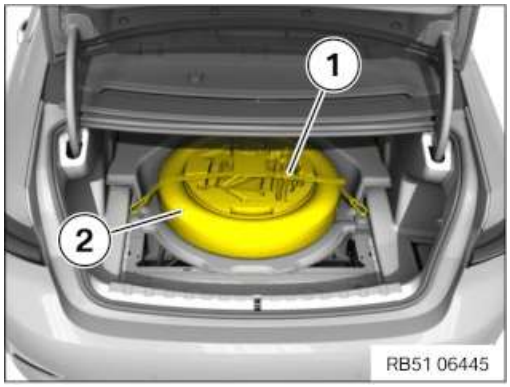
2 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).

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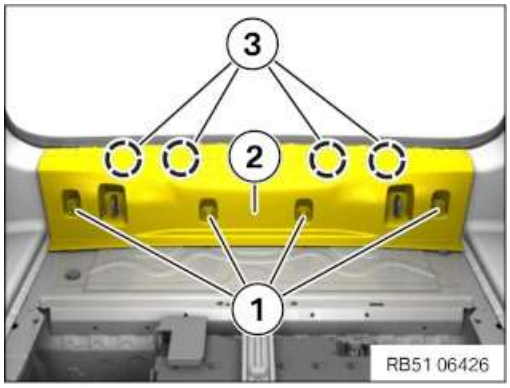


- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

3 – Removing the loading edge trim

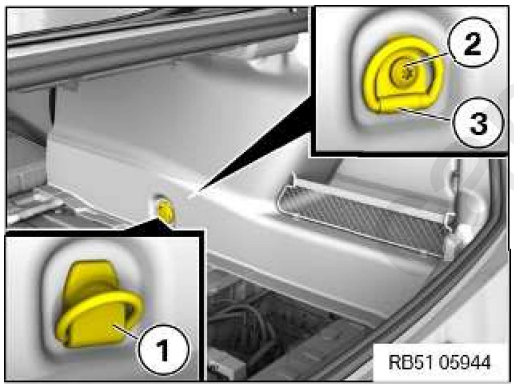
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

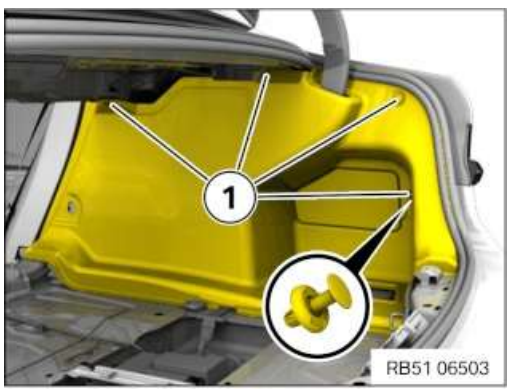


- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

4 – Removing right luggage compartment wheel arch trim panel



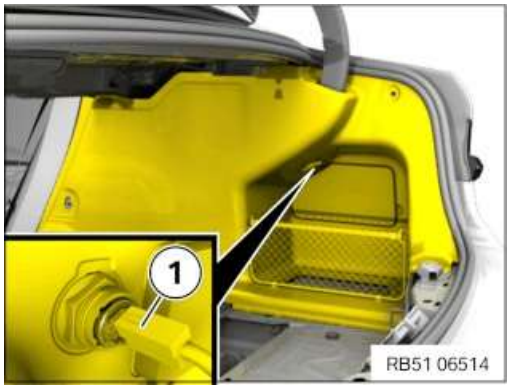
- Remove the cover (1).
- Loosen screw (2).
- Remove the lashing eye (3).



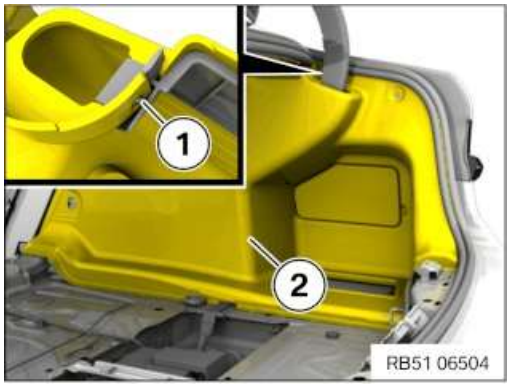
- Reposition the right rear seat backrest.
- Loosen the expanding rivet (1).

▸ If installed: Disconnect plug connection of the 12 V connection (additional work with storage package equipment specification)

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- Unlock and disconnect the plug connection (1) of the 12 V power socket.



- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip for the tailgate and the side trim panel in the rear passenger compartment.
- Remove luggage compartment wheel arch trim panel (2).

MAIN WORK

5 – Removing tension spring for tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.

CAUTION

Tension spring.

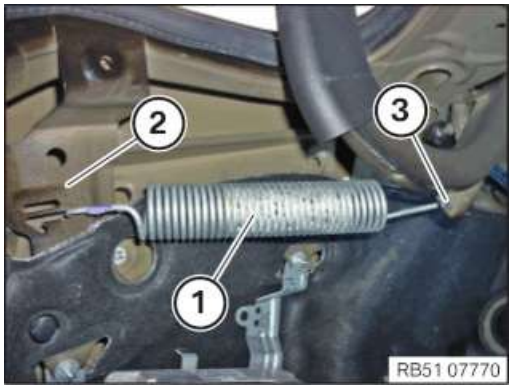
Danger of injury!

- Wear protective gloves while removing and installing the tension spring.

NOTICE

Description is for left component only. Procedure on the right side is identical.

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- Note down position of tension spring (1) at rear holder (2).
- Detach the tension spring (1) from the rear holder (2).
- Feed out tension spring (1) from hinge (3).

6 – Installing the tension spring for tailgate

CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.

CAUTION

Tension spring.

Danger of injury!

- Wear protective gloves while removing and installing the tension spring.

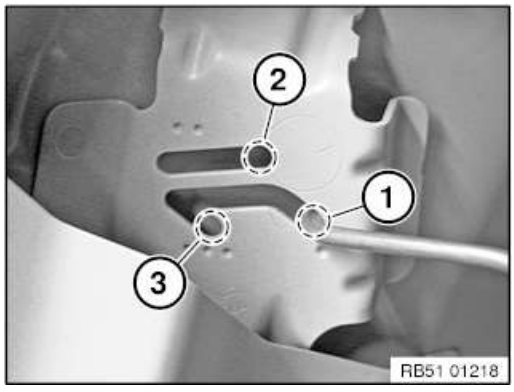
TECHNICAL INFORMATION

Notes for setting up the closing force are a fundamental requirement for these repair instructions and must be complied with at all times.

For additional information see: 51 24 ... Notes for setting up closing force on tailgate

NOTICE

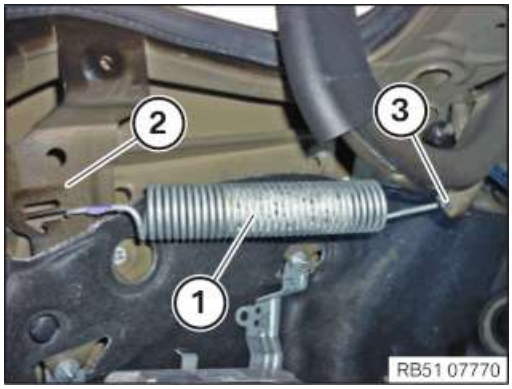
Description is for left component only. Procedure on the right side is identical.



- Positions (1) to (3) influence the closing force of the tension spring.

  If the closing force needs to be changed:see additional information.

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- Feed in the tension spring (1) to the hinge (3).

  Mount tension spring (1) to rear holder (2) again in the same position.

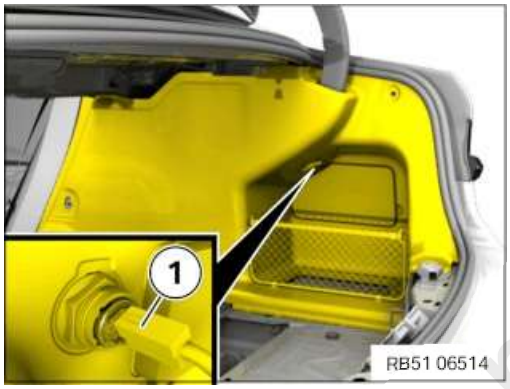
POSTPROCESSES

7 – Installing the luggage compartment wheel arch trim panel on the right

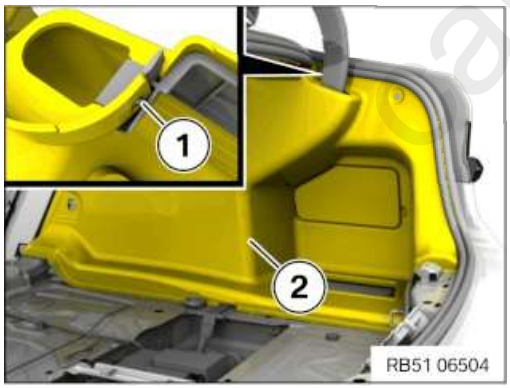
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

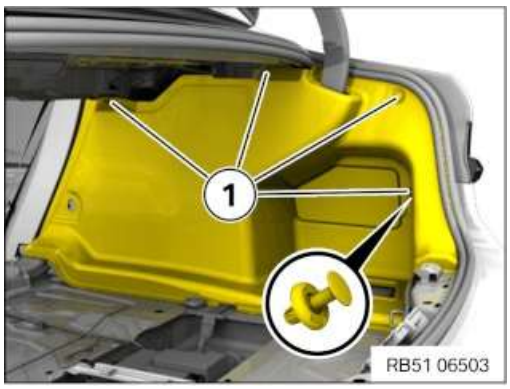
▸ If installed: Connecting plug of the 12 V power socket (additional work for equipment specification with storage package)



- Connect and lock connector (1) of the 12 V power socket.

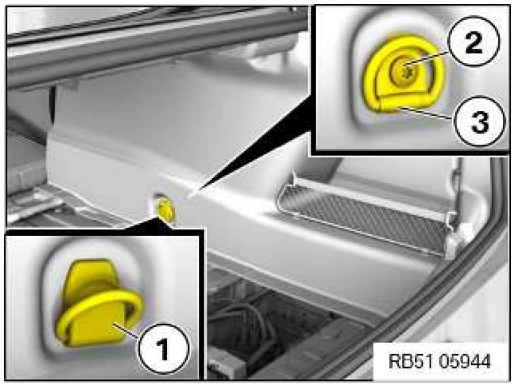


- Feed luggage compartment wheel arch trim panel (2) under the side trim panel in the rear passenger compartment and the sealing lip for the tailgate.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



- Secure expanding rivet (1).
- Raise the right rear seat backrest.

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- Position the lashing eye (3).
- Tighten down screw (2).

Lashing eye to body

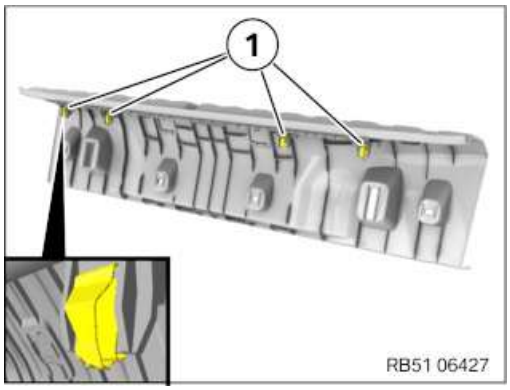
	Tightening torque	19 Nm

- Install the cover (1) .

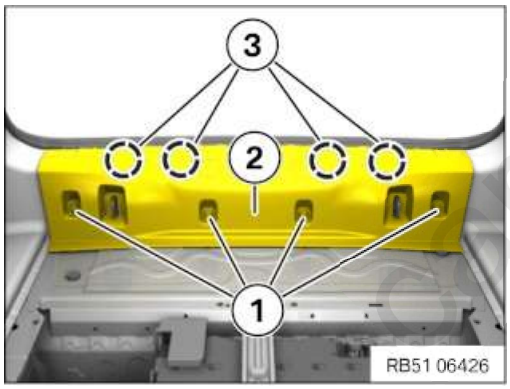
8 – Installing loading edge trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

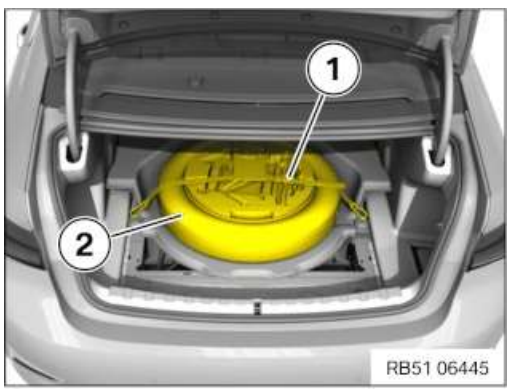


- Check the clamps (1) for damage and renew if necessary.



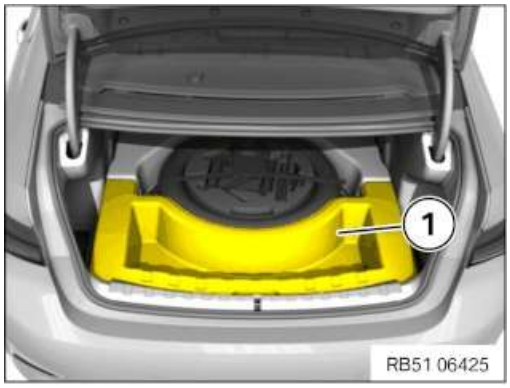
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

9 – If installed: Install the emergency wheel



- Install the emergency wheel (2) with the insert.
- Position the seat belt strap above the emergency wheel and close the buckle on the seat belt strap (1).

▸ **Installing rear luggage compartment well**



- Install rear luggage compartment well (1).

10 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Lashing eye to body		Used in step 7
	Tightening torque	19 Nm

Links

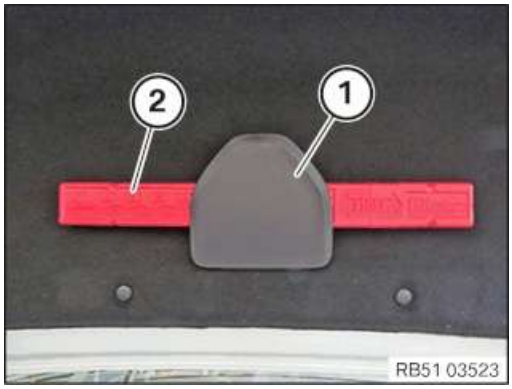
General repair instructions	Used in step
51 24 ... Notes on setting tailgate closing force	6

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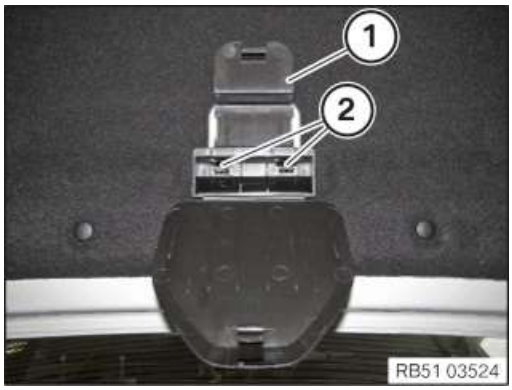
51 24 130 Removing and installing/replacing striker for tailgate lock

PRELIMINARY WORK

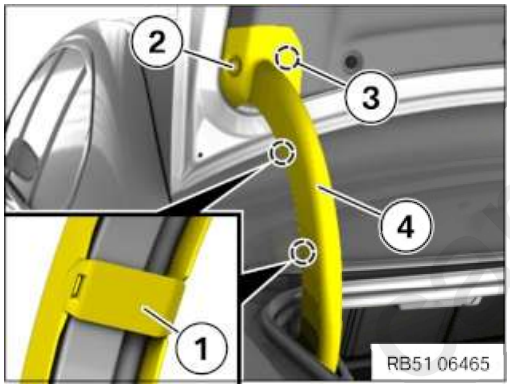
1 – Remove tailgate trim panel



- Fold the cover (1) towards the bottom.
- Remove the warning triangle (2).



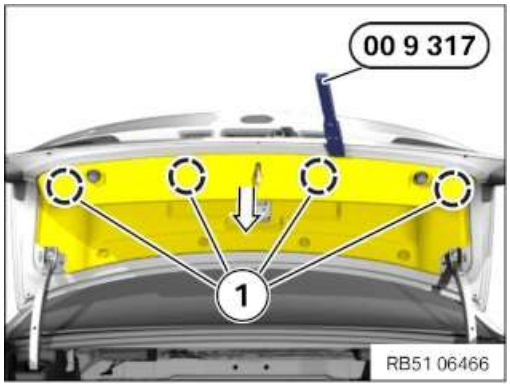
- Detach the warning triangle holder (1) from the latch mechanisms (2) and slide downwards.



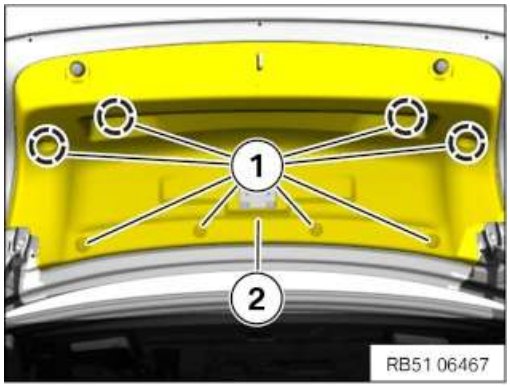
NOTICE

Description is for left component only. Procedure on the right side is identical.

- Unclip the tabs (1).
- Loosen expanding rivet (2).
- To avoid damage, release the trim panel for the hinge of the tailgate (4) without using a tool by jerking it along the hinge bracket and out of the clip fastening (3).



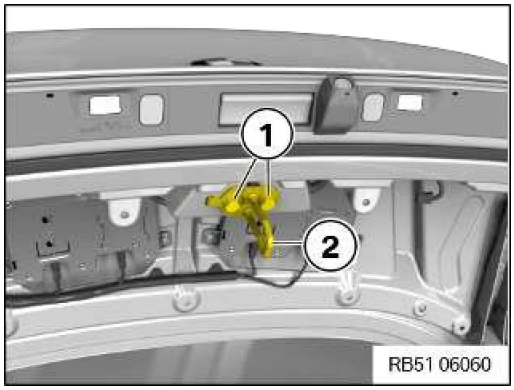
- Unclip clips (1) with special tool 0 490 534 (00 9 317) in the direction of arrow.



- Release expanding rivet (1) on the tailgate trim panel (2).
- Remove tailgate trim panel (2).
- **If installed**: Unlock plug connection of the switch for the tailgate lift and disconnect.

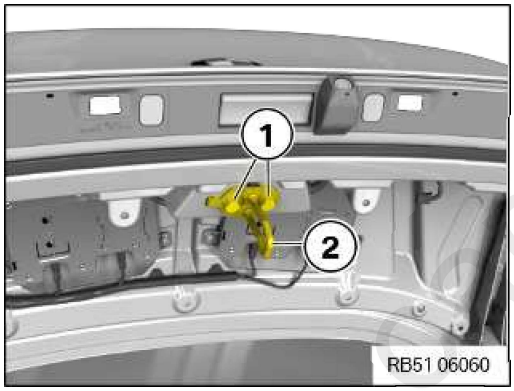
MAIN WORK

2 – Remove the striker for the tailgate catch



- Loosen screws (1).
- Remove the striker for the tailgate catch (2).

3 – Install striker for the tailgate catch



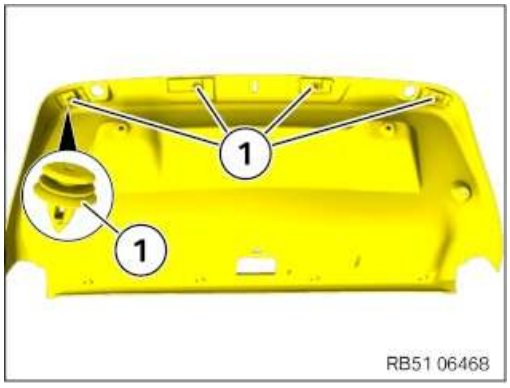
- Position the striker for the tailgate catch (2) and tighten the screws (1).

Striker to rear lid

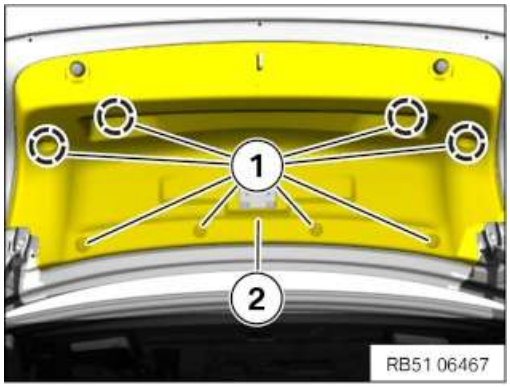
Hexagon screw M8x20		Tightening torque	19 Nm

POSTPROCESSES

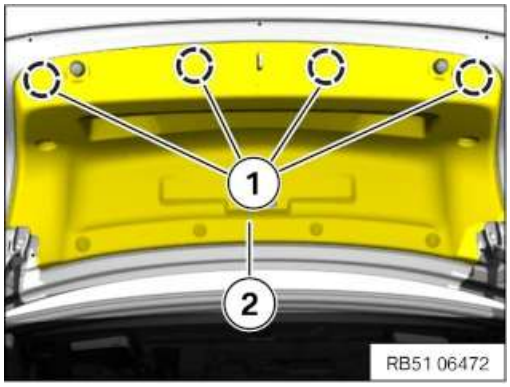
4 – Installing the tailgate trim panel



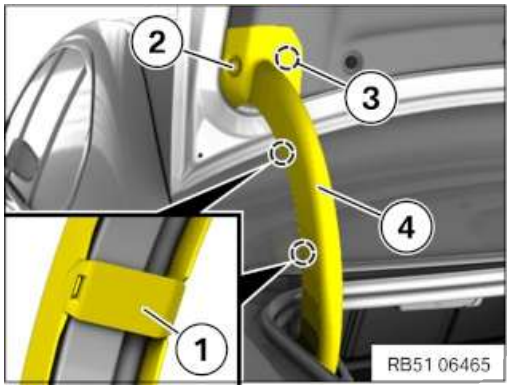
- Check the clips (1) for damage and renew if necessary.



- Fit the tailgate trim panel (2) and fasten in place with the expanding rivets (1).
- **If installed**: Connect and lock plug connection on the switch for the tailgate lift.



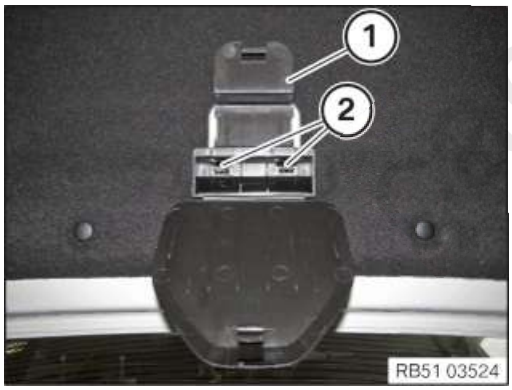
- Clip in the tailgate trim panel (2) with the clips (1).



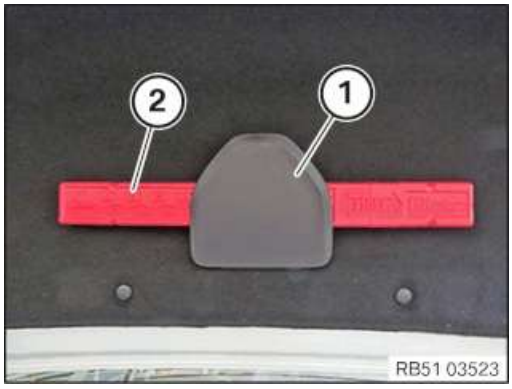
NOTICE

Description is for left component only. Procedure on the right side is identical.

- Clip in the trim panel for the hinge of the tailgate (4) to the clip fastening (3).
- Fasten expanding rivet (2).
- Clip in tabs (1).



- Position the warning triangle holder (1) and snap into the latch mechanisms (2).



- Install the warning triangle (2).
- Clip in the cover (1).

Additional Information

Overview of Tightening Torques

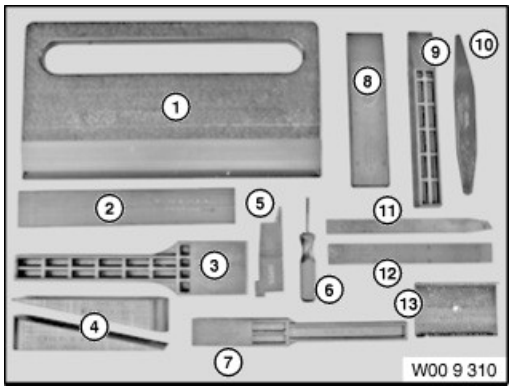
Overview of Tightening Torques

Striker to rear lid — Used in step 3

Hexagon screw M8x20		Tightening torque	19 Nm

Overview of Special Tools

0 490 534 (00 9 317) Wedge



Common — Used in step 1

Usage	(Trim wedge) Replaced by special tool 00 9 325 from 11/2008 (quality improvement due to new material) Replaced by 00 9 325 (0 496 569)
Included in the tool or work	0 490 527
Storage location	
Replaced by	
In connection with	
SI-Number	

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51 24 100 Removing and installing/replacing tailgate lock

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

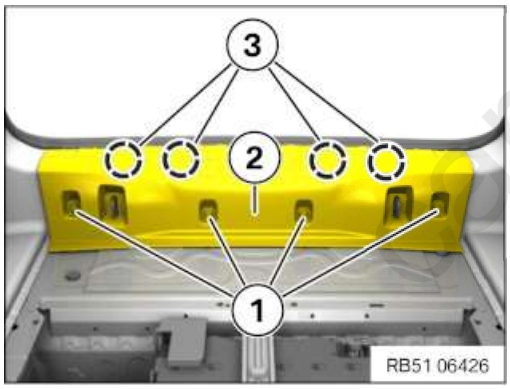


- Remove luggage compartment floor trim panel (1).

2 – Removing the loading edge trim

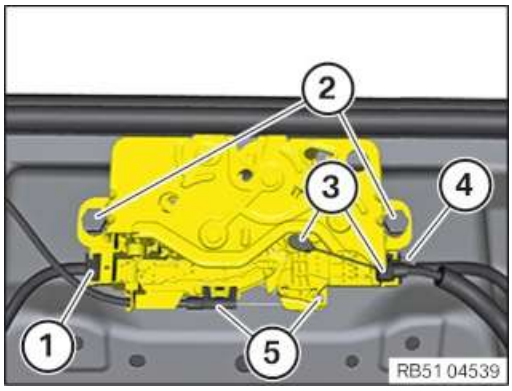
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

3 – Removing the tailgate lock



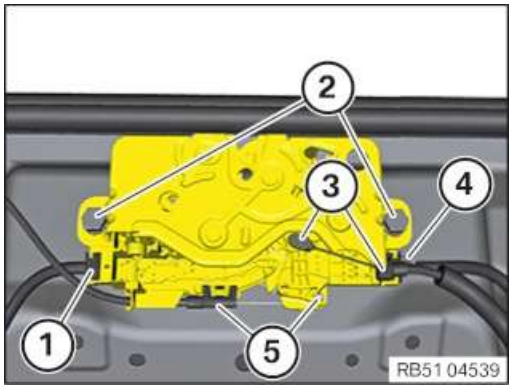
- Unlock plug connection (1) and disconnect.
- Loosen screws (2).
- **Version with Soft Close Automatic:**

  Detach the Bowden cable (3).

  Unlock plug connection (4) and disconnect.
- **Version with emergency release:**

  Detach the Bowden cable (5).

4 – Installing the tailgate lock



- Tighten the screws (2).

Tailgate lock to body

Hexagon screw M8x20		Tightening torque	19 Nm

- Connect connector (1).
- **Version with Soft Close Automatic:**

  Attach the Bowden cable (3).

  Connect connector (4).
- **Version with emergency release:**

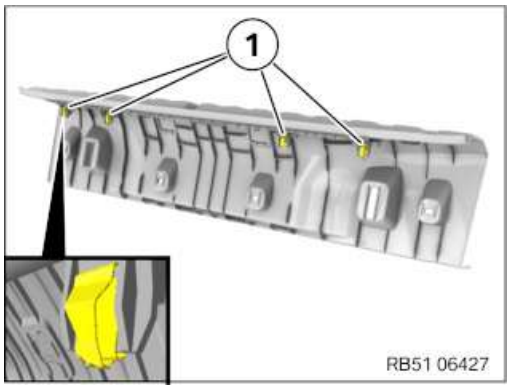
  Attach the Bowden cable (5).

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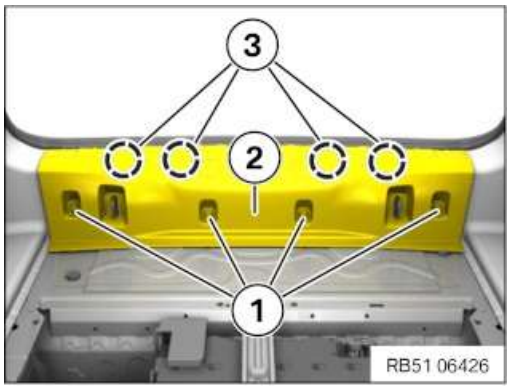
5 – Installing loading edge trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check the clamps (1) for damage and renew if necessary.



- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

6 – Installing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Insert the luggage compartment floor trim panel (1).

Additional Information

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Overview of Tightening Torques

Tailgate lock to body Used in step 4

Hexagon screw M8x20		Tightening torque	19 Nm

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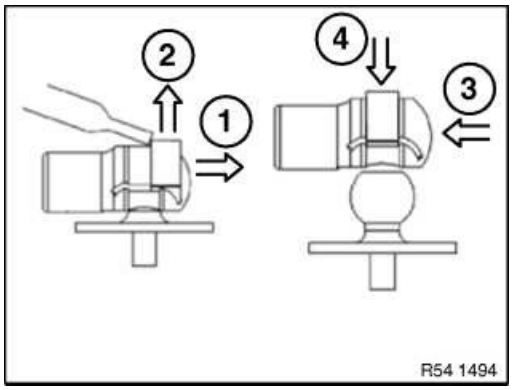
51 23 ... Removing/installing ball sockets with clip

Warning!

Danger of injury! When installed, the gas pressurised shock absorber is under preload. Minimise preload as far as possible before removing.

Caution!

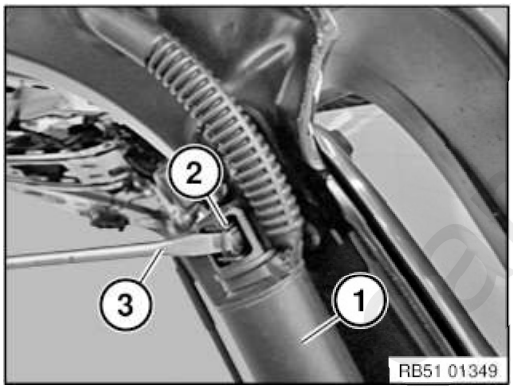
Never lift off ball socket with engaged clamp.



Version A:

1. Push on clamp in direction of groove with screwdriver
2. Lift off ball socket from ball pin
3. Slide clamp back
4. Fit ball socket on ball stud and snap into place with force

Installation note:
Pack grease into two opposite positions in socket. The grease spreads after installation on the ball pin all round in the ball socket.



Version B:

Caution!

Risk of damage!

If you are not careful, retaining spring (2) may be bent to such an extent that the entire drive spindle will have to be replaced.

Press drive spindle (1) against ball pin in order to relieve strain on retaining spring (2) at ball pin.

Pull out retaining spring (2) approx. 2-3 mm with screwdriver (3).

Pull off spindle foot.

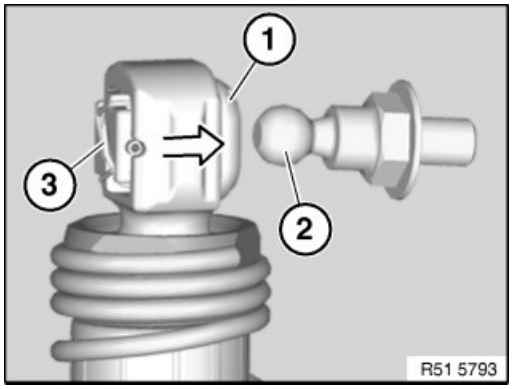
Warning!

Observe warning notices on the damper.

Electrical spindle drive for tailgate is under mechanical spring load!

The component must be secured against falling down.

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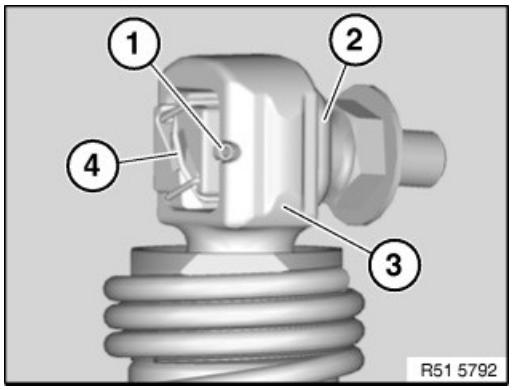


Caution!

Risk of damage!

Do not press on spindle drive at an angle or twisted.

Installation note:
Press ball socket (1) onto ball pin (2) until retaining spring (3) engages correctly (clicking sound).



Caution!

If retaining spring (4) is damaged!

Release pin (1).

Remove spindle drive (3).

Remove ball socket (2).

Remove retaining spring (4) and replace if necessary.

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51 24 147 Replace button for tailgate activation

RISK OF DAMAGE

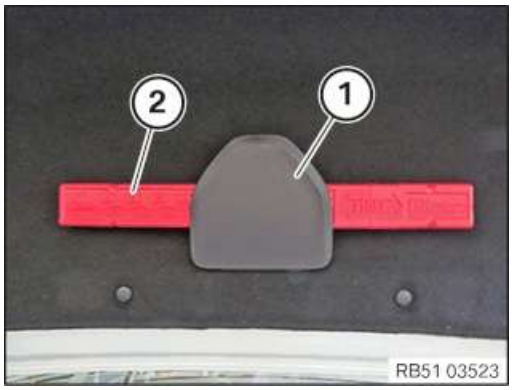
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

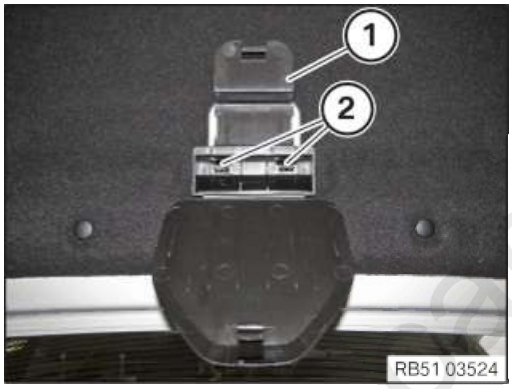
- Protect working area.
- Handle tools and components carefully.

PRELIMINARY WORK

1 – Remove tailgate trim panel



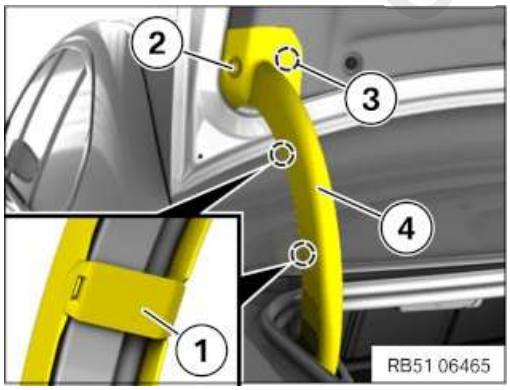
- Fold the cover (1) towards the bottom.
- Remove the warning triangle (2).



- Detach the warning triangle holder (1) from the latch mechanisms (2) and slide downwards.

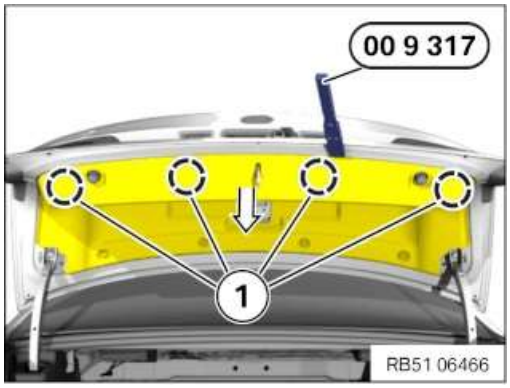
NOTICE

Description is for left component only. Procedure on the right side is identical.

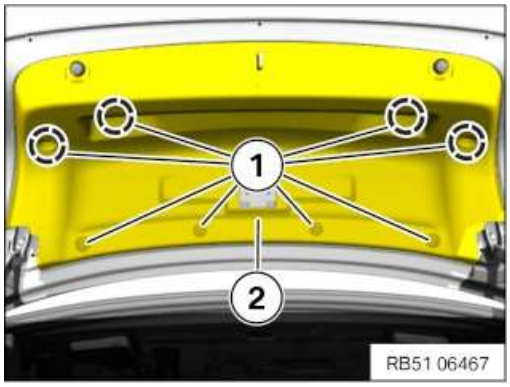


- Unclip the tabs (1).
- Loosen expanding rivet (2).
- To avoid damage, release the trim panel for the hinge of the tailgate (4) without using a tool by jerking it along the hinge bracket and out of the clip fastening (3).

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- Unclip clips (1) with special tool 0 490 534 (00 9 317) in the direction of arrow.



- Release expanding rivet (1) on the tailgate trim panel (2).
- Remove tailgate trim panel (2).
- **If installed**: Unlock plug connection of the switch for the tailgate lift and disconnect.

MAIN WORK

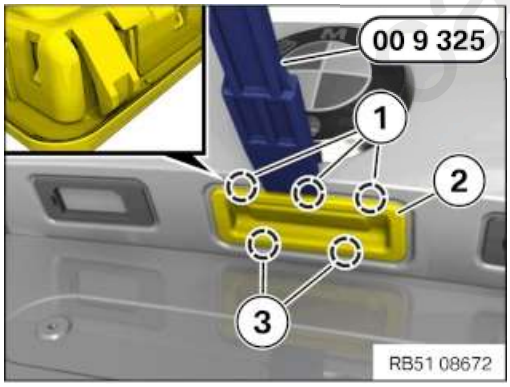
2 – Remove tailgate pushbutton

RISK OF DAMAGE

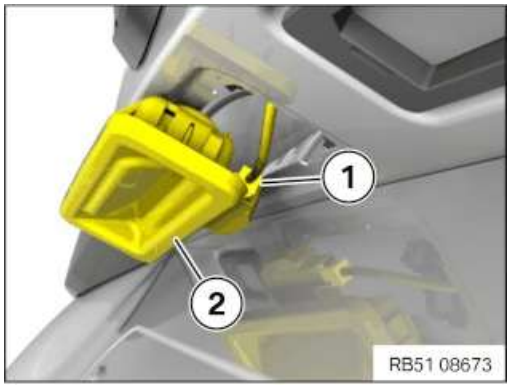
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



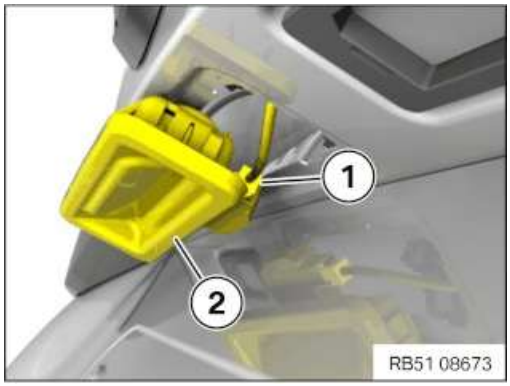
- Mount the special tool 0 496 569 (00 9 325) as shown.
- Open the latch mechanisms (1) of the tailgate button (2) by carefully knocking on to the special tool 0 496 569 (00 9 325).
- Release the latch mechanisms (3) from the inside and unclip the tailgate button (2) in a downwards direction.



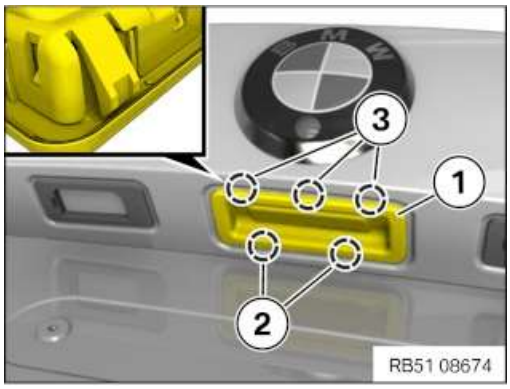
- Disconnect the connector (1) and remove the tailgate button (2).
- If necessary, remove the broken parts of the tailgate button (2) from the tailgate.

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3 – Install the tailgate button



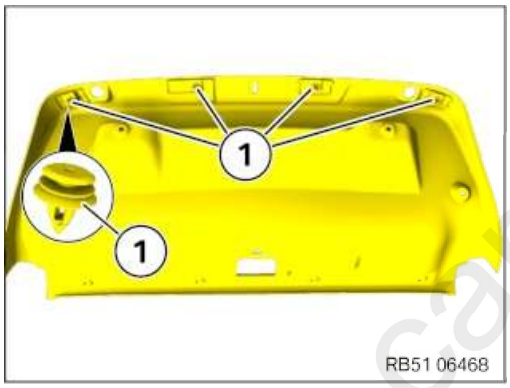
- Check the tailgate in the area of tailgate button (2) for damage; touch it up if necessary.
- Connect connector (1) to tailgate button (2).



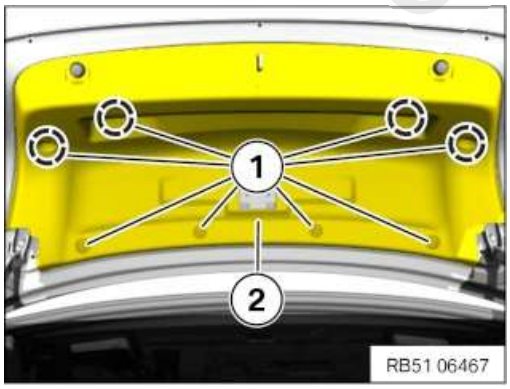
- Insert tailgate button (1) in the tailgate and clip it in with latch mechanisms (2) and (3) .

POSTPROCESSES

4 – Installing the tailgate trim panel

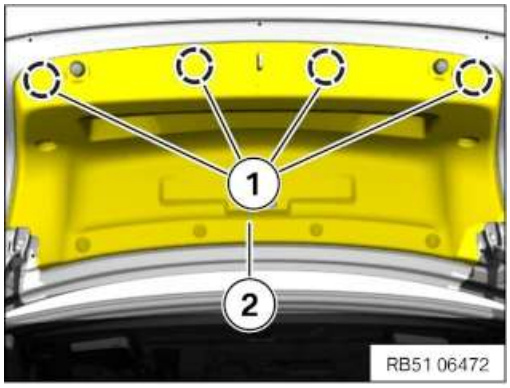


- Check the clips (1) for damage and renew if necessary.

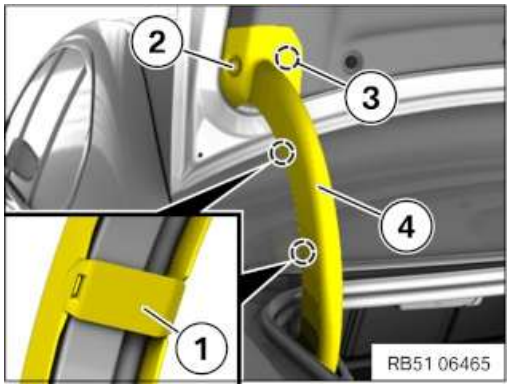


- Fit the tailgate trim panel (2) and fasten in place with the expanding rivets (1).
- **If installed**: Connect and lock plug connection on the switch for the tailgate lift.

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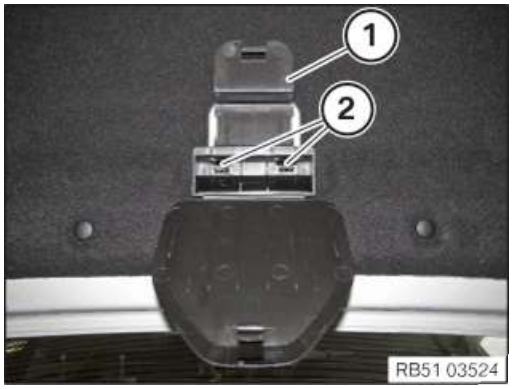
- Clip in the tailgate trim panel (2) with the clips (1).



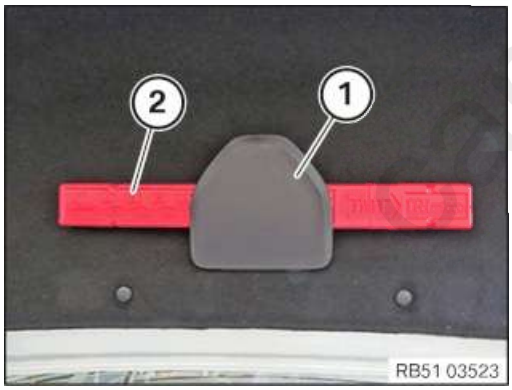
NOTICE

Description is for left component only. Procedure on the right side is identical.

- Clip in the trim panel for the hinge of the tailgate (4) to the clip fastening (3).
- Fasten expanding rivet (2).
- Clip in tabs (1).



- Position the warning triangle holder (1) and snap into the latch mechanisms (2).

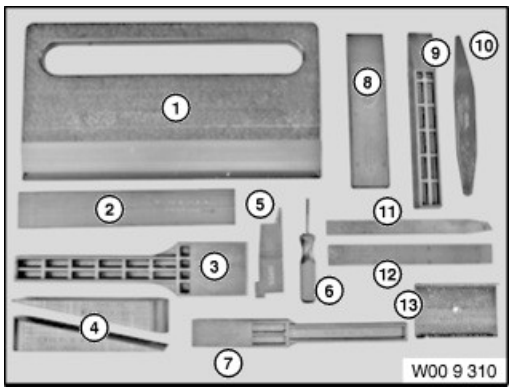


- Install the warning triangle (2).
- Clip in the cover (1).

Additional Information

Overview of Special Tools

0 490 534 (00 9 317) Wedge



Common	Used in step 1
Usage	(Trim wedge) Replaced by special tool 00 9 325 from 11/2008 (quality improvement due to new material) Replaced by 00 9 325 (0 496 569)
Included in the tool or work	0 490 527
Storage location	
Replaced by	
In connection with	
SI-Number	

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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51 31 ... General procedure for the disassembly and installation of bonded window glass

1 General information

Follow general instructions on window bonding.

Materials needed for window bonding.

The vehicle can be towed away or driven without a windscreen, rear window and side window.

When carrying out disassembly/installation work and during the hardening time, the vehicle must be standing on its wheels on a level surface.

The windscreen, rear window and side windows are glued to the body. This bonding will increase the torsional rigidity of the vehicle. To obtain perfect bonding, comply with the installation procedure described in the following.

2 Disassembly

2.1 Disassembly in general

The following dismantling methods are applied, according to the version:

- Oscillating knife (not permissible for vehicles with window bonding on carbon body components)
- Cutting wire with wire pull handles
- "Spider" window glass removal system (unsuitable for severely damaged window glass)

Note:

> When cutting out the window glass with wire pull handles, there is a risk of damage to the window glass if the wire is pulled over the window edge.
>
> Unless otherwise described, only use this method when replacing the window glass.

Follow the vehicle-specific repair instructions!

2.2 Disassembly of damaged window glass

The disassembly method described in the REP may be unsuitable depending on the degree of damage.

- e.g. suction cups cannot be attached to window glass around cracks
- Damaged window glass may damage and tear the nylon string

Caution! Risk of damage!

Use one of the other disassembly methods at your own discretion in the event of severely damaged window glass.

Make sure adjacent components are adequately protected.

3 Installation

3.1 Preparation

Position the windscreen or rear window on a universal work top or secure the components on a tool trolley using suction lifters.

Attach two suction lifters to the outsides of the window glass in the event of storage on a universal work top.

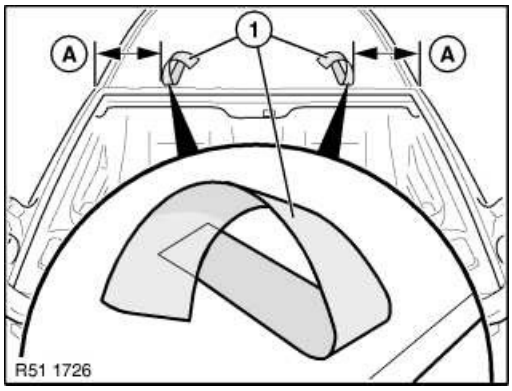
According to its size, fix side and door window glass onto the tool trolley using suction lifters or special tool 51 3 220 and set down on a suitable support.

Always keep the suction faces of the window glass suction lifters dry and clean.

Note:

> If accessibility is restricted, insert the window glass on a trial basis.

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Bond two yellow plastic adhesive tapes (1) approx. 400 mm in length to the roof.

(A) = 250 mm

Only the yellow plastic adhesive tape may be used to fix the window glass.

The window glass will slip down if other adhesive tapes are used.

Window glass slippage will result in leaks and wind noises.

After completing the paint work, the paint must be fully hardened before the plastic adhesive tapes are applied.

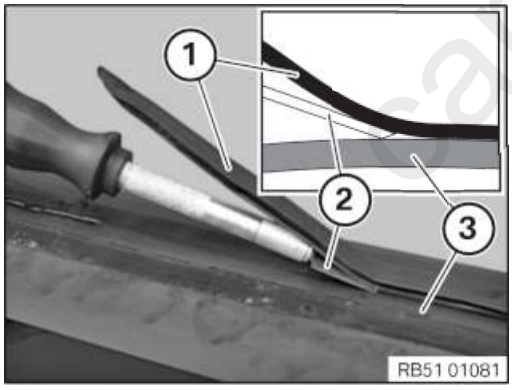
3.2 Pre-treatment of bonding surfaces

- Protect the vehicle interior against contamination, cover the Head-Up Display.
- Clean window glass and body aperture (with residual adhesive bead) with cleaning agent R2
  Caution! Do **not** use Sika remover 208 for cleaning in the adhesive area.
- Observe an air drying time of at least 5 minutes (at least 15 minutes when applied to residual adhesive bead)
- Remove residual adhesive bead from body and window glass (see point 3.3)
- Touch up paintwork damage to body aperture with BMW multibase filler (except for carbon body components)

Pretreatment on new body component (no residual adhesive beads present):

Surface	Pretreatment
Panel painted	Wipe cleaning agent R1 dry with a paper towel or observe the air drying time of at least 1 minute
Carbon	Only cleaning agent R2
Carbon painted (e.g. roof outer skin M3)	Wipe cleaning agent R1 dry with a paper towel or observe the air drying time of at least 1 minute
Plastic (e.g. I01 A-pillar)	Cleaning agent R2 and ScotchBrite Multiflex abrasive pad

3.3 Remove adhesive residue from the body and window glass



Do not remove residual adhesive bead (1) until shortly before bonding.

Use the pitchweld scraper to remove the residual adhesive bead (1) from the body aperture and window glass (3).

Position the pinchweld scraper (2) as shown and remove the residual adhesive bead (1) up to a thickness of approx. 0.5 mm.

Caution!

Carbon body components are not to have scratches with a depth greater than 0.2 mm.

Note, comply with life module check!

3.4 Installation of spacer (spacer buffer / dual-lock tapes)

Completely remove all residue of existing spacers before bonding new adhesive spacers.

The exact position of the spacers must be retained (see vehicle-specific repair instructions).

Incorrectly fitted spacers will result in:

- Window glass breakage due to tension
- leakage (if the spacer is in the adhesive area)
- Wind noises

3.5 Add-on part

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Depending on the version, attach sealing, expanding foam tape, rain sensor, etc.

Observe Overview of additional work with rain sensor when working with versions including the rain sensor!

Follow the vehicle-specific repair instructions!

3.6 Pre-treatment of new window glass

- Clean bonding surfaces with cleaning agent R2.
- Observe an air drying time of at least 1 minute
- Apply a thin coat of glass activator (yellow stick); a final wipe is not necessary.
- Observe an air drying time of at least 2 minutes

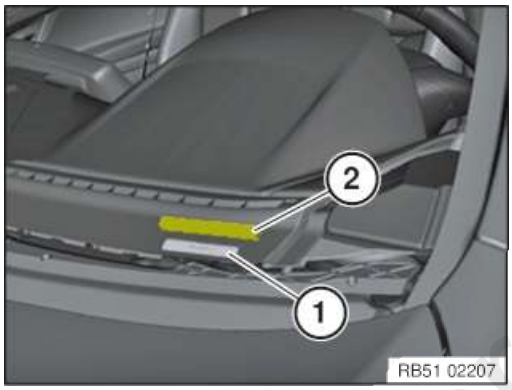
The glass activator is used for adhesion between glass or ceramic glass and the adhesive. Therefore, a thin, homogeneous and continuous line of glass activator must be applied. If the window glass is to be reused with a cut-back adhesive bead, glass activator is not needed.

It must be guaranteed that a 1 to 2 mm wide line of glass activator is located on the ceramic glass next to the squeezed adhesive bead.

The adhesive bead may become up to 15 mm wide in compressed condition. The width of the glass activator is therefore normally a minimum of 17 mm for windscreens and rear windows and a minimum of 9 mm for side windows.

The glass activator may not be applied in the field of view or the point grid. Fresh glass activator in the field of view must immediately be wiped off with cleaning agent R2 because hardened glass activator will leave a haze behind.

3.7 Version with inspection glass for vehicle identification number in windscreen



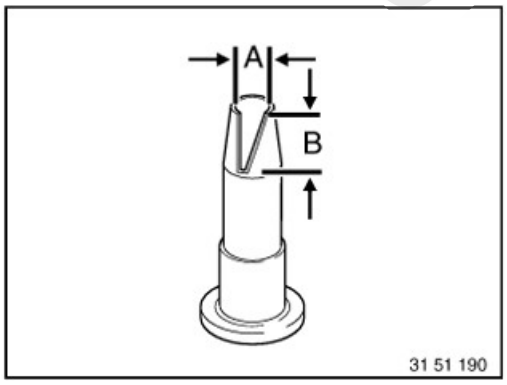
Foam tape (2) must be installed to protect the vehicle identification number (1) against tampering. If necessary, install foam tape 07 14 7 222 909.

Close off the inspection glass on the windscreen (bottom left) with Sika bonding base VP 206.

Except for:

- All US/GB models
- All models with a black dashboard cover, which means that the vehicle colour cannot be seen through the inspection glass

3.8 Nozzle preparation



Use the standard nozzle C for windscreens, rear windows, and body-specific fixed side window glass.

A	8 ±1 mm
B	12 ±1 mm

Prepare plastic nozzle for fixed door window glass.

A	8 ±1 mm
B	15 ±1 mm

Deviations are described in the vehicle-specific repair instructions.

Black ceramic glass impermeable to UV light is located on the peripheral zone of the inside of the window to protect the adhesive bead.

Ceramic glass must not be damaged.

3.9 Apply adhesive

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Adhesive is applied to the window glass using a cartridge gun.

Glue cartridge must be vertical to window glass.

The almost vertical part of the adhesive bead must be facing the outer window glass edge.

On window glass with guidelines, the adhesive bead must be applied centrally between the guidelines.

On window glass without guidelines, the position of the adhesive bead is specified in the vehicle-specific repair instructions.

Coat bead joint.

Effect of differing adhesive quantities:

Too little adhesive:	Too much adhesive:
• Window glass rests too low in body aperture • Insufficient squeezing of adhesive bead (leaking)	• Window glass rests too high in body aperture • Wind noise may occur • Strains/tensions may occur (window glass breakage) • Dirt contamination of add-on parts by emerging adhesive • Adhesive on uninsulated strainer pressure lines of aerial(s) (reception interference)

Note on bonding of windscreen:

The adhesive amount specified in the vehicle-specific repair instructions is sufficient if the specified adhesive bead size is maintained.

If too much adhesive is applied due to application-related variations (manual application), the specified adhesive amount may not be sufficient. To avoid interrupting adhesive application for longer than the permitted period, have another glue cartridge ready.

Caution!

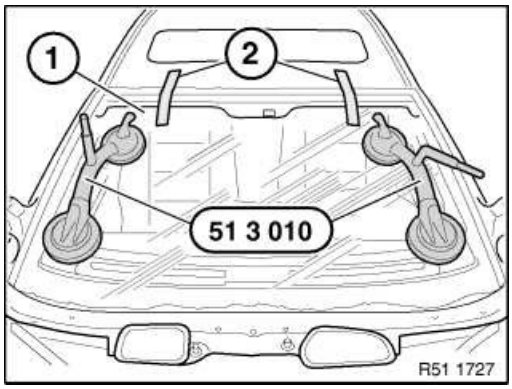
Once the adhesive bead has been applied, the window glass must be installed within 7 minutes (depending on air humidity, temperature).

After 7 minutes the adhesive bead forms a skin which can no longer guarantee a perfect bonding.

3.10 Mounting the window glass

To prevent a pressure build-up in the passenger compartment when the doors are closed:

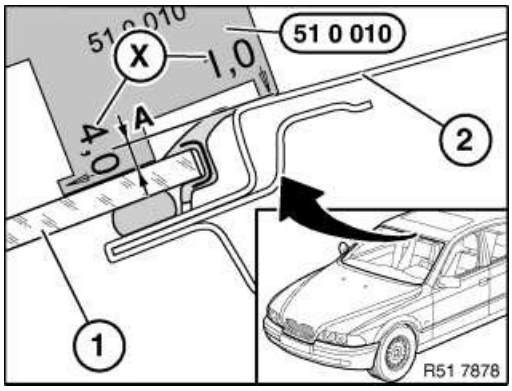
- Open a side window



Mount window glass (1) with suction lifter (51 3 010).

3.11 Adjusting the window glass

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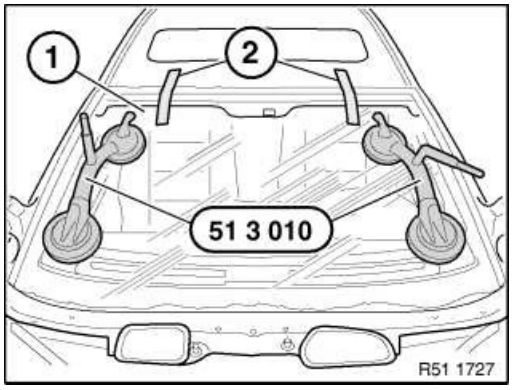
To avoid wind noise, the front and rear windows (1) must be lower than the roof outer skin (2).

Check ride height of the windscreen or rear window using special tool 51 0 010.

Dimension (A) of window glass offset, refer to vehicle-specific repair instructions.

X = measurement stages 1 ... 4 mm

3.12 Fixing the window glass



Fix the window glass with yellow plastic adhesive tapes (2).

Immediately remove dirt contamination with adhesive residue using Sika remover 208. Do not press out the window glass again.

Hardened adhesive can only be removed mechanically.

3.13 Label

Depending on version, apply label.

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51 31 ... Materials for bonding window



Special tools required:

- 51 3 220

1 Tools

Type	Type	Order/part number
Electric special cutter	SuperCut FSC 1.6Q	81 43 2 296 987
Knife set Contains: Knife (U-shape) Knife (L shape) Knife (straight with stop roller)	 24 / 36 / 45 mm 25.4 mm 16 to 43 mm (adjustable) 14 mm (fixed)	81 43 9 428 596
”Roll Out 2000”	Wire cutting system	81 62 0 301 768
"Spider"	Cutting system with nylon string	81 43 2 357 248
Wire pull handles		81 43 2 326 501
Cartridge gun		81 49 2 213 059
Pinchweld scraper set		81 62 0 410 436
Siphon		81 64 2 184 377
Single suction cup	Special tool	51 3 220
Universal work table		81 49 0 151 675

2 Consumables:

Naming of Electronic Parts Catalogue	Designation, repair instructions /addition	BMW part number
Window glass repair kit, cold, 1 hour	Small repair kit	83 19 2 289 285 83 19 2 289 180 (US) 83 19 2 180 001 (China)
Window glass repair kit, cold, 1 hour	Large repair kit Like small repair kit, plus 1x window glass adhesive 300 ml	83 19 2 360 680 (not available for the US/China)
Cutting wire for glass repair	Cutting wire, square	83 19 2 150 267
Nylon string	Nylon string	81 43 2 344 272
Multi-base filler	BMW multibase filler	
Cleaning agent R1	Cleaning agent R1	83 19 2 211 217
Cleaning agent R2	Cleaning agent R2	83 19 0 417 324
Adhesive tape	Plastic adhesive tape, yellow	83 19 9 410 979
Adhesive cleaner 208	Sika remover 208	83 19 9 407 780
Aktivator 205	Sika Activator 205 (e.g. for rubber frame on windscreen)	83 19 0 030 155

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Bonding base VP 206	Sika bonding base VP 206 (e.g. for inspection glass for vehicle identification number)	83 19 9 407 777 83 19 2 450 377 (US)

Storage of all consumables

Dry at 15 ° - 25 °C.

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62 30 ... Notes on head-up display

Note:
A special windscreen must be fitted to ensure that the Head-Up Display image can be projected correctly.

This windscreen comprises three sections. An outer and an inner glass pane are connected by a wedge-shaped plastic film.

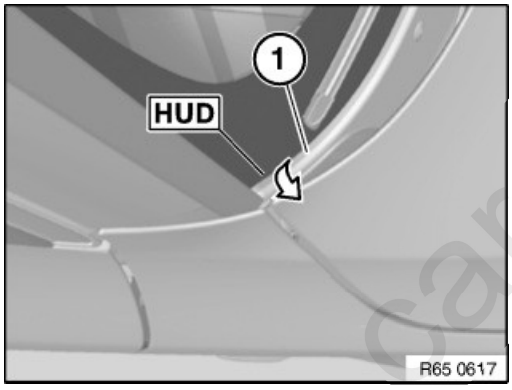
The wedge shape prevents double projection of the Head-Up Display.

When the windscreen is replaced, the vehicle identification number and Electronic Parts Catalogue must be checked to ascertain whether the windscreen in question is suitable for HUD.



Example of the display with a conventional windscreen:

With a conventional windscreen, the projected image is reflected on the inner and outer glass pane, producing a double image.



Note:
Windscreens for Head-Up Display, for vehicles with model year up to 2012, are marked with the letters "HUD" on the outside at the bottom right below the seal (1).

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51 31 ... Notes on window bonding repair kit

	Part number	Part number (US)	Part number (China)
Small repair kit	83 19 2 289 285	83 19 2 289 180	83 19 2 180 001
- Window glass adhesive 300 ml	83 19 2 289 286	83 19 2 289 181	83 19 2 180 002
- Glass activator	83 19 0 444 142		
- C nozzle	83 19 2 155 589		
- Plastic nozzle and paper tissue			
Large repair kit (Contains an additional window glass adhesive 300 ml)	83 19 2 360 680	Not available	Not available

Important!

Before working with the consumables, note the following information.

- Country-specific safety and industrial safety regulations
- Material safety data sheet of manufacturer
- Processing instructions on the packaging

1 Storage and processing of all consumables

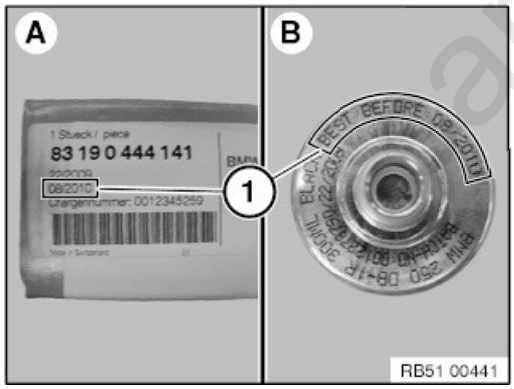
Dry at 15 ° - 25 °C.

2 Expiry date of adhesive:

Repair kit and glue cartridges are marked with a date (expiry).

Date (1) refers to the calendar week and year (KW/JJJJ).

The adhesive cannot be used after this date (1).



3 Hardening of adhesive:

The adhesive hardens by reacting with air humidity at room temperature.

Important!

Once the adhesive bead has been applied, the window glass must be installed within 7 minutes (depending on air humidity, temperature).

After 7 minutes the adhesive bead forms a skin which can no longer guarantee a perfect bond.

At ambient temperatures above 23 °C and 50 % relative air humidity (hot countries), the adhesive open time is

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shortened to approx. 5 minutes (skin formation time).

A relative air humidity of < 30% significantly slows hardening.

The adhesive hardening process is interrupted completely at ambient temperatures below 5 °C. In this event, there will be no increase in the strength of the bonded connection.

3.1 Minimum hardening time:

Minimum hardening time is reached beginning at 22 °C and 38 % relative air humidity.

- 1 hour, vehicles without front passenger airbag (after which vehicle can be moved)
- 2 hours, vehicles with front passenger airbag in countries without mandatory seat belt usage

Note:

> **In vehicles with front passenger airbag in countries without mandatory seat belt usage:**
>
> The vehicle can be transferred to the customer after a 1-hour hardening time with the following warning:
>
> **Once the windscreen glass has been bonded, all occupants must travel with their seat belts attached for 1 hour.**

Important!

> If the minimum hardening time is not adhered to, an accident can cause the passenger together with the windscreen to fall out of the vehicle after the front passenger airbag deploys.

During the minimum hardening time of 1 hour, the vehicle must not be subjected to load on one side such as e.g.:

- one wheel on kerb
- vehicle hoist
- etc.

Manoeuvring inside garage/workshop:

- only permitted on level ground
- do not under any circumstances drive over approach ramps, e.g. into multi-storey car parks

Do not remove adhesive tapes until after hardening time.

If the minimum hardening time of 1 hour is undercut, leaks and wind noises may occur at the window glass.

4 Disposal of adhesive:

Hardened adhesive is disposed of as normal waste.

Non-hardened adhesive, glue cartridge and mixtures of adhesive and solvents and the like must be disposed of as hazardous waste.

The adhesive is disposed of in paper sacks so that it can react with moisture.

5 Glass activator:

Warning!

> Wear cut resistant gloves when breaking the glass ampule.

Prepare glass activator for processing by shaking and snapping (breaking glass ampoule).

Apply glass activator by pressing gently. There is no need for final wiping. Air drying time approx. 2 minutes.

6 Expiry date of glass activator:

Repair kit and glass activator are marked with a date (best before date).

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- The glass activator may only be used up to this date (if not already opened previously).
- After opening, keep only for one week even if the expiry date has not yet been reached.

7 Disposal of glass activator:

Glass activator must not be disposed of as part of household waste.

Glass activator must be disposed of as hazardous waste.

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61 35 ... Overview of additional work for the removal and installation or replacement of electronic components in the body area/windscreen

Component	**Removal and installation** Calibration/Initialisation required **(diagnosis system must be connected)**	**Removal and installation** Use of the Special tool necessary	**Replacement** Programming/encoding Calibration/Initialisation required **(diagnosis system must be connected)**	**Replacement** Use of the Special tool necessary	Remarks
Front section: (including bumper panel)					
ACC sensor	Yes	Yes	Yes	Yes	
Night vision camera	No	No	Yes	Yes*	*conventional workshop headlight adjusting device
PDC ultrasonic sensor	No	No	No	No	
PMA ultrasonic sensor	No	No	No	No	
Sensor, lane change warning	no*	No	Yes	No	*Required after a body repair in the surrounding area of the sensor. **Comply with the regulations for repainting!**
Sensor for active pedestrian protection	No	No	No	No	Must be replaced after the active pedestrian protection has been activated! **Impact absorber** must also be replaced!
Actuator for active pedestrian protection	No	No	No	No	Must be replaced after the active pedestrian protection has been activated!
Front camera	No	No	Yes	No	

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Side section:					
Top view camera (in the exterior mirror)	No	No	Yes	No	
Rear area: (including bumper panel):					
reversing camera (with Surround View)	No	No	Yes	No	
reversing camera (without Surround View)	No	No	Yes	No	
PDC ultrasonic sensor	No	No	No	No	
PMA ultrasonic sensor	No	No	No	No	
Sensor, lane change warning	no*	No	Yes	No	*Required after a body repair in the surrounding area of the sensor. **Comply with the regulations for repainting!**
Windscreen:					
Camera-based driver support systems camera	no*	No	Yes	No	*Necessary after **replacement of the windscreen**
Rain sensor (separate document)					

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61 35 ... Overview, rain sensor (additional work when replacing the windscreen / sensor replacement)

BMW G series:

Sensor type/ Sensor shape	With windscreen replacement replacement sensor required	When replacing the sensor Programming/encoding necessary	When replacing the sensor Initialisation required	Connecting the diagnosis system required
all types approximately ø 35 mm	No	No	No	No

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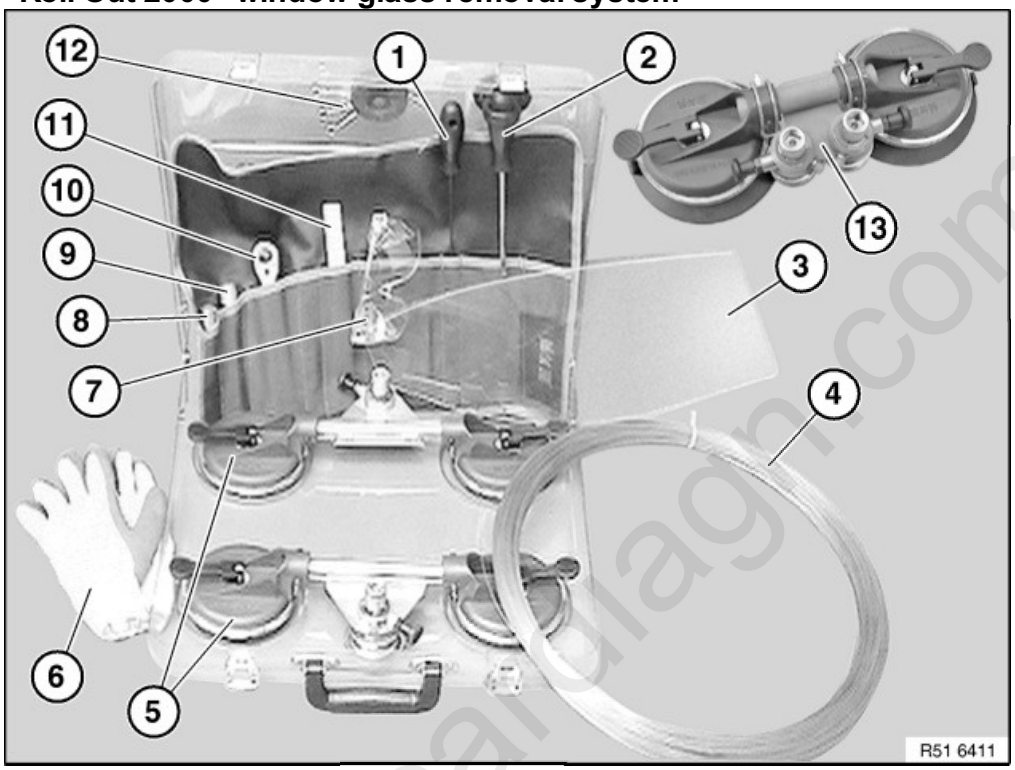
51 31 ... Remove windscreen with "Roll Out 2000"

Special tools required:

- 2 336 541

"Roll Out 2000" has been replaced by the removal system "Spider". "Roll Out 2000" may still be used. The "Spider" removal system is recommended for removing window glass.

"Roll Out 2000" window glass removal system



1	Wire starter	8	Extension (short)
2	Parabolic tool	9	Extension (long)
3	Plastic washer	10	Reversible ratchet
4	Wire cutting roller	11	Plastic wedge
5	Suction cup lifters	12	Guide needles
6	Protective gloves	13	Suction cup lifter with double spool
7	Safety goggles		

Note:
Both paint and ergonomic and health-endangering damage is minimised with the "Roll Out 2000" system.

Sourcing reference:

See Aftersales Assistance Portal (ASAP) - Service/Technical - Workshop Equipment (Start BMW) - Shop Workshop Equipment or at www.bmwgroup.com

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Warning!

Follow safety instructions for working on vehicles with airbag systems (risk of injury).

Caution!

Take care when handling sharp-edged tools and cutting wire (risk of damage to head airbag and window glass).

Caution!

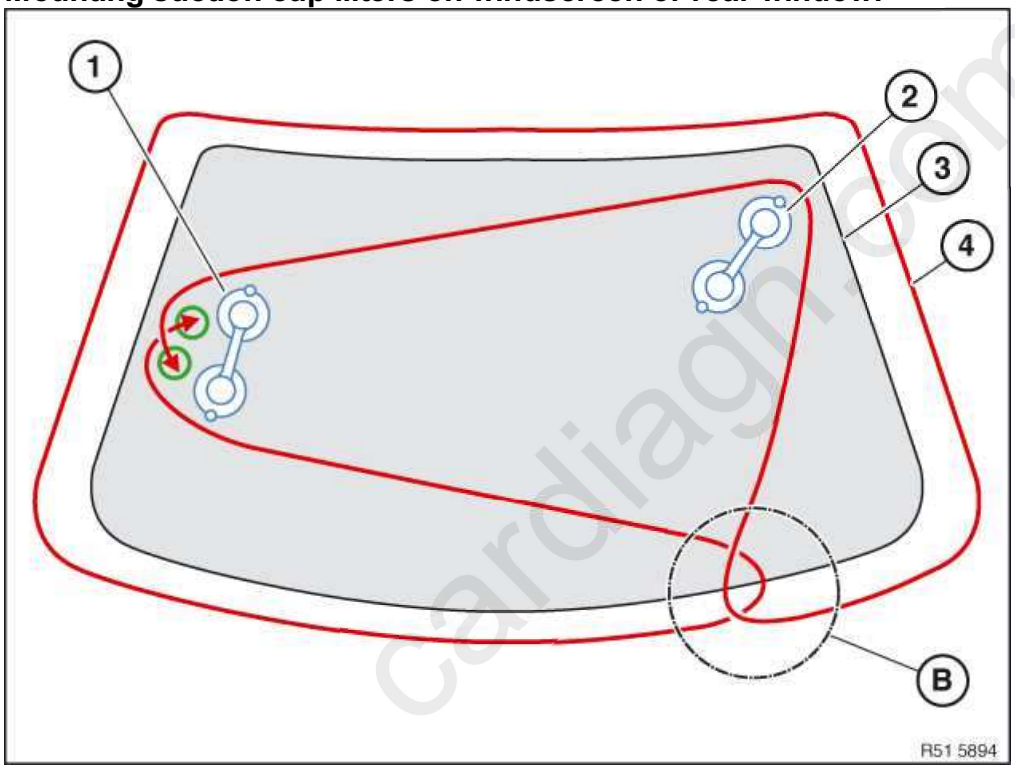
Always keep both suction cups dry and clean to ensure their optimum adhesion on the windscreen.

Suction cup may not be applied at the damaged point (crack in window glass).

Lubricate spool if lock rattling becomes too loud.

Always wear safety goggles and protective gloves for your own safety.

Mounting suction cup lifters on windscreen or rear window:



- Secure position of lifting jacks as shown (view from outside):
  1. Suction cup lifter with double spool
  2. Suction cup lifter with single spool (as deflecting point)
  3. Window
  4. Cutting wire

Note:

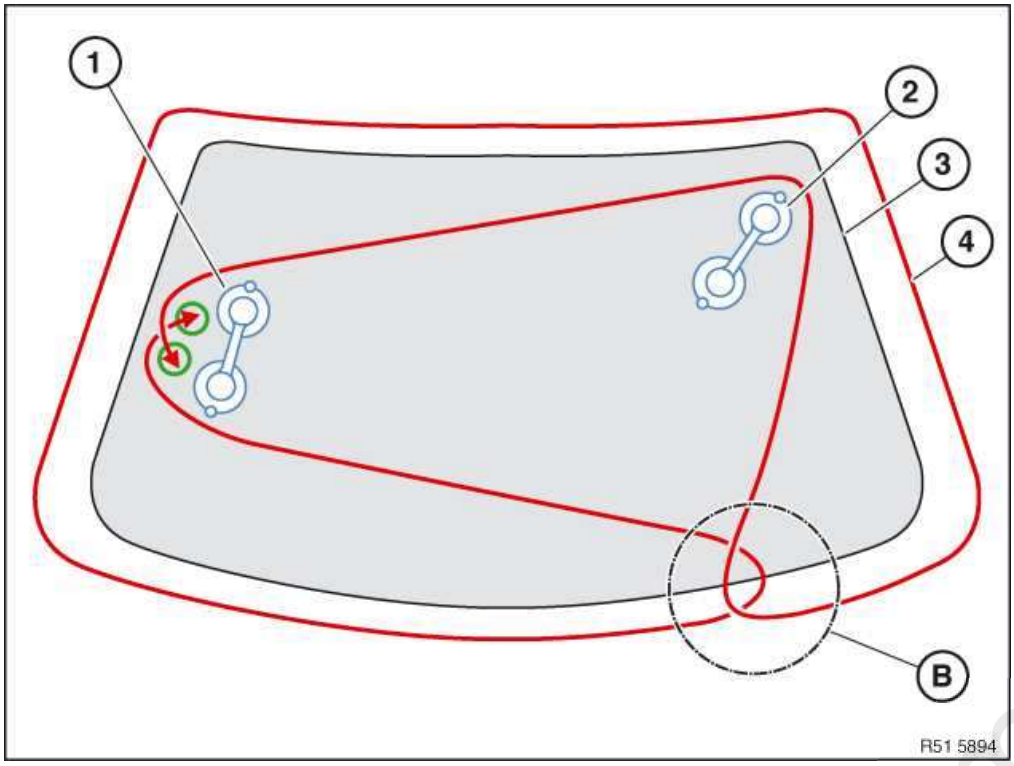
Optimum cutting is guaranteed when the cutting wire is at an acute angle to the adhesive bead. There is a risk of the cutting wire breaking if the angle is too obtuse.

The suction cup lifter (2) is used as the deflection point to achieve the corresponding angle.

Depending on the window glass version and the effort applied during cutting, it may be necessary to change the deflection point during cutting.

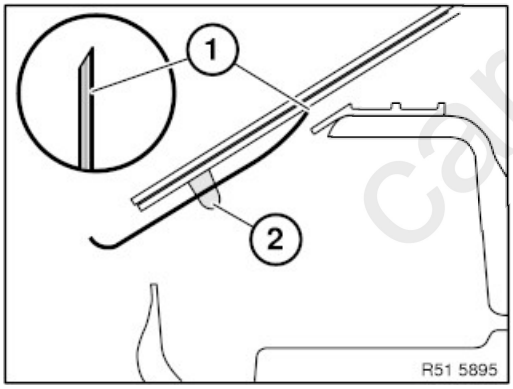
The suction cups without a spool can even be used as the deflection point.

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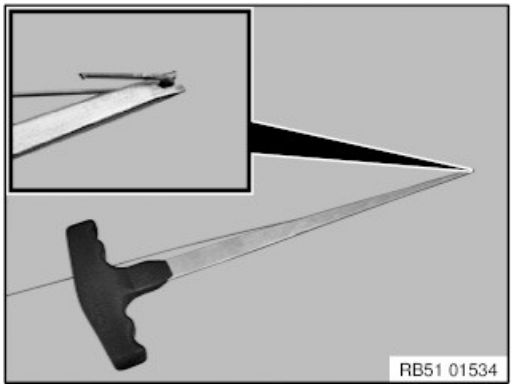
Preparatory work:

- Cut off required cutting wire length:
  Length approximately = 6 x window glass diagonal
- The cutting wire loops must lie on top of each other in area (B).
  They must not get caught up in each other. (Otherwise no possibility of cutting the adhesive bead/wire will break.)
  Overlapping of cutting wire loops approx. 10 cm.
  Distance from right window edge approx. 30 cm.



Pulling cutting wire into vehicle:

- Grip wire with pliers
  (If accessibility is bad, stick wire with wire starter 2 336 541 through adhesive bead.)
- Wire end (1) must be bent towards window glass.
- Heat wire end (1) and use it to pierce adhesive bead (2).
- Pull the wire approximately 1.5 m into the passenger compartment

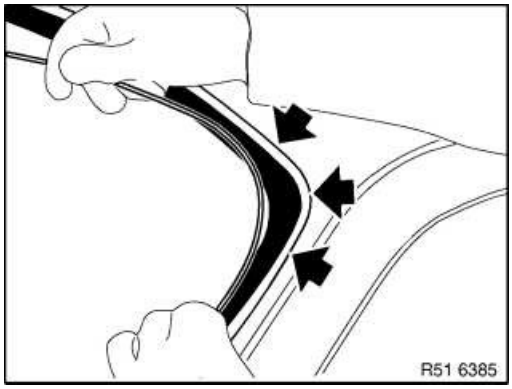


Using wire starter:

Bend wire end approx. 10 mm and insert in notched tip.

Pierce wire starter with uniform pressure through adhesive bead, wire end (bent part) must be positioned on window glass.

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Laying cutting wire around window glass:

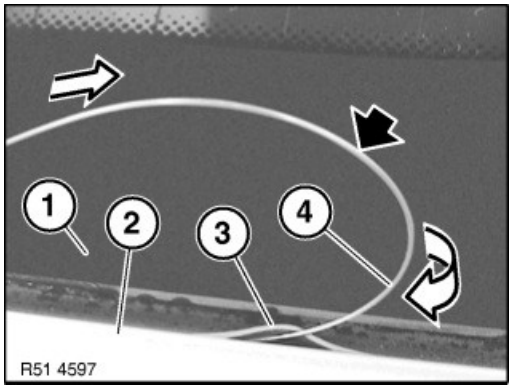
- Starting from pull-in point, lay wire eyelet created on the outside around the window glass
- Pull excess wire into passenger compartment

Caution!

Make sure the cutting wire is located at all four corner points below the window glass.

Check that the cutting wire is not caught on clamps or body.

Secure window glass on outside with adhesive tape against sliding.



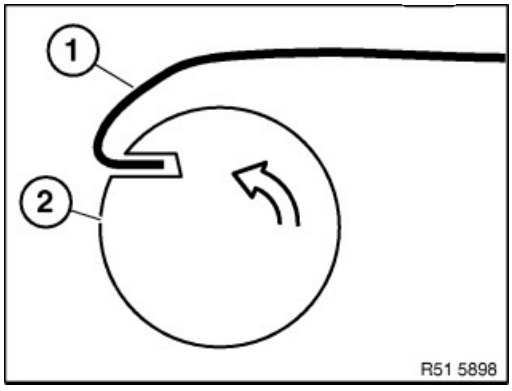
Note:
Window glass (1) with installed seals (3) or moulded-on surrounds:

- Moisten cutting wire (4) and sealing (3) on window glass (1) with water
- Insert cutting wire (4) in bend (without kinking) between window glass(1) and body aperture (2)



Protect the passenger compartment:

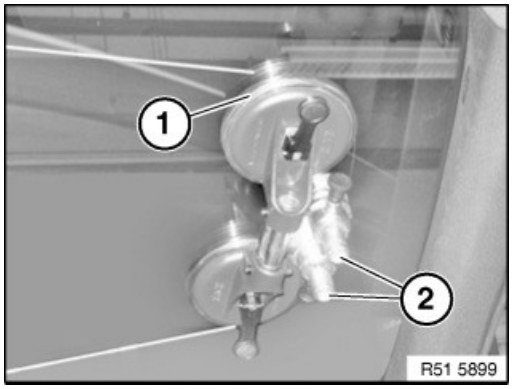
- To avoid damage and possible dirt contamination, protect A-pillars, roof and dashboard trim panel (3) by means of plastic washer (1)
- Always carry plastic washer (1) between respective wire (2) being tightened and trim panels



Attaching wire in hoisting winch with double coil:

- Bend over cutting wire end (1) approximately 10 mm and insert into slot of spool (2)
- Repeat process with other end of wire (1) and second spool (2)
- Wind cutting wire (1) onto spools by hand until cutting wire (1) is under slight tension

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Starting the dismantling: *Note:*
Spools can only be rotated in one direction.

- Make sure the wire is always situated in the guide channel of the suction cup lifter (1)
- Fit reversible ratchet onto top spool shaft (2) and tighten wire
- Start by cutting lower adhesive bead
- At the end of the cutting process, the two wire loops join up at the lifting winch (1)
- Remove "Roll Out 2000"
- Remove window glass

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51 31 030 Removing and installing or replacing left or right gutter strip along windscreen

NOTICE

Description is for left component only. Procedure on the right side is identical.

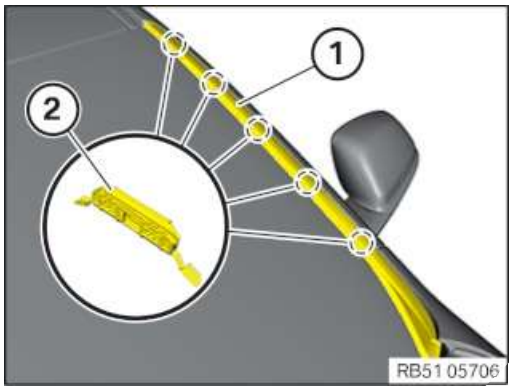
1 – Remove the gutter strip on the windscreen

RISK OF DAMAGE

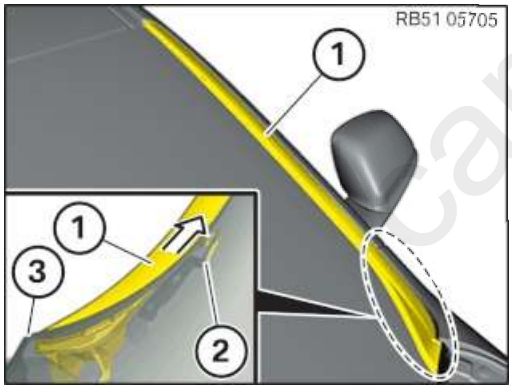
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Unclip gutter strip on the windscreen(1) from the clamps(2) starting at the roof and working upwards.



- Pull out gutter strip on the windscreen (1) out of guide (2) in direction of arrow and carefully guide out at the side panel (3).

2 – Install the gutter strip on the windscreen

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

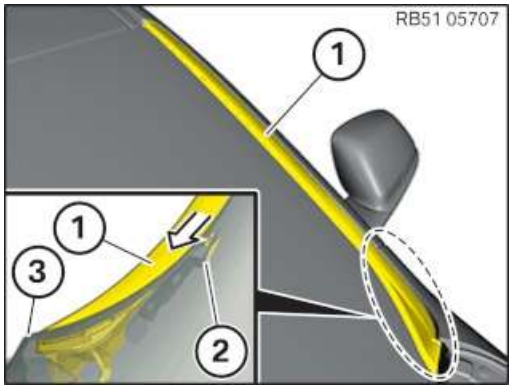
Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

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TECHNICAL INFORMATION

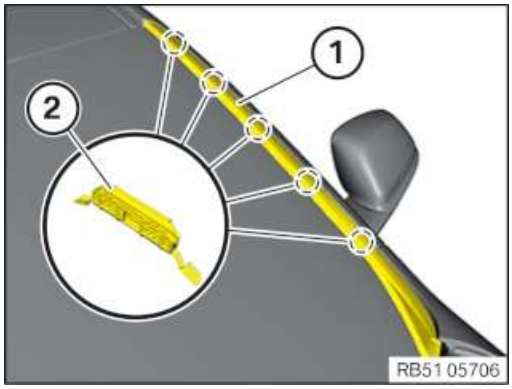
Latch mechanisms, guides and mounting elements must not be damaged or missing.



- Renew gutter strip on the windscreen (1) and paint if necessary.

  Parts: Gutter strip

- Carefully feed in the windscreen gutter strip (1) at the side panel (3) and simultaneously feed into the guide (2) in direction of arrow.



- Clip in the windscreen gutter strip (1) starting at bottom at the clamps (2).

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51 31 200 Removing and installing rear window

TECHNICAL INFORMATION

Perform window removal using the "spider".
For additional information see: 51 31 ... Window glass removal using "spider"

TECHNICAL INFORMATION

The following procedure forms the basis for these repair instructions and must be observed without fail.
For more information see: 51 31 ... General procedure for disassembly/installation of bonded window glass

PRELIMINARY WORK

1 – Removing the trim panel for the rear left and right water channel

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Unclip the trim panel for the water channel (1) with the special tool 0 496 569 (00 9 325).

2 – Removing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

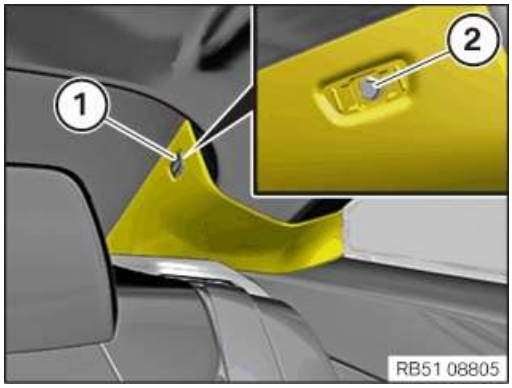
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RISK OF DAMAGE

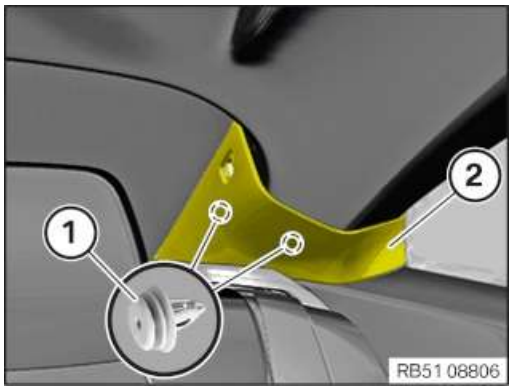
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

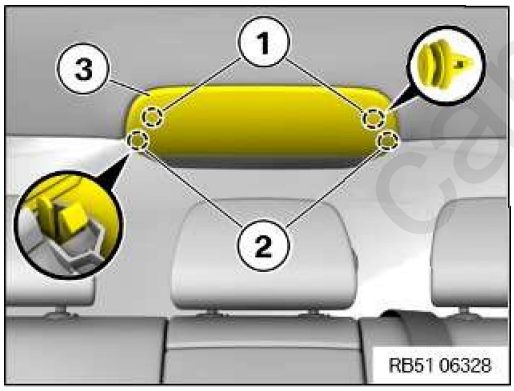


- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



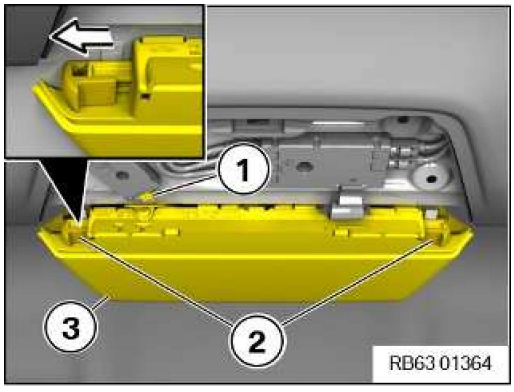
- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

3 – Removing the trim of the additional brake light



- Loosen the clips (1).
- Release the latch mechanisms (2) and remove the trim of the additional brake light (3).

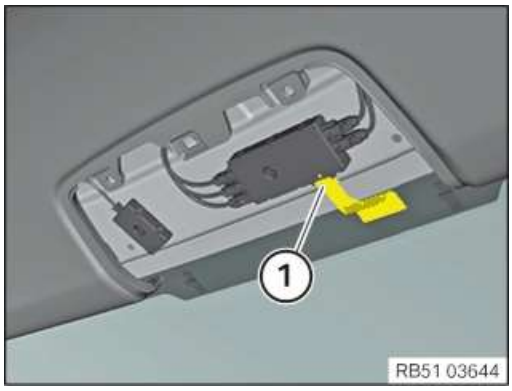
4 – 3. Removing the brake light



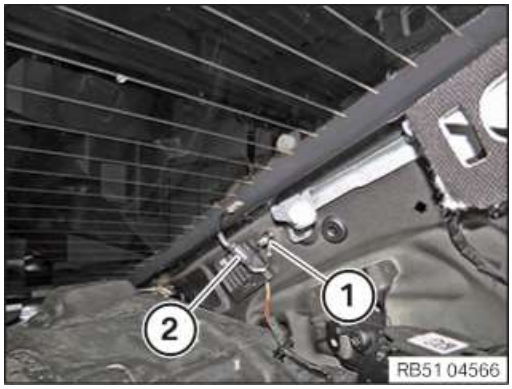
- Unlock plug connection (1) and disconnect.
- Unlock both slides (2) outwards in the direction of arrow and remove the 3rd brake light (3).

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5 – Remove rear window



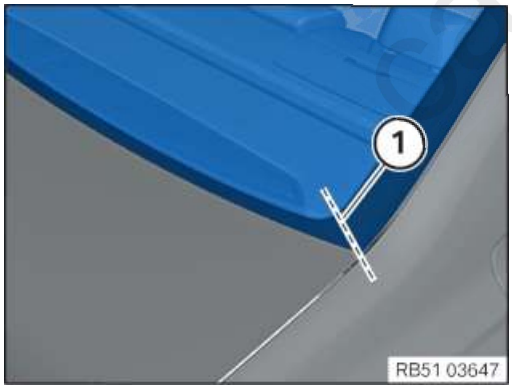
- Unlock plug connection (1) and disconnect.
- Secure cable to rear window with adhesive tape.



- Loosen nut (1).
- Secure cable (2) to the rear window.

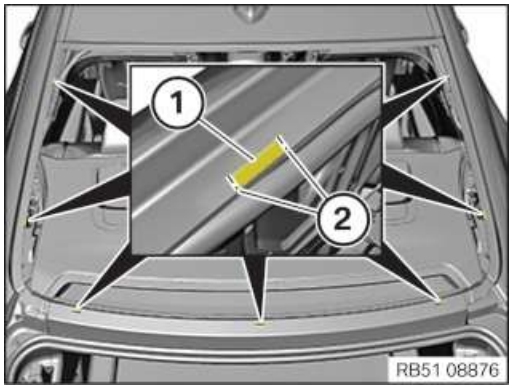


- Unlock plug connection (1) and disconnect.
- Secure cable (2) to rear window with adhesive tape.



- Tape off body in area of piercing point with fabric adhesive tape.
- Push the thread (1) through the adhesive bead along the line from the inside.
- Cut out the rear window with spider 2 357 248.
- Remove the rear window with the help of the special tool 2 184 377.
- Remove the adhesive bead from the body using special tool 0 410 436 and clean the adhesive area.

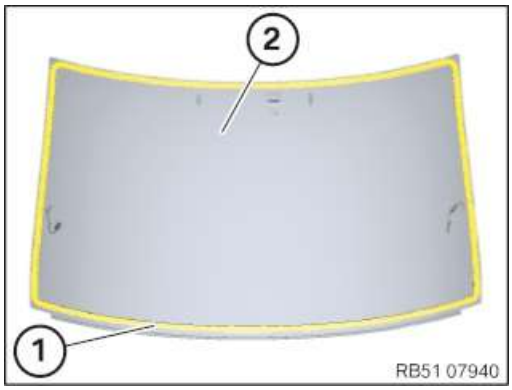
6 – Renew the spacer



- Completely remove the available spacer buffers (1).
- Bond the new spacer buffers (1) in the centre on the marks (2) embossed on the body.

  Parts: Spacer buffer

7 – If reusing: Removing the adhesive bead



- Clean the windscreen in the area of the adhesive bead (1).

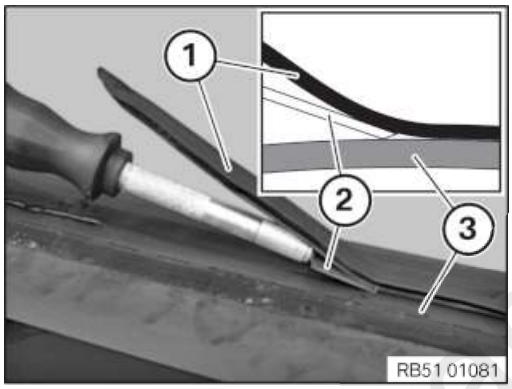
Expendable materials

Cleaning agent R2	500 ml	83190417324

- Allow to dry after cleaning.

Air drying time after cleaning

Window glass or painted panel without residual adhesive bead	5 min
Body with adhesive bead	15 min



- First remove the adhesive bead (1) on the rear window just before bonding using the standard tool (2).

  Standard tool:

TECHNICAL INFORMATION

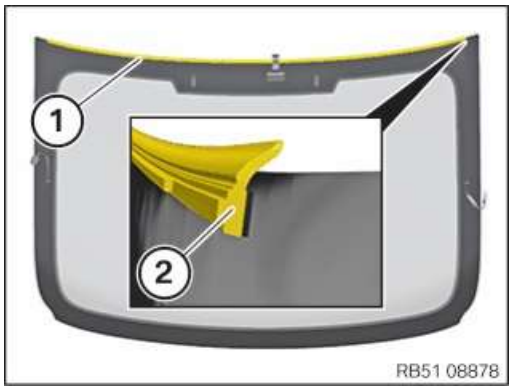
Do not touch the adhesive bead after cutting or bring cleaning agents in contact with it.

- Use pinchweld scraper (2) as shown.
- Cut back the adhesive bead (1) on the rear window (3).

Residual height of the adhesive bead

Residual height of the adhesive bead	max. 1 mm

8 – Checking the cover on the rear window



Check

- Check cover (1) on the rear window for damage.

Result

» Cover (1) on the rear window is damaged.

Measure

- Renew cover (1) on the rear window.

  Parts: Cover

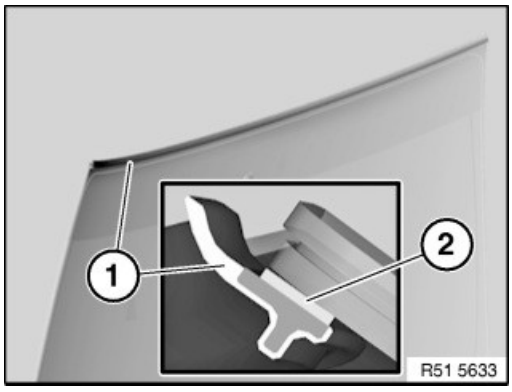
▶ **Replacing the cover on the rear window**

▷ **Remove the cover from the rear window**

TECHNICAL INFORMATION

Notes on component bonding using adhesive tape form the basis for these repair instructions and must be observed without fail.

For more information see: 51 00 ... Notes on component bonding with adhesive tape



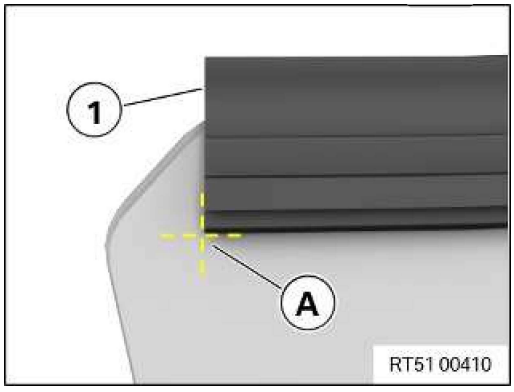
- Pull off the rubber frame (1) with the adhesive tape (2) from the rear window.

◁

▷ **Installing the cover on the rear window**

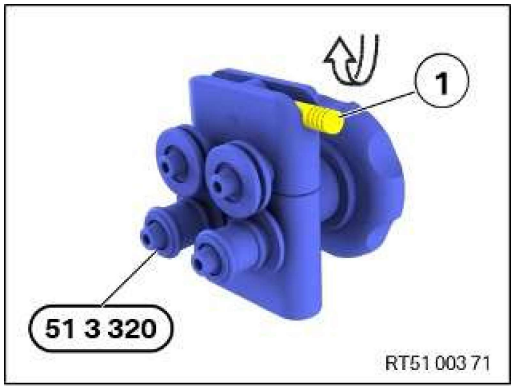
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

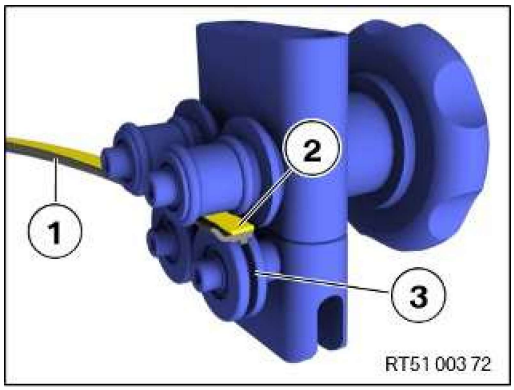


- Observe the mark (A) for the cover (1)on the rear window.

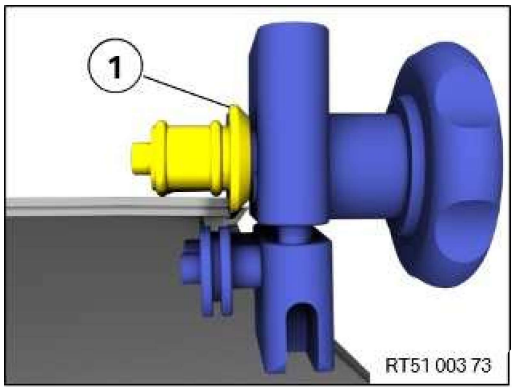
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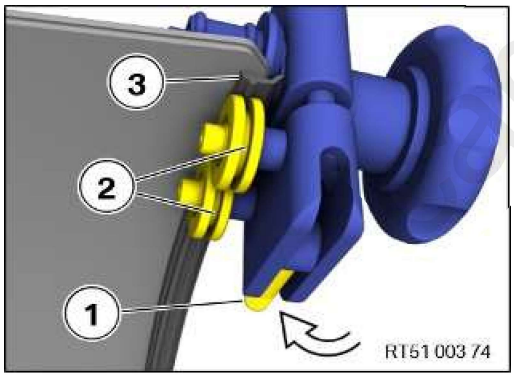
- Reposition lever (1) in direction of arrow and open it using the special tool .



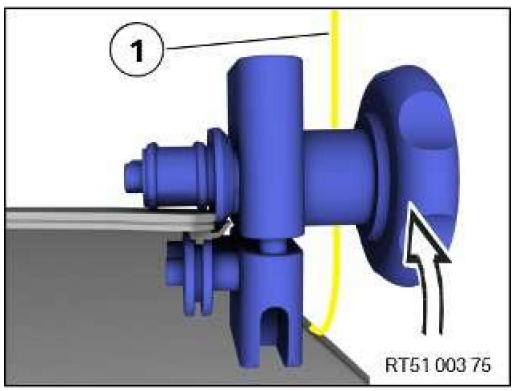
- Pull off protective film (2) in stages from adhesive tape.
- Insert the cover (1) into the guides (3).



- Place the special tool with the pressure rollers (1) up against the window edge.
- Align the cover on the outer edge of the rear window.
- Fit the cover and visually check for perfect fit.



- Reposition the lever (1) in the direction of arrow and close the special tool.
- Ensure the correct positioning of the cover (3) in the guide pulleys (2).



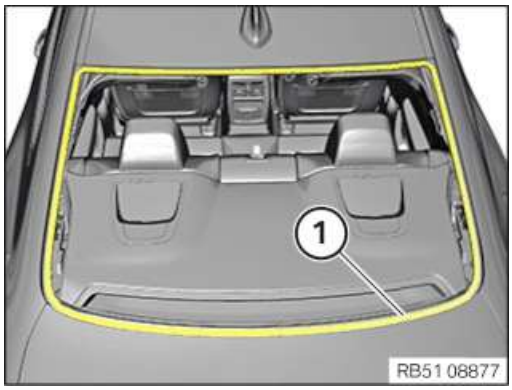
- Continue to pull off protective film (1) in stages from adhesive tape.
- Pull the special tool in the direction of arrow with the handwheel over the entire upper edge of the window glass.

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9 – Preparing for the installation of rear window

9 – Preparing for the installation of rear window



- Protect vehicle interior against contamination.
- Clean the body aperture (1) with the adhesive bead.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean the painted sheet surfaces without the adhesive bead.

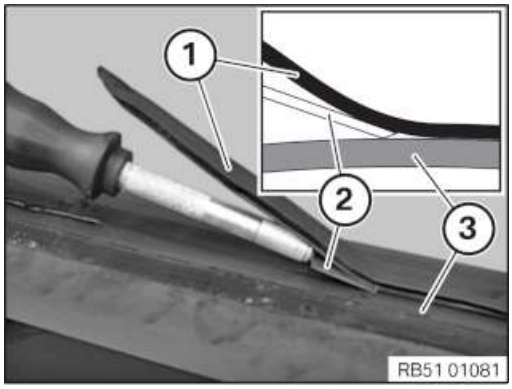
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

- Allow to dry after cleaning.

Air drying time after cleaning

Window glass or painted panel without residual adhesive bead	5 min
Body with adhesive bead	15 min



- Remove the adhesive bead (1) on the body aperture using the standard tool (2) just before bonding.

  Standard tool:

TECHNICAL INFORMATION

Do not touch the adhesive bead after cutting or bring cleaning agents in contact with it.

- Use pinchweld scraper (2) as shown.
- Trim the adhesive bead (1) on the body (3).

Residual height of the adhesive bead

Residual height of the adhesive bead	max. 1 mm

- It is imperative to touch up paintwork damages.
- Grind extensive areas of damage down to the bare panel and coat.

HS-AM multi-base filler, VOC

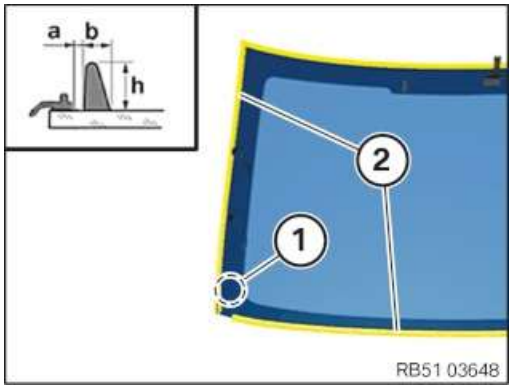
Layer thickness	30 µm ... 40 µm
Hardening time with infrared	10 min
Hardening time without infrared 60°C	30 min
Hardening time without infrared 20°C	1 Tag
Expendable materials: HS-AM multi-base filler VOC	

10 – Installing the rear window

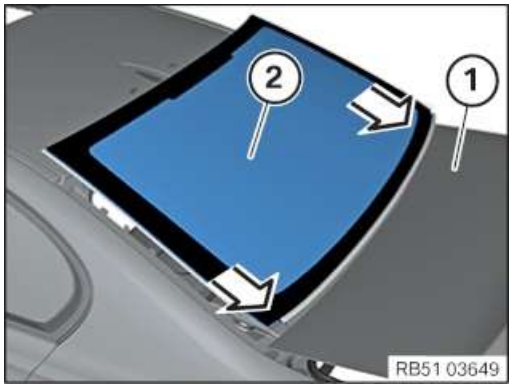
TECHNICAL INFORMATION

The seal on the rear window at the bottom is deleted. A damaged seal must be removed.
The rear window is installed **without the seal**.

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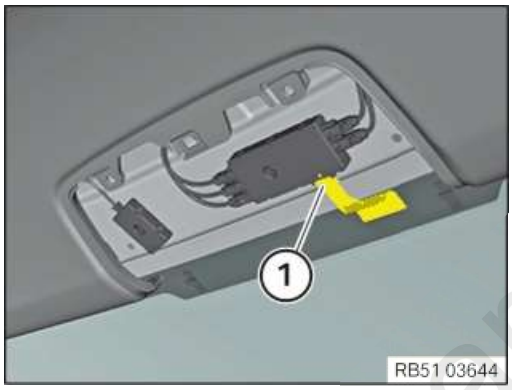


- Clean the bonding surfaces on the body and on the rear window.
- Keep 2 glue cartridges ready.
- Prepare one of the glue cartridges with the standard nozzle C.
- Apply bead joint in area (1).
- Apply adhesive bead within the mark (2) on the rear window.

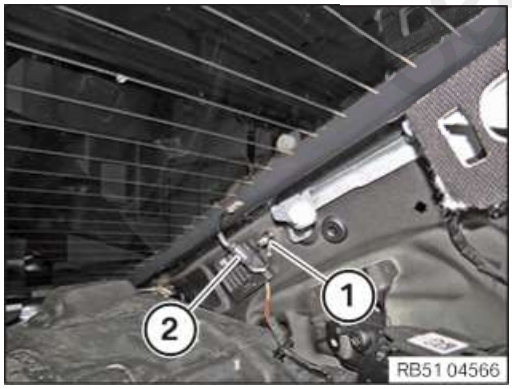


- Open tailgate (1) approx. 1/3 and secure in this position.
- Carefully guide the rear window (2) with the suction lifters parallel to the C-pillar and feed in below the tailgate.
- Carefully position the rear window (2) with the suction lifters on the top and align it sideways at the same time.
- Carefully push up the rear window (2) with the suction lifters upwards until the sealing rests evenly on the roof.
- Carefully push the rear window (2) with the suction lifters all around and adjust the gap dimensions.
- Measure short length (A) of the rear window (1) to the roof outer skin (2) with the special tool 0 495 259 (51 0 010).

  Measure the gap dimension (B) with special tool 0 496 076 (00 9 470).
- Secure rear window (1) with adhesive tap on the roof.



- Connect connector (1).



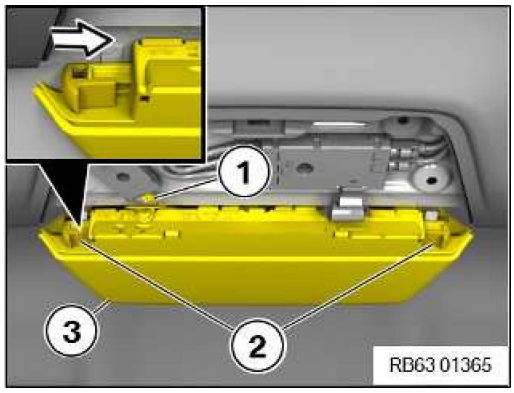
- Secure the cable (2) onto the attachment point with the nut (1).



- Loosen cable (2) from the rear window.
- Connect connector (1).

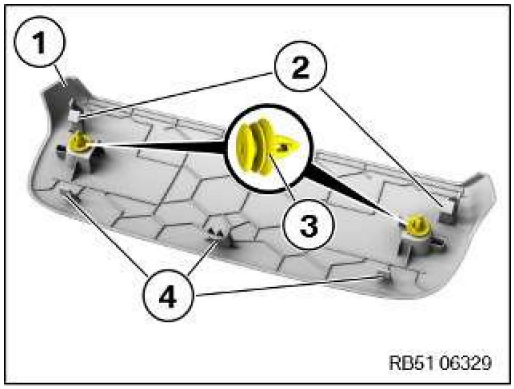
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11 – 3. brake light



- 3. Position the brake light (3).
- Lock both slides (2) inwards in the direction of the arrow.
- Connect connectors (1) and lock.

12 – Installing trim for additional brake light



Check

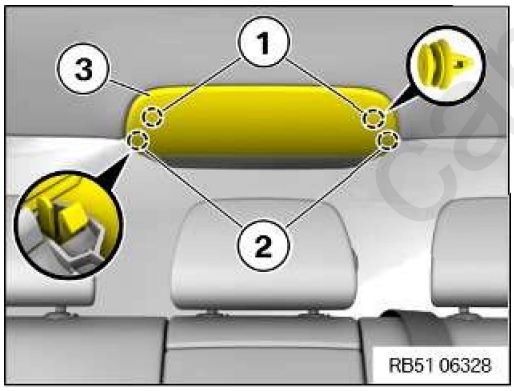
- Check the clips (3) for damage and renew if necessary.
- Check latch mechanisms (2) and guides (4) for damage.

Result

» The latch mechanism or the guide is damaged.

Measure

- Renew the trim for the additional brake light.



- Position trim for additional brake light (1) from the bottom and clip it in with latch mechanisms (2).
- Clip in clips (1).

13 – Installing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing C-pillar trim panel**

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

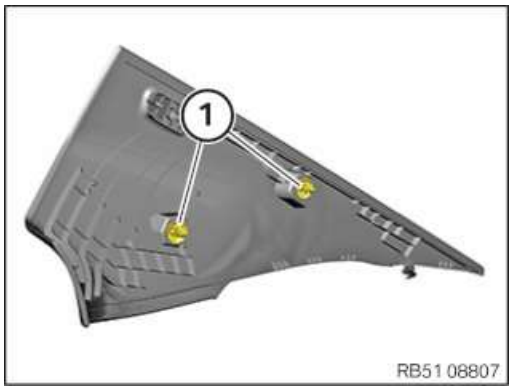
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

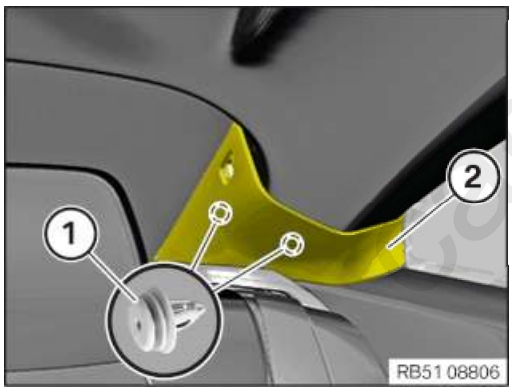
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

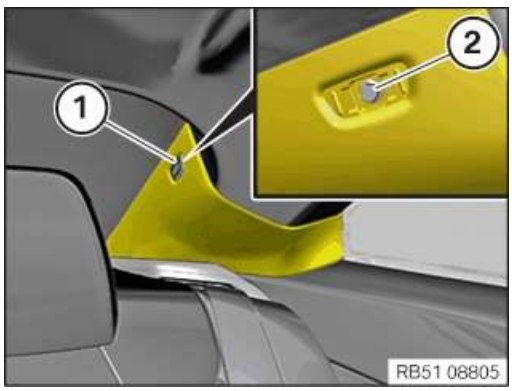
- Do not use sharp-edged tools when removing the trim panel.



- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

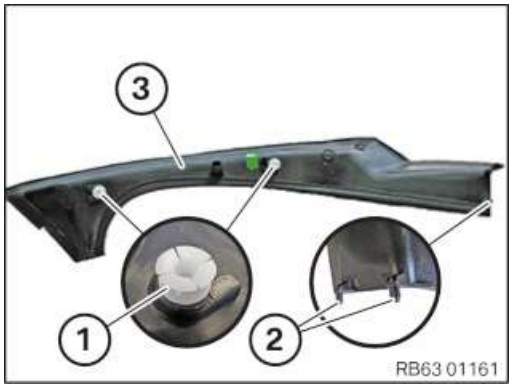
- Clip in cover (1) of the C-pillar trim panel.

14 – Installing the trim panel for the rear left and right water channel

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NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the clips (1) and guides (2) on the trim panel for the water channel (3) for damage.



- Clip in the trim panel for the water channel (1).

Additional Information

Overview of Tightening Torques

C-pillar trim panel to body — Used in step 13

Screw		Tightening torque	2,6 Nm

Overview of Special Tools

0 496 569 (00 9 325) Wedge



Common — Used in step 1

Usage	(Panel wedge) From 11/2008 this special tool replaces panel wedge 00 9 317 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	41 01 09 (507)

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2 357 248 Removal and installation kit



Common

Used in step 5

Usage	Removal system for removing glued windshields, side and rear windows without causing damage. The windows are cut out using an ultra-strong cord made from braided polyethylene fibres.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	05 06 13 (934)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
2	2 357 312		**Fitting aid** The tool for placing string (81 43 2357312) is a part of the disassembly system “Spider” (81 43 2357248).	
1	2 344 272		**Nylon string** The nylon string (81 43 2344272) is a part of the disassembly system “Spider” (81 43 2357248).	

2 184 377 Siphon



Common

Used in step 5

Usage	Siphon for the removal, installation and positioning of vehicle windows.
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	08 01 10 (635)

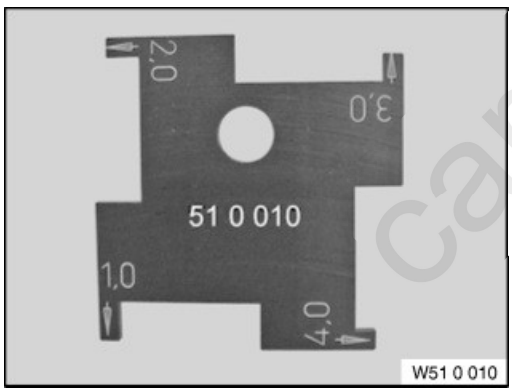
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0 410 436 Tool set



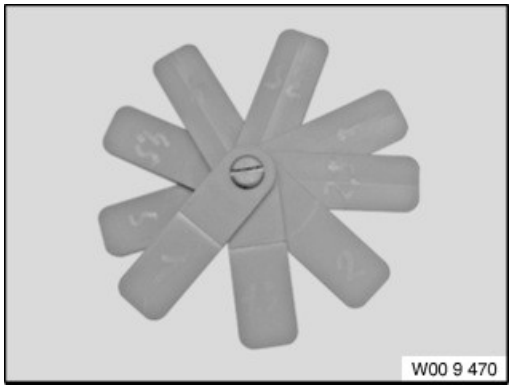
Common	Used in step 5
Usage	Folding scraper set for removing seal residues such as window glass adhesive or seals in the engine compartment
Included in the tool or work	
Storage location	individual
Replaced by	
In connection with	
SI-Number	08 02 05 (206)

0 495 259 (51 0 010) Gauge



Common	Used in step 10
Usage	(test gauge for installing windscreen and rear window) (replaces special tool 51 3 210 from 06/2005)
Included in the tool or work	
Storage location	B2
Replaced by	
In connection with	
SI-Number	01 10 05 (189)

0 496 076 (00 9 470) Gauge



Common	Used in step 10
Usage	(Gap gauge) From 1 to 5 mm (1; 1.5; 2; 2.5 ...). For checking body gap dimensions.
Included in the tool or work	0 496 091
Storage location	A24
Replaced by	
In connection with	
SI-Number	01 03 07 (337)

Overview Technical Data

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Air drying time after cleaning	Used in step 79
Window glass or painted panel without residual adhesive bead	5 min
Body with adhesive bead	15 min

Residual height of the adhesive bead	Used in step 79
Residual height of the adhesive bead	max. 1 mm

HS-AM multi-base filler, VOC	Used in step 9
Layer thickness	30 µm ... 40 µm
Hardening time with infrared	10 min
Hardening time without infrared 60°C	30 min
Hardening time without infrared 20°C	1 Tag
Expendable materials: HS-AM multi-base filler VOC	

Links

General repair instructions	Used in step
51 00 ... Notes on component bonding using adhesive tape	8
51 31 ... General procedure when dismantling/installing bonded window glass	

Repair instructions	Used in step
51 31 ... Removing windows with a "Spider"	

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51 31 000 Removing and installing windscreen

RISK OF DAMAGE



Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

TECHNICAL INFORMATION

The following procedure forms the basis for these repair instructions and must be observed without fail.
For more information see: 51 31 ... General procedure for disassembly/installation of bonded window glass

TECHNICAL INFORMATION

Perform window removal using the "spider".
For additional information see: 51 31 ... Window glass removal using "spider"

PRELIMINARY WORK

1 – Remove left and right A-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

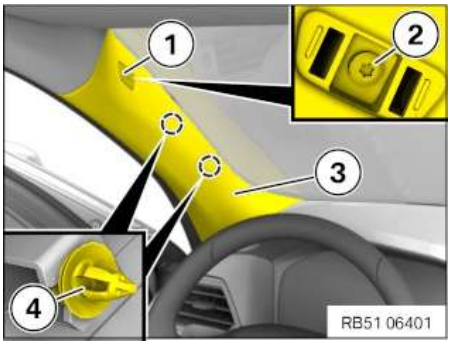
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RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

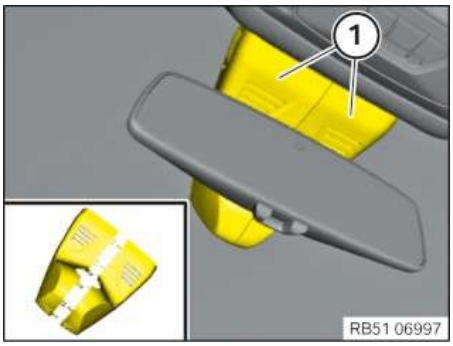
- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

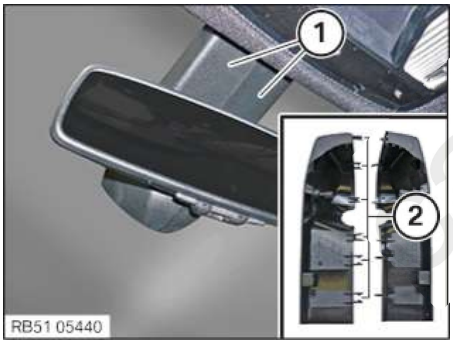
2 – Removing the covers for the interior mirror

- **Version A:**



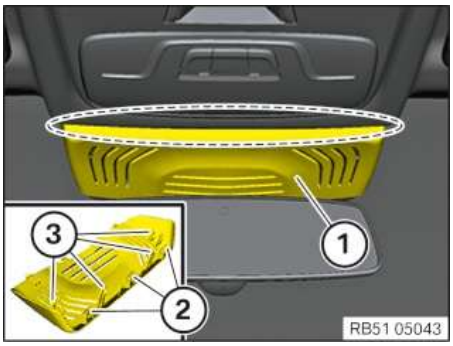
- Release cover (1) in the middle with a suitable plastic wedge from the latch mechanisms and remove.

- **Version B:**



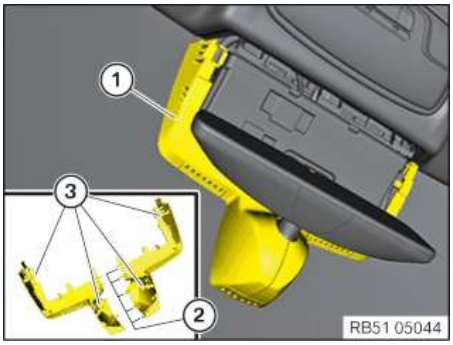
- Release the cover (1) from the latch mechanisms (2) with a suitable plastic wedge and remove sideways.

- **Version C:**



- Detach cover (1) from the clamps (2) in the marked area using a suitable plastic wedge and pull down a certain distance.
- Release cover (1) at the retaining lugs (3) and remove from the guides to the rear.

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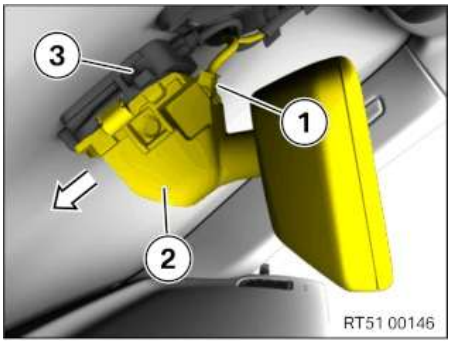
- Release cover (1) from the latch mechanisms (2) and (3) and remove sideways.
- Remove cover (1) from mirror base (2).

- **Version D:**



- Release covers (1) and (2) using a suitable plastic wedge at the separation point (3) and remove from the side.

3 – Remove inside mirror



TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.

- Unlock plug connection (1) and disconnect.

RISK OF DAMAGE

Damage to the component.

Excessive force may damage the component.

- Handle component carefully.

- Jerk and pull off the interior mirror (2) in the direction of the arrow from the mirror base (3).

4 – Remove KAFAS camera

▸ **Remove KAFAS camera (Mid variant)**

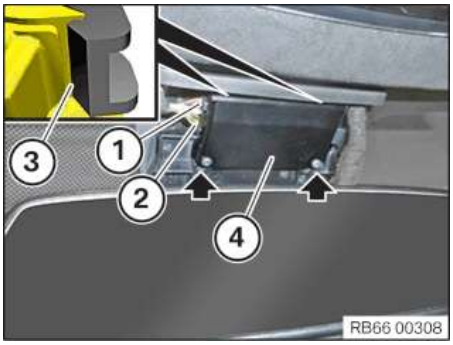
RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

Damage to the retaining hooks of the KAFAS camera holder.

- Unlock the retaining hook with a suitable tool **carefully** .

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- Unlock plug connection (1) and disconnect.
- Unlock plug connection (2) and disconnect.
- Unlock the retaining lugs (3).
- Thread out KAFAS camera (4) at the guides (arrows) and remove.

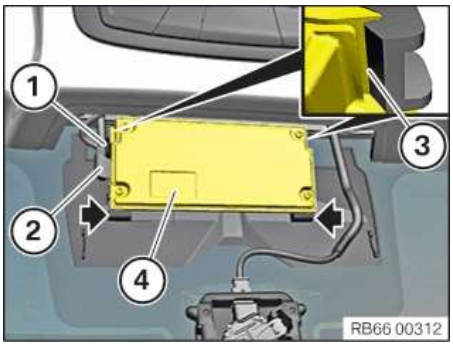
▸ **Remove KAFAS camera (high version)**

RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

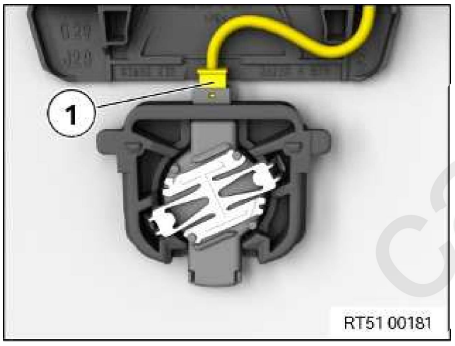
Damage to the retaining hooks of the KAFAS camera holder.

- Unlock the retaining hook with a suitable tool **carefully** .



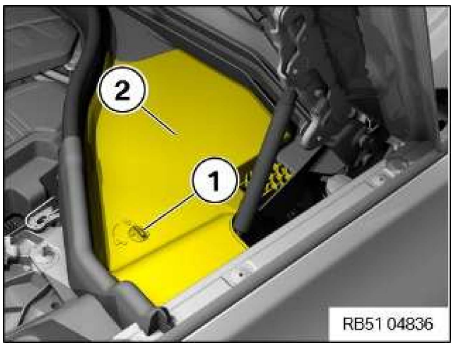
- Unlock plug connection (1) and disconnect.
- Unlock plug connection (2) and disconnect.
- Unlock the retaining lugs (3).
- Thread out KAFAS camera (4) at the guides (arrows) and remove.

5 – Disconnect rain-light-solar-condensation sensor



- Unlock plug connection (1) and disconnect.

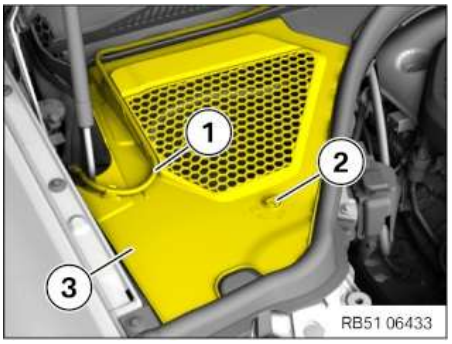
6 – Remove the cover of the engine compartment at the rear left



- Loosen the lock (1).
- Remove the cover (2) of the rear left engine compartment.

7 – Remove the cover of the rear right engine compartment

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- Release washer fluid hose (1) from the guides.
- Loosen the lock (2).
- Remove the cover (3) of the rear right engine compartment.

8 – Removing the wiper arm on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

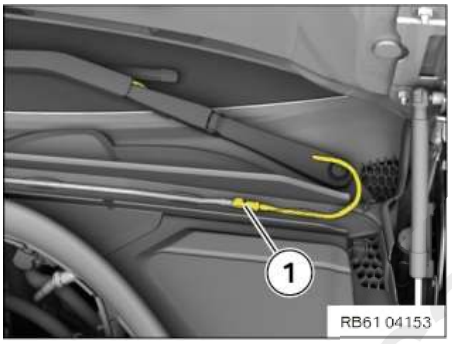
▶ **Remove the wiper arm**

RISK OF DAMAGE

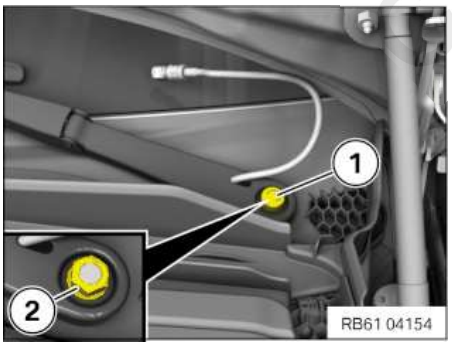
Damage to wiper console.

While removing the wiper arms without using special tool, the wiper console can break.

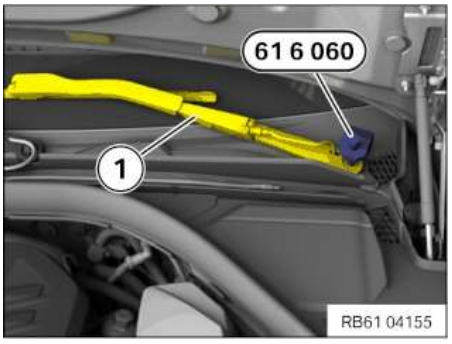
- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.



- Disconnect the washer fluid hose (1) at the separation point and feed out from the cowl panel guide.



- Remove the protective cap (1).
- Loosen nut (2).



- Pull off the wiper arm (1) using special tool .

9 – Remove the gutter strip on the windscreen on the left and right

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NOTICE

Description is for left component only. Procedure on the right side is identical.

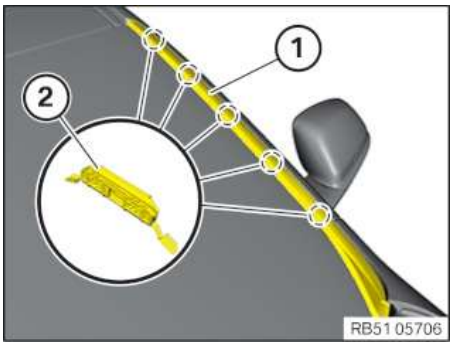
▸ **Remove the gutter strip on the windscreen**

RISK OF DAMAGE

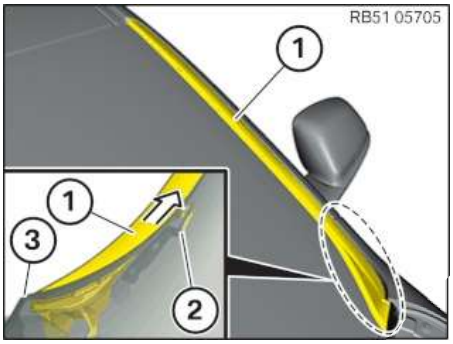
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

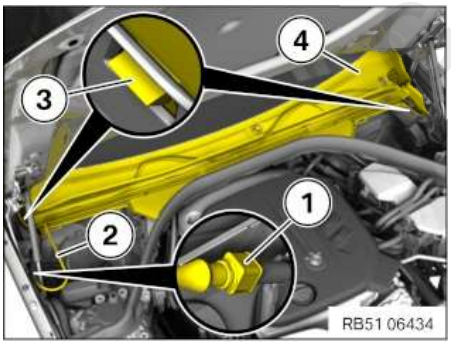


- Unclip gutter strip on the windscreen(1) from the clamps(2) starting at the roof and working upwards.

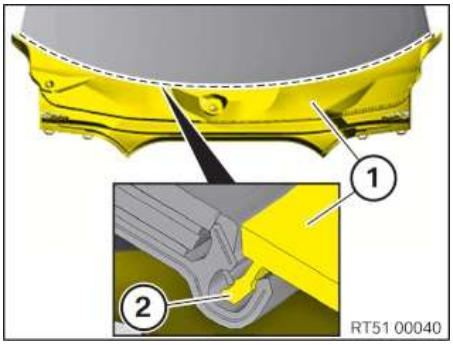


- Pull out gutter strip on the windscreen (1) out of guide (2) in direction of arrow and carefully guide out at the side panel (3).

10 – Remove cowl panel cover



- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).



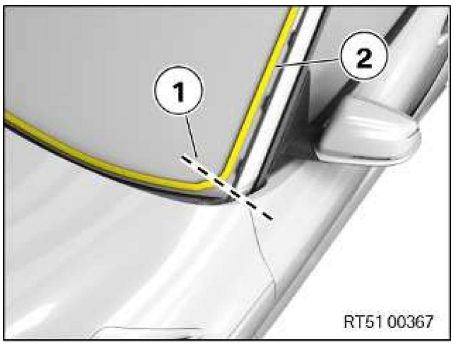
- Pull the cowl panel cover (1) upward out of the latch mechanism (2) beginning on the side.

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11 – Removing the windscreen

TECHNICAL INFORMATION

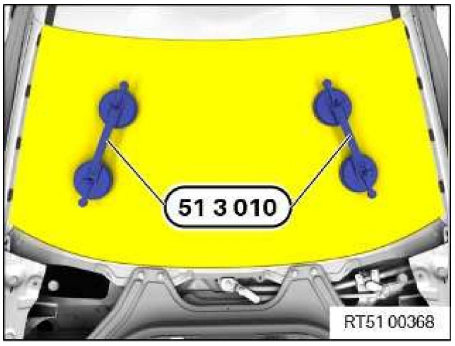
Perform window removal using the "spider".
For additional information see: 51 31 ... Window glass removal using "spider"



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Tape off body in area of piercing point with fabric adhesive tape.
- Push the thread along the line (1) through the adhesive bead (2) from the inside.
- Cut out the windscreen with the spider.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Remove windscreen with the special tool .

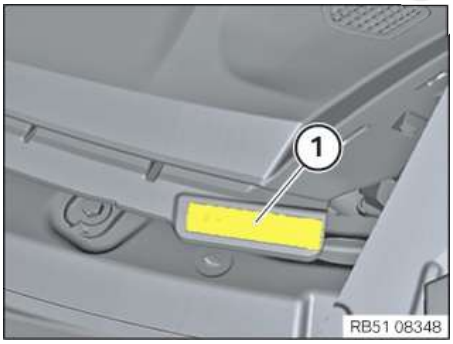
12 – Checking the sign

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.



Check

- Check sign (1) for damage.

Result

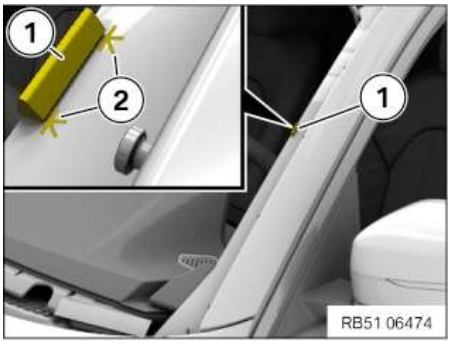
» Sign (1) is damaged.

Measure

- Renew sign (1).

13 – Replace the spacer

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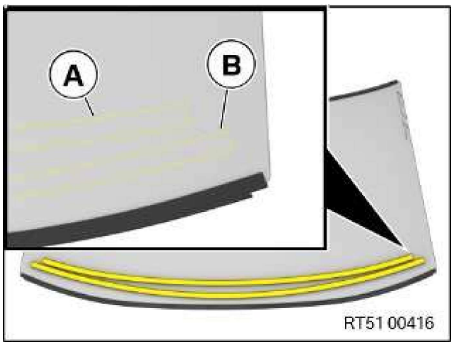
NOTICE

Description is for left component only. Procedure on the right side is identical.

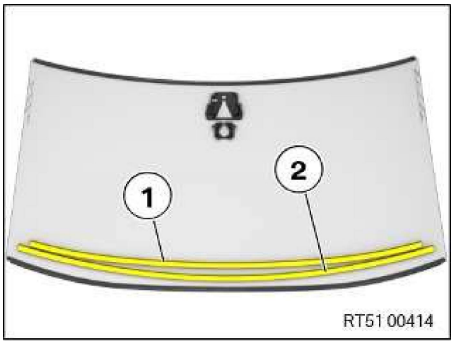
- Remove adhesive residues from the body when installing the windscreen and clean the adhesive area.
- Completely remove the existing spacer (1).
- Bond the spacer (1) in the centre on the embossed marks (2) on the body side.

Parts: Spacer

14 – Replacement: prepare the windscreen



- Observe marks (A) and (B) for the expanding foam tape on the windscreen.

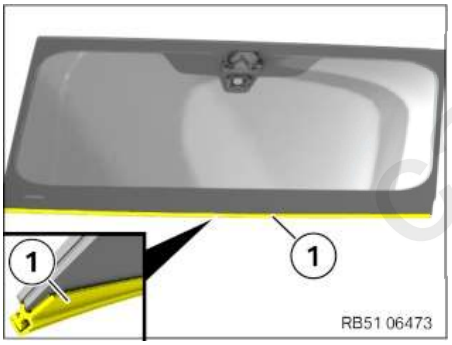


- Attach expanding foam tapes (1) and (2) along the marks on the edge of windscreen.

Parts: Expanding foam tape

Check

- Check the guide (1) for the cowl panel cover for damage.



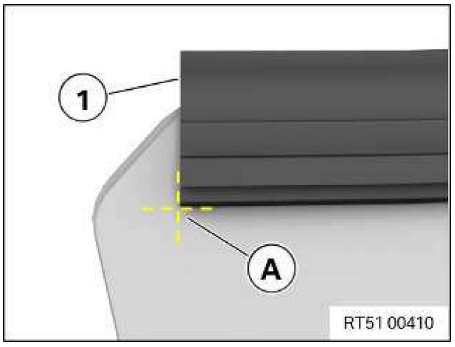
Result

» Guide for cowl panel cover is damaged.

Measure

- Renew windscreen.

15 – Installing the windscreen rubber frame

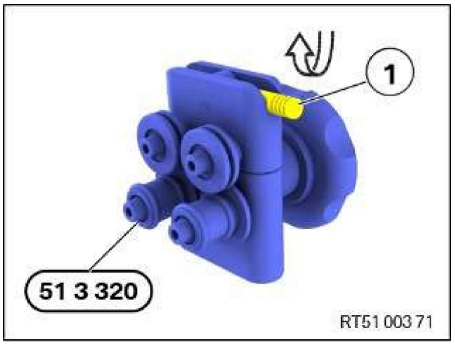


NOTICE

Perform the operations on the left and right side.

- Observe marks (A) for the windscreen rubber frame (1).

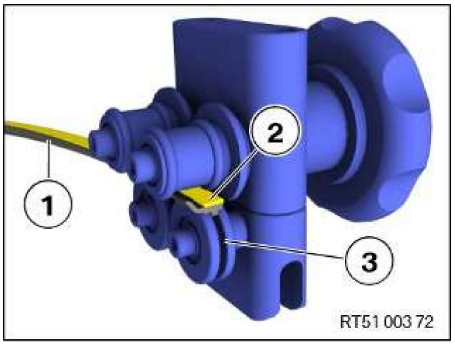
cardiagn.com



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

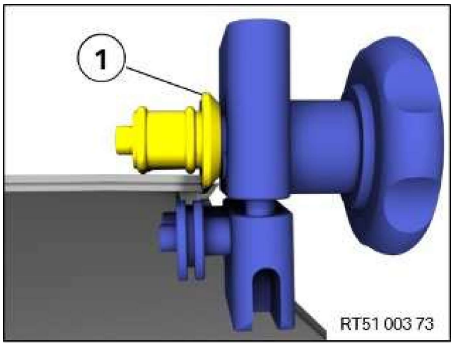
- Reposition lever (1) in direction of arrow and open it using the special tool .



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

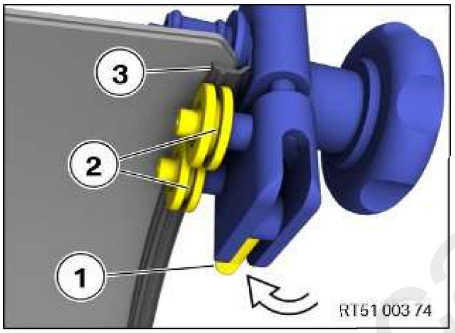
- Pull off protective film (2) in stages from adhesive tape.
- Insert the cover (1) into the guides (3).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

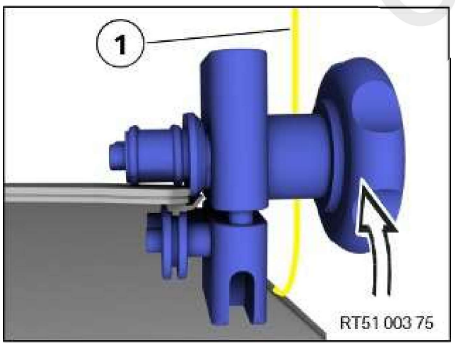
- Place the special tool with the pressure rollers (1) up against the window edge.
- Align the cover with the outer edge of the windscreen.
- Fit the cover and visually check for perfect fit.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Reposition the lever (1) in direction of arrow to close the special tool.
- Ensure the correct positioning of the cover (3) in the guide pulleys (2).



NOTICE

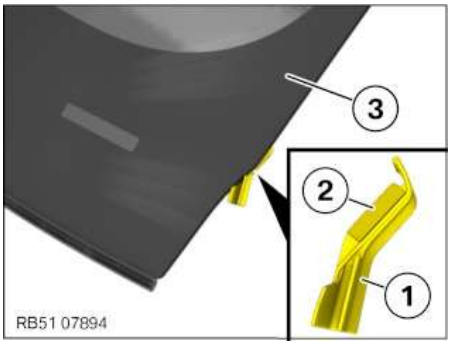
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Continue to pull off protective film (1) in stages from adhesive tape.
- Pull the special tool in the direction of arrow with the handwheel over the entire upper edge of the window glass.

16 – Installing the windscreen.

▸ **Installing the water guide element on the left and right**

carolagn.com

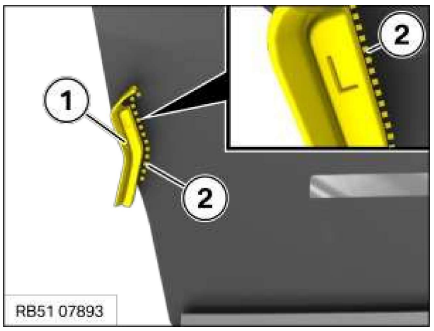


- Check the water guide element (1) on the left and right for damage and renew if necessary.
  Do not mix up the left and right water guide element.
- Clean the bonding surface with cleaning agent.

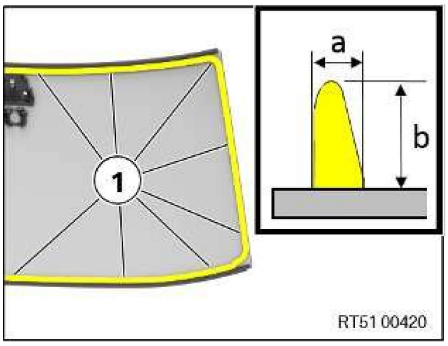
Expendable materials

Cleaning agent R2	500 ml	83190417324

- Remove liner (2) from the water guide element (1) and position on the windscreen (3).



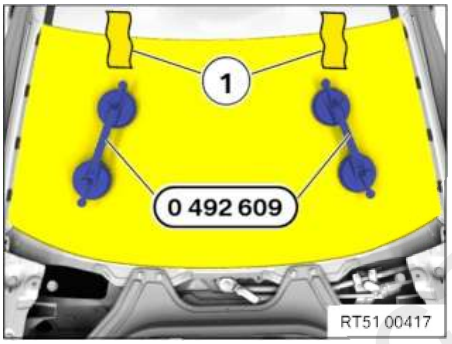
- Position water guide element (1) at the mark (2) and press it down.



NOTICE

Perform the operations on the left and right side.

- Prepare the glue cartridge with the standard nozzle C.
- Apply adhesive bead within the marks (1) on the windscreen.

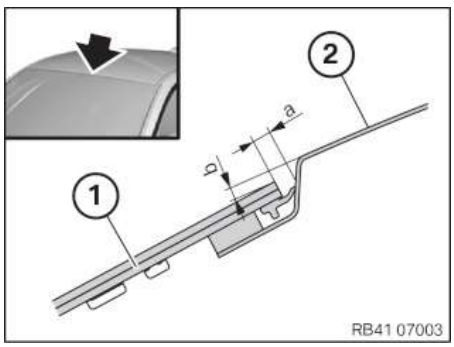


- Carefully insert the windscreen using special tool between the bonnet and the cowl panel.
- Position the windscreen at the top.
- Evenly align the windscreen on the left and right.
- Insert and press on the windscreen at the bottom.
- Press the windscreen towards the top until the rubber frame of the windscreen is evenly in contact with the roof.
- Secure the windscreen in this installation position using the two yellow plastic adhesive tapes (1).

Gap dimension windscreen to roof outer skin

1 windscreen; 2 roof outer skin

a	4,3 (3,1 - 5.5) mm
b	3,6 (2.3 - 4,9) mm



POSTPROCESSES

17 – Installing cowl panel cover

carsdiagn.com

RISK OF DAMAGE

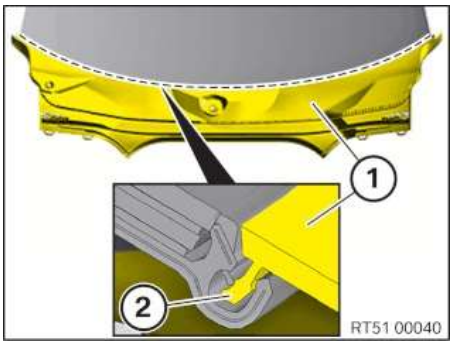
Damage caused by water ingress into the vehicle.

Water ingress into the vehicle may result in damage to components, malfunctions and corrosion.

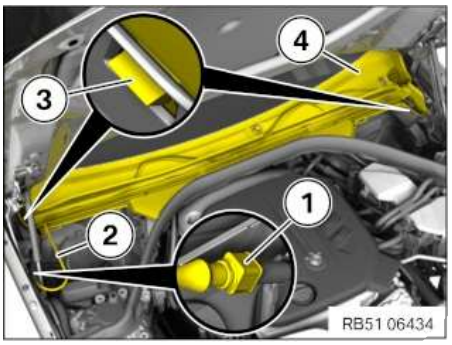
- Ensure correct installation of the components.
- Only use undamaged components.

TECHNICAL INFORMATION

Before installing the cowl panel cover it is **mandatory** to check that the 48 V line is routed correctly and fitted tightly.
An incorrectly laid or attached 48 V line can be damaged by the wiper kinematics.



- Push the cowl panel cover (1) into the latch mechanism (2) beginning on the side.



- Clip cowl panel cover (4)in by means of the latch mechanisms (3).
- Position windscreen wash hose (2) and connect windscreen wash hose (1)quick lock.

18 – Install the gutter strip on the windscreen on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install the gutter strip on the windscreen**

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

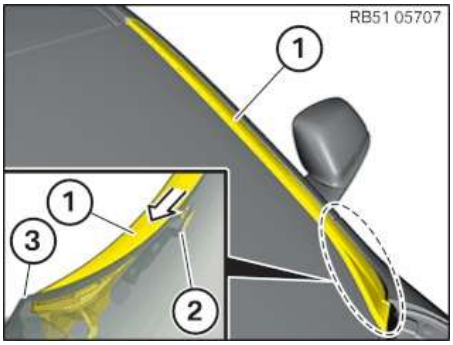
Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

TECHNICAL INFORMATION

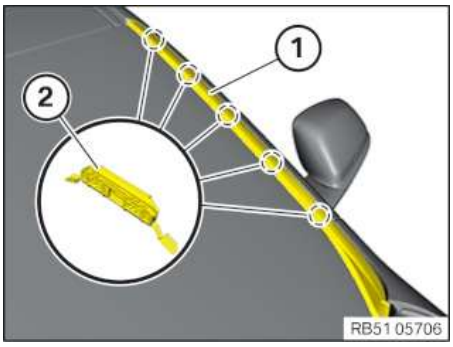
Latch mechanisms, guides and mounting elements must not be damaged or missing.

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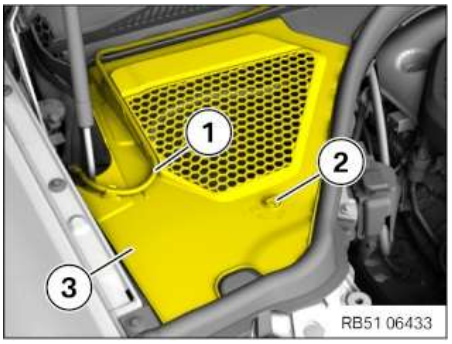
- Renew gutter strip on the windscreen (1) and paint if necessary.

  Parts: Gutter strip
- Carefully feed in the windscreen gutter strip (1) at the side panel (3) and simultaneously feed into the guide (2) in direction of arrow.



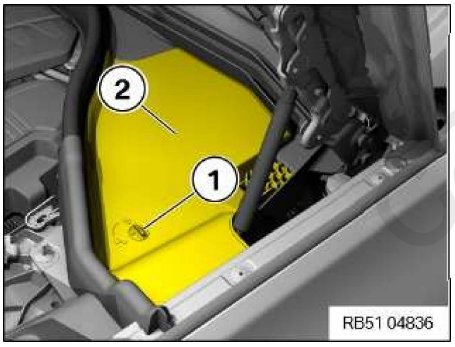
- Clip in the windscreen gutter strip (1) starting at bottom at the clamps (2).

19 – Install the rear right engine compartment cover



- Position the cover of the engine compartment on the rear right (3).
- Close lock (2).
- Insert washer fluid hose (1) into the guides.

20 – Install the cover of the engine compartment on the rear left



- Position the engine compartment cover at the rear left (2) .
- Close lock (1).

21 – Install left and right wiper arm

NOTICE

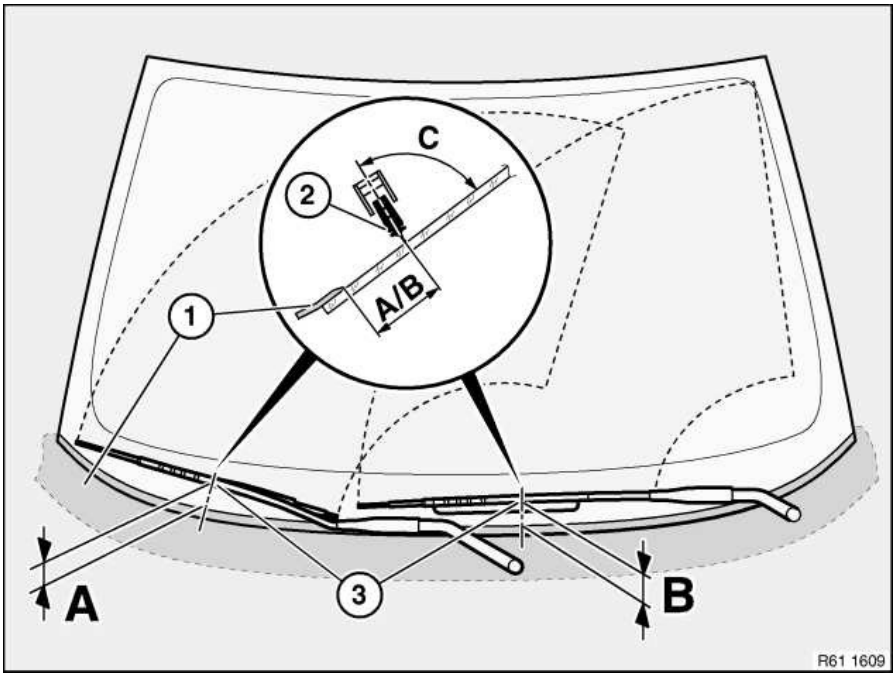
Description is for left component only. Procedure on the right side is identical.

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

The wiper system must be in zero position.
After installing the cowl panel cover and before fitting the wiper arm:
Activate the wiper system once to ensure that it has the correct installation position.

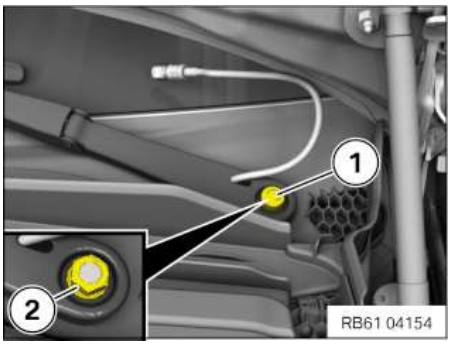
cardiagn.com



- Connect the wiper arm (3).
- Correctly position the wiper arm (2) in relation to the window edge (1).

Distance from window pane edge to wiper blade

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

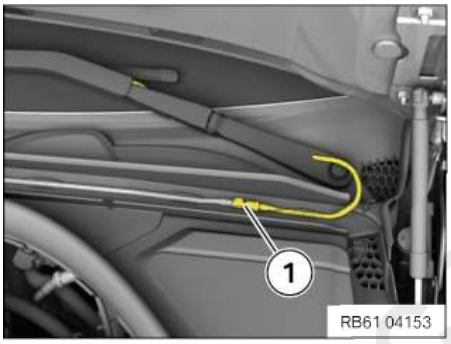


- Tighten nut (2).

Windscreen wiper arm

Combination hexagon nut		Tightening torque	35 Nm

- Connect the protective cap (1).



- Feed washer fluid hose (1) into the cowl panel guide and connect at the separation point.

22 – Install the A-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

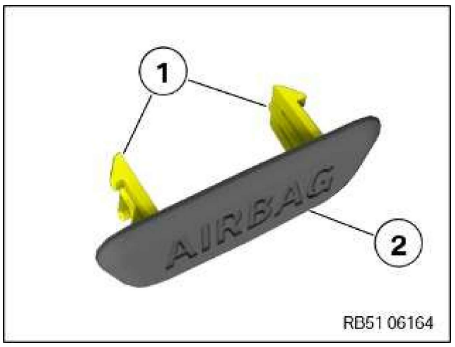
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RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



Check

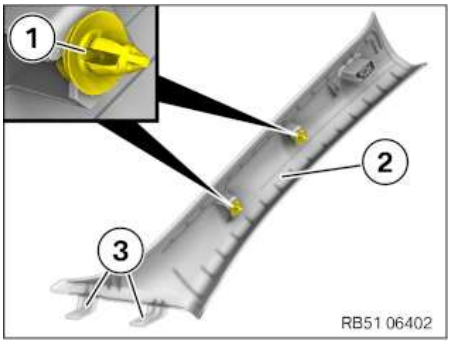
- Check retaining lugs (1) of cover (2) for damage.

Result

» Retaining lug is damaged.

Measure

- Renew the cover.



Check

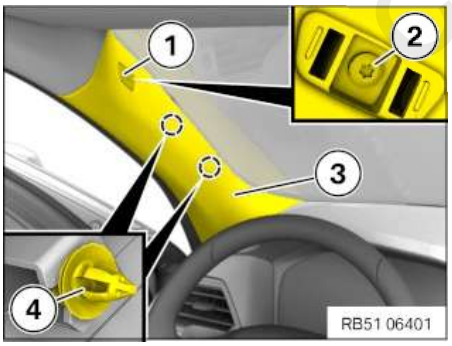
- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.



- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

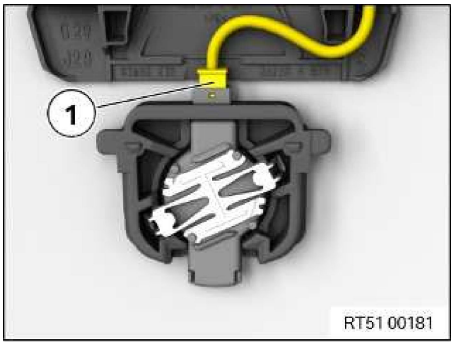
A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

- Clip in the cover (1).

23 – Installing the rain-light-solar-condensation sensor partially

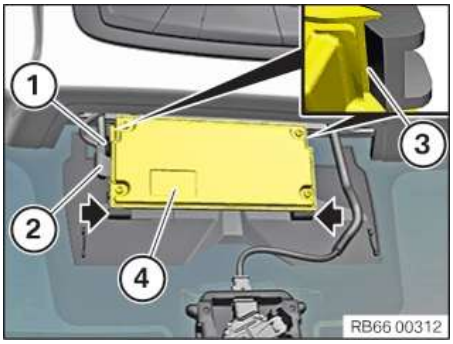
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- Connect connectors (1) and lock.

24 – Install KAFAS camera

▸ **Install KAFAS camera (high version)**

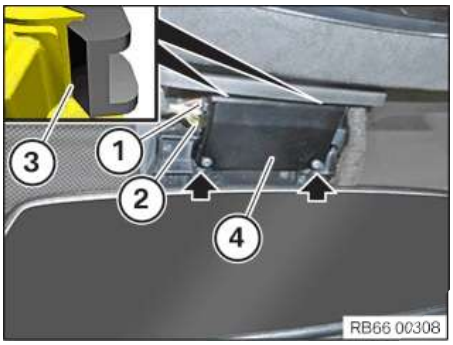


TECHNICAL INFORMATION

Latch mechanisms, guides and mounting elements must not be damaged or missing.

- Feed in the KAFAS camera (4) in the guides (arrows) and engage it in the retaining lugs (3).
- Make sure that the KAFAS camera (4) is engaged correctly at the retaining lugs (3).
- Connect connectors (2) and lock.
- Connect connectors (1) and lock.

▸ **Install KAFAS camera (Mid variant)**

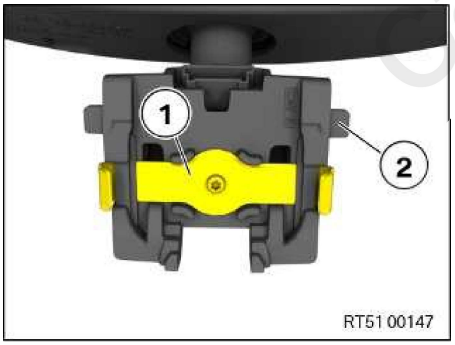


TECHNICAL INFORMATION

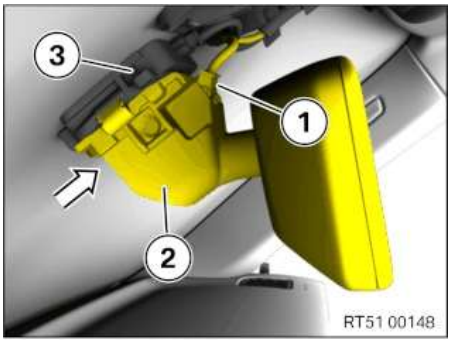
Latch mechanisms, guides and mounting elements must not be damaged or missing.

- Feed in KAFAS camera (4) on the guides (arrows) and engage the retaining lugs (3).
- Make sure that the KAFAS camera (4) engages correctly in the retaining lugs (3).
- Connect connectors (2) and lock.
- Connect connectors (1) and lock.

25 – Install interior mirror



- Check the clamp (1) on both sides of the mirror base (2) for damage and renew as needed.



TECHNICAL INFORMATION

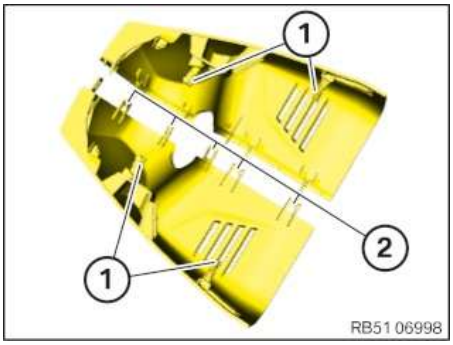
Carry out the work at temperatures between 18 °C and 23 °C only.

- Position the interior mirror (2) at the mirror base and slide it on in direction of the arrow.
- Check the correct installation position of the interior mirror (2) at the mirror base (3).
- Connect connectors (1) and lock.

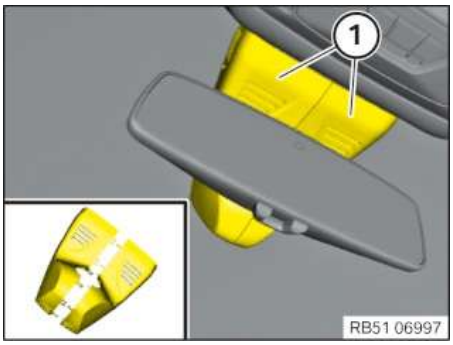
26 – Installing the covers for the interior mirror

cardiagn.com

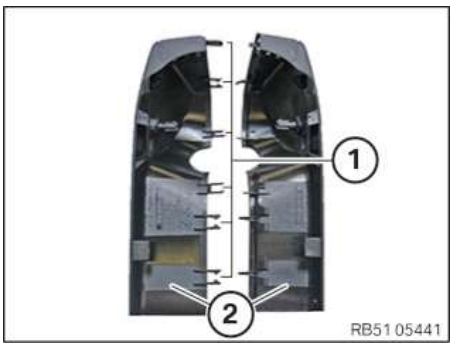
- **Version A:**



- Check latch mechanisms (1) and (2).
- If the latch mechanisms (1) or (2) are faulty, renew the covers.

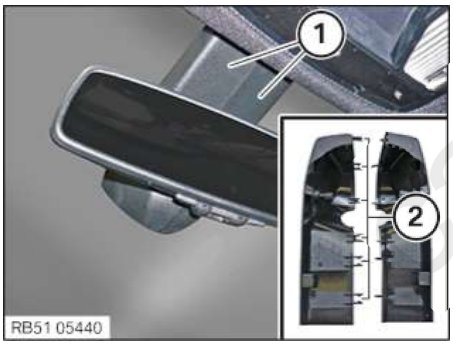


- Feed cover (1) in and lock.
- **Version B:**



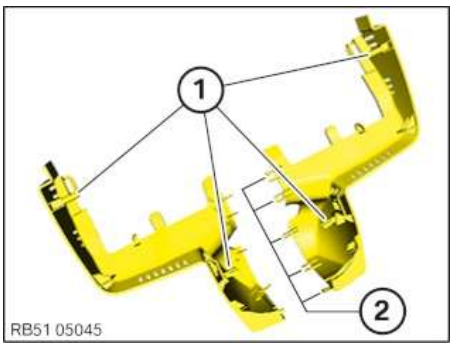
- Check the latch mechanisms (1) on the two covers (2) for damage, renew the covers (2) if necessary.

  The covers (2) must not be damaged or missing.



- Position the covers (1) correctly on the mirror and engage with the latch mechanisms (2).
- **Version C:**

Check



- Check the latch mechanisms (1) and (2) of the covers for damage.

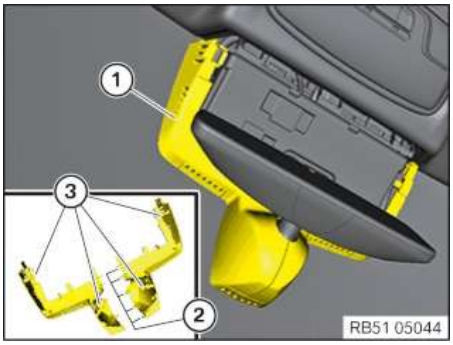
Result

» The latch mechanism is damaged.

Measure

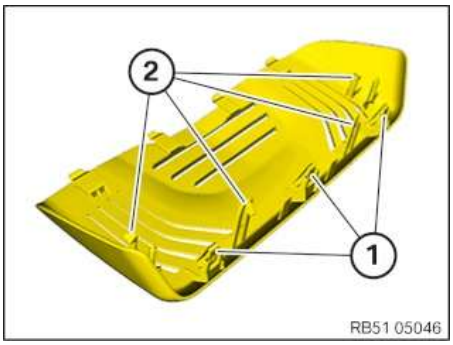
- Renew the cover.

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- Guide in cover (1) on left and right and engage using latch mechanisms (2) and (3).

Check



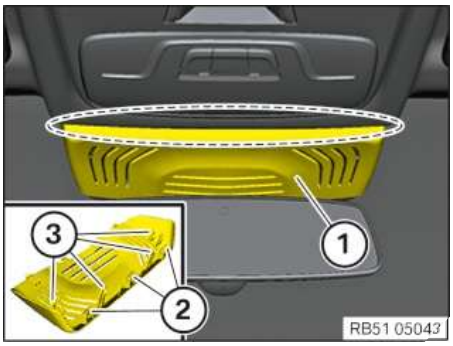
- Check clamps (1) for damage; renew if necessary.
- Check latch mechanisms (2) for damage.

Result

» The latch mechanism is damaged.

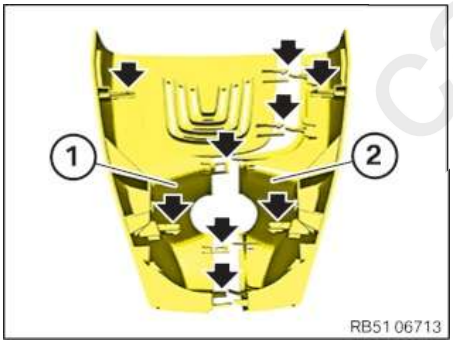
Measure

- Renew the cover.



- Guide cover (1) into front guides and engage using retaining lugs (3) and clamps (2).

- **Version D:**



- Check the latch mechanisms (arrows) on covers (1) and (2) for damage and, if necessary, renew covers (1) and (2).



- Position covers (1) and (2) correctly on the mirror and engage at the separation point (3).

27 – Calibrate KAFAS camera

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TECHNICAL INFORMATION

The calibration process of the KAFAS camera is not complete until the vehicle drives in traffic. Tell the customer that some assistance systems are temporarily unavailable after vehicle pick-up.

- Perform camera calibration using diagnosis system.

  Under Service Functions menu:

  - Driver assistance
  - Camera-based driver assistance systems
  - Calibration of camera-based driver support systems

Additional Information

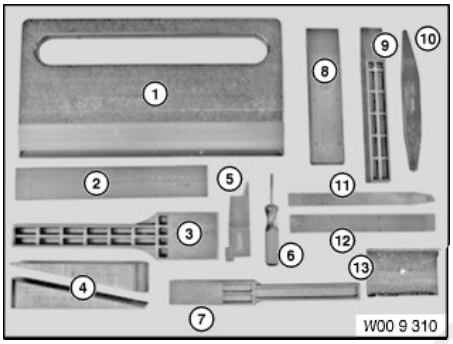
Overview of Tightening Torques

Windscreen wiper arm			Used in step 21
Combination hexagon nut		Tightening torque	35 Nm

A-pillar trim panel to body			Used in step 22
Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

Overview of Special Tools

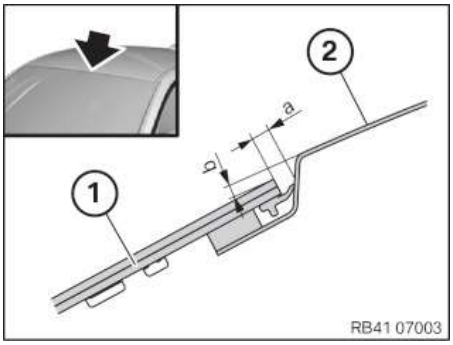
0 493 752 (00 9 329) Case



Common	Used in step 1
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Overview Technical Data

Gap dimension windscreen to roof outer skin	Used in step 16
1 windscreen; 2 roof outer skin	
a	4,3 (3,1 - 5.5) mm
b	3,6 (2.3 - 4,9) mm



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Distance from window pane edge to wiper blade	Used in step 21
Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

Links

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	1
72 00 ... Safety regulations for handling components with gas generators	1
51 31 ... General procedure for the disassembly and installation of bonded window glass	11
51 31 ... Materials for bonding window	11

Repair instructions	Used in step
61 35 ... Notes on ESD protection (Electro Static Discharge)	
61 35 ... Notes on ESD protection (Electro Static Discharge)	
51 31 ... Removing windows with a "Spider"	11

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51 31 ... Removing windows with a "Spider"

Windscreen removal system "Spider"



1	"Spider" separation device	6	Line threader
2	Bit holder	7	Line routing tool
3	Operating instructions	8	Suction anchor
4	Dashboard protection	9	Line to separate bonding
5	Angular transmission		

Accessories required for operation (not included):

Cordless screwdriver/drill with at least a 10.8 V Li-ion battery or a 18 V Ni-Cd battery and variable speed.

Note: Always use a low gear setting.

Note:
Damage as well as ergonomic and health-endangering damage are minimised with the "Spider" disassembly system.

Sourcing reference:

See Aftersales Assistance Portal (ASAP) - Service/Technical - Workshop Equipment (Start BMW) - Shop Workshop Equipment or at www.bmwgroup.com

Warning!
Follow safety instructions for working on vehicles with airbag systems (risk of injury).

Caution!
Handle sharp-edged tools with care (risk of damage to the head airbag and the window glass).

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Caution!

Always keep both suction cups dry and clean to ensure their optimum adhesion on the windscreen.

Suction cup may not be applied at the damaged point (crack in window glass).

The bearing bushes of the shaft (spindle) must always be lubricated.

Always wear safety goggles and protective gloves for your own safety.

Note:

The training video shows how to remove the windscreen.

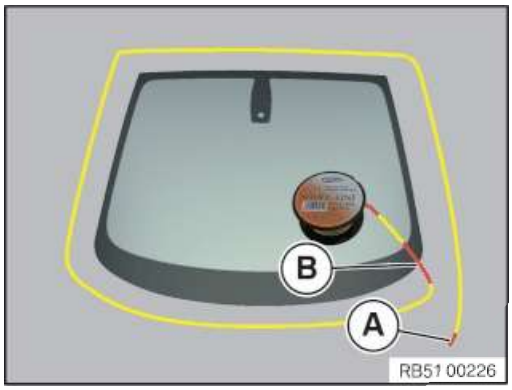
The training video does not replace the repair instructions.

The training video is not subject to the update service.

We can assume no liability for printing errors or inaccuracies in this document and reserve the right to introduce technical modifications at any time.

The procedure for disassembly of the windscreen is described below as an example.

Deviations in the work procedure can be found in the vehicle-specific repair instructions.



General information

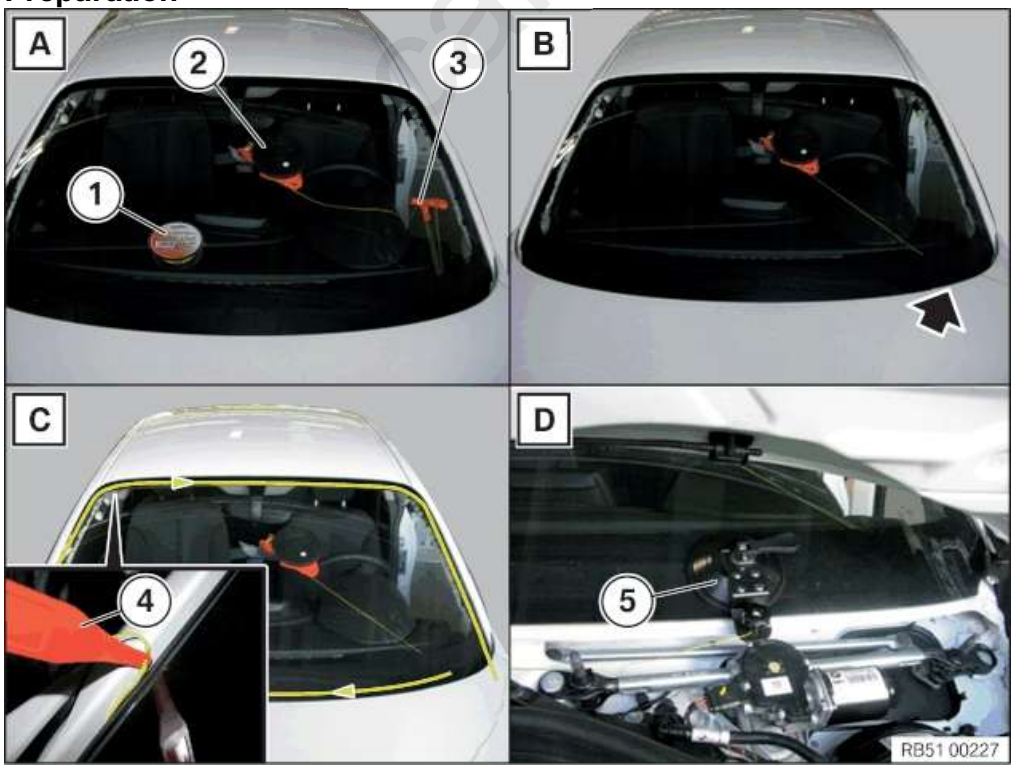
A cord approx. 6.8 m long is used to cut through the adhesive bead.

The cord length to be used is identified by a short red mark (A) approx. 5 cm.

The part of the cord laid outside around the window glass (approx. 5 m) is identified with a long red mark (B) (approx. 18 cm).

The marks are applied so that the cord has to be pulled from the inside to the outside.

Preparation



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A. Pierce cord from the roller (1) or separation device (2) with cord threader (3) through the adhesive bead from the inside, protect the area from the inside as required.
B. Pull out cord up to the first red mark (approx. 18 cm long).
C. Lay cord around the window glass, use pulling aid (4) if required.
D. Secure suction anchor (5) outside on window glass, secure cord to suction anchor (5).

If required, unwind cord from roller (1) up to the second red mark (approx. 5 cm long) and cut off.

Make sure the cord lies below the window glass at all four corners.
Check that the cord is not caught on clamps or body.
Secure window glass on outside with adhesive tape against sliding.

Feeding in the cord on the separation device



Normally, the adhesive bead is cut through anticlockwise seen from the passenger compartment.

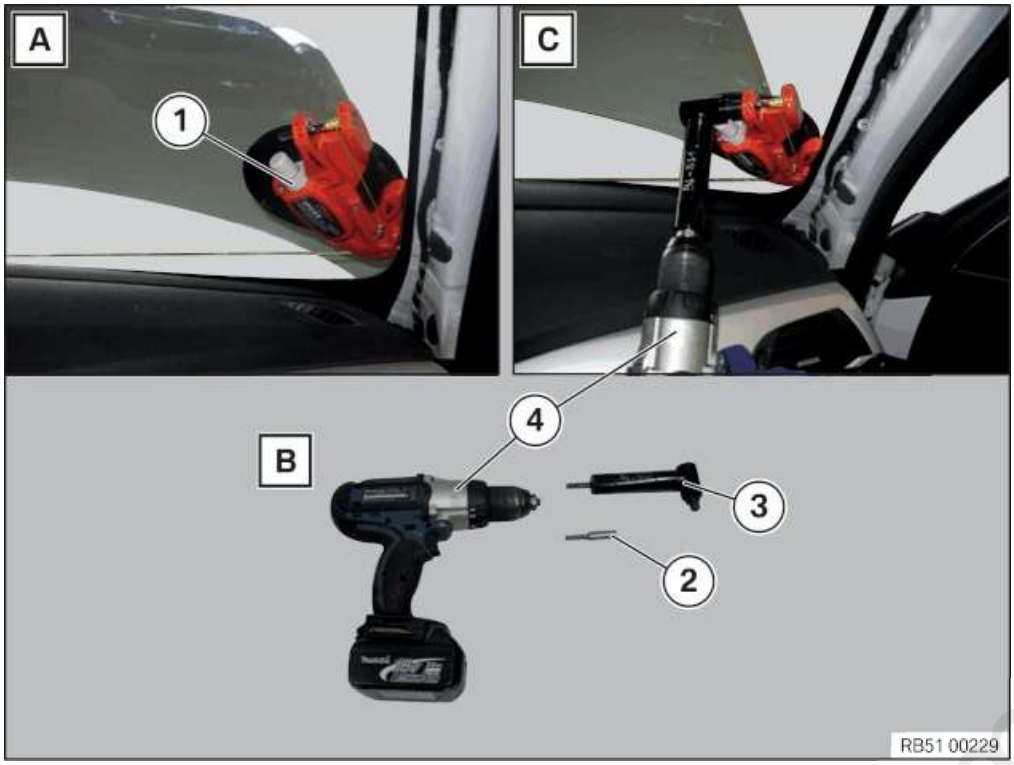
- This means the cord must be fed into the separation device as shown in graphic A.

When accessibility is not optimal, the opposite cutting direction may be required (comply with vehicle-specific repair instructions).

- This means the cord must be fed into the separation device as shown in graphic B.

Feed cord into coil and wind it on, at the same time trapping the end of the cord.
When winding the cord, the correct direction of rotation on the separation device must be observed.

Cutting out procedure



Optimum cutting is guaranteed when the cord is at an acute angle to the adhesive bead. There is a risk of the cord ripping if the angle is too obtuse.

The separation device must be positioned correspondingly to achieve the appropriate angle.

A. Fix separation device (1) on window glass at bottom right.
B. Depending on accessibility, attach bit holder (2) or angle gear (3) to cordless screwdriver (4).
C. Place cordless screwdriver (4) on separation device (1) and start winding cord, observe direction of rotation on separation device.

If required, over trim panel components with plastic protection.

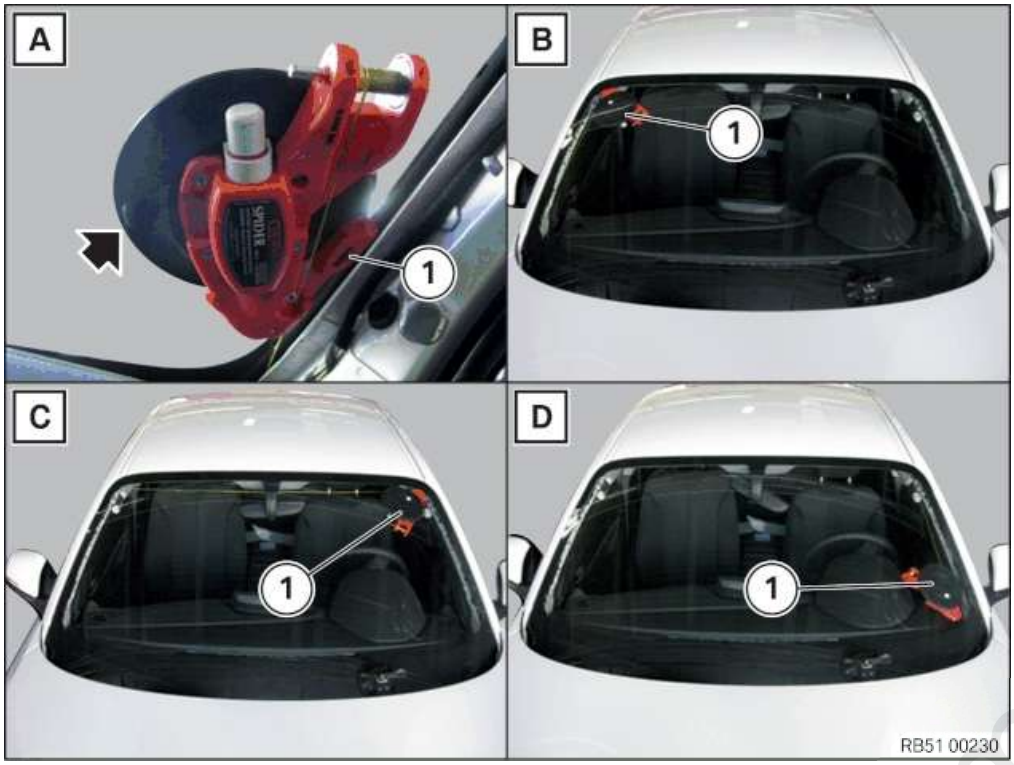
Guide cord with plastic protection around sharp-edged positions.

Cut through adhesive bead up to bottom area of A-pillar.

Turn back cordless screwdriver (4) approx. 2 rotations and remove.

Cutting out procedure

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A. Discharge vacuum on windscreen removal tool (1) by pressing the tab, remove windscreen removal tool (1) from window glass.

B. Reset removal tool (1) at illustrated and wind up cord up to the position of windscreen removal tool (1).

C./D. Repeat further resetting, work sequence as given at B.

Additional resetting may be required for very curved window glass.

It is possible to reuse the cord. When a cord is used many times the risk of ripping increases.
Dirt contamination must be avoided when a cord is reused.

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51 31 ... Removing windows with an oscillating knife



Warning!

Follow safety instructions for working on vehicles with airbag systems (risk of injury).

Important!

Handle sharp-edged tools with care (risk of damage to the head airbag and the window glass).



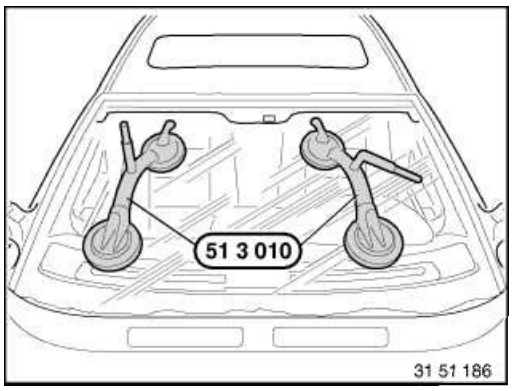
Important!

Follow the vehicle-specific repair instructions!

Always wear safety goggles and protective gloves for your own safety.

Cover the working area (side walls, roof-mounted aerial and if necessary interior equipment) with protective covers.

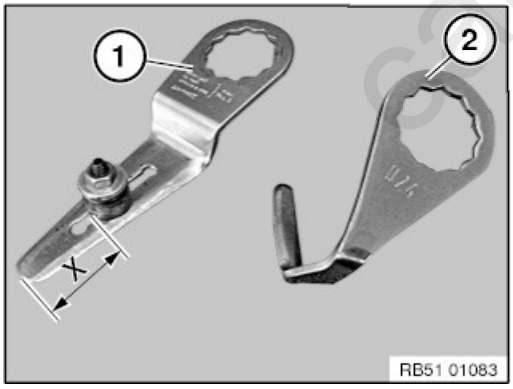
Tape off body with fabric adhesive tape (e.g. Tesa) in areas where the oscillating knife could damage the window glass or the paint.



Use suction cups (51 3 010) to lift out the window glass.

Always keep both suction cups dry and clean to ensure their optimum adhesion on the windscreen.

Secure window glass against falling out.



Depending on the area of application, knife 1 or 2 is used.

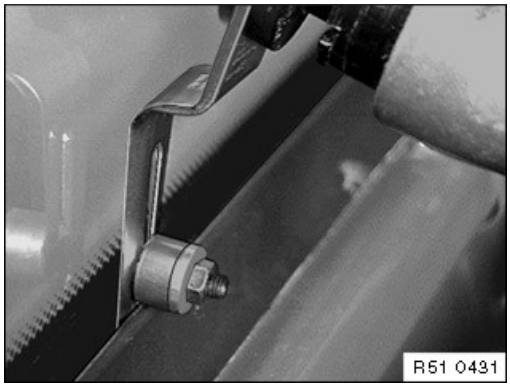
(1) Straight knife with adjustable thrust roller

(2) U-shaped knife

Dimension (X) on the knife (1) can be adjusted individually, see vehicle-specific repair instructions.

Note:
Sharpen knife blade before every use on a running machine with a grinding stone (even with new knife blade).

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Removing from the inside:

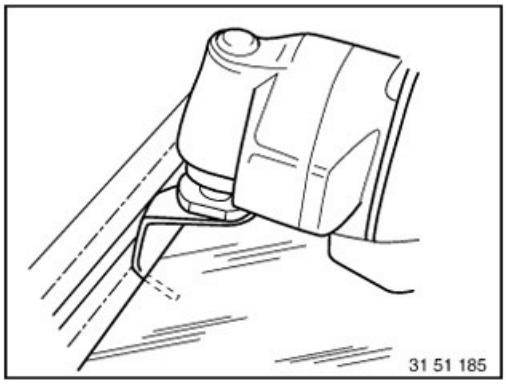
Guide knife carefully between body and window glass.

Run blade of knife parallel to glass.

Take care not to damage paintwork.

Cut through adhesive bead all the way around.

Pull window glass outwards to remove.



Removal from outside:

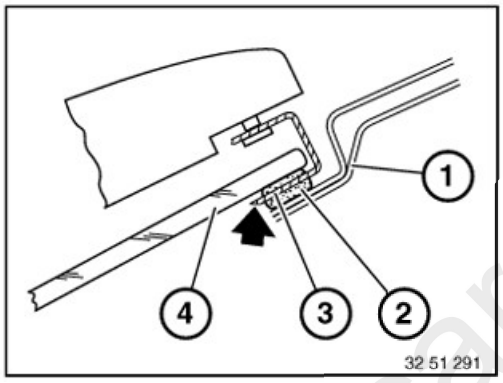
Guide knife carefully between body and window glass.

Run blade of knife parallel to glass.

Take care not to damage paintwork.

Cut through adhesive bead all the way around.

Pull window glass outwards to remove.



Cut through adhesive bead as closely as possible to window glass.

(1) Body opening

(2) Adhesive bead

(3) Knife

(4) Window

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51 31 221 Replace rear window

TECHNICAL INFORMATION

Perform window removal using the "spider".
For additional information see: 51 31 ... Window glass removal using "spider"

TECHNICAL INFORMATION

The following procedure forms the basis for these repair instructions and must be observed without fail.
For more information see: 51 31 ... General procedure for disassembly/installation of bonded window glass

PRELIMINARY WORK

1 – Removing the trim panel for the rear left and right water channel

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Unclip the trim panel for the water channel (1) with the special tool 0 496 569 (00 9 325).

2 – Removing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

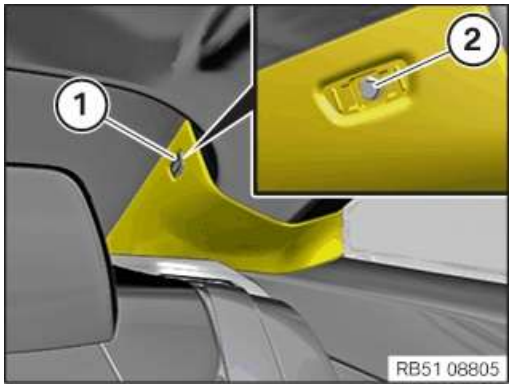
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RISK OF DAMAGE

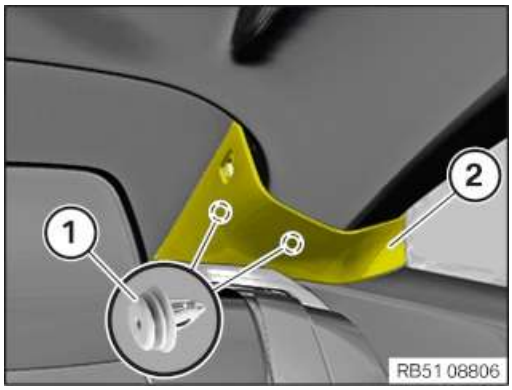
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

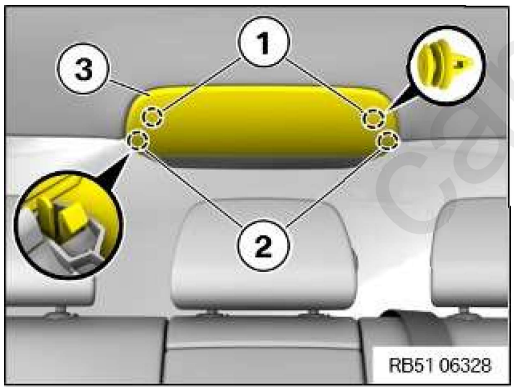


- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



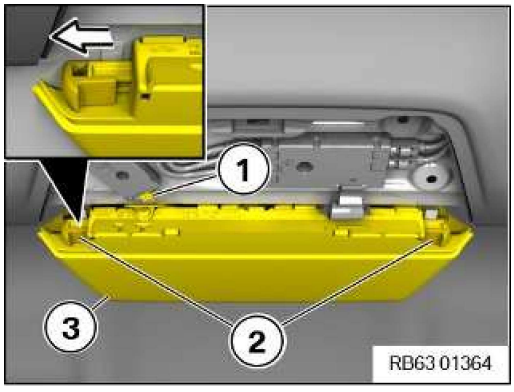
- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

3 – Removing the trim of the additional brake light



- Loosen the clips (1).
- Release the latch mechanisms (2) and remove the trim of the additional brake light (3).

4 – 3. Removing the brake light



- Unlock plug connection (1) and disconnect.
- Unlock both slides (2) outwards in the direction of arrow and remove the 3rd brake light (3).

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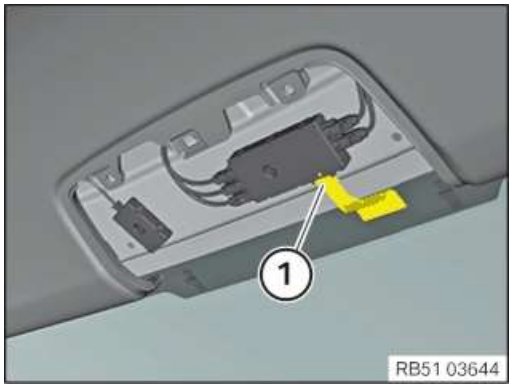
5 – Removing the rear window (rear window broken)

CAUTION

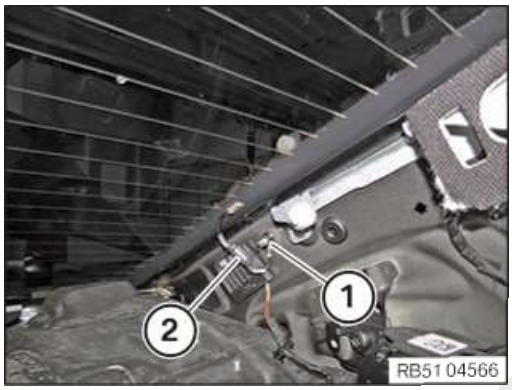
Glass splinters due to damaged windscreen/rear or side windows

Danger of injury!

- Wear safety goggles and cut-resistant protective gloves.



- Unlock plug connection (1) and disconnect.
- Secure cable to rear window with adhesive tape.



- Loosen nut (1).
- Remove the cable (2).



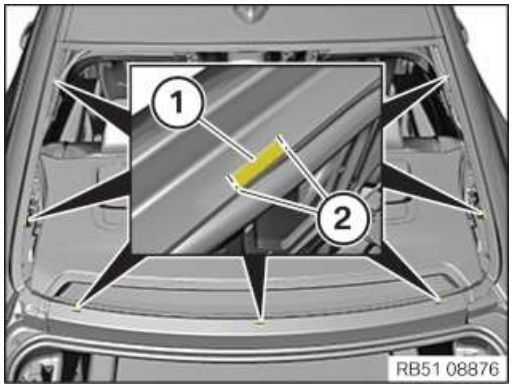
- Unlock plug connection (1) and disconnect.
- Remove the cable (2).

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- Remove the rear window with a suitable tool (for example, cutter with an oscillating knife or a special tool 0 410 807).
- Remove all the broken glass (even from under the seats).
- Check seat belts:
  - Condition of seat belt strap
  - Function of automatic reel
  - Seat belt locking reel
  - Seat belt buckle

  Replace damaged or defective parts.
- If necessary, remove the broken glass from the housing box of the roller cover for luggage compartment.
- If necessary, check the automatic reel of the roller cover for luggage compartment.
- Remove the adhesive bead from the body using special tool 0 410 436 and clean the adhesive area.

6 – Renew the spacer



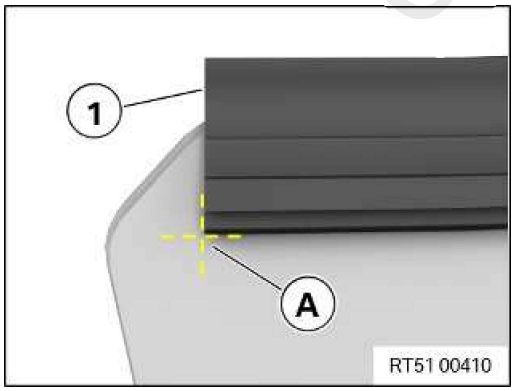
- Completely remove the available spacer buffers (1).
- Bond the new spacer buffers (1) in the centre on the marks (2) embossed on the body.

  Parts: Spacer buffer

7 – Installing the cover on the rear window

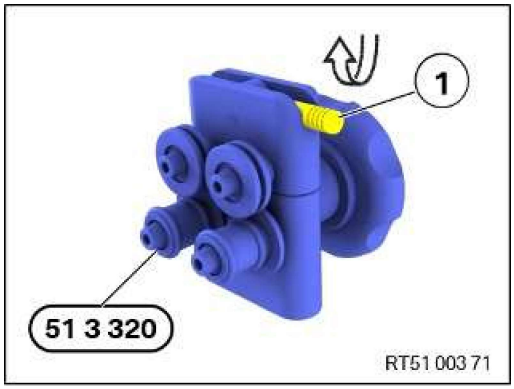
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

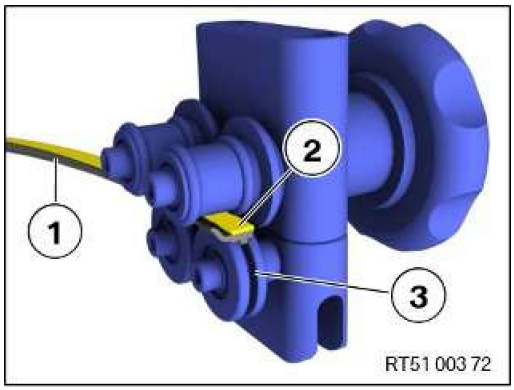


- Observe the mark (A) for the cover (1)on the rear window.

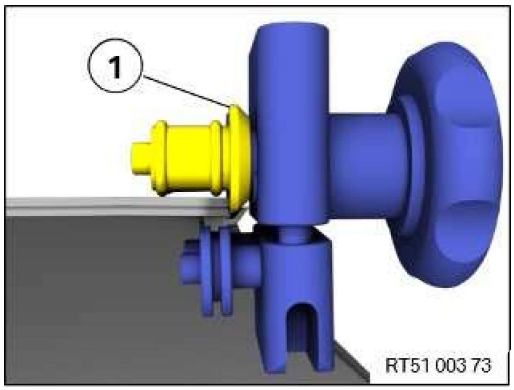
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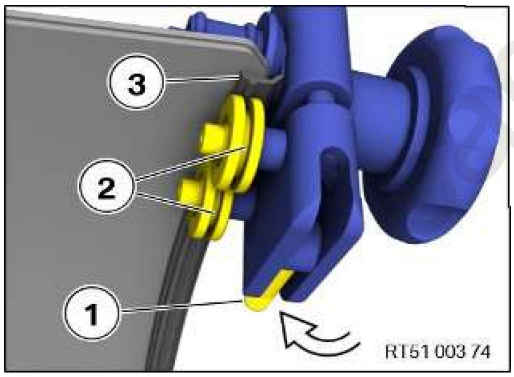
- Reposition lever (1) in direction of arrow and open it using the special tool .



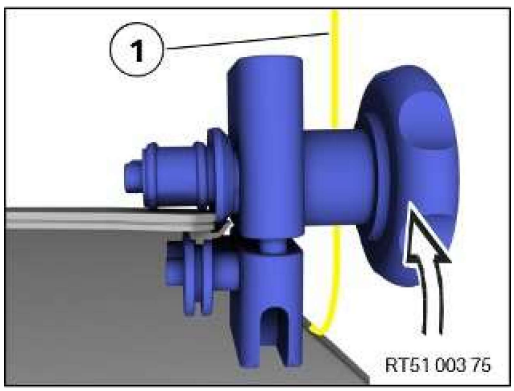
- Pull off protective film (2) in stages from adhesive tape.
- Insert the cover (1) into the guides (3).



- Place the special tool with the pressure rollers (1) up against the window edge.
- Align the cover on the outer edge of the rear window.
- Fit the cover and visually check for perfect fit.



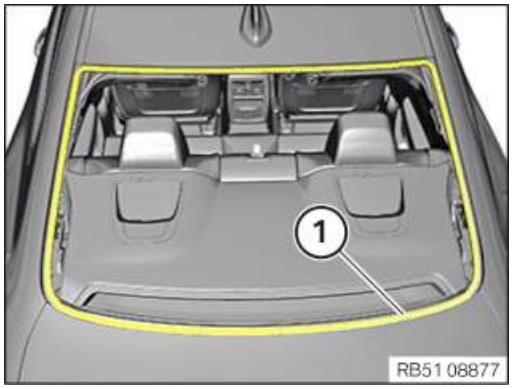
- Reposition the lever (1) in the direction of arrow and close the special tool.
- Ensure the correct positioning of the cover (3) in the guide pulleys (2).



- Continue to pull off protective film (1) in stages from adhesive tape.
- Pull the special tool in the direction of arrow with the handwheel over the entire upper edge of the window glass.

8 – Preparing for the installation of rear window

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- Protect vehicle interior against contamination.
- Clean the body aperture (1) with the adhesive bead.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Clean the painted sheet surfaces without the adhesive bead.

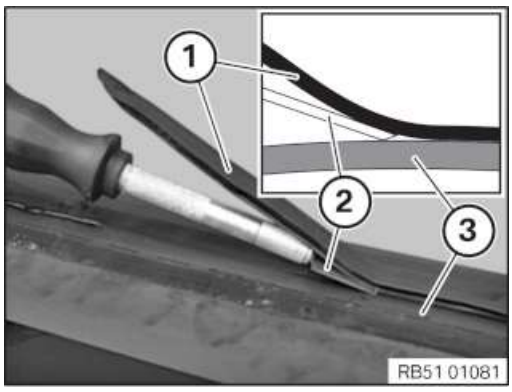
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

- Allow to dry after cleaning.

Air drying time after cleaning

Window glass or painted panel without residual adhesive bead	5 min
Body with adhesive bead	15 min



- Remove the adhesive bead (1) on the body aperture using the standard tool (2) just before bonding.

  Standard tool:

TECHNICAL INFORMATION

Do not touch the adhesive bead after cutting or bring cleaning agents in contact with it.

- Use pinchweld scraper (2) as shown.
- Trim the adhesive bead (1) on the body (3).

Residual height of the adhesive bead

Residual height of the adhesive bead	max. 1 mm

- It is imperative to touch up paintwork damages.
- Grind extensive areas of damage down to the bare panel and coat.

HS-AM multi-base filler, VOC

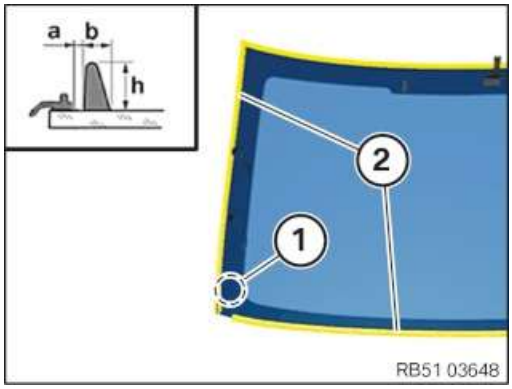
Layer thickness	30 µm ... 40 µm
Hardening time with infrared	10 min
Hardening time without infrared 60°C	30 min
Hardening time without infrared 20°C	1 Tag
Expendable materials: HS-AM multi-base filler VOC	

9 – Installing the rear window

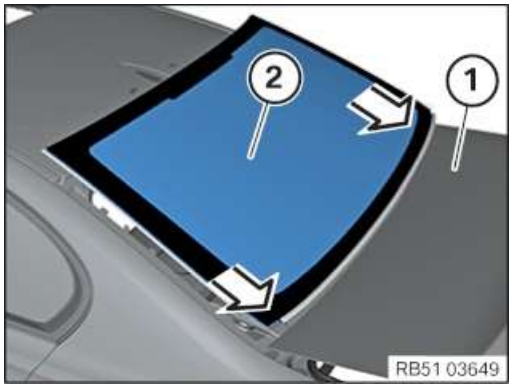
TECHNICAL INFORMATION

The seal on the rear window at the bottom is deleted. A damaged seal must be removed.
The rear window is installed **without the seal**.

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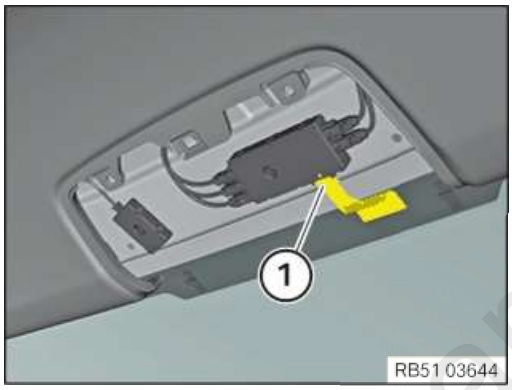


- Clean the bonding surfaces on the body and on the rear window.
- Keep 2 glue cartridges ready.
- Prepare one of the glue cartridges with the standard nozzle C.
- Apply bead joint in area (1).
- Apply adhesive bead within the mark (2) on the rear window.

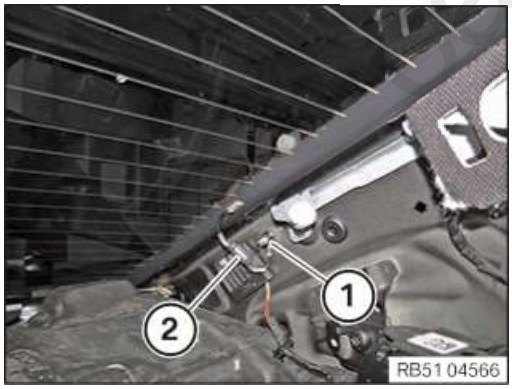


- Open tailgate (1) approx. 1/3 and secure in this position.
- Carefully guide the rear window (2) with the suction lifters parallel to the C-pillar and feed in below the tailgate.
- Carefully position the rear window (2) with the suction lifters on the top and align it sideways at the same time.
- Carefully push up the rear window (2) with the suction lifters upwards until the sealing rests evenly on the roof.
- Carefully push the rear window (2) with the suction lifters all around and adjust the gap dimensions.
- Measure short length (A) of the rear window (1) to the roof outer skin (2) with the special tool 0 495 259 (51 0 010).

  Measure the gap dimension (B) with special tool 0 496 076 (00 9 470).
- Secure rear window (1) with adhesive tap on the roof.



- Connect connector (1).



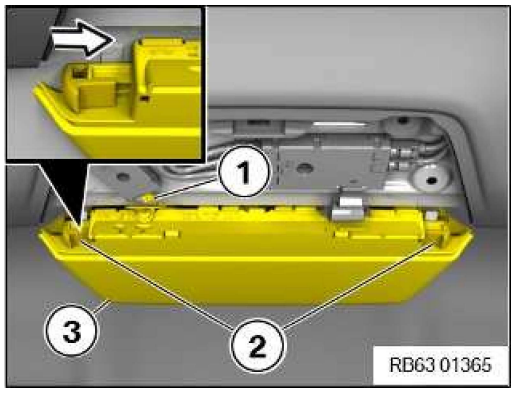
- Secure the cable (2) onto the attachment point with the nut (1).



- Loosen cable (2) from the rear window.
- Connect connector (1).

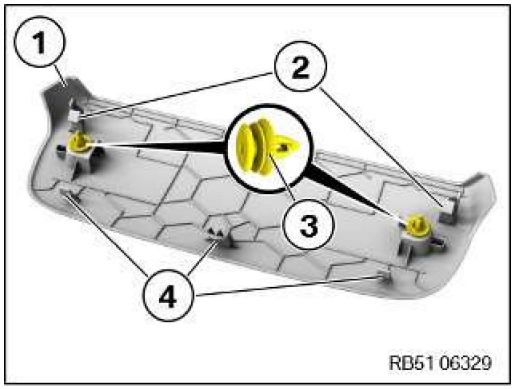
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10 – 3. brake light



- 3. Position the brake light (3).
- Lock both slides (2) inwards in the direction of the arrow.
- Connect connectors (1) and lock.

11 – Installing trim for additional brake light



Check

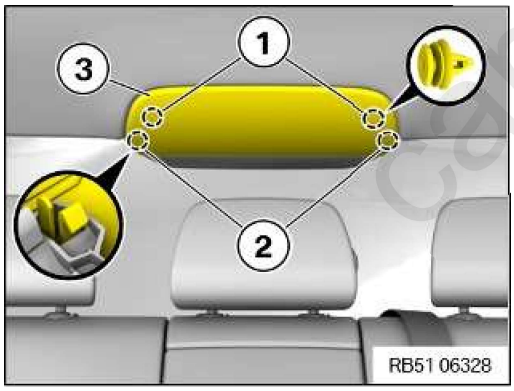
- Check the clips (3) for damage and renew if necessary.
- Check latch mechanisms (2) and guides (4) for damage.

Result

» The latch mechanism or the guide is damaged.

Measure

- Renew the trim for the additional brake light.



- Position trim for additional brake light (1) from the bottom and clip it in with latch mechanisms (2).
- Clip in clips (1).

12 – Installing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing C-pillar trim panel**

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

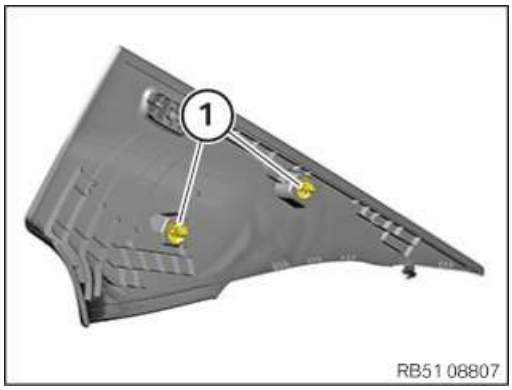
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

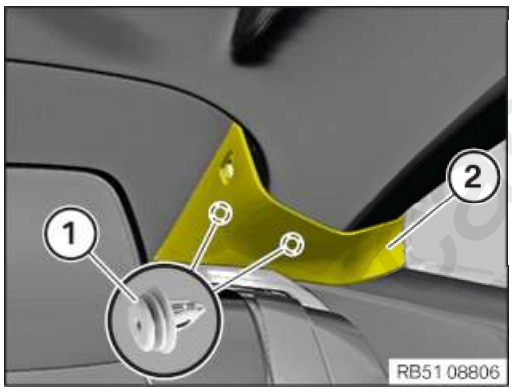
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

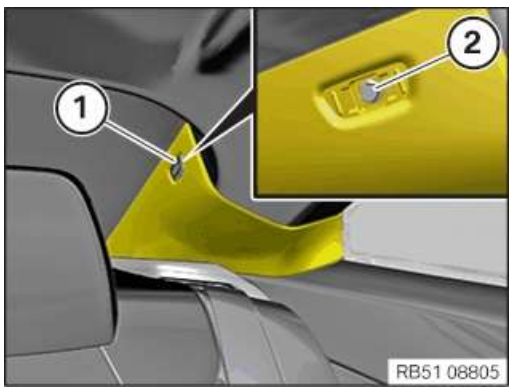
- Do not use sharp-edged tools when removing the trim panel.



- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

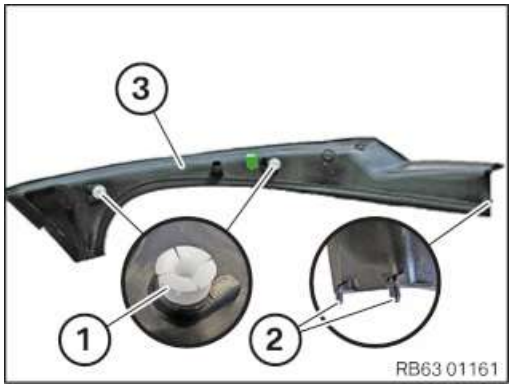
- Clip in cover (1) of the C-pillar trim panel.

13 – Installing the trim panel for the rear left and right water channel

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NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the clips (1) and guides (2) on the trim panel for the water channel (3) for damage.



- Clip in the trim panel for the water channel (1).

Additional Information

Overview of Tightening Torques

C-pillar trim panel to body — Used in step 12

Screw		Tightening torque	2,6 Nm

Overview of Special Tools

0 496 569 (00 9 325) Wedge



Common — Used in step 1

Usage	(Panel wedge) From 11/2008 this special tool replaces panel wedge 00 9 317 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	41 01 09 (507)

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0 410 807 Tool set



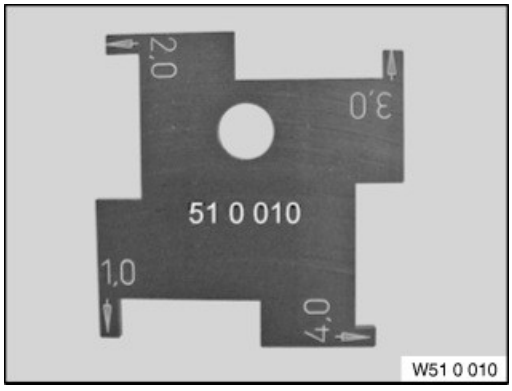
Common	Used in step 5
Usage	17 mm replacement blades for folding scraper set 81 62 0 410 436
Included in the tool or work	
Storage location	individual
Replaced by	
In connection with	
SI-Number	08 02 05 (206)

0 410 436 Tool set



Common	Used in step 5
Usage	Folding scraper set for removing seal residues such as window glass adhesive or seals in the engine compartment
Included in the tool or work	
Storage location	individual
Replaced by	
In connection with	
SI-Number	08 02 05 (206)

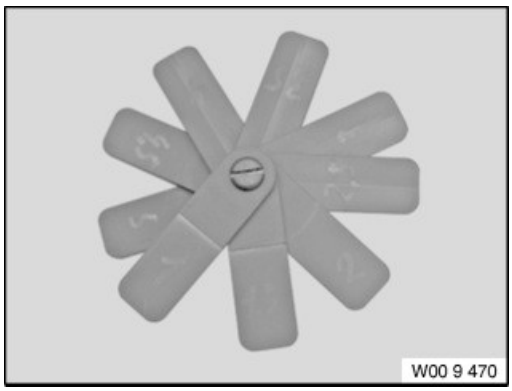
0 495 259 (51 0 010) Gauge



Common	Used in step 9
Usage	(test gauge for installing windscreen and rear window) (replaces special tool 51 3 210 from 06/2005)
Included in the tool or work	
Storage location	B2
Replaced by	
In connection with	
SI-Number	01 10 05 (189)

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0 496 076 (00 9 470) Gauge



Common	Used in step 9
Usage	(Gap gauge) From 1 to 5 mm (1; 1.5; 2; 2.5 ...). For checking body gap dimensions.
Included in the tool or work	0 496 091
Storage location	A24
Replaced by	
In connection with	
SI-Number	01 03 07 (337)

Overview Technical Data

Air drying time after cleaning	Used in step 8
Window glass or painted panel without residual adhesive bead	5 min
Body with adhesive bead	15 min

Residual height of the adhesive bead	Used in step 8
Residual height of the adhesive bead	max. 1 mm

HS-AM multi-base filler, VOC	Used in step 8
Layer thickness	30 µm ... 40 µm
Hardening time with infrared	10 min
Hardening time without infrared 60°C	30 min
Hardening time without infrared 20°C	1 Tag

Expendable materials: HS-AM multi-base filler VOC

Links

General repair instructions	Used in step
51 31 ... General procedure when dismantling/installing bonded window glass	

Repair instructions	Used in step
51 31 ... Removing windows with a "Spider"	

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51 31 011 Replace windscreen

RISK OF DAMAGE



Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

TECHNICAL INFORMATION

The following procedure forms the basis for these repair instructions and must be observed without fail.
For more information see: 51 31 ... General procedure for disassembly/installation of bonded window glass

TECHNICAL INFORMATION

Perform window removal using the "spider".
For additional information see: 51 31 ... Window glass removal using "spider"

PRELIMINARY WORK

1 – Remove left and right A-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

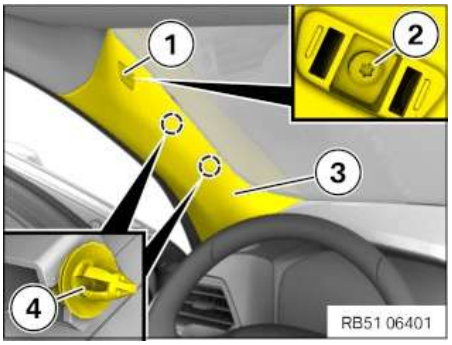
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RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

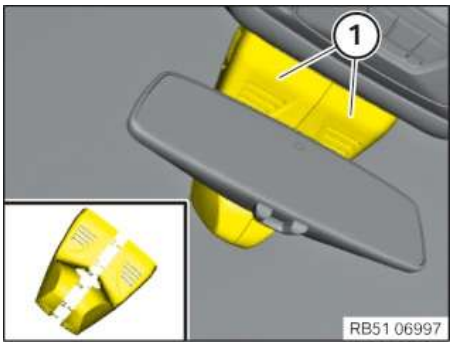
- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

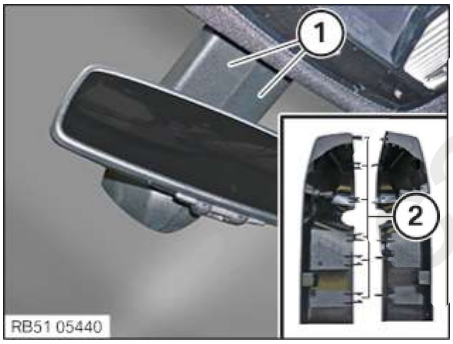
2 – Removing the covers for the interior mirror

- **Version A:**



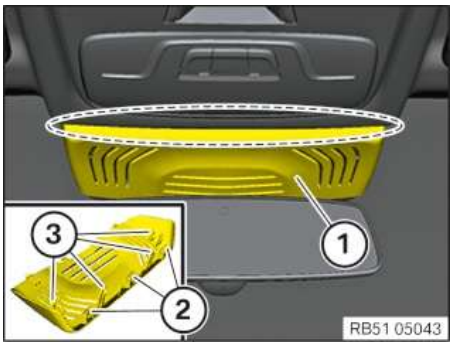
- Release cover (1) in the middle with a suitable plastic wedge from the latch mechanisms and remove.

- **Version B:**



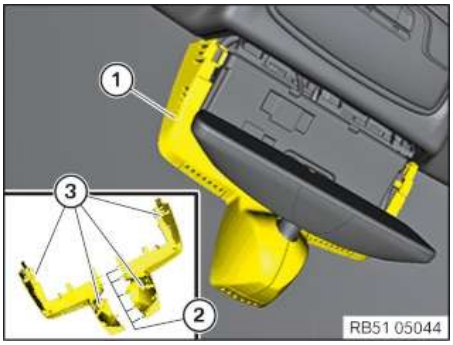
- Release the cover (1) from the latch mechanisms (2) with a suitable plastic wedge and remove sideways.

- **Version C:**



- Detach cover (1) from the clamps (2) in the marked area using a suitable plastic wedge and pull down a certain distance.
- Release cover (1) at the retaining lugs (3) and remove from the guides to the rear.

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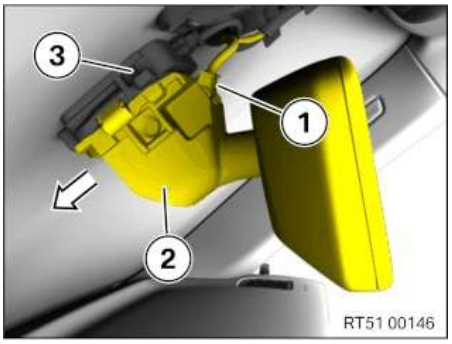
- Release cover (1) from the latch mechanisms (2) and (3) and remove sideways.
- Remove cover (1) from mirror base (2).

- **Version D:**



- Release covers (1) and (2) using a suitable plastic wedge at the separation point (3) and remove from the side.

3 – Remove inside mirror



TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.

- Unlock plug connection (1) and disconnect.

RISK OF DAMAGE

Damage to the component.

Excessive force may damage the component.

- Handle component carefully.

- Jerk and pull off the interior mirror (2) in the direction of the arrow from the mirror base (3).

4 – Remove KAFAS camera

▸ **Remove KAFAS camera (Mid variant)**

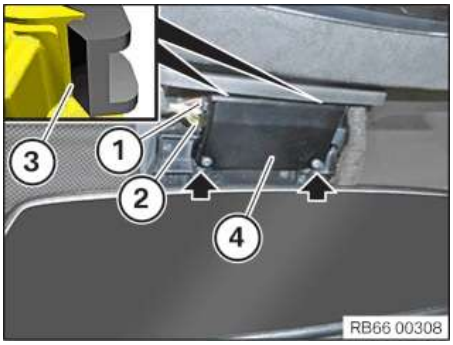
RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

Damage to the retaining hooks of the KAFAS camera holder.

- Unlock the retaining hook with a suitable tool **carefully** .

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- Unlock plug connection (1) and disconnect.
- Unlock plug connection (2) and disconnect.
- Unlock the retaining lugs (3).
- Thread out KAFAS camera (4) at the guides (arrows) and remove.

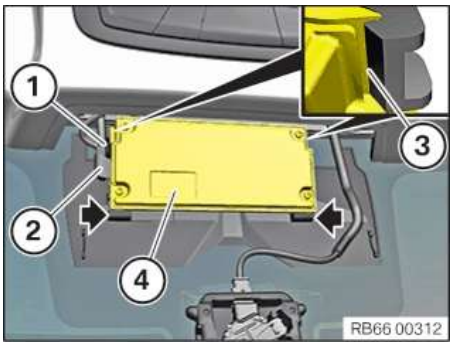
▸ **Remove KAFAS camera (high version)**

RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

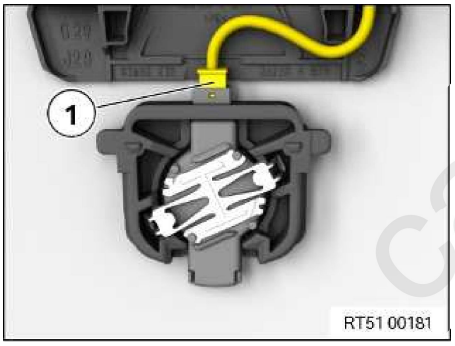
Damage to the retaining hooks of the KAFAS camera holder.

- Unlock the retaining hook with a suitable tool **carefully** .



- Unlock plug connection (1) and disconnect.
- Unlock plug connection (2) and disconnect.
- Unlock the retaining lugs (3).
- Thread out KAFAS camera (4) at the guides (arrows) and remove.

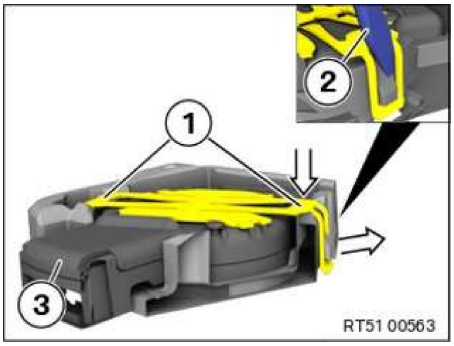
5 – Disconnect rain-light-solar-condensation sensor



- Unlock plug connection (1) and disconnect.

6 – Removing the rain-light-solar-condensation sensor

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- Push in retaining springs (1) on both sides and unlock the lock by means of a screwdriver (2) in the direction of the arrow.

RISK OF DAMAGE

Damage to silicone surface.

A damaged silicone surface can lead to malfunctioning of the rain-light-solar-condensation sensor.

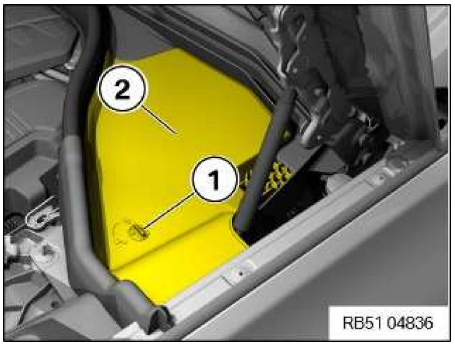
- Do not touch or damage the silicone-coated surface on the rain-light-solar-condensation sensor.
- After releasing lock, wait approx. 30 min. at 20°C for silicone surface to relax.

- Pull the rain-light-solar-condensation sensor (3) slowly off the windscreen. At the same time, monitor the release of the silicone area from outside.

  The silicone surface must evenly loosen from the windscreen, if applicable, lower the pull-off force.
- Feed the rain-light-solar-condensation sensor (3) out of the holder.

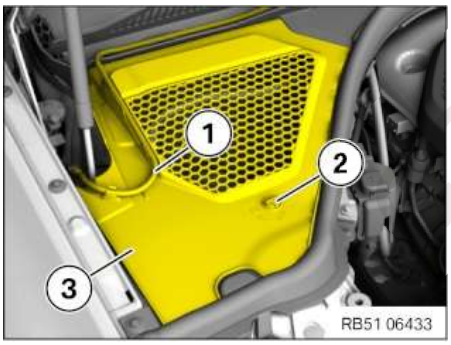
  When replacing the windscreen, the rain-light-solar-condensation sensor, must **necessarily** be installed on the new windscreen.

7 – Remove the cover of the engine compartment at the rear left



- Loosen the lock (1).
- Remove the cover (2) of the rear left engine compartment.

8 – Remove the cover of the rear right engine compartment



- Release washer fluid hose (1) from the guides.
- Loosen the lock (2).
- Remove the cover (3) of the rear right engine compartment.

9 – Removing the wiper arm on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the wiper arm**

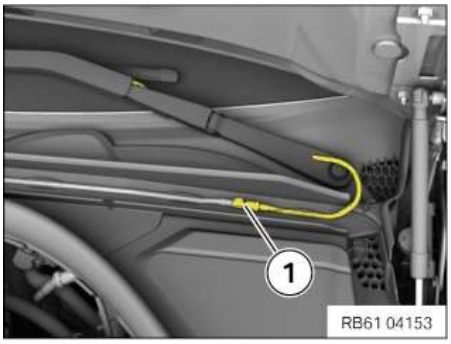
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RISK OF DAMAGE

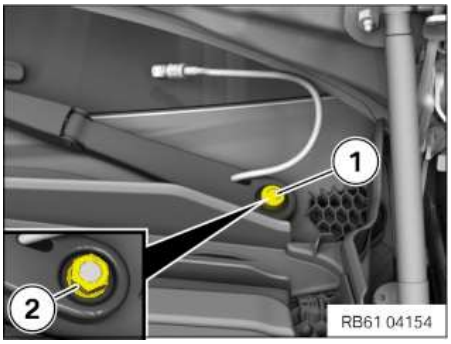
Damage to wiper console.

While removing the wiper arms without using special tool, the wiper console can break.

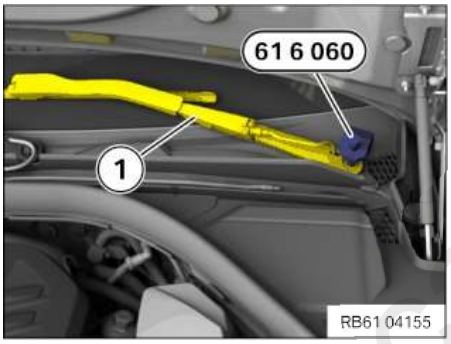
- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.



- Disconnect the washer fluid hose (1) at the separation point and feed out from the cowl panel guide.



- Remove the protective cap (1).
- Loosen nut (2).



- Pull off the wiper arm (1) using special tool .

10 – 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**

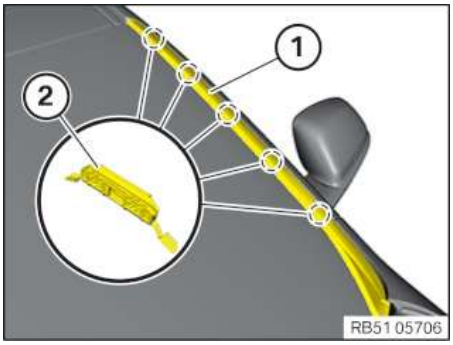
RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

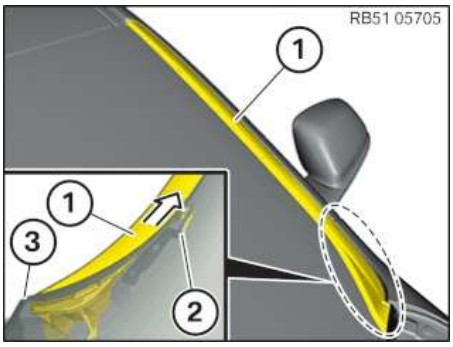
Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

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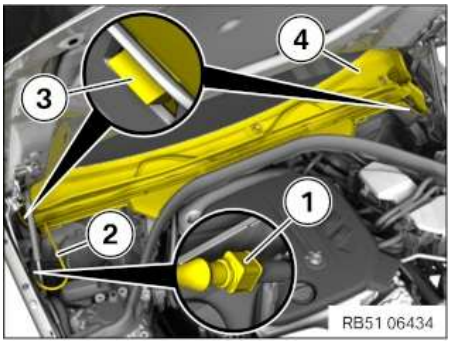


- Unclip gutter strip on the windscreen(1) from the clamps(2) starting at the roof and working upwards.

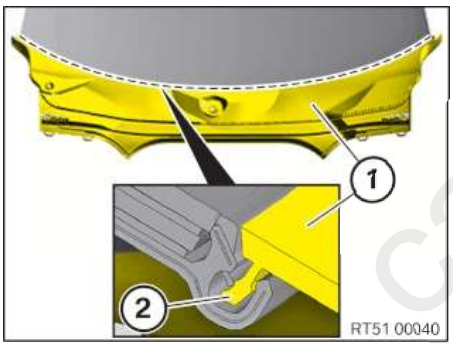


- Pull out gutter strip on the windscreen (1) out of guide (2) in direction of arrow and carefully guide out at the side panel (3).

11 – Remove cowl panel cover



- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).



- Pull the cowl panel cover (1) upward out of the latch mechanism (2) beginning on the side.

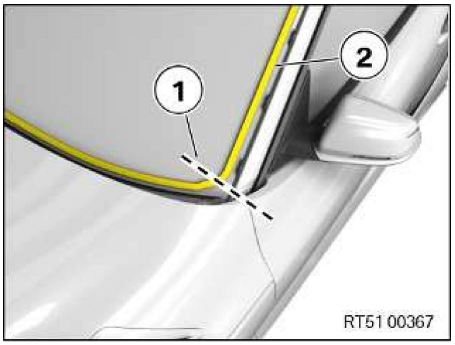
MAIN WORK

12 – Removing the windscreen

TECHNICAL INFORMATION

Perform window removal using the "spider".
For additional information see: 51 31 ... Window glass removal using "spider"

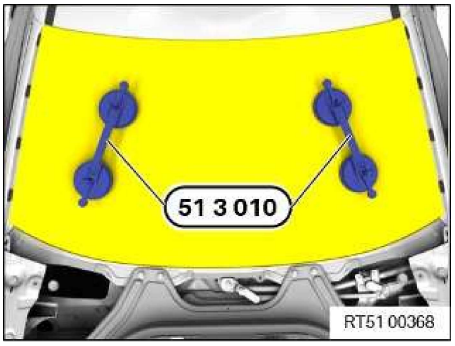
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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Tape off body in area of piercing point with fabric adhesive tape.
- Push the thread along the line (1) through the adhesive bead (2) from the inside.
- Cut out the windscreen with the spider.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Remove windscreen with the special tool .

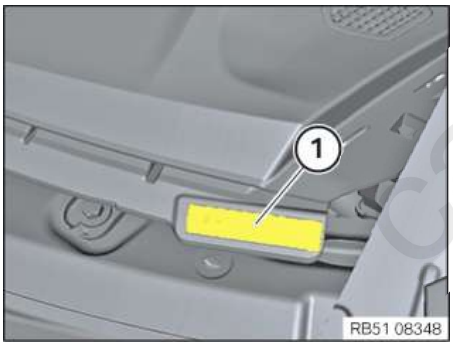
13 – Checking the sign

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.



Check

- Check sign (1) for damage.

Result

» Sign (1) is damaged.

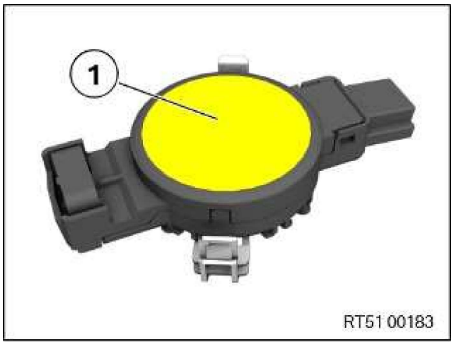
Measure

- Renew sign (1).

14 – Installing the rain-light-solar-condensation sensor

Check

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RISK OF DAMAGE

Damage to silicone surface.

A damaged silicone surface can lead to malfunctioning of the rain-light-solar-condensation sensor.

- Do not touch or damage the silicone-coated surface on the rain-light-solar-condensation sensor.
- After releasing lock, wait approx. 30 min. at 20°C for silicone surface to relax.

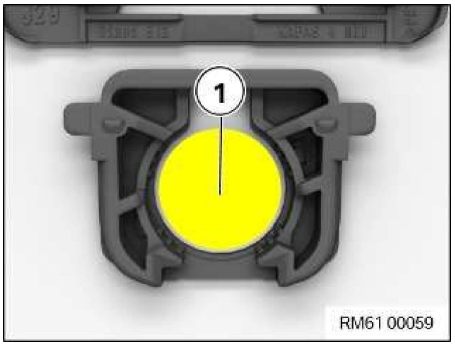
- Check the silicone surface (1) for damage.

Result

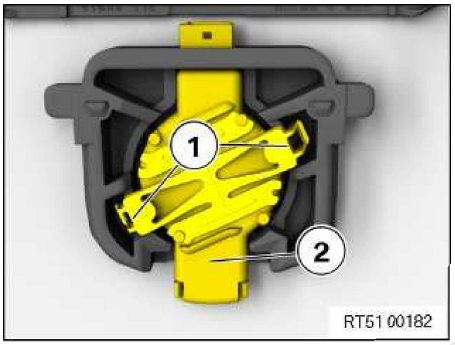
» Silicone surface (1) is damaged.

Measure

- Replace rain-light-solar-condensation sensor.



- Carefully clean windscreen in the contact area (1) of rain-light-solar-condensation sensor.

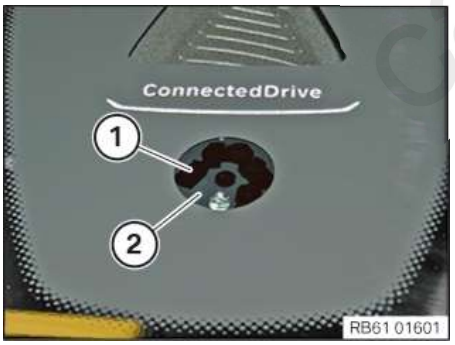


- Insert the rain-light-solar-condensation sensor (2) into the holder and press on centred on the retaining springs (1).
- Press down retaining springs (1) successively on each side to lock in place.

Check

- Check contact surfaces for air pockets from the outside.

  Visible shadows (1) are not air pockets, but the optical element of the rain-light-solar-condensation sensor (2). The shadows (1) do not represent any functional limitation.



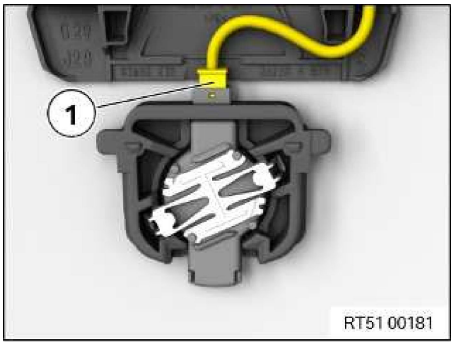
Result

» Contact surface has air pockets.

Measure

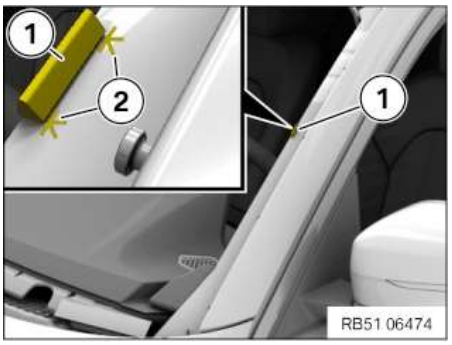
- Remove the rain-light-solar-condensation sensor and install again.

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- Connect connectors (1) and lock.

15 – Replace the spacer



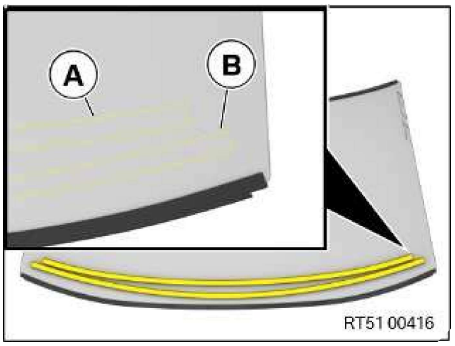
NOTICE

Description is for left component only. Procedure on the right side is identical.

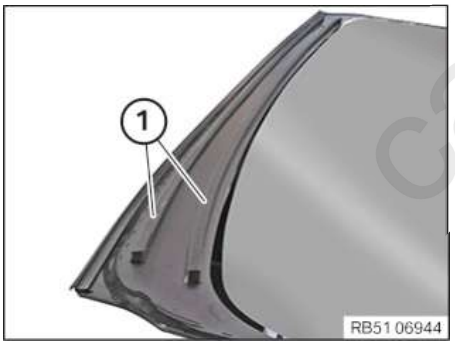
- Remove adhesive residues from the body when installing the windscreen and clean the adhesive area.
- Completely remove the existing spacer (1).
- Bond the spacer (1) in the centre on the embossed marks (2) on the body side.

  Parts: Spacer

16 – Mounting expanding foam tape on the windscreen



- Observe marks (A) and (B) for the expanding foam tape on the windscreen.
- In the absence of marks, take over dimensions from the removed windscreen.



- Clean adhesive areas of expanding foam tape (1) on the windscreen.

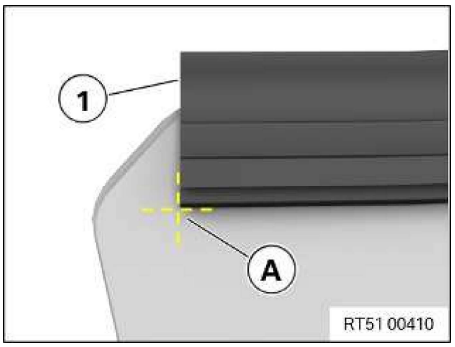
Expendable materials

Cleaning agent R1	100 ml, Bottle	83192211217

- Stick expanding foam tape (1) within the marks to the windscreen and press down.

  Parts: Expanding foam tape

17 – Installing the windscreen rubber frame

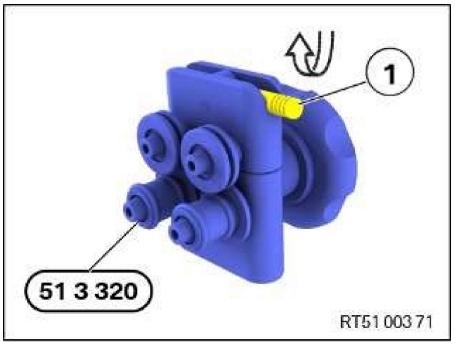


NOTICE

Perform the operations on the left and right side.

- Observe marks (A) for the windscreen rubber frame (1).

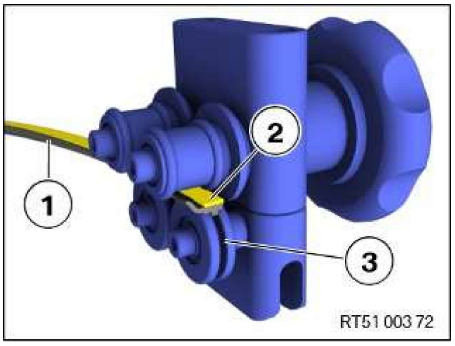
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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

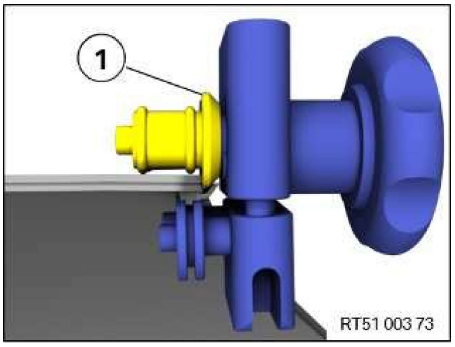
- Reposition lever (1) in direction of arrow and open it using the special tool .



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

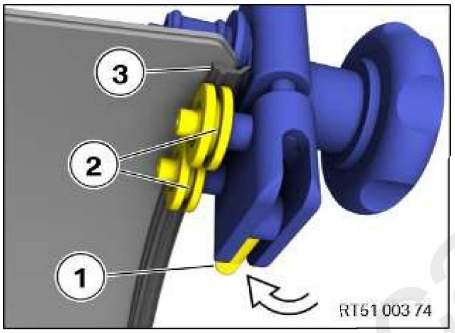
- Pull off protective film (2) in stages from adhesive tape.
- Insert the cover (1) into the guides (3).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

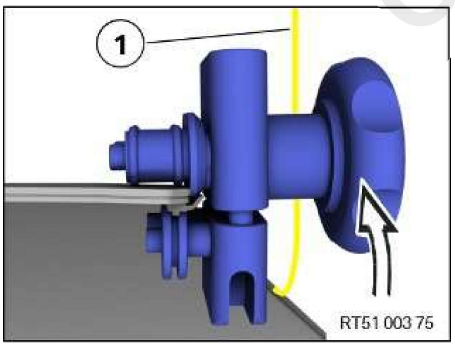
- Place the special tool with the pressure rollers (1) up against the window edge.
- Align the cover with the outer edge of the windscreen.
- Fit the cover and visually check for perfect fit.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Reposition the lever (1) in direction of arrow to close the special tool.
- Ensure the correct positioning of the cover (3) in the guide pulleys (2).



NOTICE

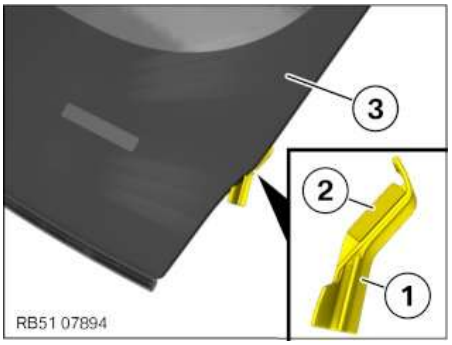
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Continue to pull off protective film (1) in stages from adhesive tape.
- Pull the special tool in the direction of arrow with the handwheel over the entire upper edge of the window glass.

18 – Installing the windscreen.

▸ **Installing the water guide element on the left and right**

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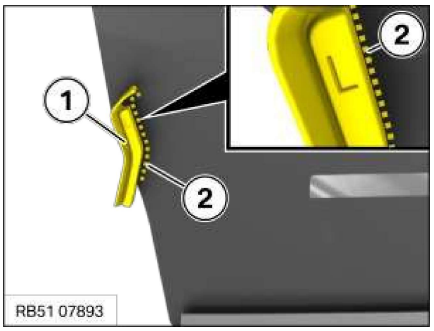


- Check the water guide element (1) on the left and right for damage and renew if necessary.
  Do not mix up the left and right water guide element.
- Clean the bonding surface with cleaning agent.

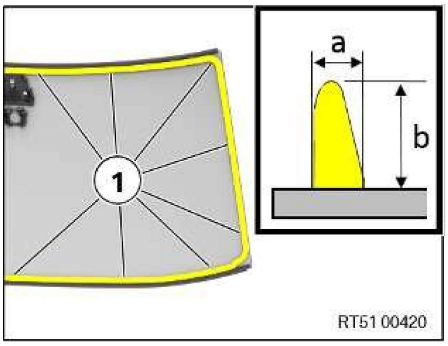
Expendable materials

Cleaning agent R2	500 ml	83190417324

- Remove liner (2) from the water guide element (1) and position on the windscreen (3).



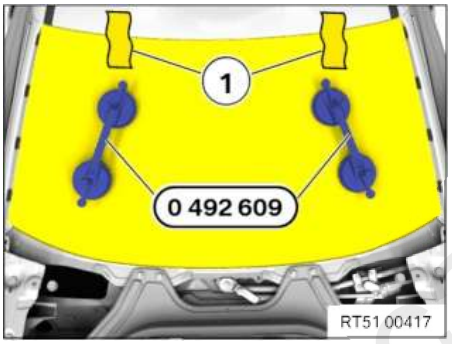
- Position water guide element (1) at the mark (2) and press it down.



NOTICE

Perform the operations on the left and right side.

- Prepare the glue cartridge with the standard nozzle C.
- Apply adhesive bead within the marks (1) on the windscreen.

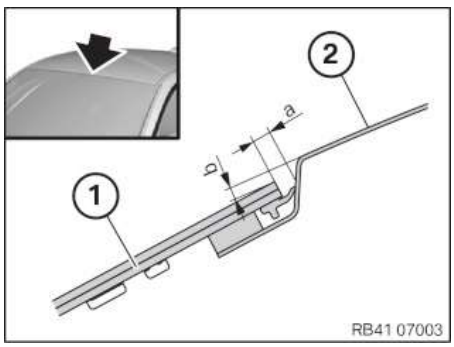


- Carefully insert the windscreen using special tool between the bonnet and the cowl panel.
- Position the windscreen at the top.
- Evenly align the windscreen on the left and right.
- Insert and press on the windscreen at the bottom.
- Press the windscreen towards the top until the rubber frame of the windscreen is evenly in contact with the roof.
- Secure the windscreen in this installation position using the two yellow plastic adhesive tapes (1).

Gap dimension windscreen to roof outer skin

1 windscreen; 2 roof outer skin

a	4,3 (3,1 - 5.5) mm
b	3,6 (2.3 - 4,9) mm



POSTPROCESSES

19 – Installing cowl panel cover

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RISK OF DAMAGE

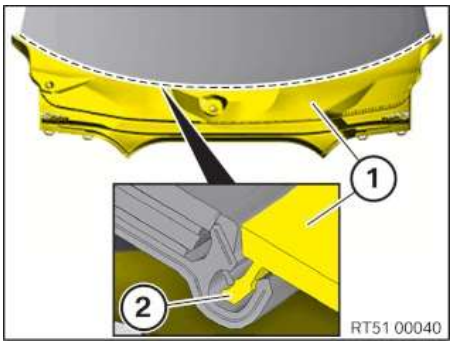
Damage caused by water ingress into the vehicle.

Water ingress into the vehicle may result in damage to components, malfunctions and corrosion.

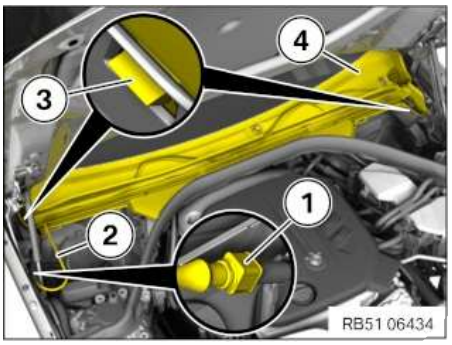
- Ensure correct installation of the components.
- Only use undamaged components.

TECHNICAL INFORMATION

Before installing the cowl panel cover it is **mandatory** to check that the 48 V line is routed correctly and fitted tightly.
An incorrectly laid or attached 48 V line can be damaged by the wiper kinematics.



- Push the cowl panel cover (1) into the latch mechanism (2) beginning on the side.



- Clip cowl panel cover (4)in by means of the latch mechanisms (3).
- Position windscreen wash hose (2) and connect windscreen wash hose (1)quick lock.

20 – Install the gutter strip on the windscreen on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install the gutter strip on the windscreen**

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

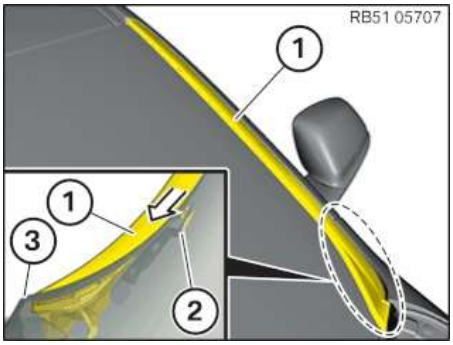
Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

TECHNICAL INFORMATION

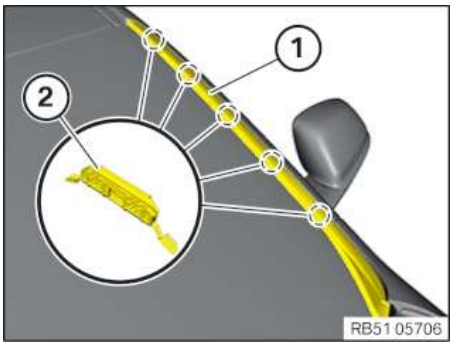
Latch mechanisms, guides and mounting elements must not be damaged or missing.

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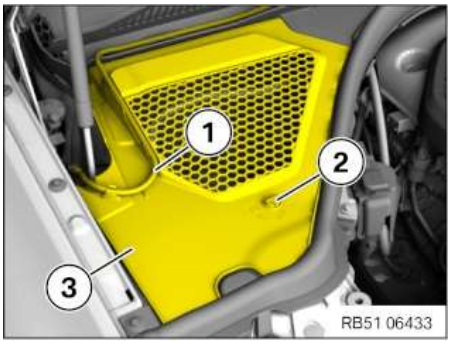
- Renew gutter strip on the windscreen (1) and paint if necessary.

  Parts: Gutter strip
- Carefully feed in the windscreen gutter strip (1) at the side panel (3) and simultaneously feed into the guide (2) in direction of arrow.



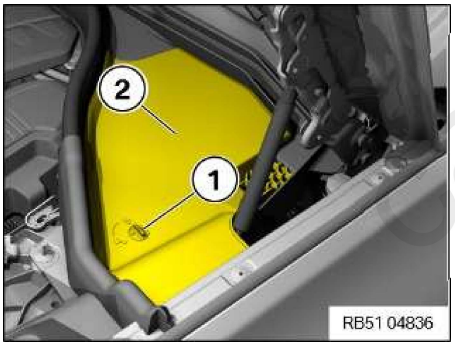
- Clip in the windscreen gutter strip (1) starting at bottom at the clamps (2).

21 – Install the rear right engine compartment cover



- Position the cover of the engine compartment on the rear right (3).
- Close lock (2).
- Insert washer fluid hose (1) into the guides.

22 – Install the cover of the engine compartment on the rear left



- Position the engine compartment cover at the rear left (2) .
- Close lock (1).

23 – Install left and right wiper arm

NOTICE

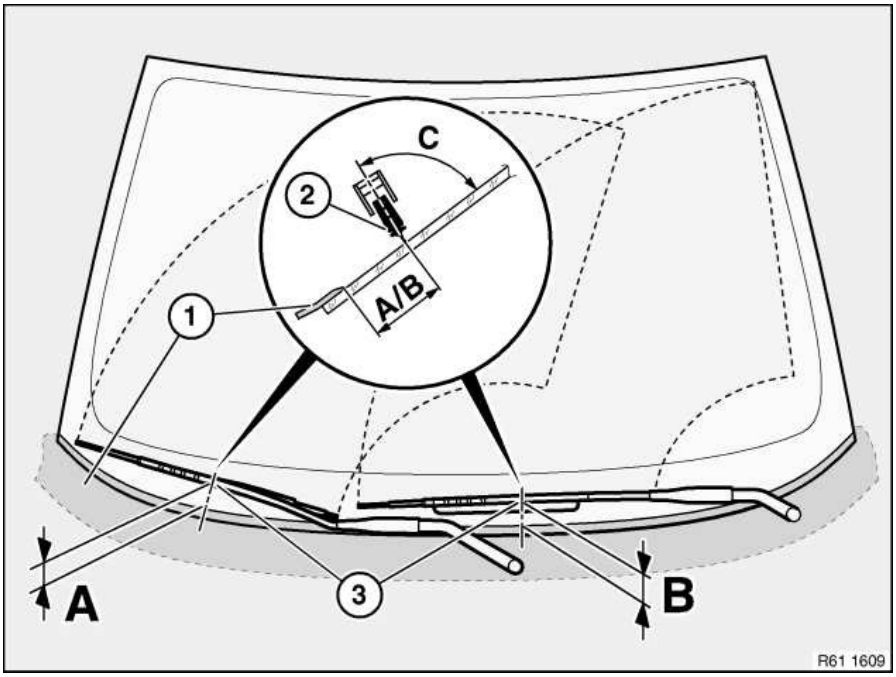
Description is for left component only. Procedure on the right side is identical.

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

The wiper system must be in zero position.
After installing the cowl panel cover and before fitting the wiper arm:
Activate the wiper system once to ensure that it has the correct installation position.

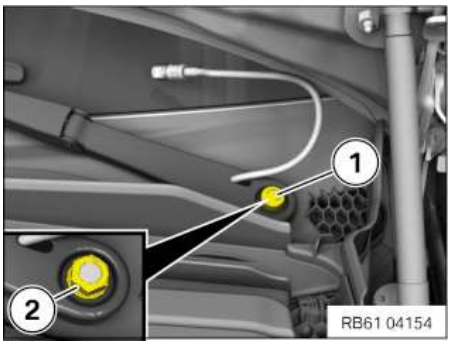
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- Connect the wiper arm (3).
- Correctly position the wiper arm (2) in relation to the window edge (1).

Distance from window pane edge to wiper blade

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

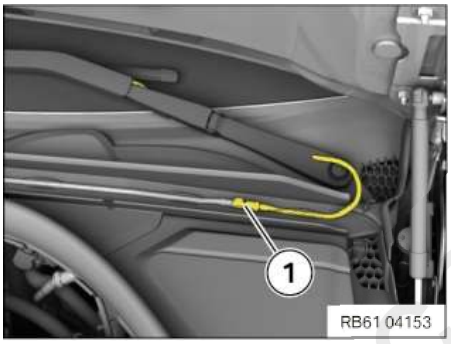


- Tighten nut (2).

Windscreen wiper arm

Combination hexagon nut		Tightening torque	35 Nm

- Connect the protective cap (1).



- Feed washer fluid hose (1) into the cowl panel guide and connect at the separation point.

24 – Install the A-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

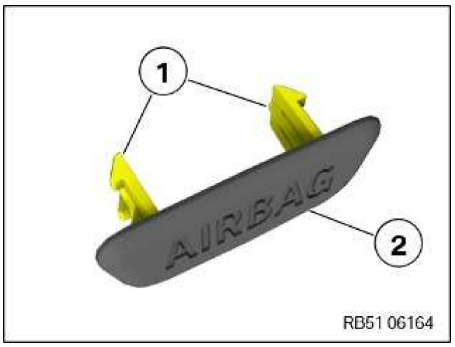
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RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



Check

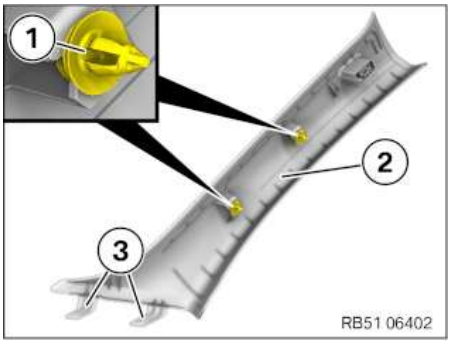
- Check retaining lugs (1) of cover (2) for damage.

Result

» Retaining lug is damaged.

Measure

- Renew the cover.



Check

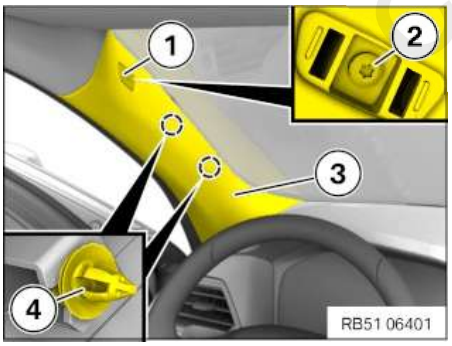
- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.



- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

A-pillar trim panel to body

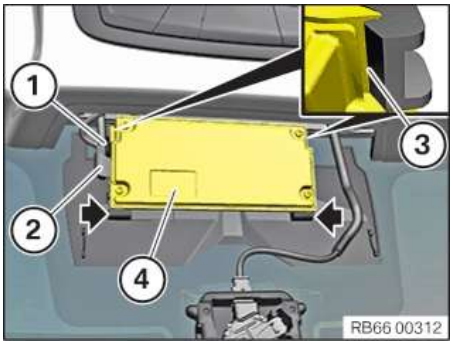
Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

- Clip in the cover (1).

25 – Install KAFAS camera

▸ **Install KAFAS camera (high version)**

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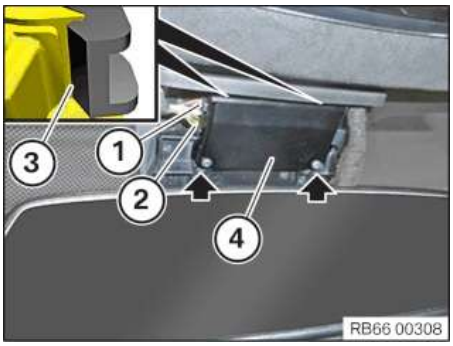


TECHNICAL INFORMATION

Latch mechanisms, guides and mounting elements must not be damaged or missing.

- Feed in the KAFAS camera (4) in the guides (arrows) and engage it in the retaining lugs (3).
- Make sure that the KAFAS camera (4) is engaged correctly at the retaining lugs (3).
- Connect connectors (2) and lock.
- Connect connectors (1) and lock.

▸ **Install KAFAS camera (Mid variant)**

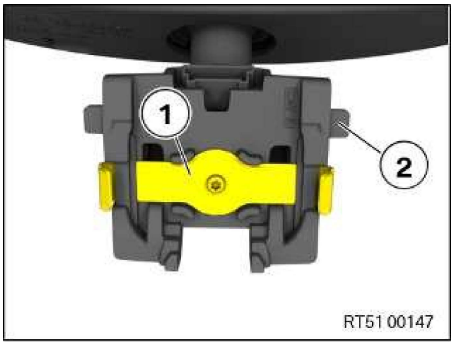


TECHNICAL INFORMATION

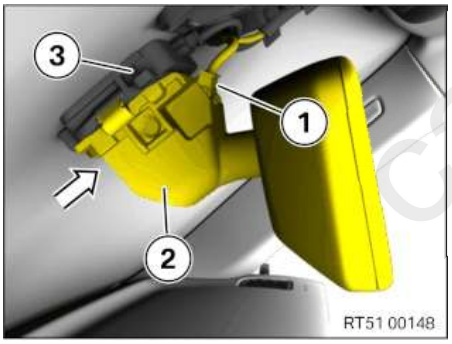
Latch mechanisms, guides and mounting elements must not be damaged or missing.

- Feed in KAFAS camera (4) on the guides (arrows) and engage the retaining lugs (3).
- Make sure that the KAFAS camera (4) engages correctly in the retaining lugs (3).
- Connect connectors (2) and lock.
- Connect connectors (1) and lock.

26 – Install interior mirror



- Check the clamp (1) on both sides of the mirror base (2) for damage and renew as needed.



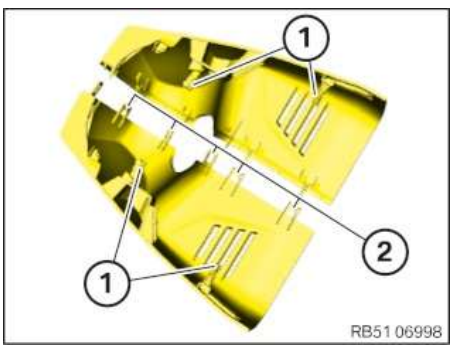
TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.

- Position the interior mirror (2) at the mirror base and slide it on in direction of the arrow.
- Check the correct installation position of the interior mirror (2) at the mirror base (3).
- Connect connectors (1) and lock.

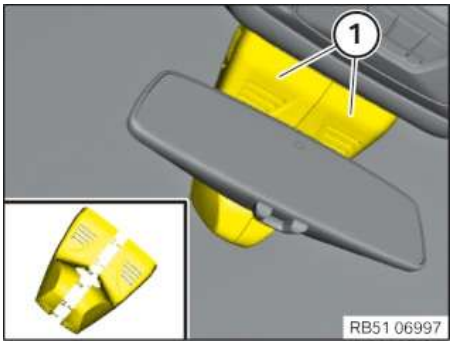
27 – Installing the covers for the interior mirror

- **Version A:**



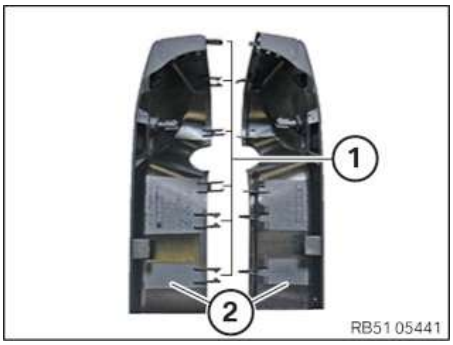
- Check latch mechanisms (1) and (2).
- If the latch mechanisms (1) or (2) are faulty, renew the covers.

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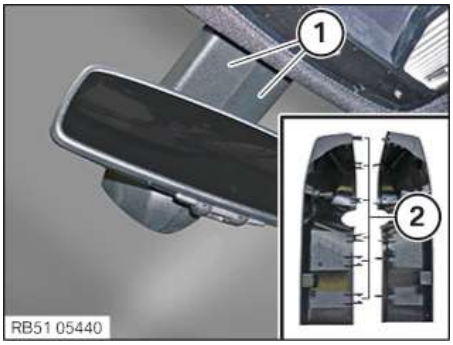
- Feed cover (1) in and lock.

- **Version B:**



- Check the latch mechanisms (1) on the two covers (2) for damage, renew the covers (2) if necessary.

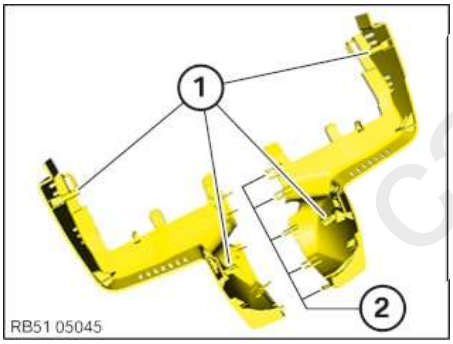
  The covers (2) must not be damaged or missing.



- Position the covers (1) correctly on the mirror and engage with the latch mechanisms (2).

- **Version C:**

Check



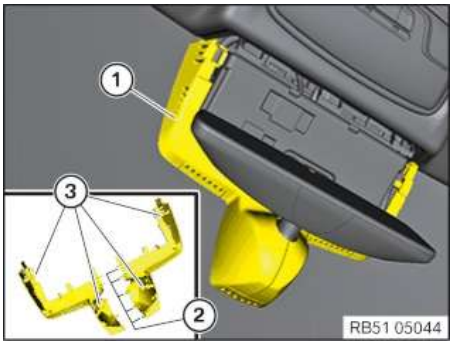
- Check the latch mechanisms (1) and (2) of the covers for damage.

Result

» The latch mechanism is damaged.

Measure

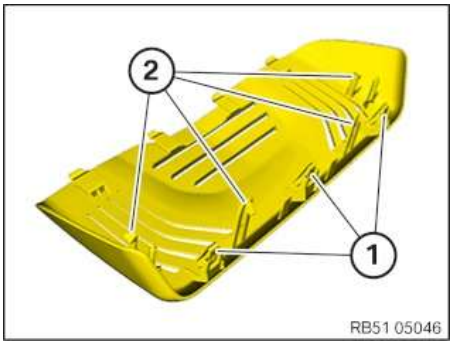
- Renew the cover.



- Guide in cover (1) on left and right and engage using latch mechanisms (2) and (3).

Check

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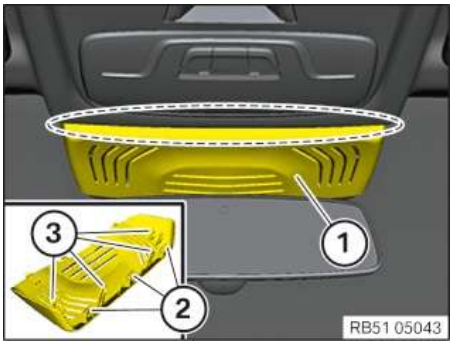
- Check clamps (1) for damage; renew if necessary.
- Check latch mechanisms (2) for damage.

Result

» The latch mechanism is damaged.

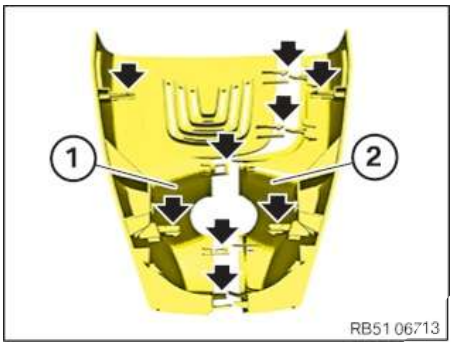
Measure

- Renew the cover.



- Guide cover (1) into front guides and engage using retaining lugs (3) and clamps (2).

- **Version D:**



- Check the latch mechanisms (arrows) on covers (1) and (2) for damage and, if necessary, renew covers (1) and (2).



- Position covers (1) and (2) correctly on the mirror and engage at the separation point (3).

28 – Calibrate KAFAS camera

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TECHNICAL INFORMATION

The calibration process of the KAFAS camera is not complete until the vehicle drives in traffic. Tell the customer that some assistance systems are temporarily unavailable after vehicle pick-up.

- Perform camera calibration using diagnosis system.

  Under Service Functions menu:

  - Driver assistance
  - Camera-based driver assistance systems
  - Calibration of camera-based driver support systems

Additional Information

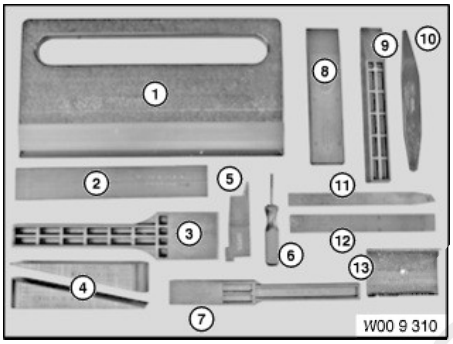
Overview of Tightening Torques

Windscreen wiper arm			Used in step 23
Combination hexagon nut		Tightening torque	35 Nm

A-pillar trim panel to body			Used in step 24
Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

Overview of Special Tools

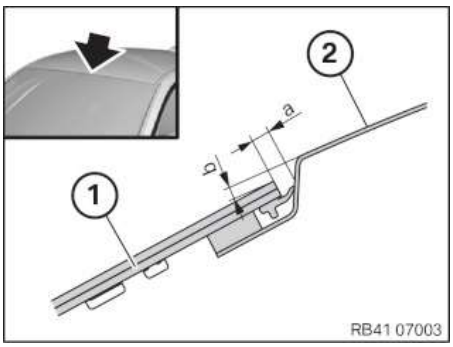
0 493 752 (00 9 329) Case



Common	Used in step 1
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Overview Technical Data

Gap dimension windscreen to roof outer skin	Used in step 18
1 windscreen; 2 roof outer skin	
a	4,3 (3,1 - 5.5) mm
b	3,6 (2.3 - 4,9) mm



Distance from window pane edge to wiper blade	Used in step 23
Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

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Links

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	1
72 00 ... Safety regulations for handling components with gas generators	1
51 31 ... General procedure for the disassembly and installation of bonded window glass	12
51 31 ... Materials for bonding window	12

Repair instructions	Used in step
61 35 ... Notes on ESD protection (Electro Static Discharge)	
61 35 ... Notes on ESD protection (Electro Static Discharge)	
51 31 ... Removing windows with a "Spider"	12

Parts

Parts required

Designation	Used in step
Expanding foam tape	16

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51 31 ... Window glass removal with wire pull handle

Special tools required:

- 2 336 541

Warning!

Follow safety instructions for working on vehicles with airbag systems (risk of injury).

Always wear safety goggles and protective gloves for your own safety.

Caution!

Handle sharp-edged tools with care (risk of damage to the head airbag and the window glass).

Caution!

Follow the vehicle-specific repair instructions!

Protect inner and outer working area (body, trim panels, cables etc.) against damage.

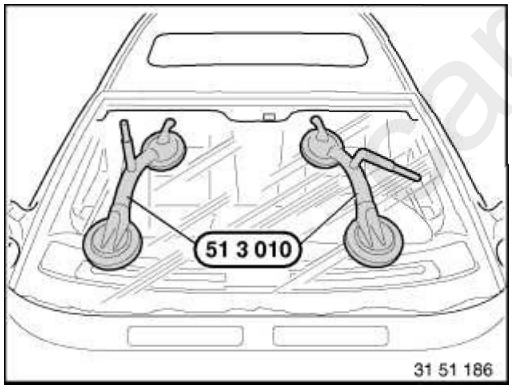
Depending on the area of application, a separating cord can also be used as an alternative to wire.

Using the separating cord prevents any damage to the body.

Do not pull the separating cord over any sharp edges (risk of tearing)!

Used tool:

- Wire pull handles
- Dashboard protection
- Line threader (special tool 2 336 541)

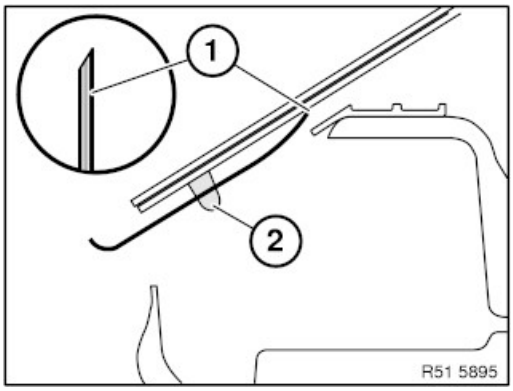


Use suction cups (51 3 010) to lift out the window glass.

Always keep both suction cups dry and clean to ensure their optimum adhesion on the windscreen.

Secure window glass (if necessary with adhesive tape) against falling out.

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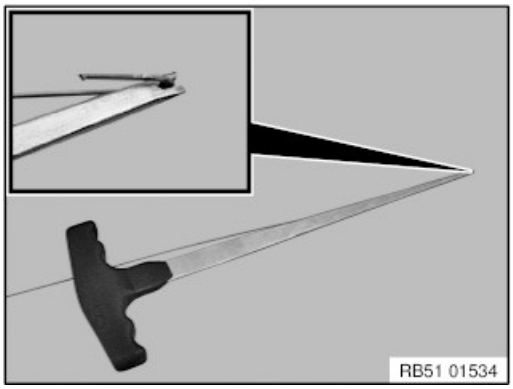


Pulling cutting wire into vehicle:

- Grip wire with pliers

  (If access is difficult: using wire starter 2 336 541 , feed wire through adhesive bead.)
- Wire end (1) must be bent towards window glass.
- Heat wire end (1) and use it to pierce adhesive bead (2).
- Pull approximately half of the wire into the passenger compartment

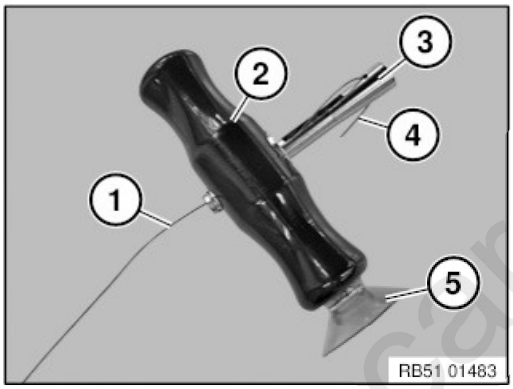
Note:
When using the separating cord, always pull it in using the wire starter 2 336 541 .



Using wire starter:

Bend wire end approx. 10 mm and insert in notched tip.

Pierce wire starter with uniform pressure through adhesive bead, wire end (bent part) must be positioned on window glass.



Attach wire pull handles:

Feed in cutting wire (1) in cutting handle (2) and clamping element (3) as illustrated.

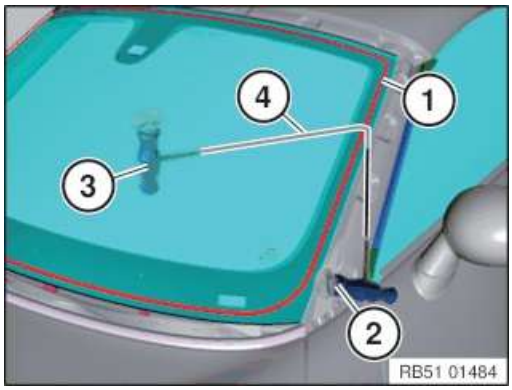
Move back cutting handle (2) over clamping element (3) and trap wire end (4).

Danger of injury!

Wire end (4) must not protrude out of cutting handle (2).

Cutting handle (2) can be secured with suction cup (5) to the vehicle window or body during each of the work operations. This prevents damage to the paint.

Fit second wire pull handle to other wire end.



Perform repair work with the aid of a second person.

Cutting wire (4) must be guided in cutting direction at an angle that is as acute as possible (>45°) to adhesive bead (1).

Cut through adhesive bead (1) by pulling cutting handle (2) and at the same time providing counter support with cutting handle (3).

Pull back cutting wire (4) with cutting handle (3) and make sure that cutting wire (4) is always held under tension.

Cut through remaining adhesive bead in the same way.

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This documentation refers to special tools that were not yet available when going to press.

51 32 154 Adjusting left or right door window glass

Prerequisite

- Before beginning work, check the setting for the door window glass (see additional information).

TECHNICAL INFORMATION

Correct adjustment of the door window glasses is necessary to ensure the following characteristics:

- No water ingress (tightness)
- No wind noise
- No rattling noise
- No unintentional reversing of door window glass during closing operation (anti-trap safety function)

TECHNICAL INFORMATION

Prerequisites for correctly setting door window pane:

- Vehicle is supported on wheels at ground level.
- After being lowered from the vehicle lift, the vehicle has been rolled 3 to 5 metres forward and back (releasing chassis and body tension).
- Door is adjusted correctly.
- Battery is recharged (full functionality of the power window regulator only with external voltage supply during adjustment work, see notes on lithium-ion battery)

TECHNICAL INFORMATION

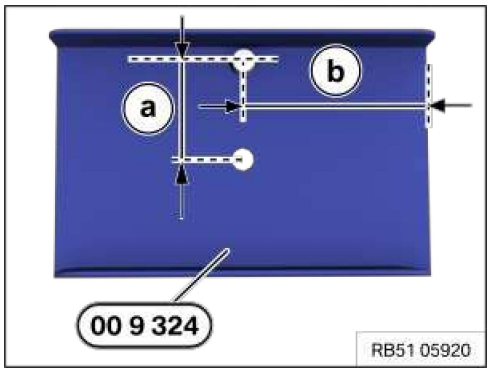
When adjusting the door window glass, it is imperative to **first** check the retraction depth or longitudinal direction **before** adjusting the preload.

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1 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

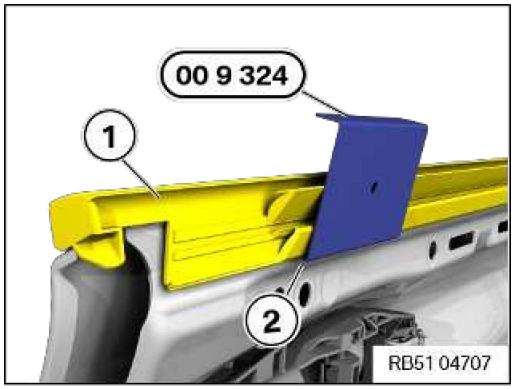
- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

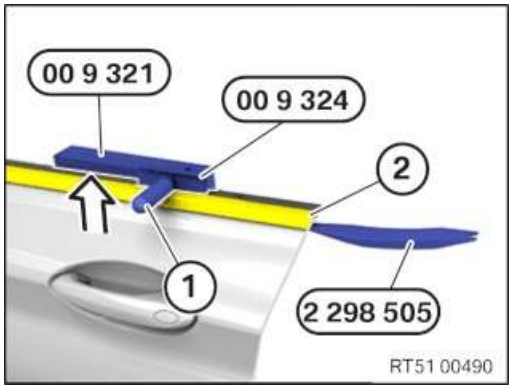
  Dimension (b) = 50 mm from the outer edge of the special tool



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

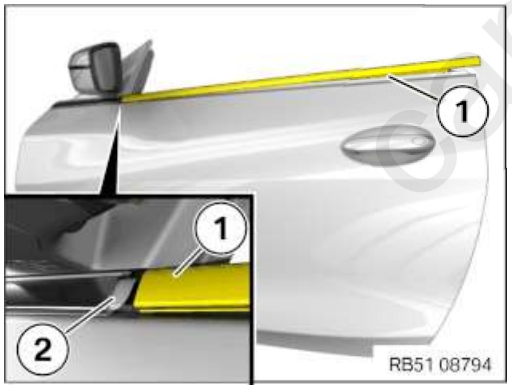
- Protect working area.
- Handle tools and components carefully.

- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.

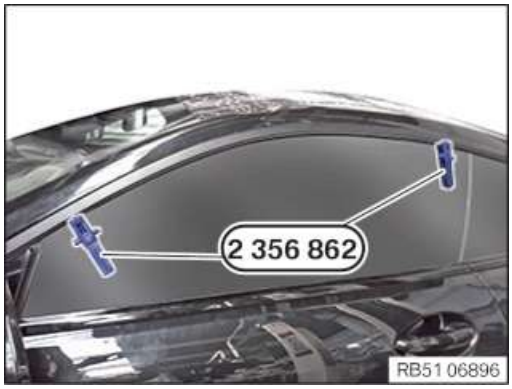


- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

2 – Setting the retraction depth/longitudinal direction of the door window glass

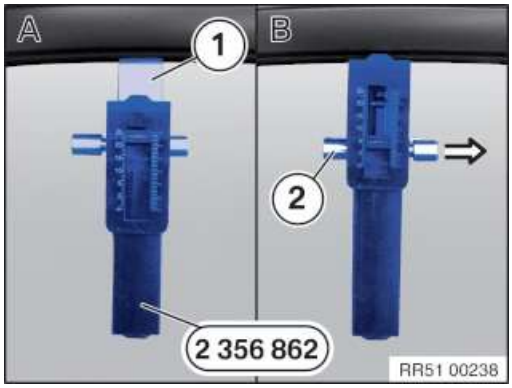
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Open door.
- Connect the locked special tool 2 356 862 with the 5 mm holder (1) (A) to the door window glass (see detailed description in the next figure).

  Distance: 40 mm respectively towards the inner side from the outer edge of the door window glass.



- Close the door and release the lock (2) (Figure B).

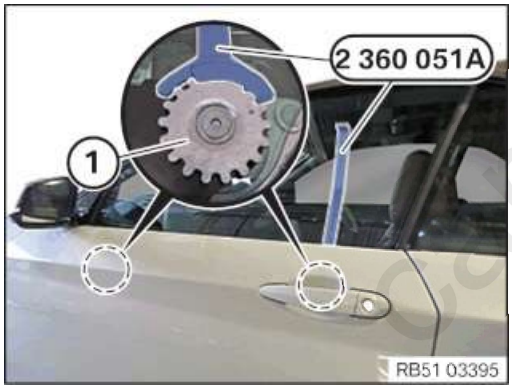
  Read retraction depth on the scale.

  Nominal dimension: 5.5 ±1 mm

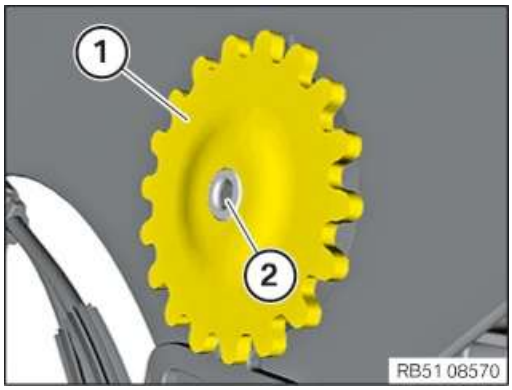
▸ **Release door window at front**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

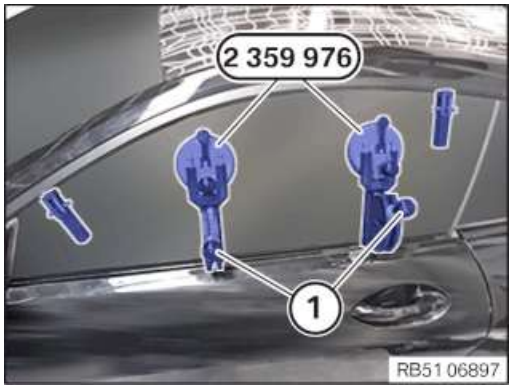


- Undo multi-tooth nuts (1) on side window glass with special tool **A**. (Observe next operation.)



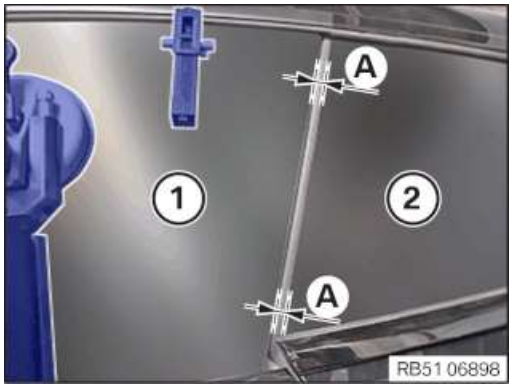
- Only undo the multi-tooth nut (1) to the extent it is flush with the socket (2).

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- Attach special tool 2 359 976 on the door window glass so that the multi-tooth nuts of the door window glass are still accessible.
- Release adjustment lever (1) by twisting.
- Set the retraction depth of the side window glass by moving the adjustment lever (1).

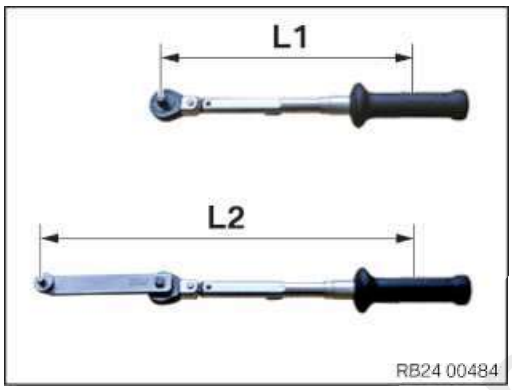
  Nominal dimension: 5.5 ±1 mm
- Tighten adjustment lever (1).



- Adjust door window panel (1) parallel to the rear side window (2).

  Dimension A= 8.0 ±1 mm

▸ **Tighten the front door window glass**



TECHNICAL INFORMATION

While using the special tool, that extends the lever arm of the torque wrench, the setpoint torque deviates from the torque to be set.

NOTICE

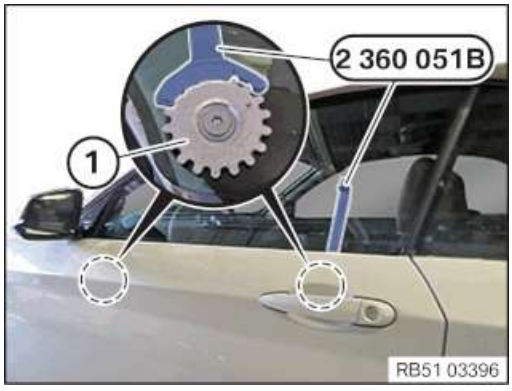
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten multi-point nuts (1) on the door window glass in the front using special tool **B** and a torque wrench.

Toothed nut of side window

Toothed nut		Tightening torque	11 Nm

3 – Install outer weather strip

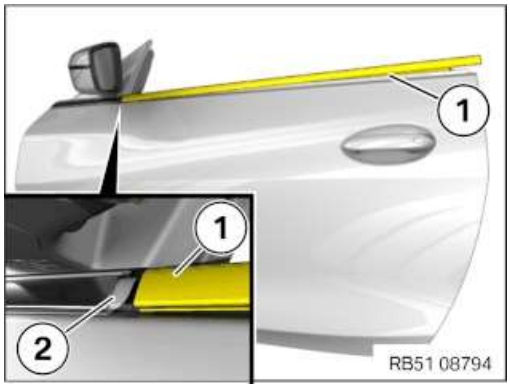
carmagnet.com

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

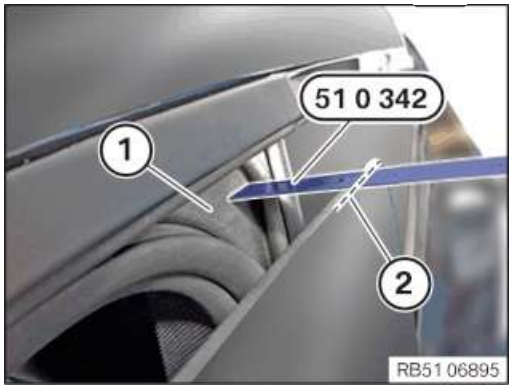
4 – Adjust preload on door window glass

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

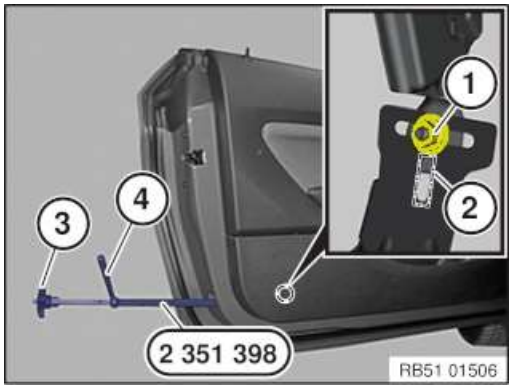


- Open door; move door window glass into uppermost position, if necessary.
- Insert special tool with the special tool in the rotary striker of the door lock and lock the rotary striker manually (door window glass moves fully upwards).
- Carefully close the door until the special tool lies on the striker (defined opening angle for the measurement).



- Do not exert any force on the door or door window glass during measurement.
- Abut special tool to the seal (1) and the door window glass (2).
- Determine dimension for preload between the seal (1) and outer edge of door window glass (2).

  Nominal dimension = 55 ± 1 mm



- Open door and remove sealing cap from door frame.
- Feed in special tool into the door and position at the nut (1) and the guide (2).
- Slacken nut (1) with knob (3).
- Turning the lever (4) to set the preload.

  Nominal dimension = 55 ± 1 mm
- Tighten nut (1).

Power window regulator to inner door panel

M6			9,5 Nm

- Check setting (see further information), repeat process if necessary.

4 – Check setting of door window glass

- Remove special tool and fit the seal plug.

Additional Information

Overview of Tightening Torques

Toothed nut of side window — Used in step 2

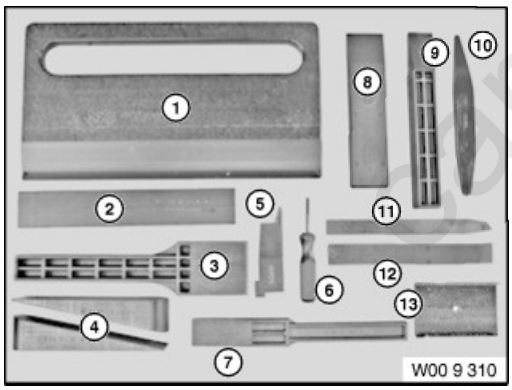
Toothed nut		Tightening torque	11 Nm

Power window regulator to inner door panel — Used in step 4

M6			9,5 Nm

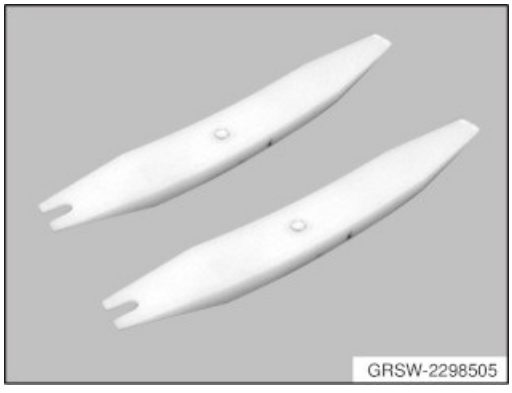
Overview of Special Tools

0 495 484 (00 9 324) Panel wedge



Common	Used in step 1
Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

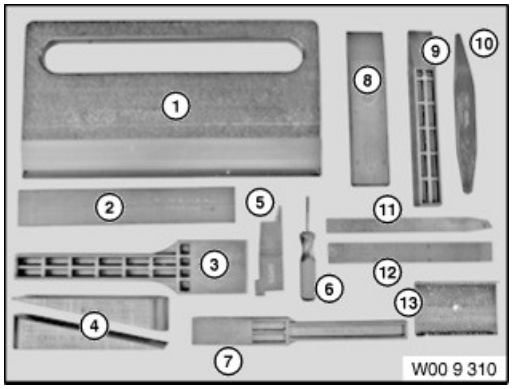
2 298 505 Wedge



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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0 490 538 (00 9 321) Folding stick



Common	Used in step 1
Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 356 862 Device



Common	Used in step 2
Usage	Device for measuring the side window retraction depth. Also valid for: BMW i Aftersales Basic. This tool set replaces the tool 2304553
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 29 13 (998)

2 359 976 Siphon



Common	Used in step 2
Usage	For fixing and adjusting frameless side/door window glass. Also valid for: BMW i Aftersales Basic
Included in the tool or work	
Storage location	A73
Replaced by	
In connection with	
SI-Number	01 27 14 (129)

Links

Repair instructions (PRE)	Used in step
Check setting of door window glass	4

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This documentation refers to special tools that were not yet available when going to press.

51 32 170 Remove and install/replace side window, front left or right

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove front door trim panel

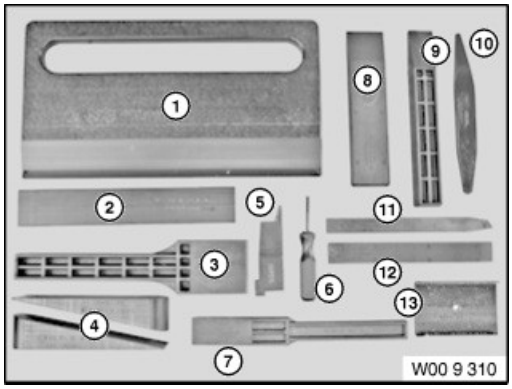
RISK OF DAMAGE

Damage of high-quality surfaces.

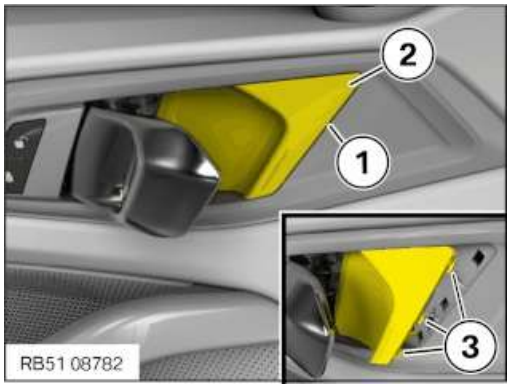
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

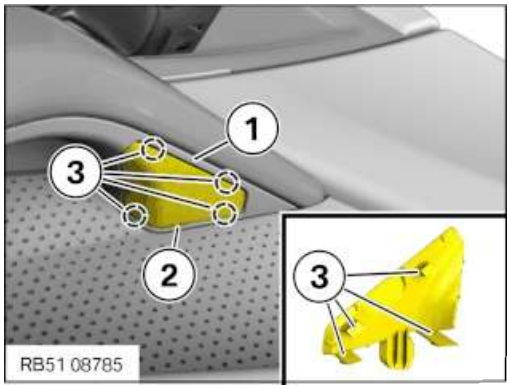
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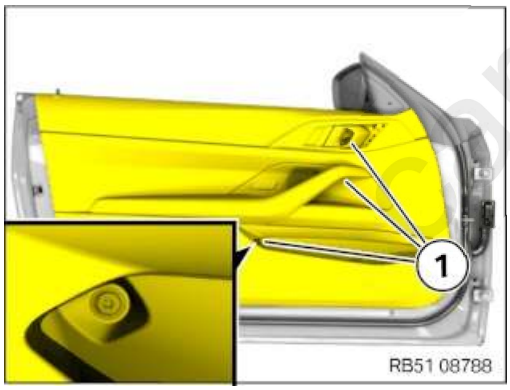
- Have the set of special tools 0 493 752 (00 9 329) ready.



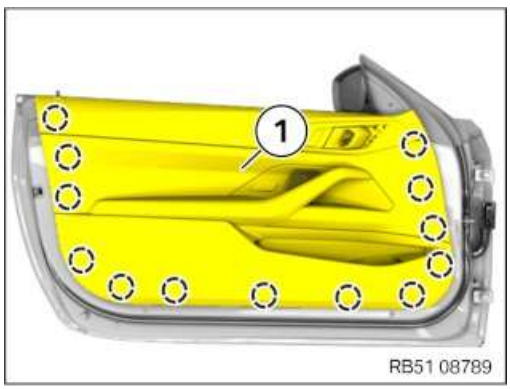
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

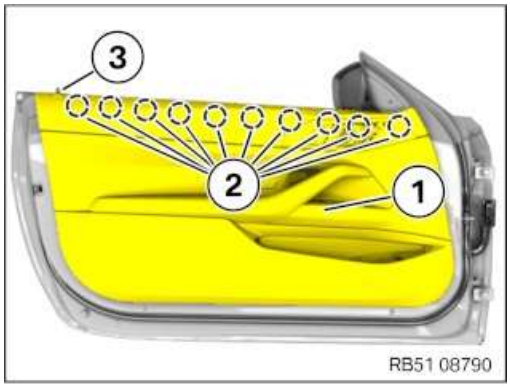


- Loosen screws (1).

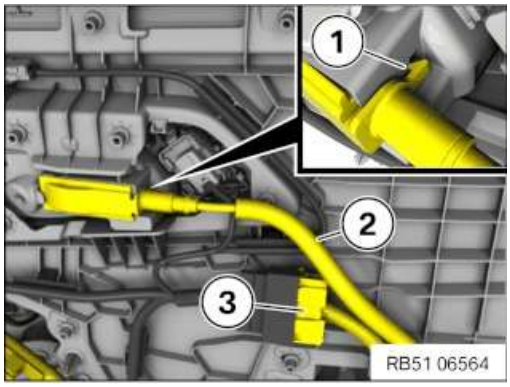


- Unclip the door trim panel (1) with the suitable special tool at the marked places.

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- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



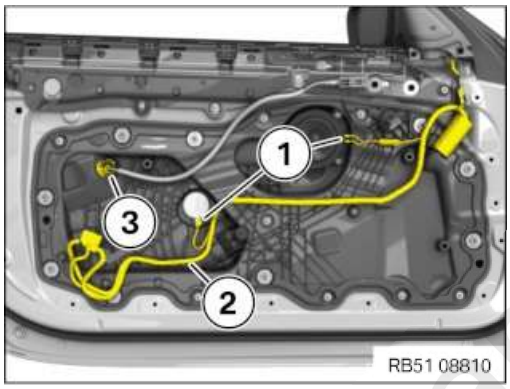
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

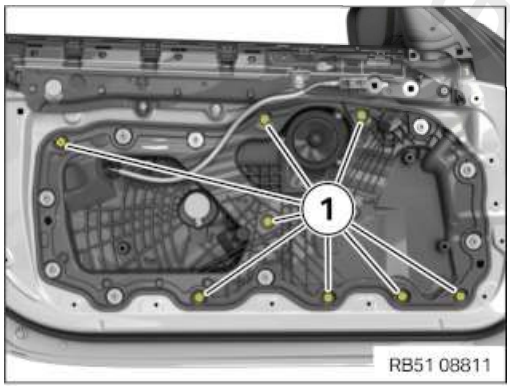
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

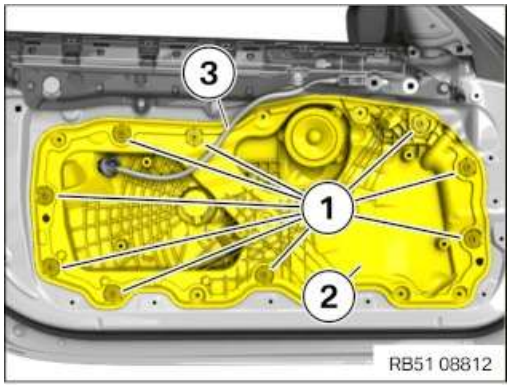
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).



- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

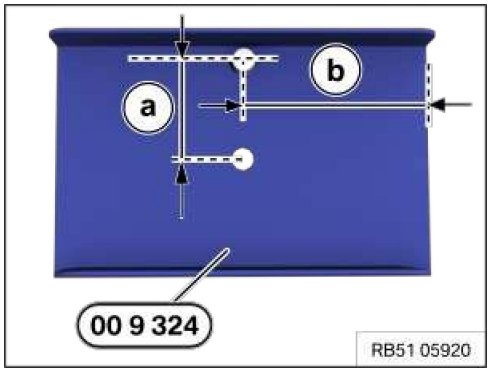
  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

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5 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

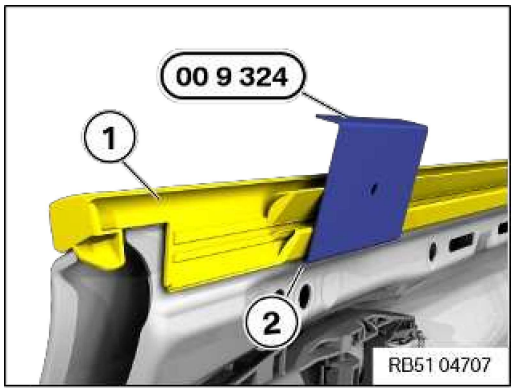
- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

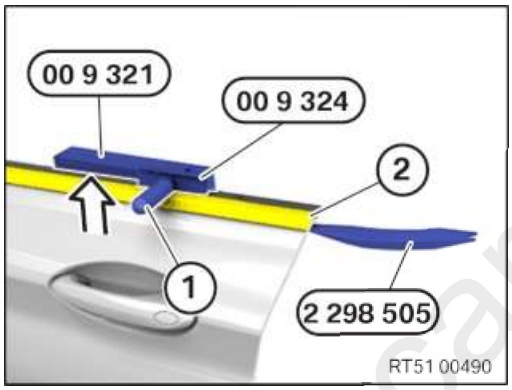
  Dimension (b) = 50 mm from the outer edge of the special tool



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

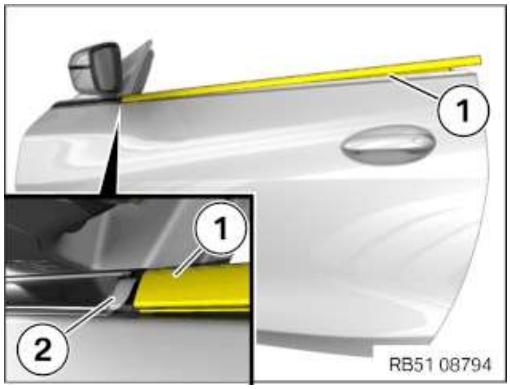
- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.

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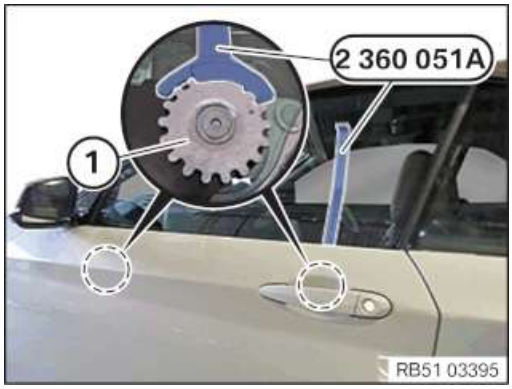


- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

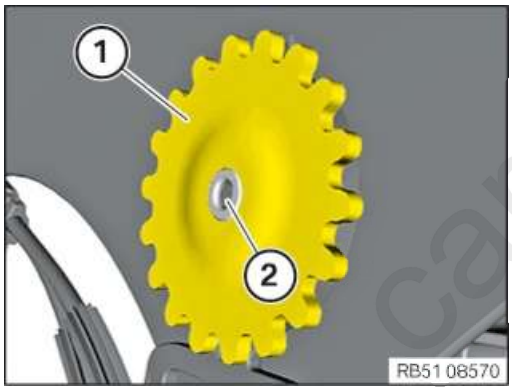
6 – Release door window at front

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



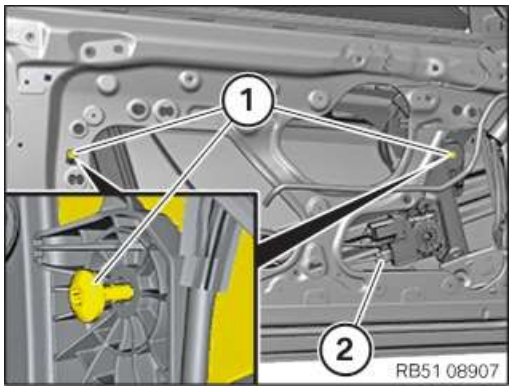
- Undo multi-tooth nuts (1) on side window glass with special tool **A**. (Observe next operation.)



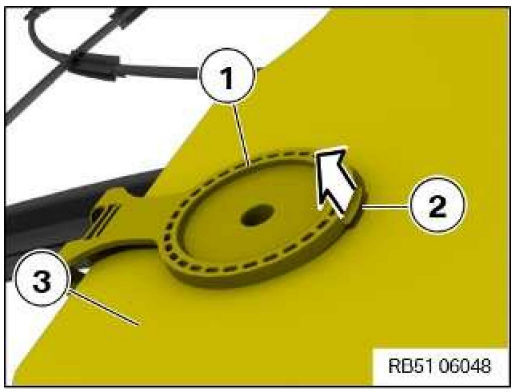
- Only undo the multi-tooth nut (1) to the extent it is flush with the socket (2).
- Lower front door window glass half way.

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7 – Removing front door window glass



- Open the front door window glass so that the screws (1) are accessible.
- Unlock plug connection (2) and disconnect.
- Unscrew the screws (1) so far until the disassembly of the front door window glass is possible.

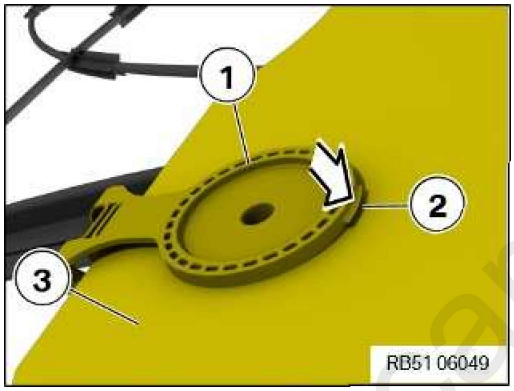


NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Lift holder (1) on the tab (2) in the direction of arrow.
- Feed out the front door window glass (3) from the door upwards.

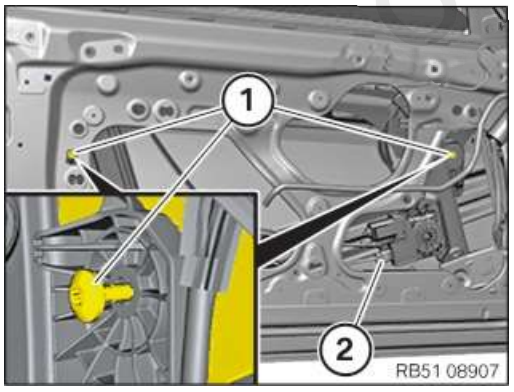
8 – Installing front door window glass



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Insert door window glass front (3) from the top.
- Press holder (1) on the tab (2) in direction of arrow and lock.



- Screw in the screws (1) and tighten them.

  In this process, counter support the multi-tooth nuts of the electric window.

Door window glass to power window regulator

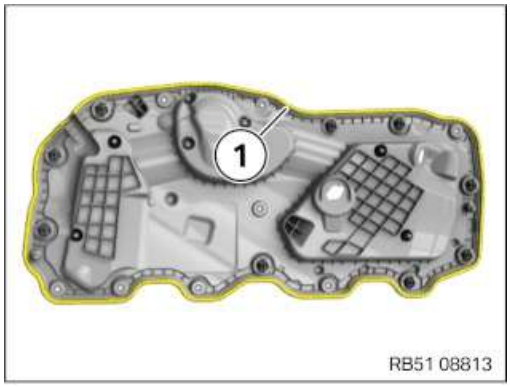
Screw		Tightening torque	0.25 Nm

- Connect connectors (2) and lock.

POSTPROCESSES

9 – Installing the module carrier on the front door

Check



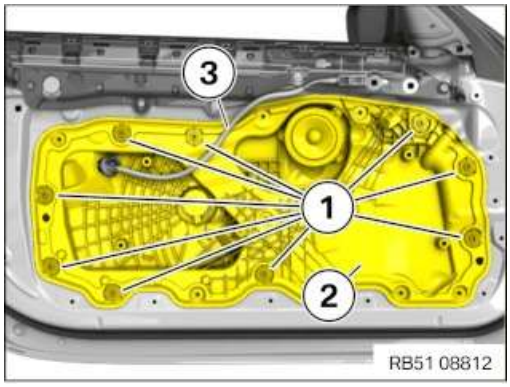
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

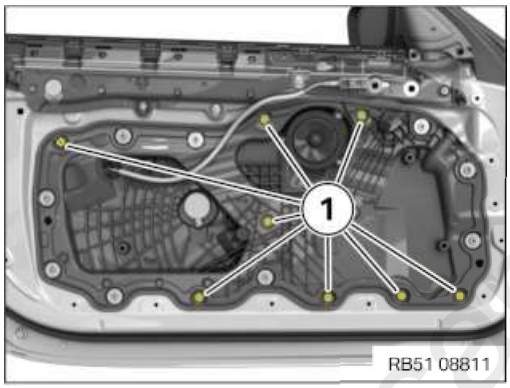
Measure

- Renew the module carrier on the front door.



- Position the module carrier on the front door (2).

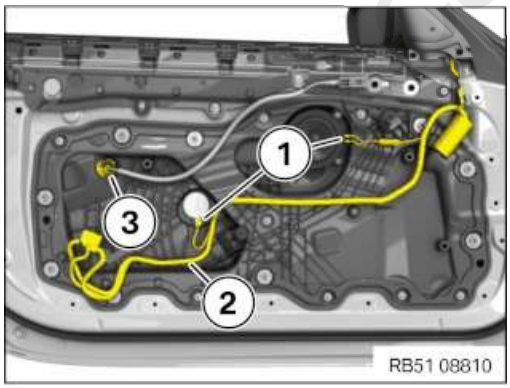
  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

Module carrier to the front door

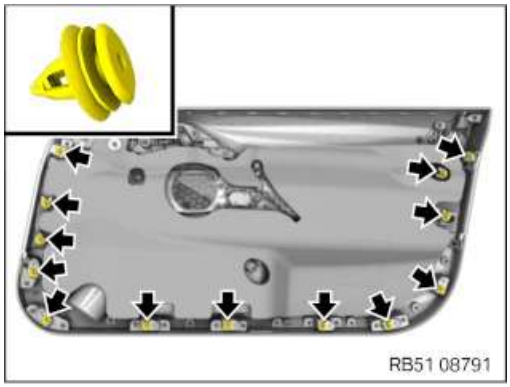
Oval-head screwM6	Tightening torque	9 Nm



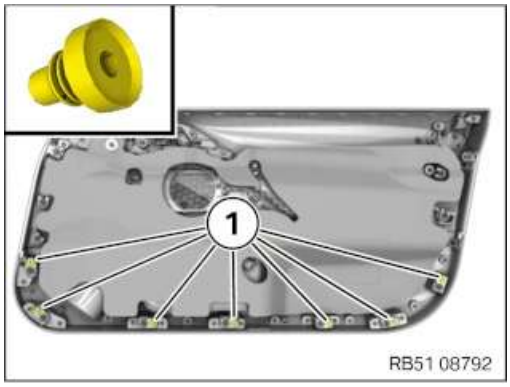
- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

10 – Install front door trim panel

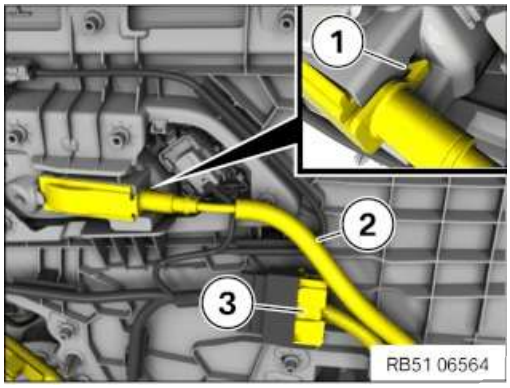
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- Check clips (arrows) for damage and, if necessary, renew them.



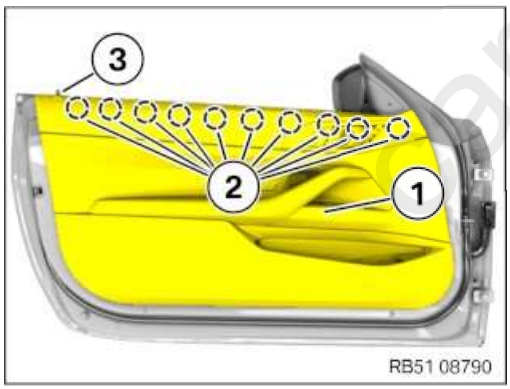
- Check the stop pad (1) for damage, renew if necessary.



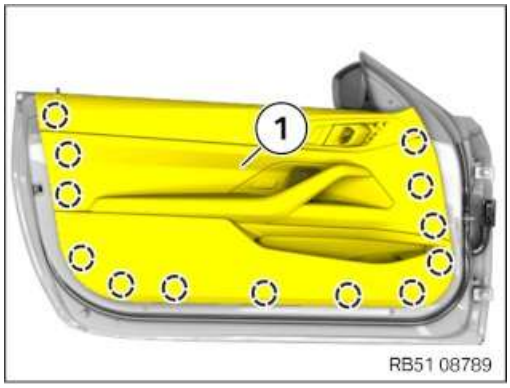
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

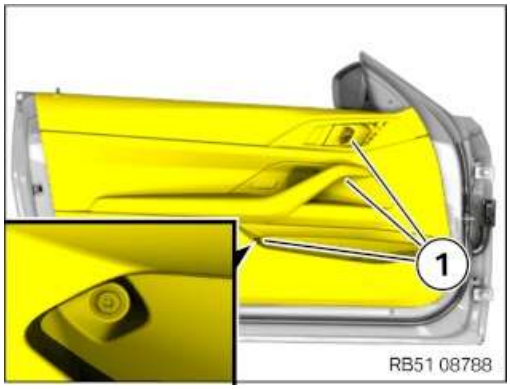
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



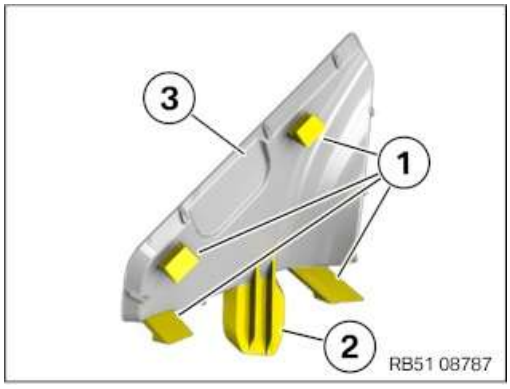
- Clip in the door trim panel (1) at the marked places.



- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm



Check

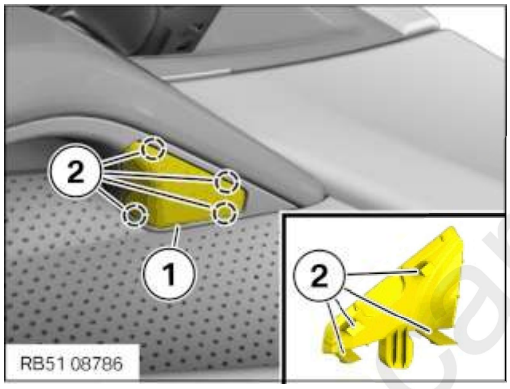
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

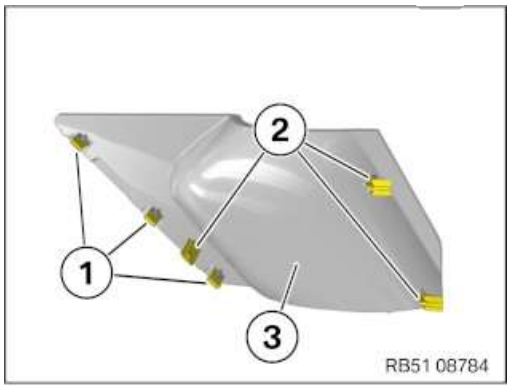
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.



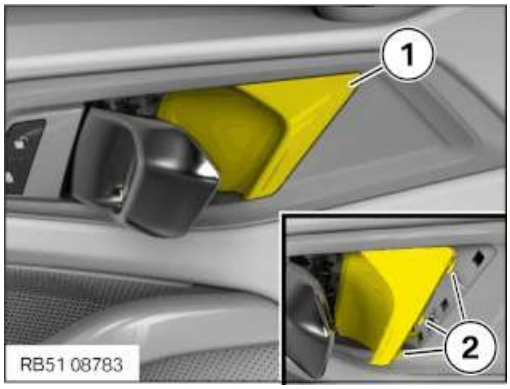
Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).

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- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

11 – Connecting all battery earth leads



- See additional information.

12 – Activating the 48 V electrical system

Prerequisite

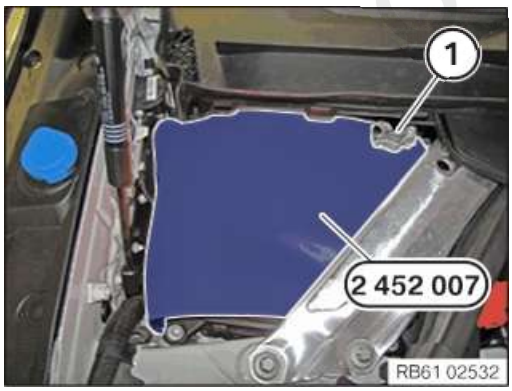
Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .

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- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

13 – Adjusting door window glass

Prerequisite

Vehicle is supported on all wheels at ground level.

Front door has been correctly fitted.

Battery charger is connected (during adjustment work, the complete operability of the power window regulator is only guaranteed with external voltage supply).

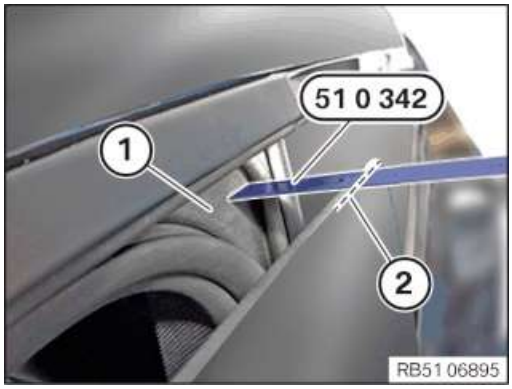
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



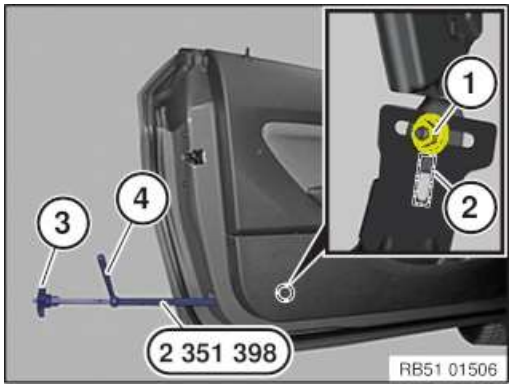
- Open door; move door window glass into uppermost position, if necessary.
- Insert special tool with the special tool in the rotary striker of the door lock and lock the rotary striker manually (door window glass moves fully upwards).
- Carefully close the door until the special tool lies on the striker (defined opening angle for the measurement).

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- Do not exert any force on the door or door window glass during measurement.
- Abut special tool to the seal (1) and the door window glass (2).
- Determine dimension for preload between the seal (1) and outer edge of door window glass (2).

  Nominal dimension = 55 ± 1 mm



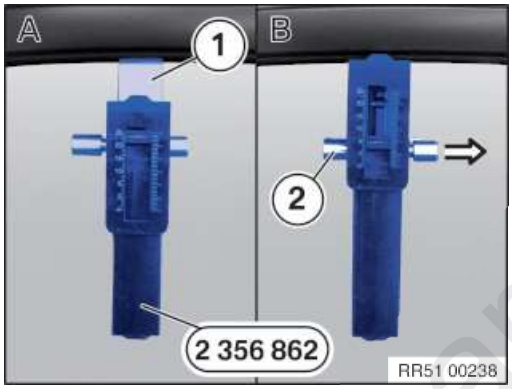
- Open door and remove sealing cap from door frame.
- Feed in special tool into the door and position at the nut (1) and the guide (2).
- Slacken nut (1) with knob (3).
- Turning the lever (4) to set the preload.

  Nominal dimension = 55 ± 1 mm
- Tighten nut (1).

Power window regulator to inner door panel

M6		9,5 Nm

- Check setting, repeat process if necessary.
- Remove special tool and fit the seal plug.
- Remove the special tool from the rotary striker of the door lock.



- Connect the special tool 2 356 862 to the holder (5 mm)(1) on the door window glass when it is locked (A).

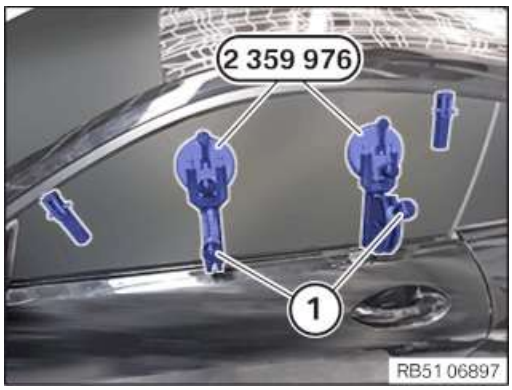
  Close the door and release the lock (2) (B).



- Open door.
- Place special tool 2 356 862 as shown on the door window glass.

  Approx. displaced by 40 mm inwards in each case.
- Close door.
- Measure retraction depth.

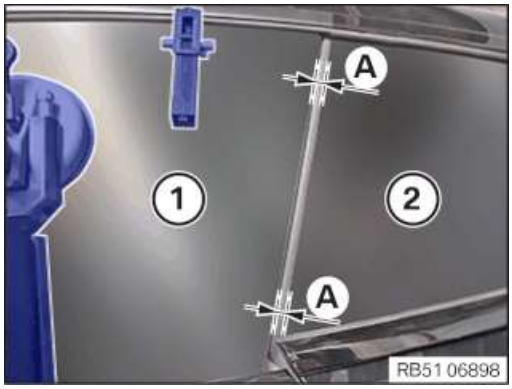
  Nominal dimension: 5.5 ± 1 mm



- Attach special tool 2 359 976 on the door window glass so that the multi-tooth screws of the door window glass are still accessible.
- Release adjustment lever (1) by twisting.
- Set the retraction depth of the side window glass by moving the adjustment lever (1).

  Nominal dimension: 5.5 ± 1 mm
- Tighten adjustment lever (1).

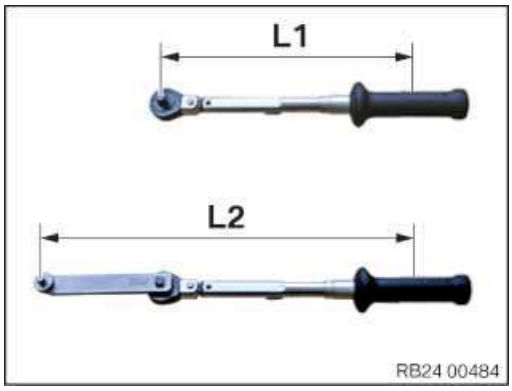
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- Adjust door window panel (1) parallel to the rear side window (2).

  Dimension (A) = 8.0 ± 1 mm

▸ **Tighten the front door window glass**



TECHNICAL INFORMATION

While using the special tool, that extends the lever arm of the torque wrench, the setpoint torque deviates from the torque to be set.

NOTICE

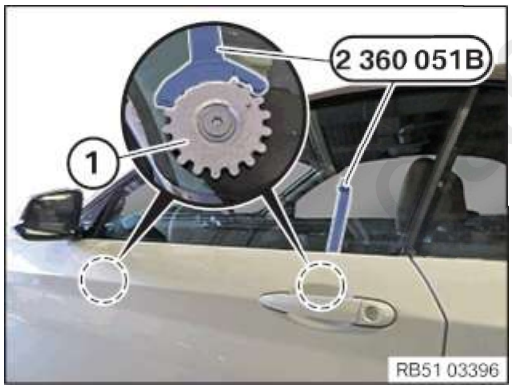
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten multi-point nuts (1) on the door window glass in the front using special tool **B** and a torque wrench.

Toothed nut of side window

Toothed nut		Tightening torque	11 Nm

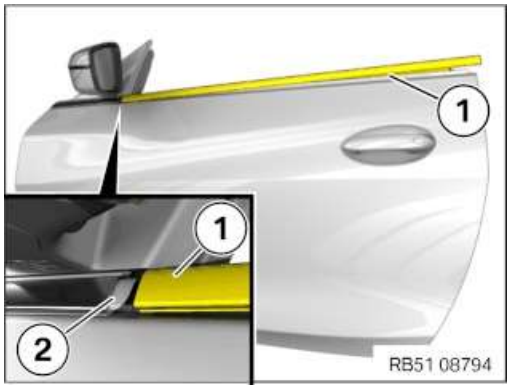
14 – Install outer weather strip

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

Additional Information

Overview of Tightening Torques

Door window glass to power window regulator			Used in step 8
Screw		Tightening torque	0.25 Nm

Module carrier to the front door			Used in step 9
Oval-head screwM6		Tightening torque	9 Nm

Door trim panel			Used in step 10
Oval-head screw		Tightening torque	3 Nm

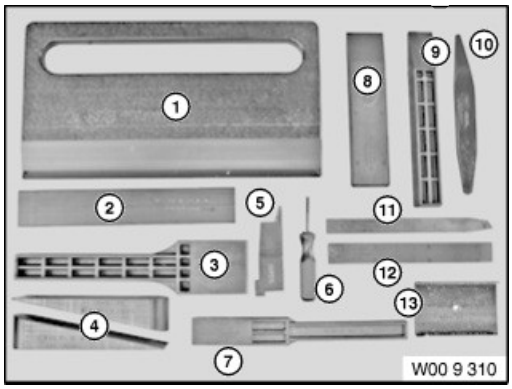
Negative battery cable to 48-V battery			Used in step 12
Nut M8		Tightening torque	19 Nm

Power window regulator to inner door panel			Used in step 13
M6			9,5 Nm

Toothed nut of side window			Used in step 13
Toothed nut		Tightening torque	11 Nm

Overview of Special Tools

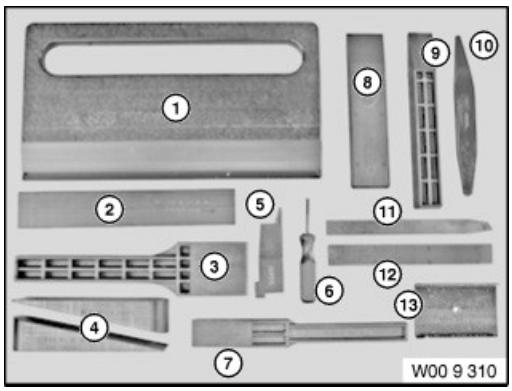
0 493 752 (00 9 329) Case



Common	Used in step 3
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

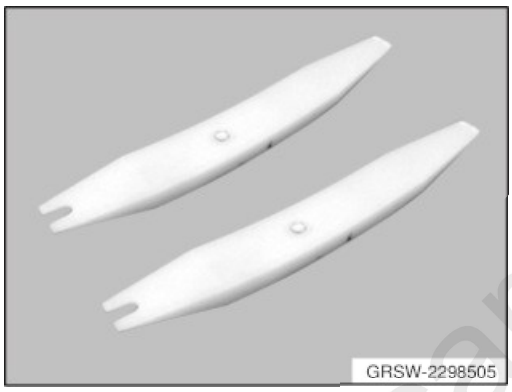
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0 495 484 (00 9 324) Panel wedge



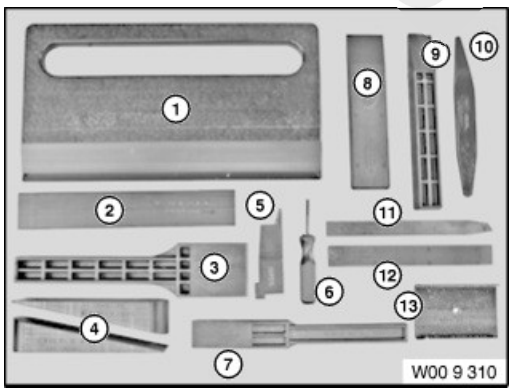
Common	Used in step 5
Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

2 298 505 Wedge



Common	Used in step 5
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)

0 490 538 (00 9 321) Folding stick



Common	Used in step 5
Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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2 356 862 Device



Common	Used in step 13
Usage	Device for measuring the side window retraction depth. Also valid for: BMW i Aftersales Basic. This tool set replaces the tool 2304553
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 29 13 (998)

2 359 976 Siphon



Common	Used in step 13
Usage	For fixing and adjusting frameless side/door window glass. Also valid for: BMW i Aftersales Basic
Included in the tool or work	
Storage location	A73
Replaced by	
In connection with	
SI-Number	01 27 14 (129)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	112

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	211
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61 20 900 Disconnecting and connecting battery earth lead	211
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
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61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211

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This documentation refers to special tools that were not yet available when going to press.

51 32 211 Replace the rubber window seal for the front left or right door window glass

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

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RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

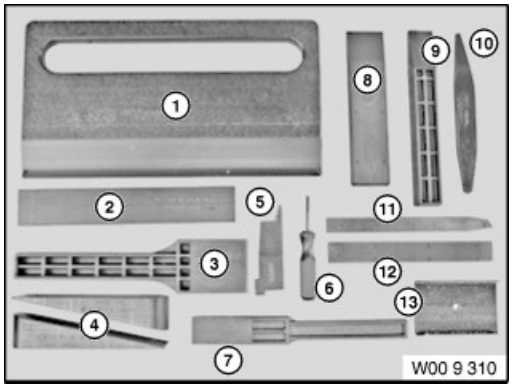
3 – Remove front door trim panel

RISK OF DAMAGE

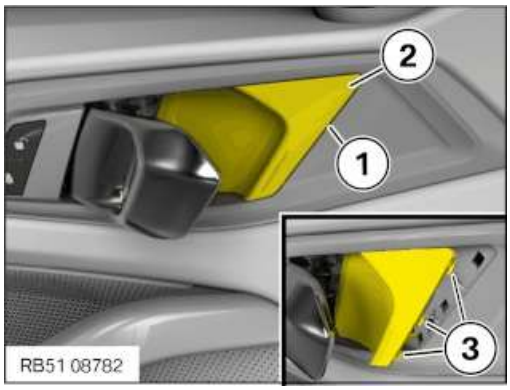
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

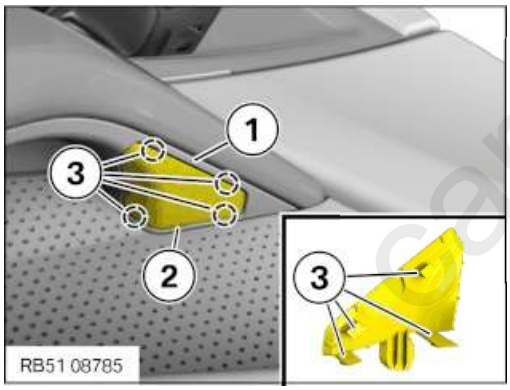
- Protect surfaces from damage.



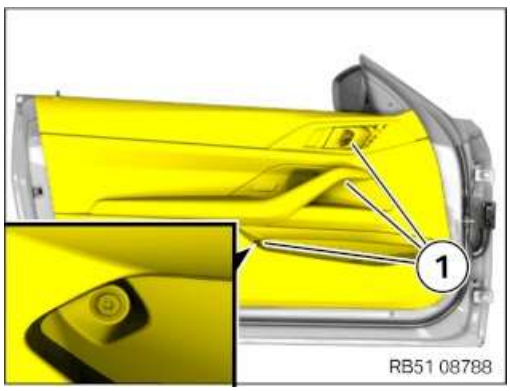
- Have the set of special tools 0 493 752 (00 9 329) ready.



- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.

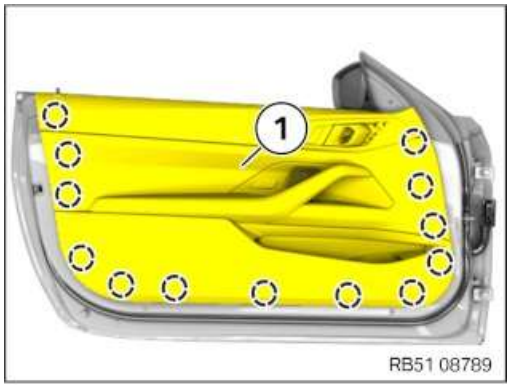


- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

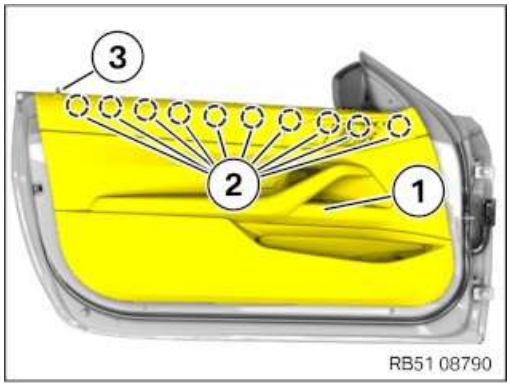


- Loosen screws (1).

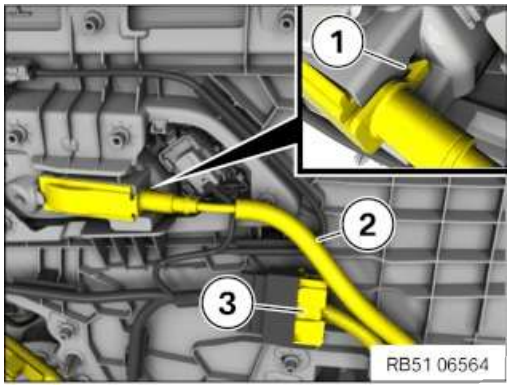
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- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

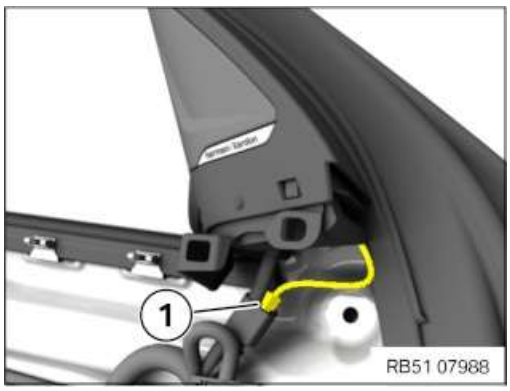
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

4 – Removing mirror triangle

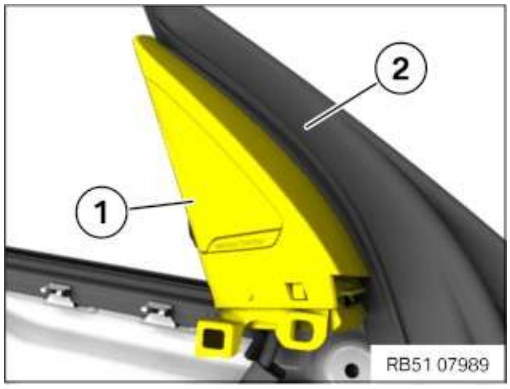
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **For equipment specification with tweeter.**
- Unlock plug connection (1) and disconnect.

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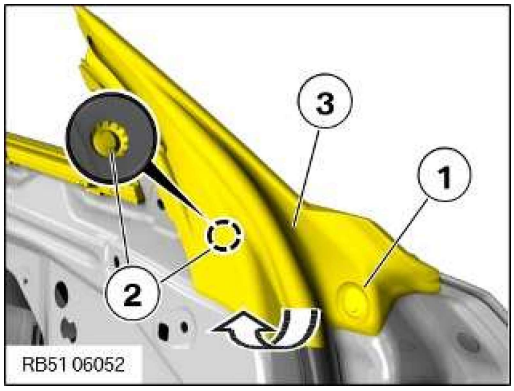


- Feed out the mirror triangle (1) from the inner window recess finisher strip (2) .

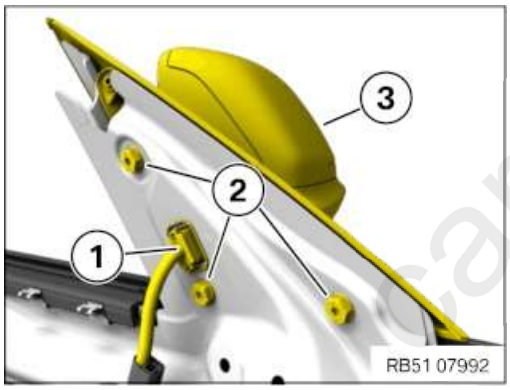
5 – Remove exterior mirror

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Unclip clip (1) with suitable tool.
- Unclip clip (2).
- Partially release the inner window recess finisher strip at the front (3) in the direction of arrow.

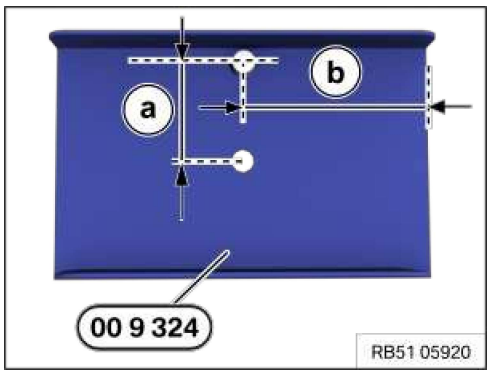


- Unlock plug connection (1) and disconnect.
- Release screws (2) and remove the exterior mirror of the front door (3) .

6 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

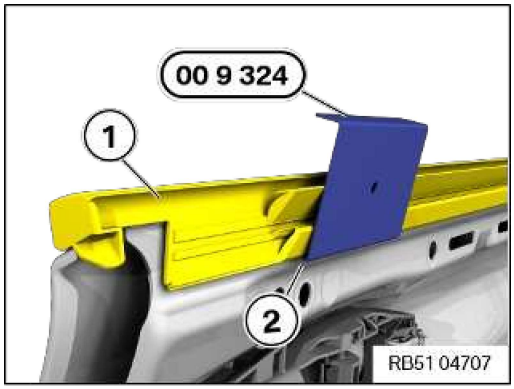
  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

  Dimension (b) = 50 mm from the outer edge of the special tool

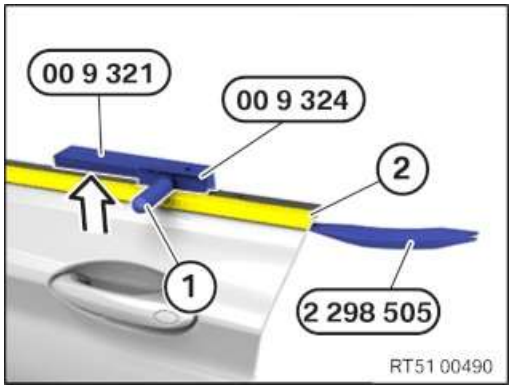
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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

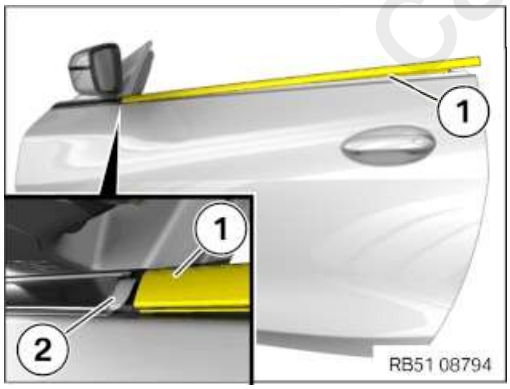
- Protect working area.
- Handle tools and components carefully.

- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.



- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

7 – Remove the weather strip (front) on the front door

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RISK OF DAMAGE

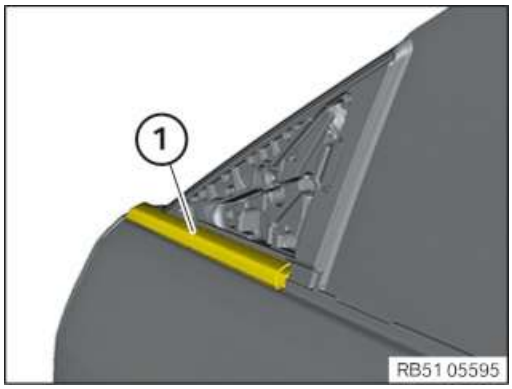
Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

NOTICE

Description is for left component only. Procedure on the right side is identical.

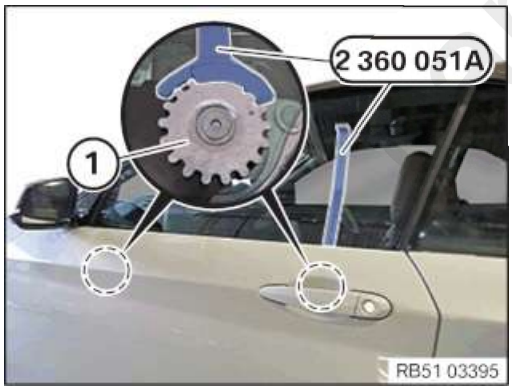


- Carefully release the weather strip (1) from the door with a suitable plastic wedge beginning from the rear to the top.

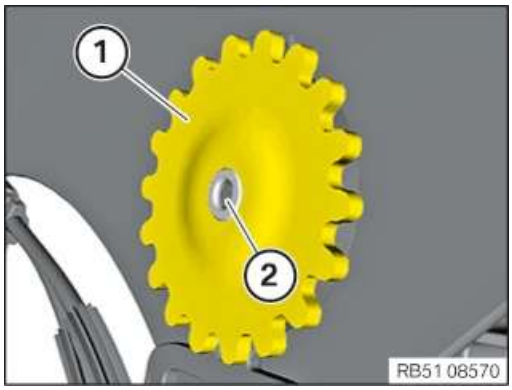
8 – Release door window at front

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

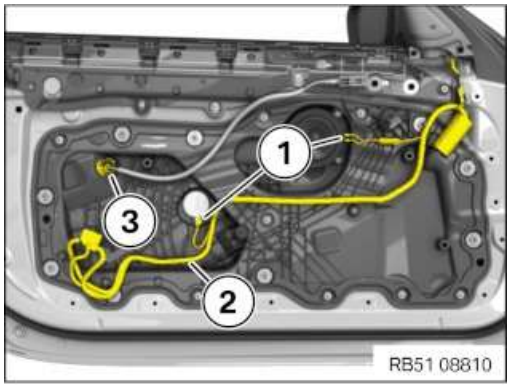


- Undo multi-tooth nuts (1) on side window glass with special tool **A**. (Observe next operation.)

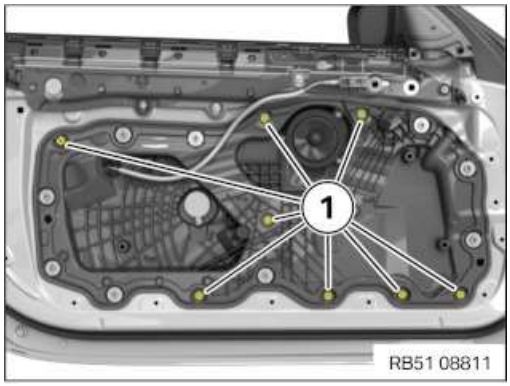


- Only undo the multi-tooth nut (1) to the extent it is flush with the socket (2).
- Lower front door window glass half way.

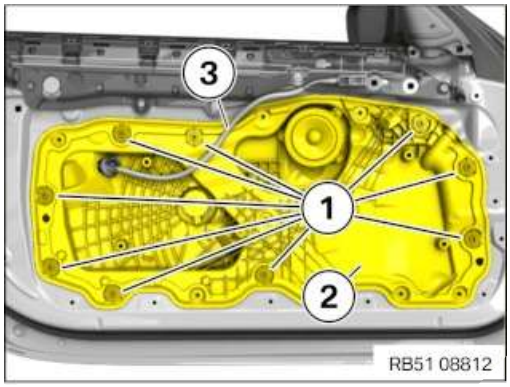
9 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



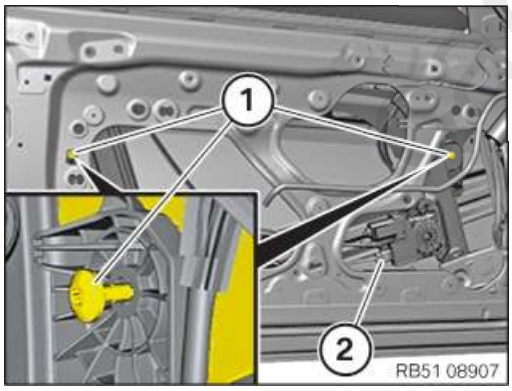
- Loosen screws (1).



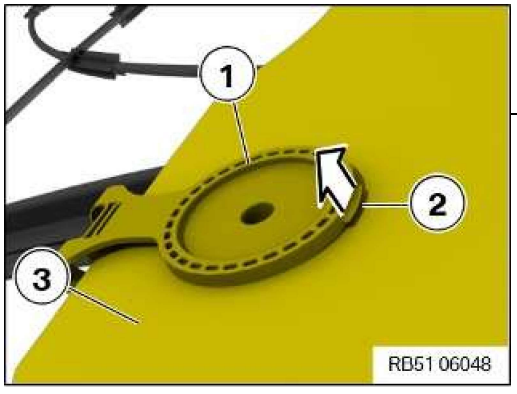
- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

10 – Removing front door window glass



- Open the front door window glass so that the screws (1) are accessible.
- Unlock plug connection (2) and disconnect.
- Unscrew the screws (1) so far until the disassembly of the front door window glass is possible.

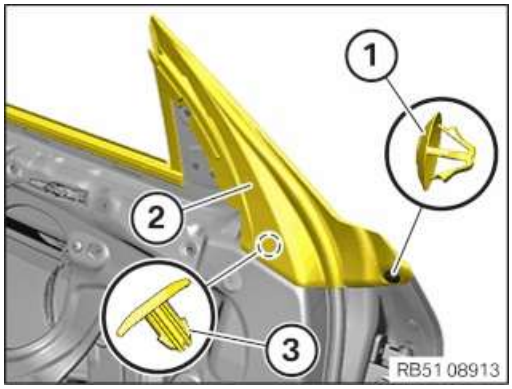


NOTICE

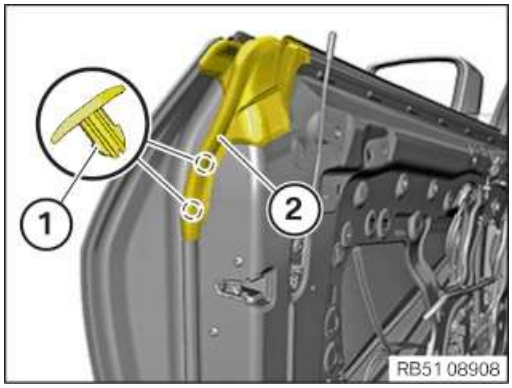
To provide a better overview: Schematic diagram with partially hidden components.

- Lift holder (1) on the tab (2) in the direction of arrow.
- Feed out the front door window glass (3) from the door upwards.

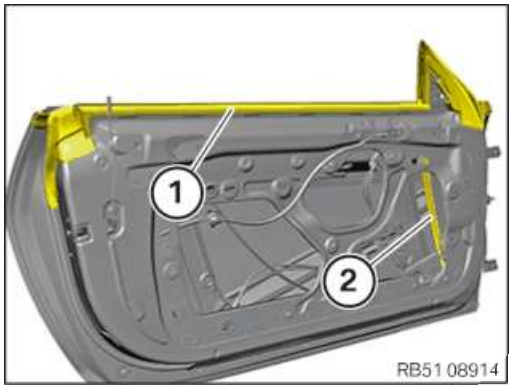
partdiagn.com



- Release the clip (1).
- Release the rubber window seal (2) at the clip (3).

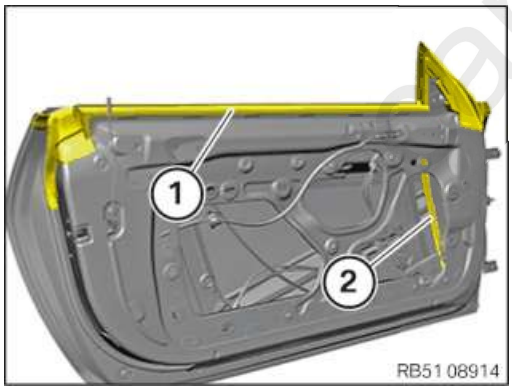


- Release the rubber window seal (2) at the clips (1).



- Feed the rubber window seal (1) out of the window guide rail (2).
- Carefully feed the rubber window seal (1) out of the door upwards and remove.

12 – Install the rubber window seal

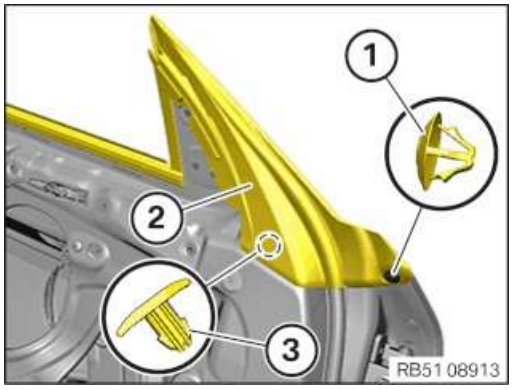


- Coat the rubber window seal (1) with lubricant approved for use.

Expendable materials

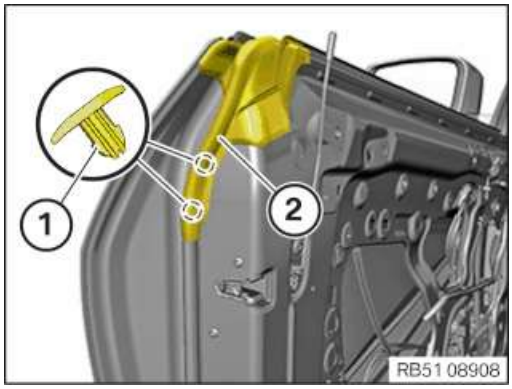
Fitting aid (Circo Light; lubricant)	250 ml, Bottle	83192405829

- Correctly position the rubber window seal (1) on the door and install.
- Correctly install the rubber window seal (1) in the window guide rail (2).



- Feed in the rubber window seal (2) correctly.
- Fasten the rubber window seal (2) to the clip (3).
- Mount the clip (1).

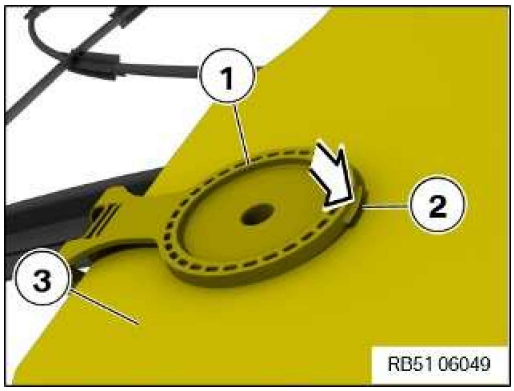
cardiagn.com



- Feed the in rubber window seal (2) correctly.
- Fasten the rubber window seal (2) to the clips (1).

POSTPROCESSES

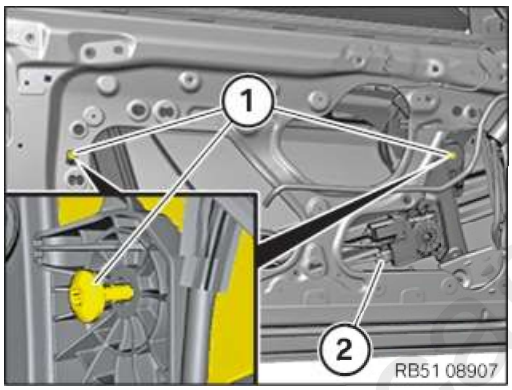
13 – Installing front door window glass



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Insert door window glass front (3) from the top.
- Press holder (1) on the tab (2) in direction of arrow and lock.



- Screw in the screws (1) and tighten them.

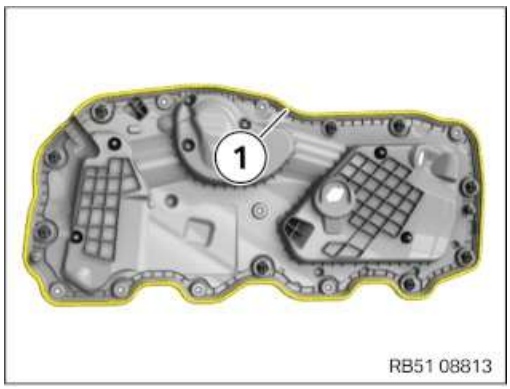
  In this process, counter support the multi-tooth nuts of the electric window.

Door window glass to power window regulator

Screw		Tightening torque	0.25 Nm

- Connect connectors (2) and lock.

14 – Installing the module carrier on the front door



Check

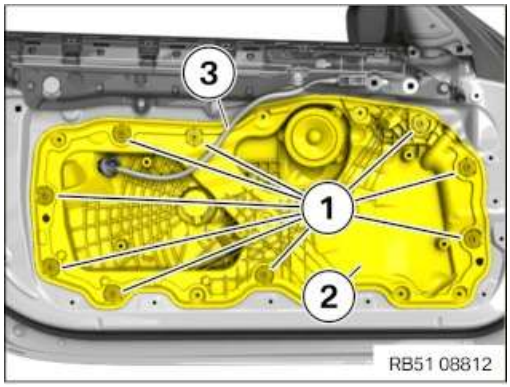
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

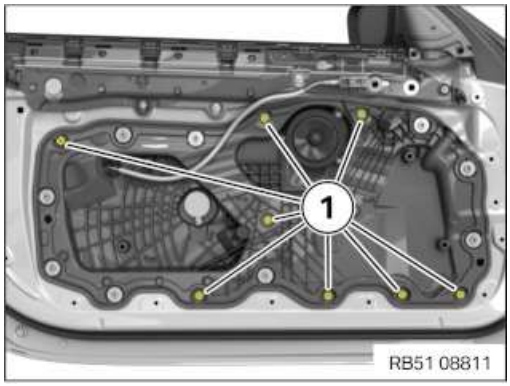
Measure

- Renew the module carrier on the front door.



- Position the module carrier on the front door (2).

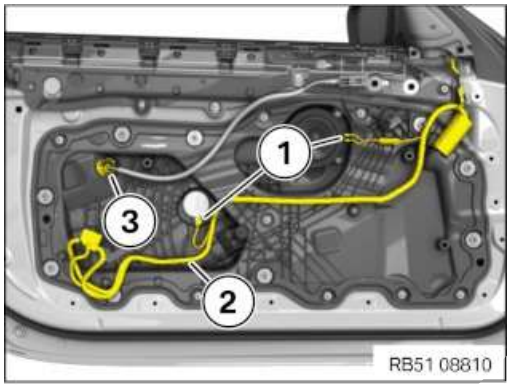
  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

Module carrier to the front door

Oval-head screwM6		Tightening torque	9 Nm



- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

15 – Install the weather strip (front) on the front door

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

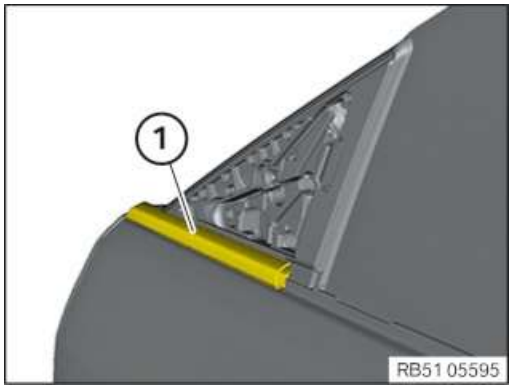
Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

NOTICE

Description is for left component only. Procedure on the right side is identical.

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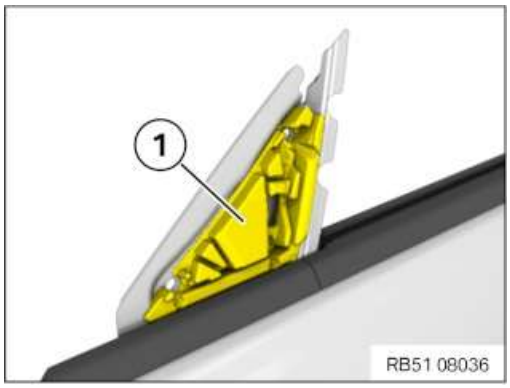


- Coat the weather strip (1) with a suitable lubricant prior to installation.
- Position the weather strip (1) correctly and press down along its entire length.

16 – Fit exterior mirror

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

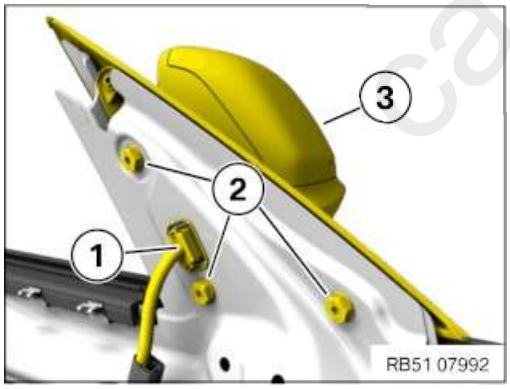
- Check the sealing (1) for the mirror triangle for damage and position it correctly.

Result

» The mirror triangle sealing is damaged.

Measure

- Renew the sealing for the mirror triangle.

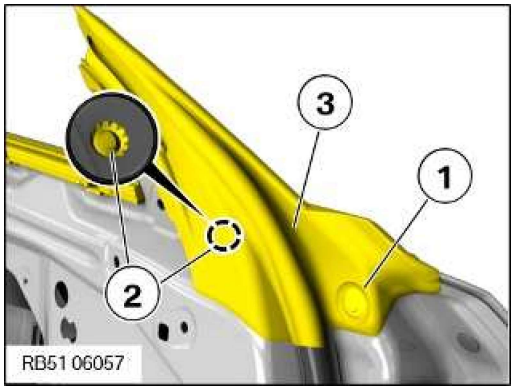


- Position the exterior mirror (3) on the door and tighten the screws (2).

Exterior mirror to door

Screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.



- Position the inner window recess finisher strip at the front (3).
- Clip in clip (1).
- Clip in clip (2).

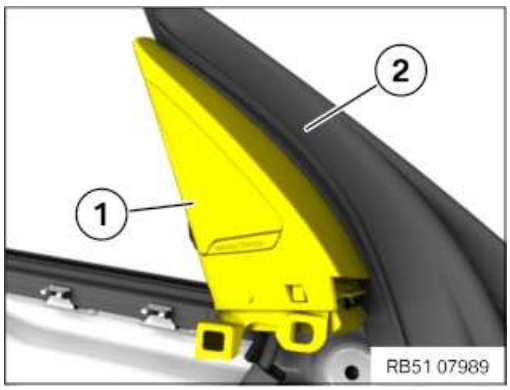
17 – Installing mirror triangle

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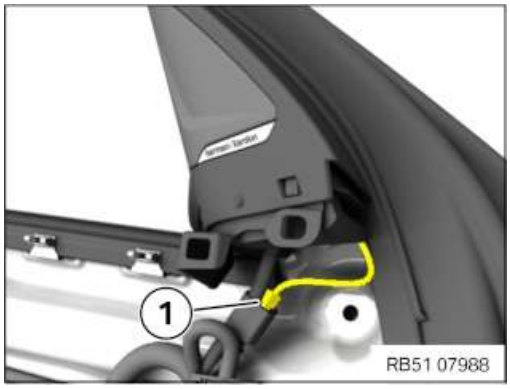
17 – Installing mirror triangle

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

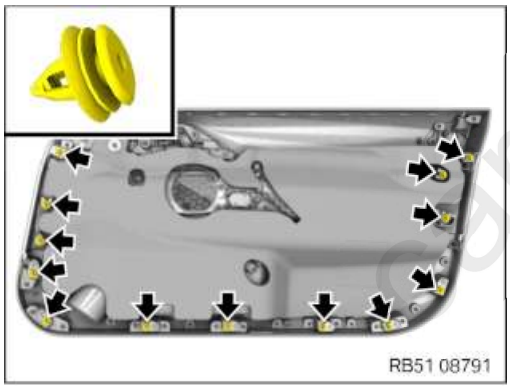


- Insert the mirror triangle (1) into the inner window recess finisher strip (2) and position it correctly.

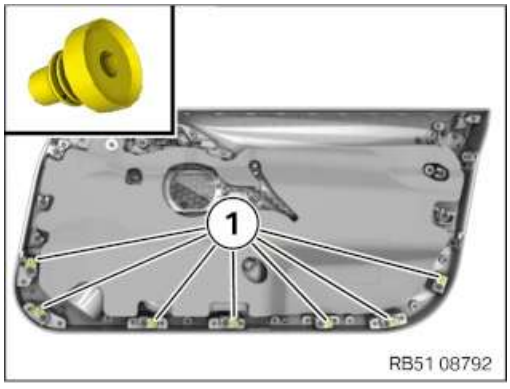


- **For equipment specification with tweeter.**
- Connect connectors (1) and lock.

18 – Install front door trim panel

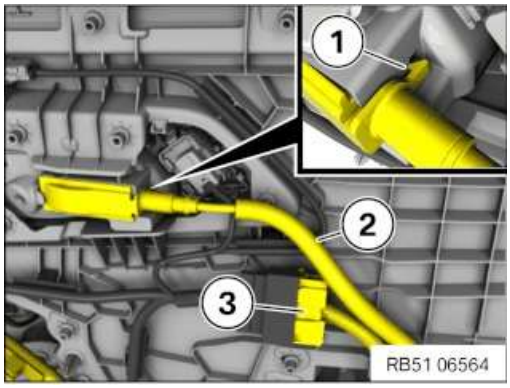


- Check clips (arrows) for damage and, if necessary, renew them.



- Check the stop pad (1) for damage, renew if necessary.

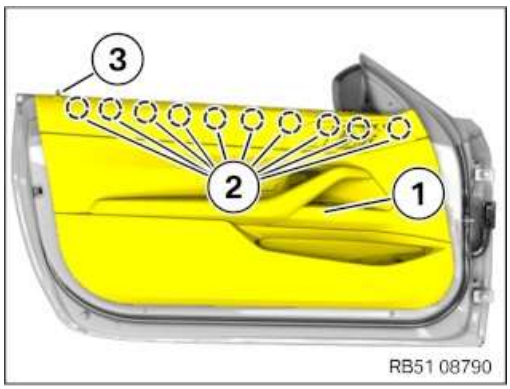
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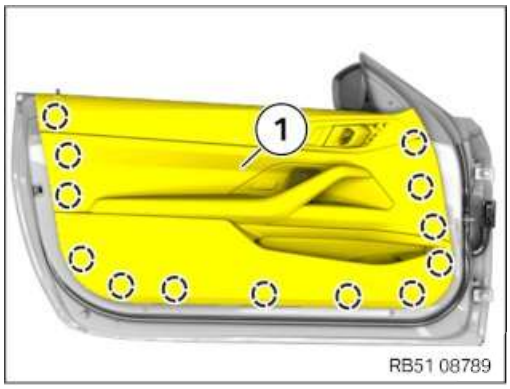
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

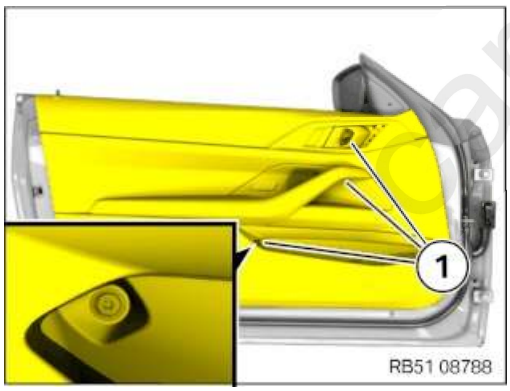
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

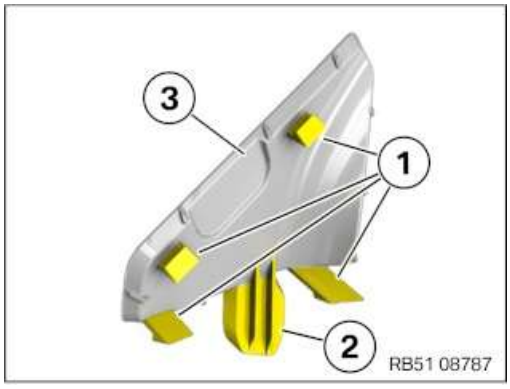


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

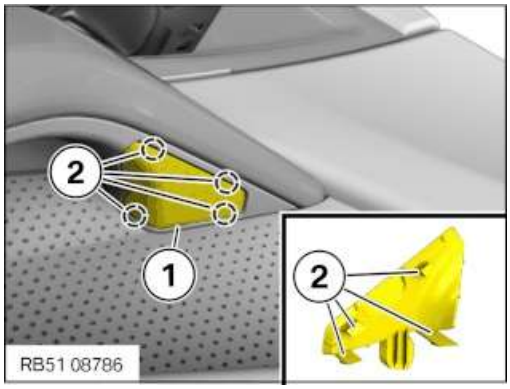
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Result

» The latch mechanisms (1) or the guides (2) are damaged.

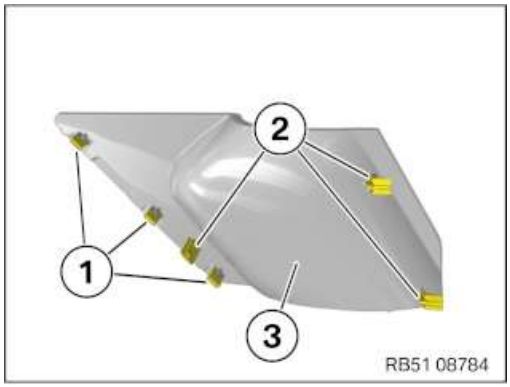
Measure

- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check



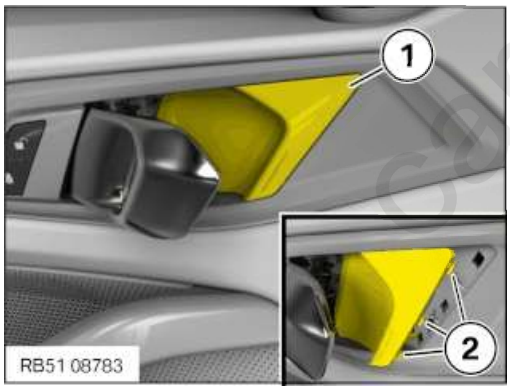
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

19 – Connecting all battery earth leads



- See additional information.

20 – Activating the 48 V electrical system

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Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



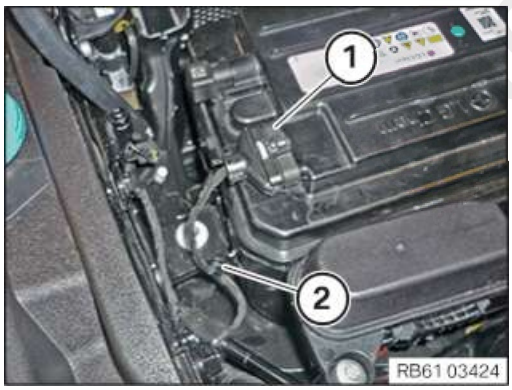
- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8	Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

Prerequisite

Vehicle is supported on all wheels at ground level.

Front door has been correctly fitted.

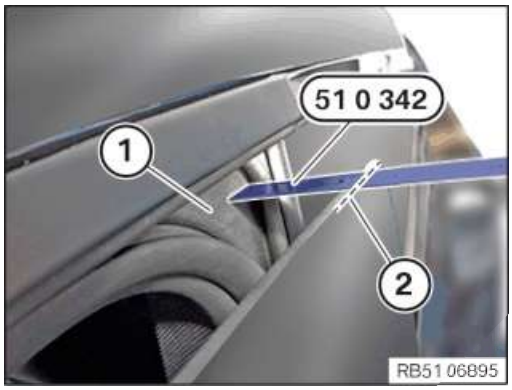
Battery charger is connected (during adjustment work, the complete operability of the power window regulator is only guaranteed with external voltage supply).

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

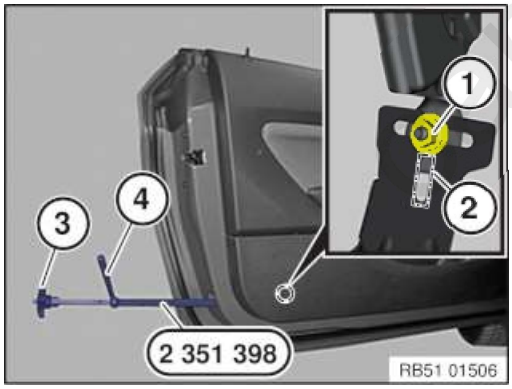


- Open door; move door window glass into uppermost position, if necessary.
- Insert special tool with the special tool in the rotary striker of the door lock and lock the rotary striker manually (door window glass moves fully upwards).
- Carefully close the door until the special tool lies on the striker (defined opening angle for the measurement).



- Do not exert any force on the door or door window glass during measurement.
- Abut special tool to the seal (1) and the door window glass (2).
- Determine dimension for preload between the seal (1) and outer edge of door window glass (2).

  Nominal dimension = 55 ± 1 mm



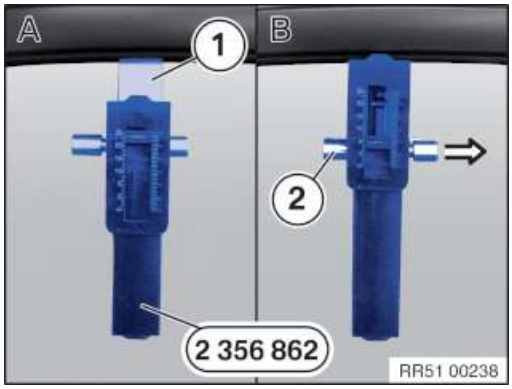
- Open door and remove sealing cap from door frame.
- Feed in special tool into the door and position at the nut (1) and the guide (2).
- Slacken nut (1) with knob (3).
- Turning the lever (4) to set the preload.

  Nominal dimension = 55 ± 1 mm
- Tighten nut (1).

Power window regulator to inner door panel

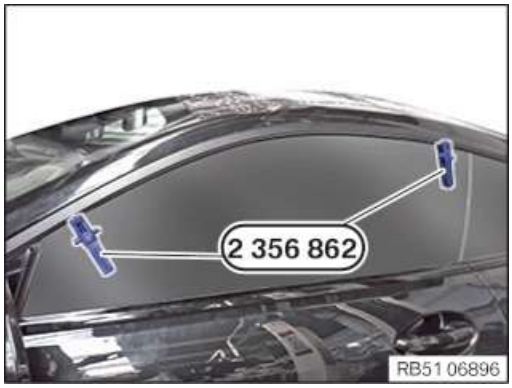
M6			9,5 Nm

- Check setting, repeat process if necessary.
- Remove special tool and fit the seal plug.
- Remove the special tool from the rotary striker of the door lock.



- Connect the special tool 2 356 862 to the holder (5 mm)(1) on the door window glass when it is locked (A).

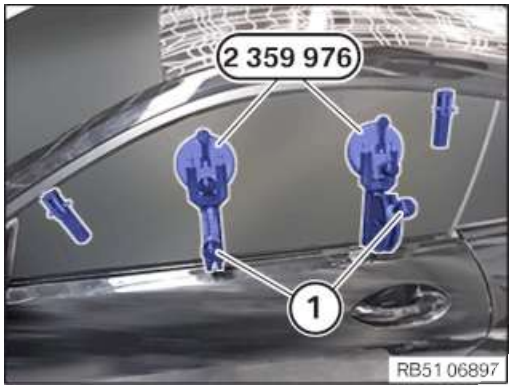
  Close the door and release the lock (2) (B).



- Open door.
- Place special tool 2 356 862 as shown on the door window glass.

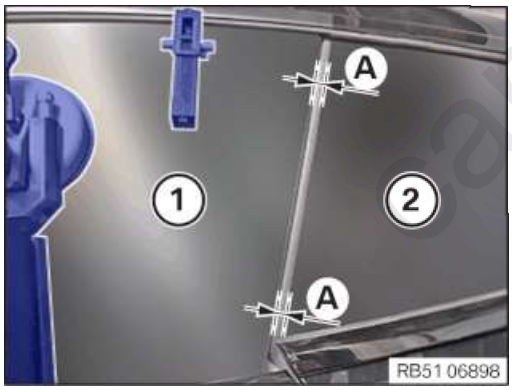
  Approx. displaced by 40 mm inwards in each case.
- Close door.
- Measure retraction depth.

  Nominal dimension: 5.5 ± 1 mm



- Attach special tool 2 359 976 on the door window glass so that the multi-tooth screws of the door window glass are still accessible.
- Release adjustment lever (1) by twisting.
- Set the retraction depth of the side window glass by moving the adjustment lever (1).

  Nominal dimension: 5.5 ± 1 mm
- Tighten adjustment lever (1).

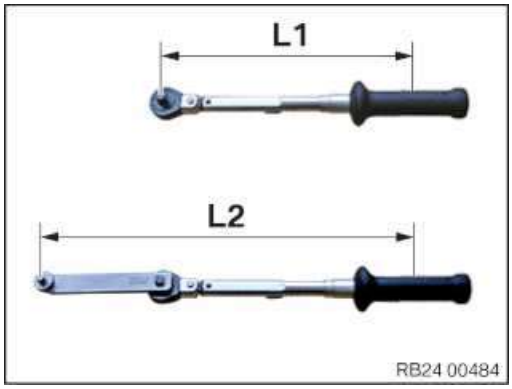


- Adjust door window panel (1) parallel to the rear side window (2).

  Dimension (A) = 8.0 ± 1 mm

▸ **Tighten the front door window glass**

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TECHNICAL INFORMATION

While using the special tool, that extends the lever arm of the torque wrench, the setpoint torque deviates from the torque to be set.

NOTICE

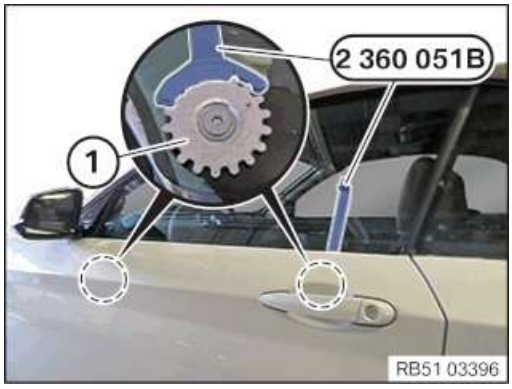
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten multi-point nuts (1) on the door window glass in the front using special tool **B** and a torque wrench.

Toothed nut of side window

Toothed nut		Tightening torque	11 Nm

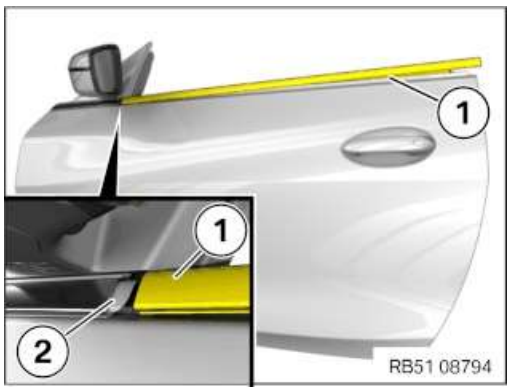
22 – Install outer weather strip

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

Additional Information

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Overview of Tightening Torques

Door window glass to power window regulator — Used in step 13

Screw		Tightening torque	0.25 Nm

Module carrier to the front door — Used in step 14

Oval-head screwM6		Tightening torque	9 Nm

Exterior mirror to door — Used in step 16

Screw		Tightening torque	8 Nm

Door trim panel — Used in step 18

Oval-head screw		Tightening torque	3 Nm

Negative battery cable to 48-V battery — Used in step 20

Nut M8		Tightening torque	19 Nm

Power window regulator to inner door panel — Used in step 21

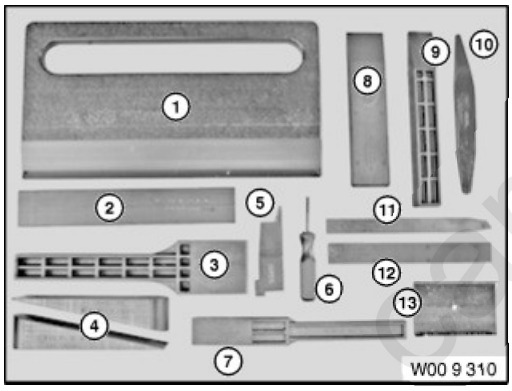
M6			9,5 Nm

Toothed nut of side window — Used in step 21

Toothed nut		Tightening torque	11 Nm

Overview of Special Tools

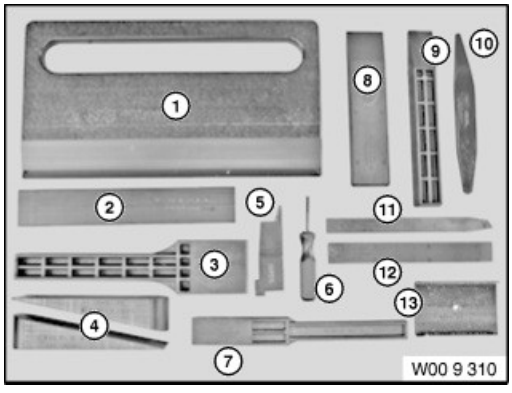
0 493 752 (00 9 329) Case



Common — Used in step 3

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 495 484 (00 9 324) Panel wedge

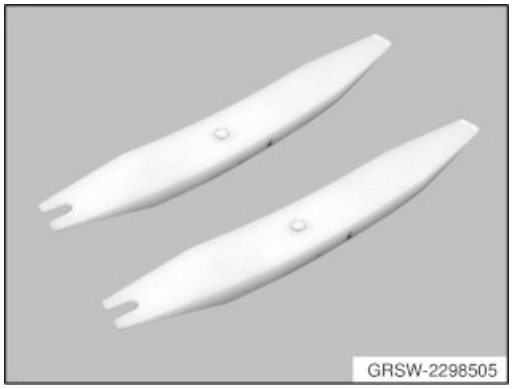


Common — Used in step 6

Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

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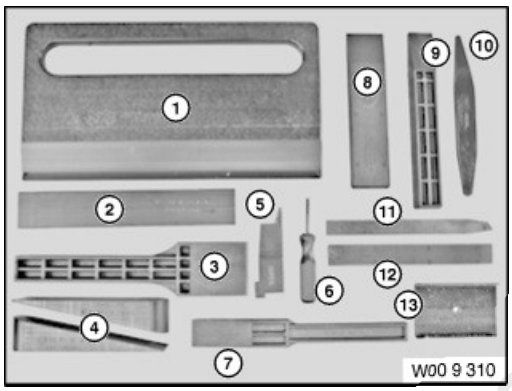
2 298 505 Wedge



Common Used in step 6

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)

0 490 538 (00 9 321) Folding stick



Common Used in step 6

Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 356 862 Device



Common Used in step 21

Usage	Device for measuring the side window retraction depth. Also valid for: BMW i Aftersales Basic. This tool set replaces the tool 2304553
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 29 13 (998)

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2 359 976 Siphon



Common	Used in step 21
Usage	For fixing and adjusting frameless side/door window glass. Also valid for: BMW i Aftersales Basic
Included in the tool or work	
Storage location	A73
Replaced by	
In connection with	
SI-Number	01 27 14 (129)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	120

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	219
61 20 900 Disconnecting and connecting battery earth lead	219
61 20 900 Disconnecting and connecting battery earth lead	219
61 20 900 Disconnecting and connecting battery earth lead	219
61 20 900 Disconnecting and connecting battery earth lead	219
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61 20 900 Disconnecting and connecting battery earth lead 219
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61 20 900 Disconnecting and connecting battery earth lead 219
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 219
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle) 219
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61 20 900 Disconnecting and connecting battery earth lead 219

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This documentation refers to special tools that were not yet available when going to press.

51 33 000 Remove and install the power window regulator in the left or right front door

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

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RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

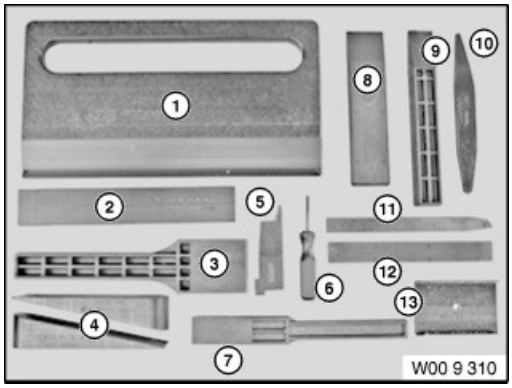
3 – Remove front door trim panel

RISK OF DAMAGE

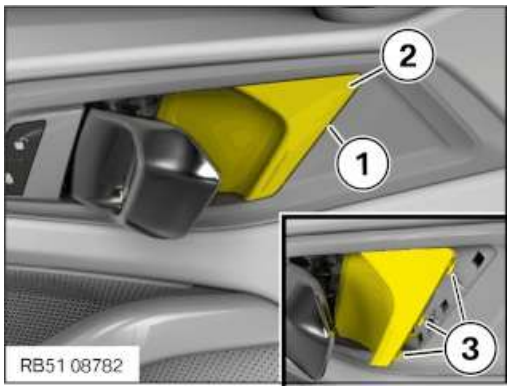
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

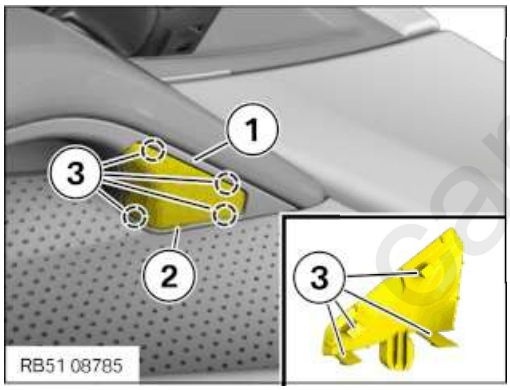
- Protect surfaces from damage.



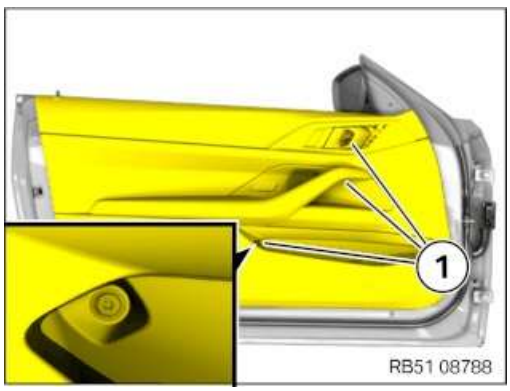
- Have the set of special tools 0 493 752 (00 9 329) ready.



- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.

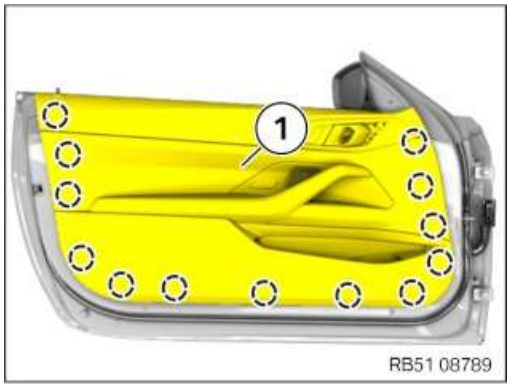


- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

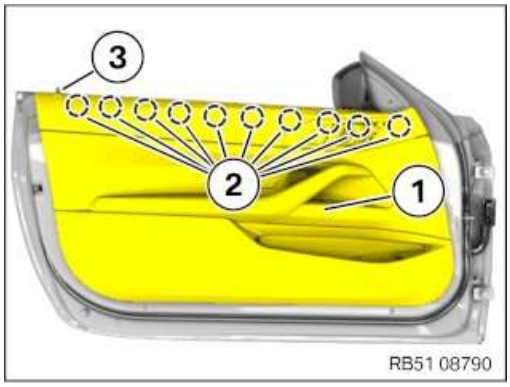


- Loosen screws (1).

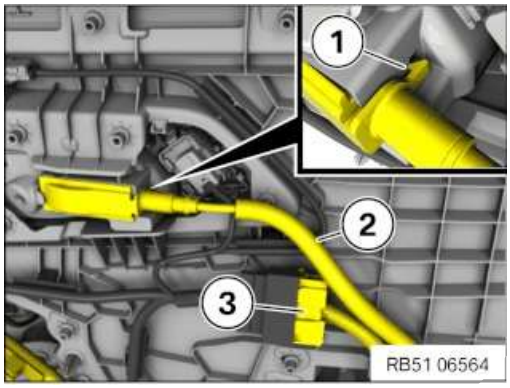
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- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



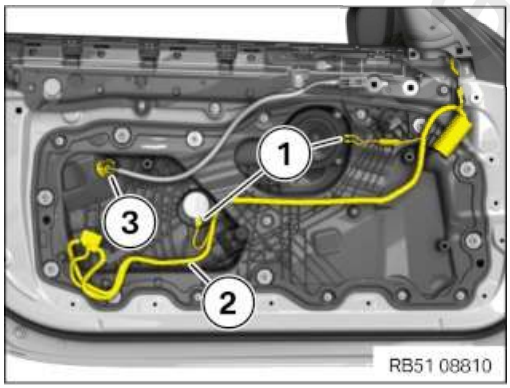
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

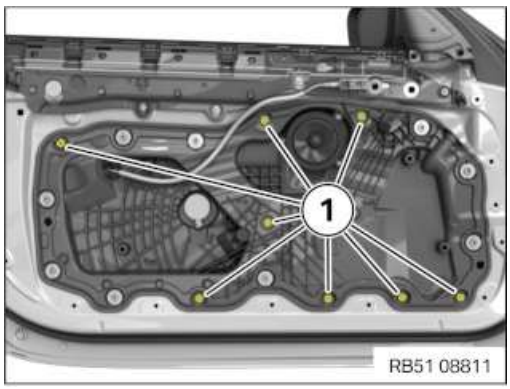
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

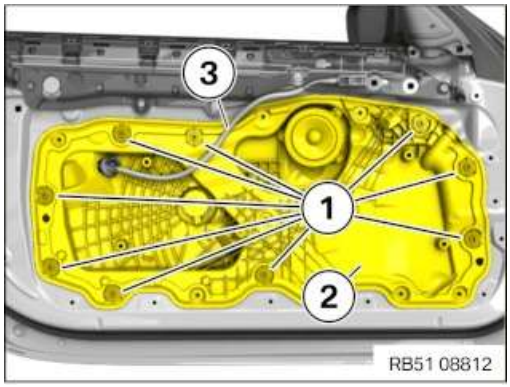
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).



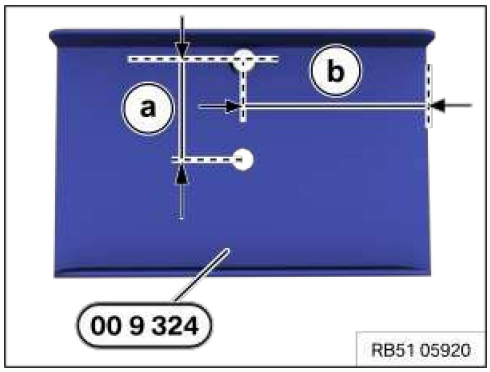
- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

5 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

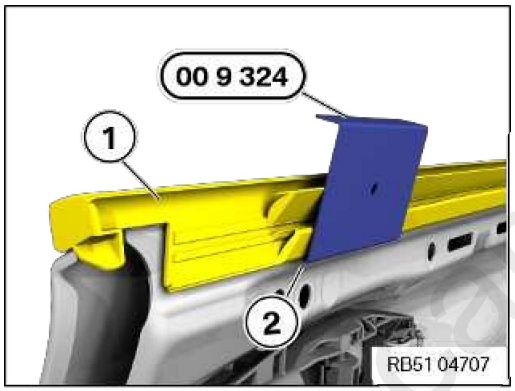
- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

  Dimension (b) = 50 mm from the outer edge of the special tool

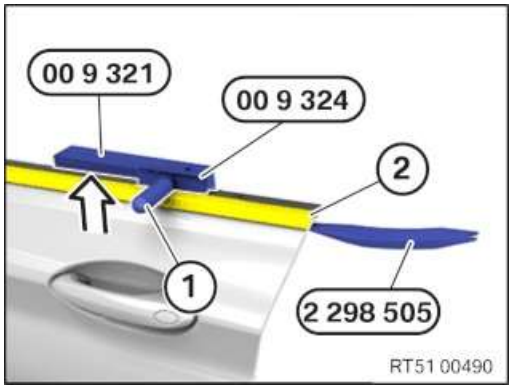


NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

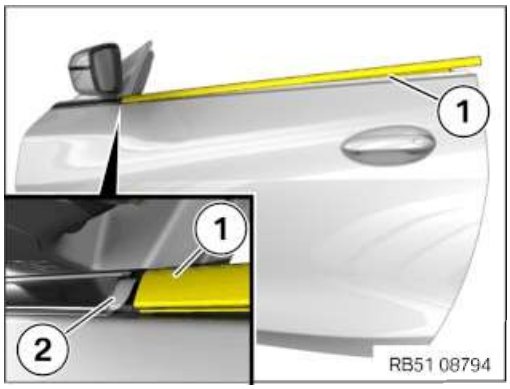
- Protect working area.
- Handle tools and components carefully.

- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.

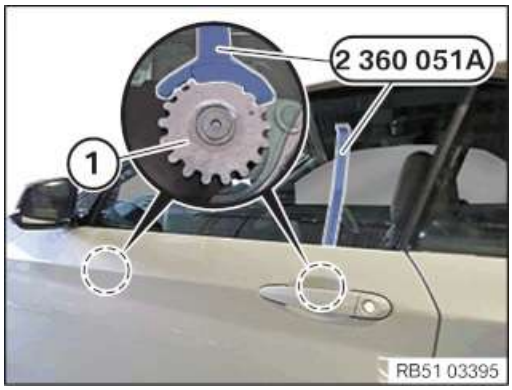


- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

6 – Release door window at front

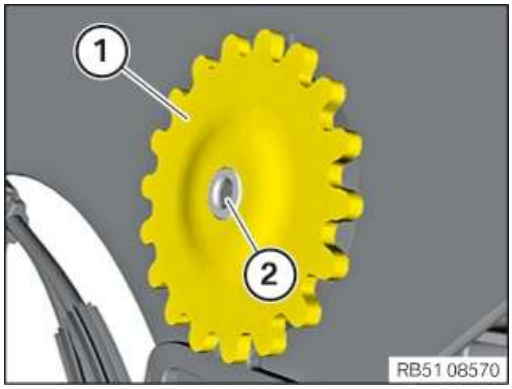
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



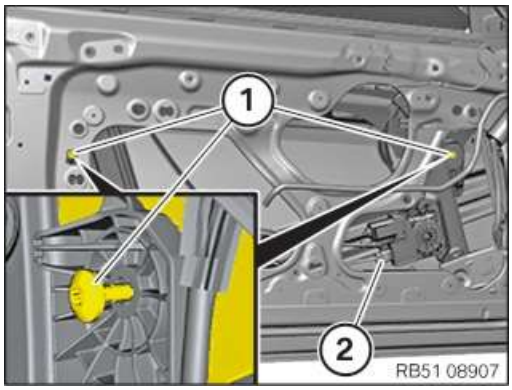
- Undo multi-tooth nuts (1) on side window glass with special tool **A**. (Observe next operation.)

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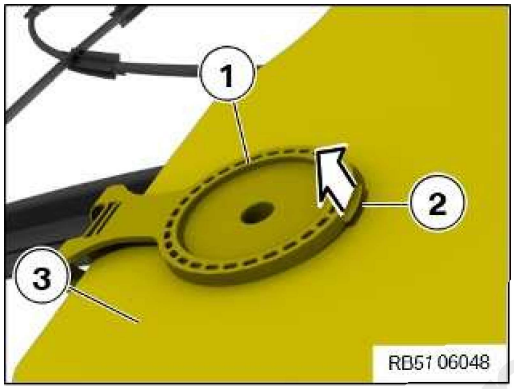


- Only undo the multi-tooth nut (1) to the extent it is flush with the socket (2).
- Lower front door window glass half way.

7 – Removing front door window glass



- Open the front door window glass so that the screws (1) are accessible.
- Unlock plug connection (2) and disconnect.
- Unscrew the screws (1) so far until the disassembly of the front door window glass is possible.



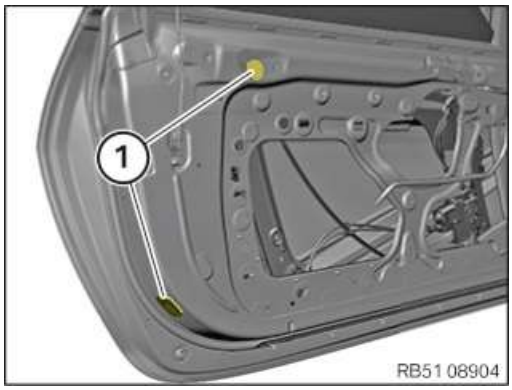
NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

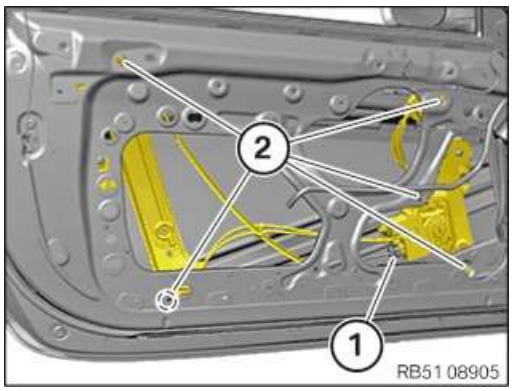
- Lift holder (1) on the tab (2) in the direction of arrow.
- Feed out the front door window glass (3) from the door upwards.

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8 – Removing front door power window regulator

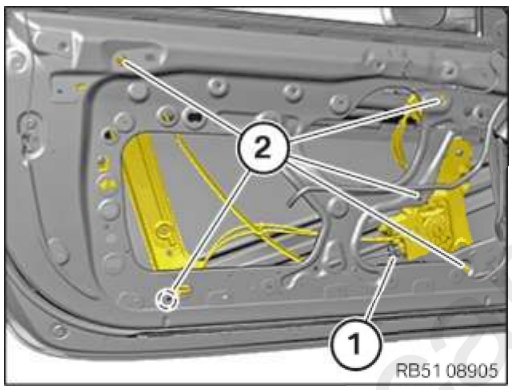


- Remove plug (1).



- Unlock plug connection (1) and disconnect.
- Release nuts (2).
- Feed the power window regulator out of the door and remove.

9 – Installing front door power window regulator

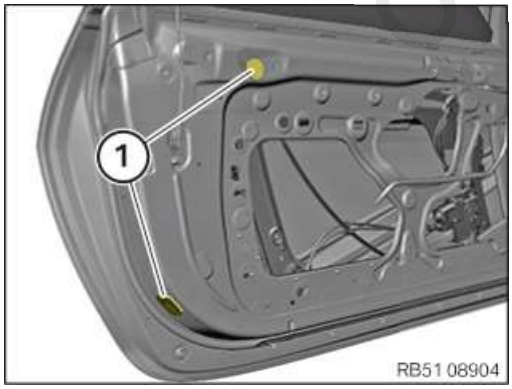


- Guide the power window regulator into door and position it correctly.
- Tighten nuts (2).

Power window regulator to inner door panel

M6			9,5 Nm

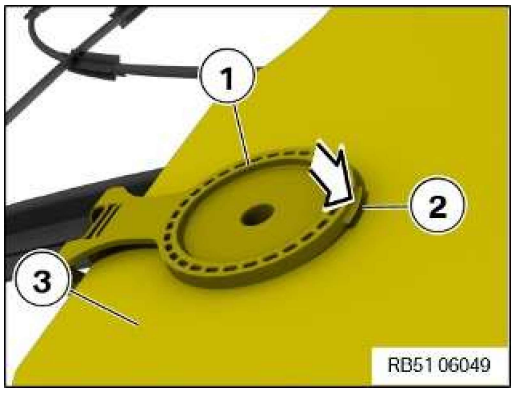
- Connect connectors (1) and lock.



- Install the plug (1).

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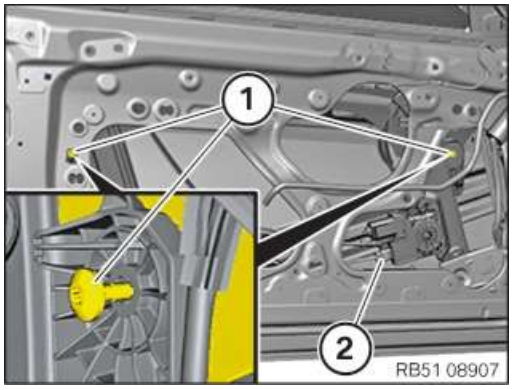
10 – Installing front door window glass



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Insert door window glass front (3) from the top.
- Press holder (1) on the tab (2) in direction of arrow and lock.



- Screw in the screws (1) and tighten them.

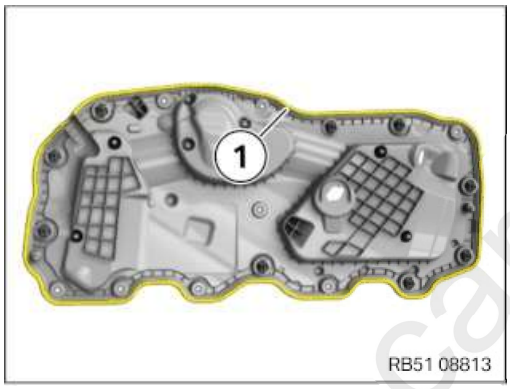
  In this process, counter support the multi-tooth nuts of the electric window.

Door window glass to power window regulator

Screw		Tightening torque	0.25 Nm

- Connect connectors (2) and lock.

11 – Installing the module carrier on the front door



Check

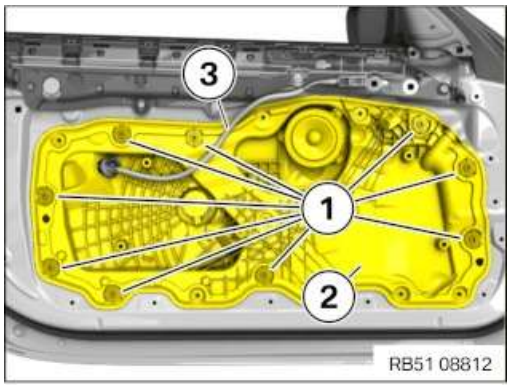
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

Measure

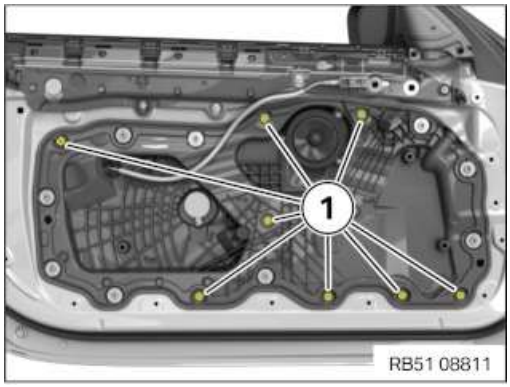
- Renew the module carrier on the front door.



- Position the module carrier on the front door (2).

  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.

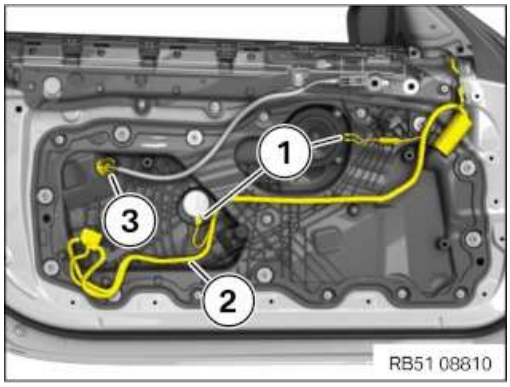
cardiagn.com



- Tighten the screws (1).

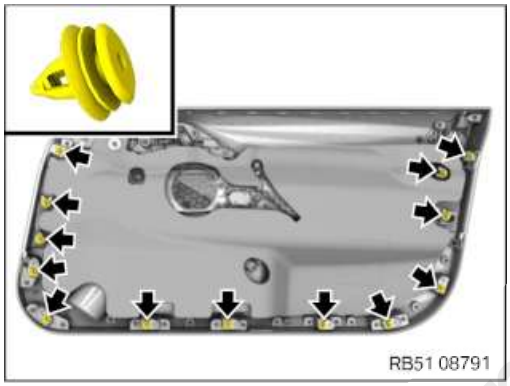
Module carrier to the front door

Oval-head screwM6		Tightening torque	9 Nm

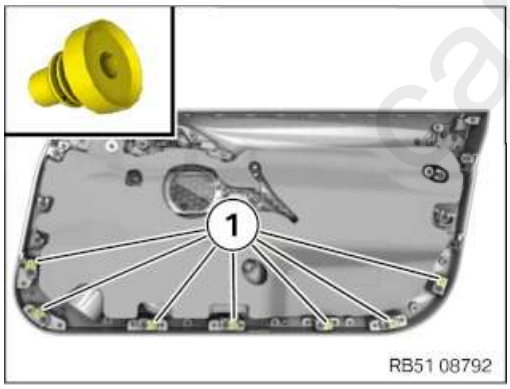


- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

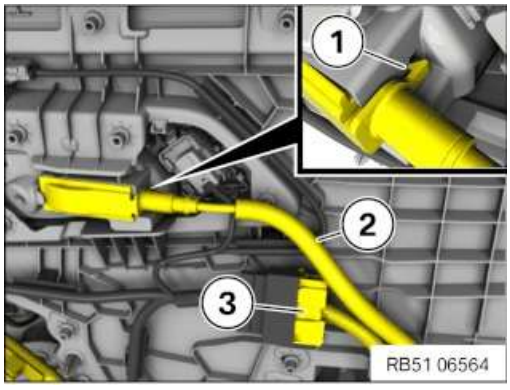
12 – Install front door trim panel



- Check clips (arrows) for damage and, if necessary, renew them.



- Check the stop pad (1) for damage, renew if necessary.

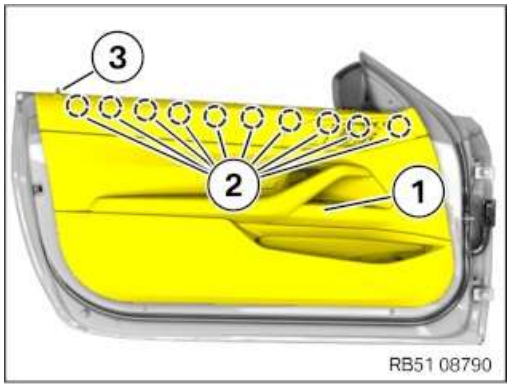


NOTICE

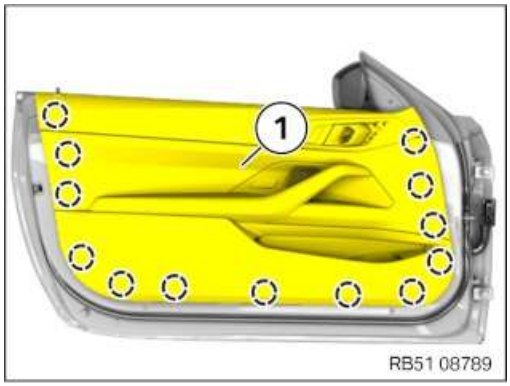
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.

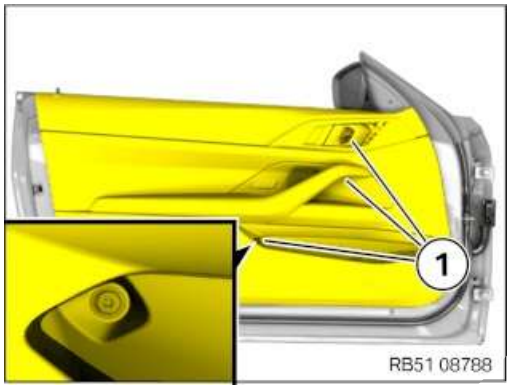
cardiagn.com



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.



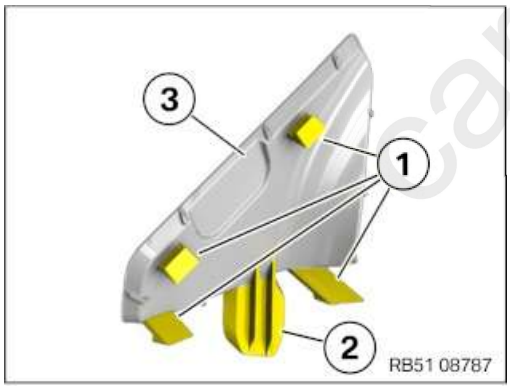
- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check

- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.



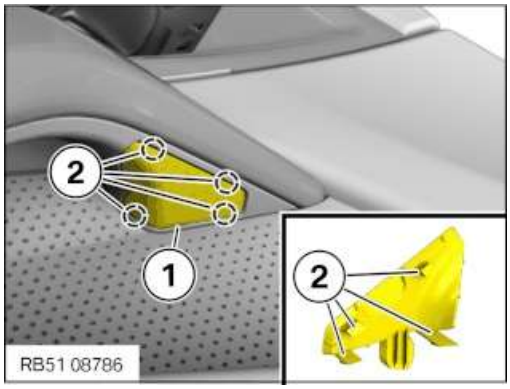
Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

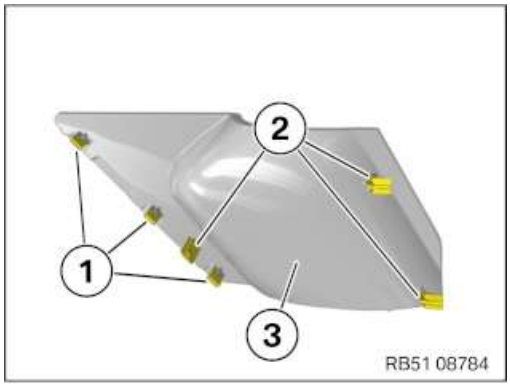
- Replace the cover (3).

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- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check



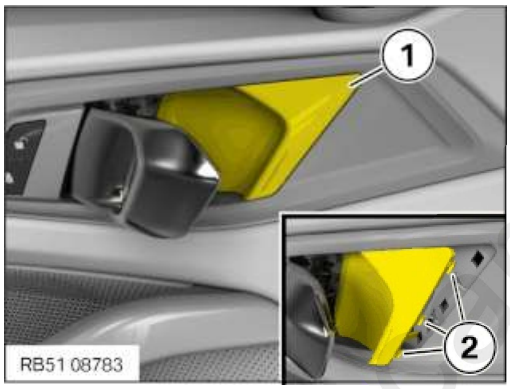
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

13 – Connecting all battery earth leads



- See additional information.

14 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

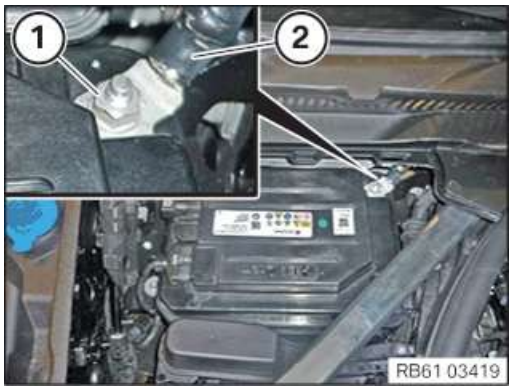
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

15 – Adjusting door window glass

Prerequisite

Vehicle is supported on all wheels at ground level.

Front door has been correctly fitted.

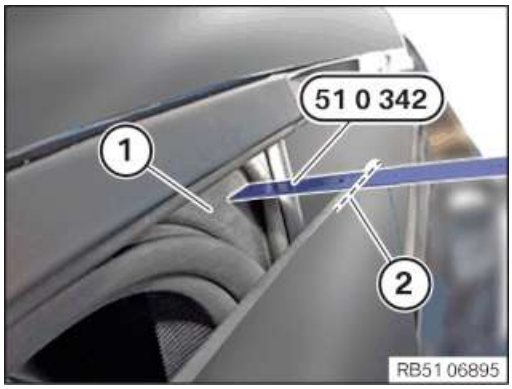
Battery charger is connected (during adjustment work, the complete operability of the power window regulator is only guaranteed with external voltage supply).

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

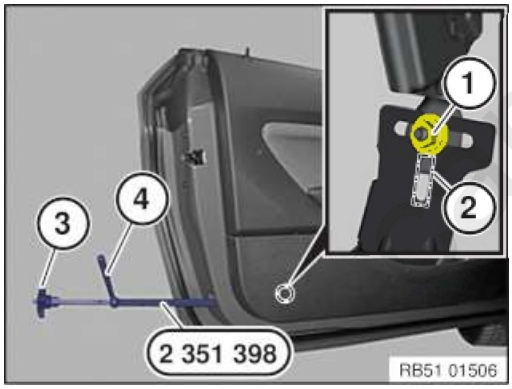


- Open door; move door window glass into uppermost position, if necessary.
- Insert special tool with the special tool in the rotary striker of the door lock and lock the rotary striker manually (door window glass moves fully upwards).
- Carefully close the door until the special tool lies on the striker (defined opening angle for the measurement).



- Do not exert any force on the door or door window glass during measurement.
- Abut special tool to the seal (1) and the door window glass (2).
- Determine dimension for preload between the seal (1) and outer edge of door window glass (2).

  Nominal dimension = 55 ± 1 mm



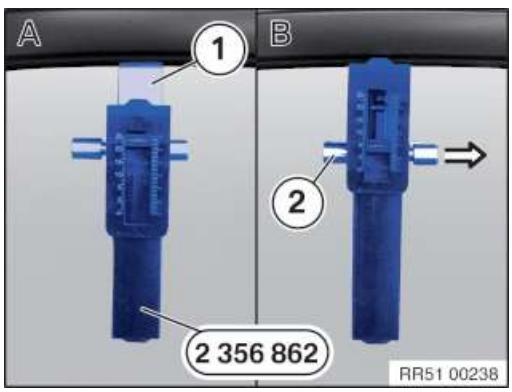
- Open door and remove sealing cap from door frame.
- Feed in special tool into the door and position at the nut (1) and the guide (2).
- Slacken nut (1) with knob (3).
- Turning the lever (4) to set the preload.

  Nominal dimension = 55 ± 1 mm
- Tighten nut (1).

Power window regulator to inner door panel

M6			9,5 Nm

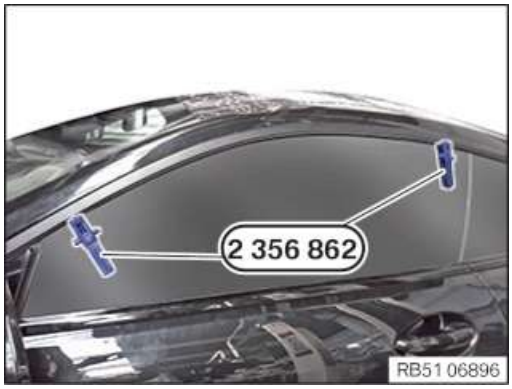
- Check setting, repeat process if necessary.
- Remove special tool and fit the seal plug.
- Remove the special tool from the rotary striker of the door lock.



- Connect the special tool 2 356 862 to the holder (5 mm)(1) on the door window glass when it is locked (A).

  Close the door and release the lock (2) (B).

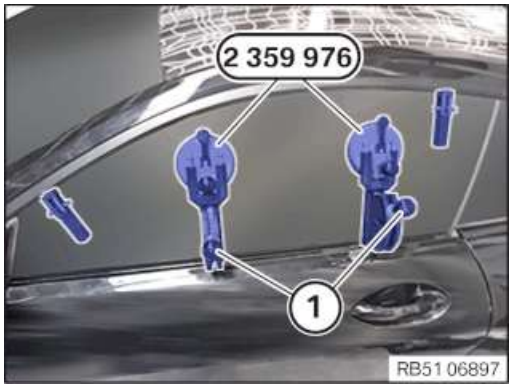
rdiagn.com



- Open door.
- Place special tool 2 356 862 as shown on the door window glass.

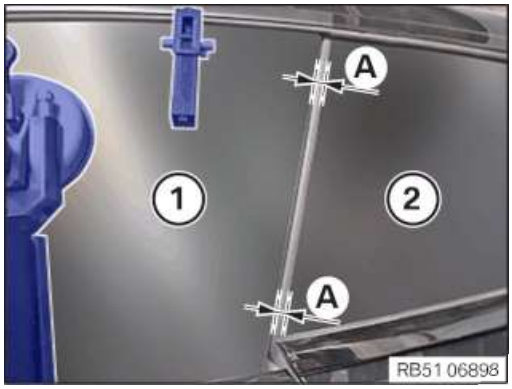
  Approx. displaced by 40 mm inwards in each case.
- Close door.
- Measure retraction depth.

  Nominal dimension: 5.5 ± 1 mm



- Attach special tool 2 359 976 on the door window glass so that the multi-tooth screws of the door window glass are still accessible.
- Release adjustment lever (1) by twisting.
- Set the retraction depth of the side window glass by moving the adjustment lever (1).

  Nominal dimension: 5.5 ± 1 mm
- Tighten adjustment lever (1).

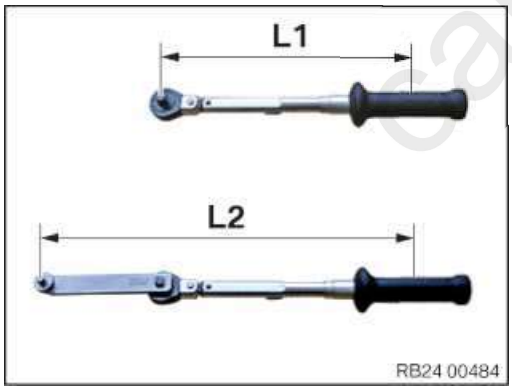


- Adjust door window panel (1) parallel to the rear side window (2).

  Dimension (A) = 8.0 ± 1 mm

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▸ **Tighten the front door window glass**



TECHNICAL INFORMATION

While using the special tool, that extends the lever arm of the torque wrench, the setpoint torque deviates from the torque to be set.

NOTICE

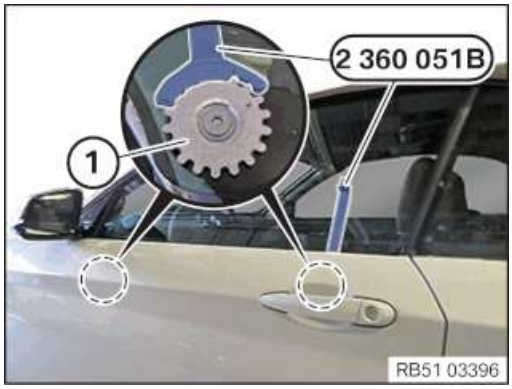
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten multi-point nuts (1) on the door window glass in the front using special tool **B** and a torque wrench.

Toothed nut of side window

Toothed nut		Tightening torque	11 Nm

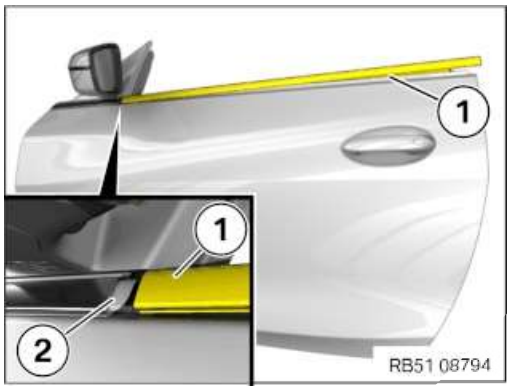
16 – Install outer weather strip

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

Additional Information

Overview of Tightening Torques

Power window regulator to inner door panel — Used in step 915

M6			9,5 Nm

Door window glass to power window regulator — Used in step 10

Screw		Tightening torque	0.25 Nm

Module carrier to the front door — Used in step 11

Oval-head screwM6		Tightening torque	9 Nm

Door trim panel — Used in step 12

Oval-head screw		Tightening torque	3 Nm

Negative battery cable to 48-V battery — Used in step 14

Nut M8		Tightening torque	19 Nm

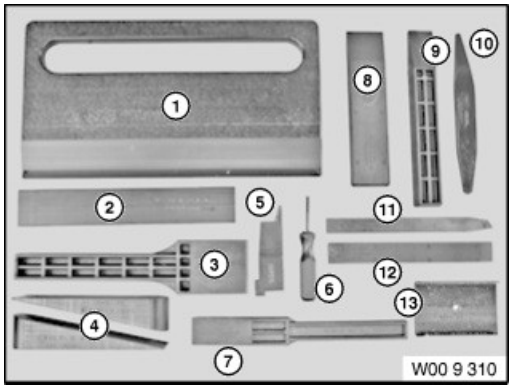
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Toothed nut of side window Used in step 15

Toothed nut		Tightening torque	11 Nm

Overview of Special Tools

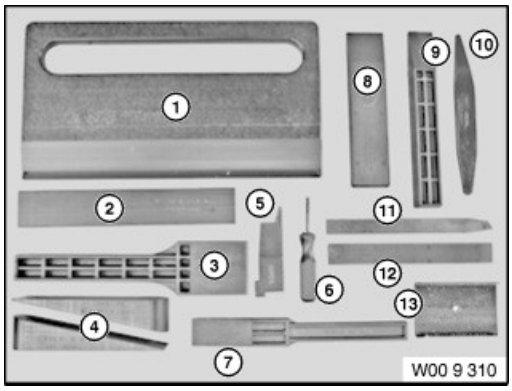
0 493 752 (00 9 329) Case



Common Used in step 3

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

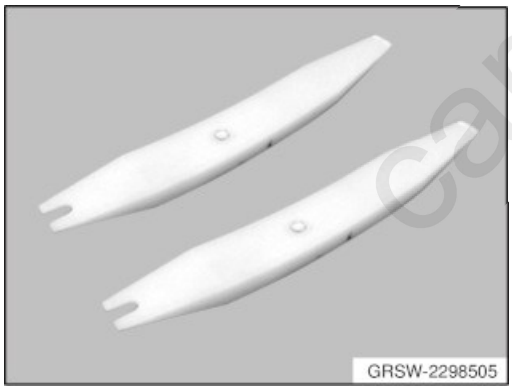
0 495 484 (00 9 324) Panel wedge



Common Used in step 5

Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

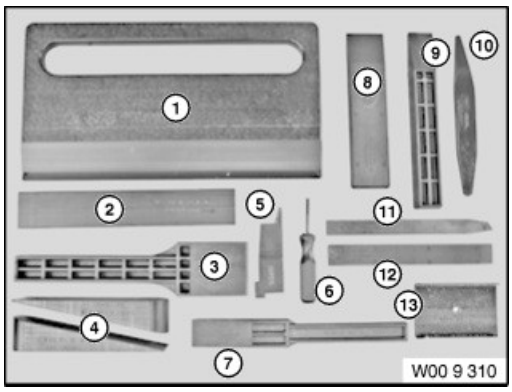
2 298 505 Wedge



Common Used in step 5

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)

0 490 538 (00 9 321) Folding stick



Common Used in step 5

Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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2 356 862 Device



Common	Used in step 15
Usage	Device for measuring the side window retraction depth. Also valid for: BMW i Aftersales Basic. This tool set replaces the tool 2304553
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 29 13 (998)

2 359 976 Siphon



Common	Used in step 15
Usage	For fixing and adjusting frameless side/door window glass. Also valid for: BMW i Aftersales Basic
Included in the tool or work	
Storage location	A73
Replaced by	
In connection with	
SI-Number	01 27 14 (129)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	114

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213
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61 20 900 Disconnecting and connecting battery earth lead 213
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 213
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle) 213
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61 20 900 Disconnecting and connecting battery earth lead 213
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 213
61 20 900 Disconnecting and connecting battery earth lead 213
61 20 900 Disconnecting and connecting battery earth lead 213
61 20 900 Disconnecting and connecting battery earth lead 213

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51 33 068 Removing and installing module carrier of right front door

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove front door trim panel

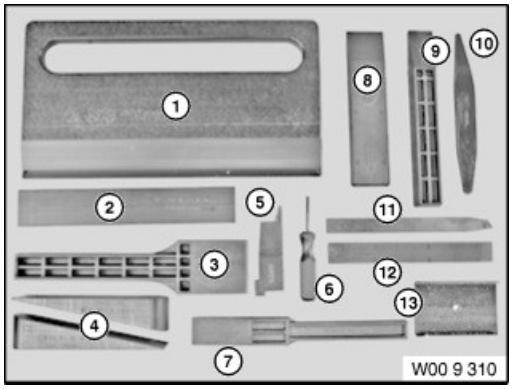
RISK OF DAMAGE

Damage of high-quality surfaces.

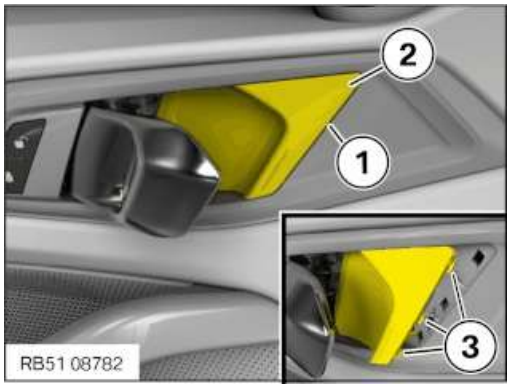
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

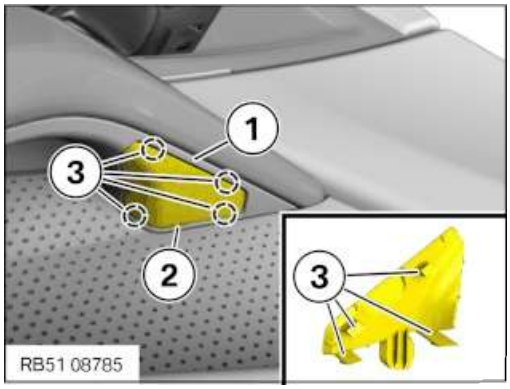
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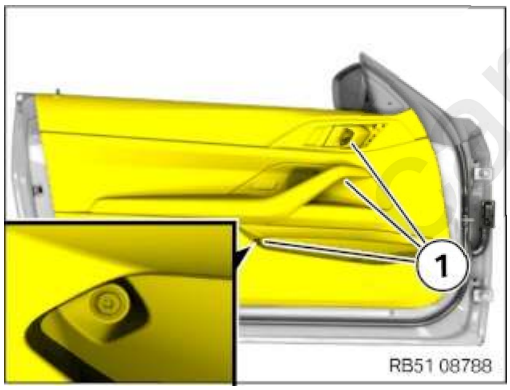
- Have the set of special tools 0 493 752 (00 9 329) ready.



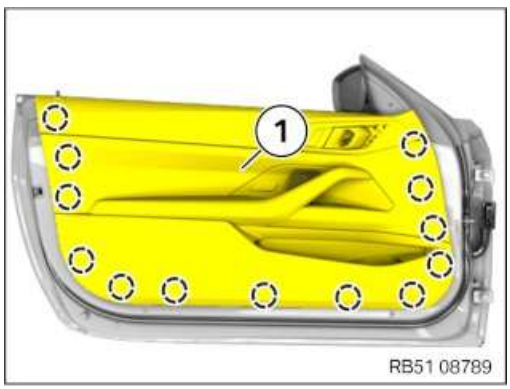
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

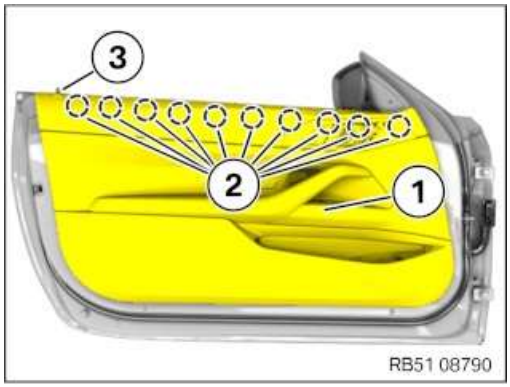


- Loosen screws (1).

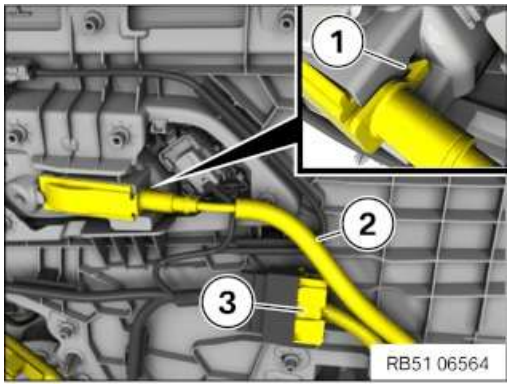


- Unclip the door trim panel (1) with the suitable special tool at the marked places.

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- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



NOTICE

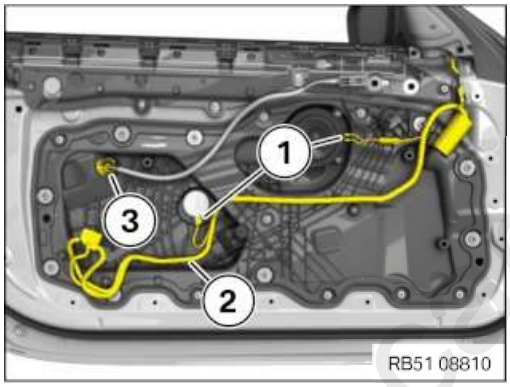
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

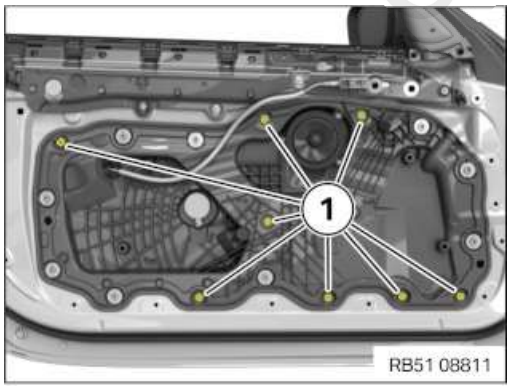
  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

MAIN WORK

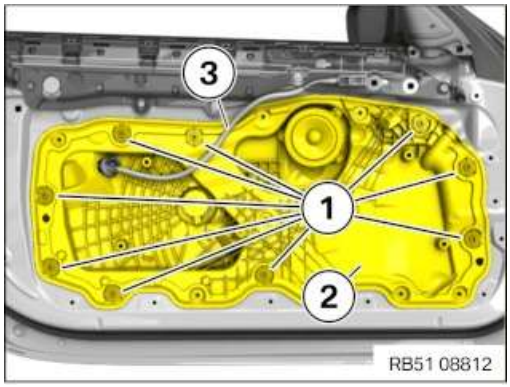
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



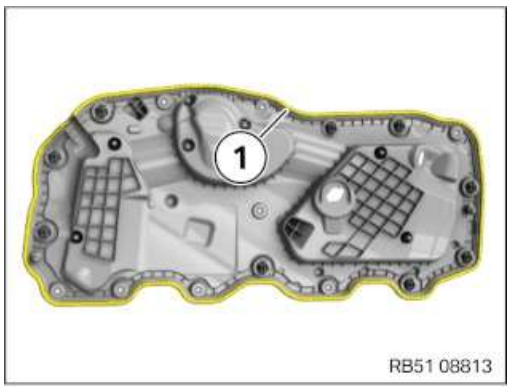
- Loosen screws (1).



- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

5 – Installing the module carrier on the front door



Check

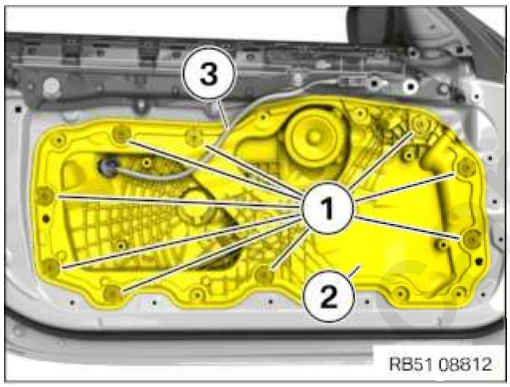
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

Measure

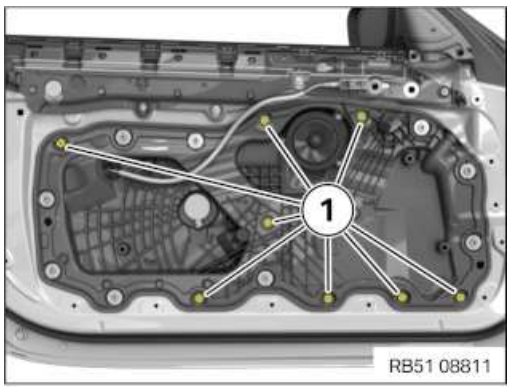
- Renew the module carrier on the front door.



- Position the module carrier on the front door (2).

  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).

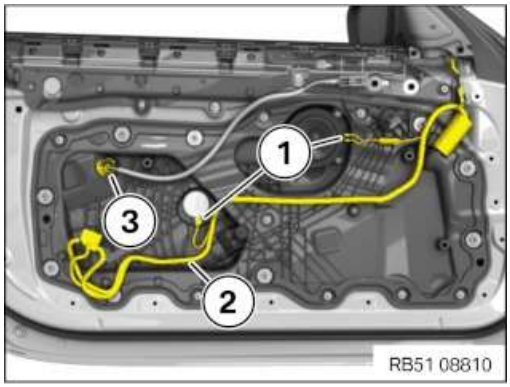
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

Module carrier to the front door

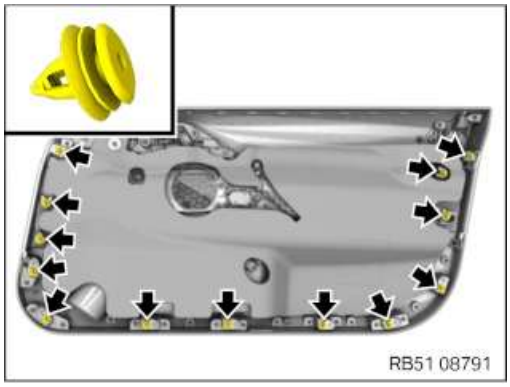
Oval-head screwM6		Tightening torque	9 Nm



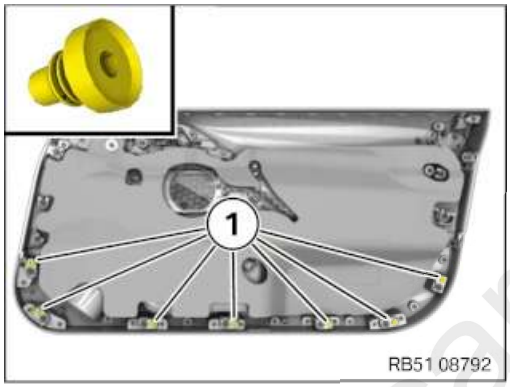
- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

POSTPROCESSES

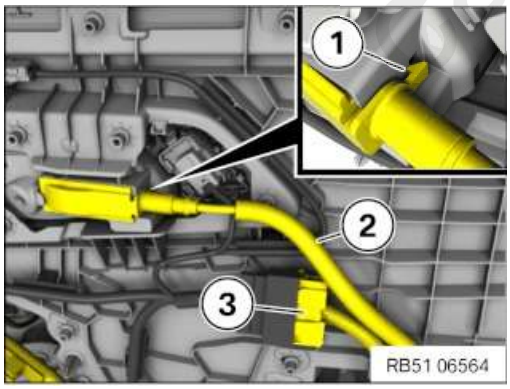
6 – Install front door trim panel



- Check clips (arrows) for damage and, if necessary, renew them.



- Check the stop pad (1) for damage, renew if necessary.

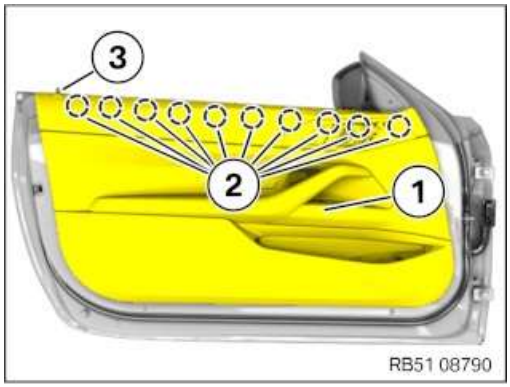


NOTICE

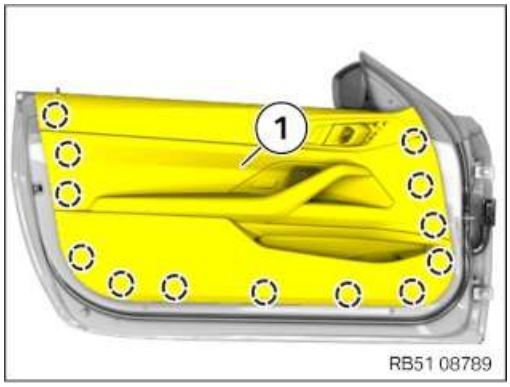
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.

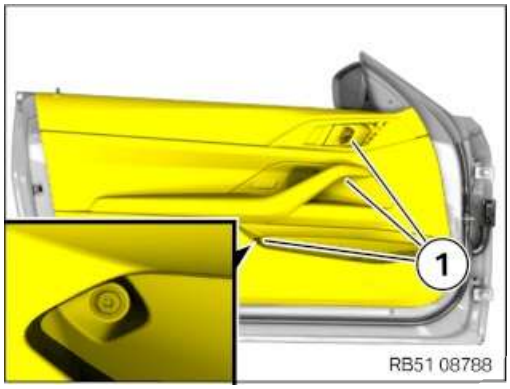
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- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

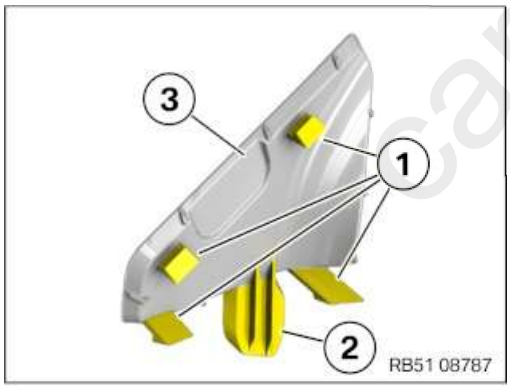


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

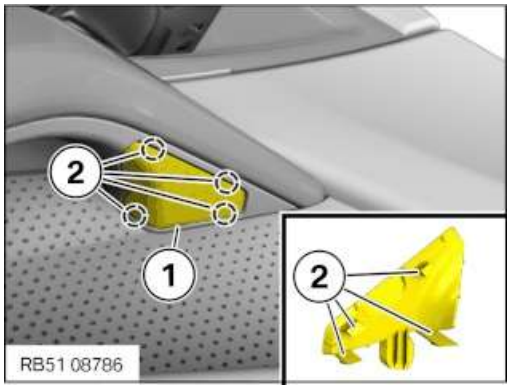
Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

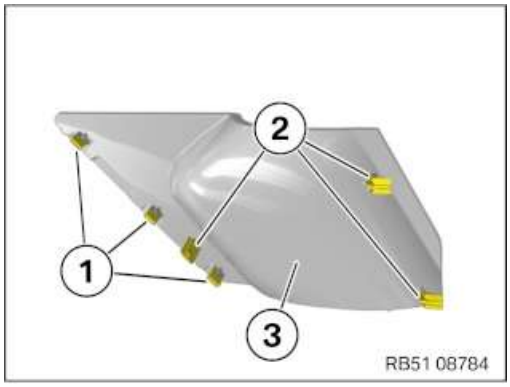
- Replace the cover (3).

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- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check



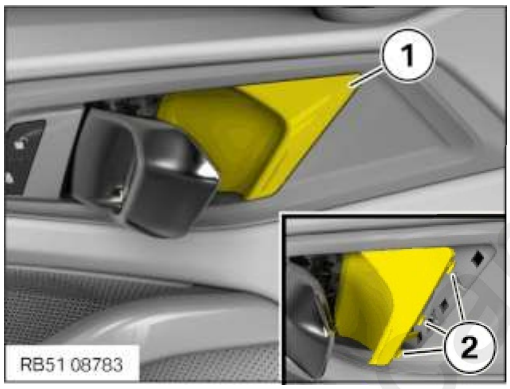
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

7 – Connecting all battery earth leads



- See additional information.

8 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

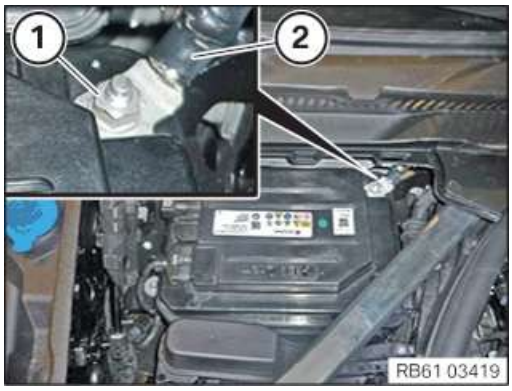
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

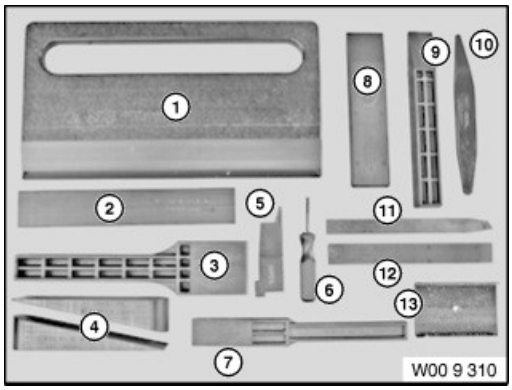
Module carrier to the front door			Used in step 5
Oval-head screwM6		Tightening torque	9 Nm

Door trim panel			Used in step 6
Oval-head screw		Tightening torque	3 Nm

Negative battery cable to 48-V battery			Used in step 8
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 3
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	18

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead	27
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61 20 900 Disconnecting and connecting battery earth lead	27

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61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
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61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27

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51 33 066 Removing and installing the module carrier of the left front door

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

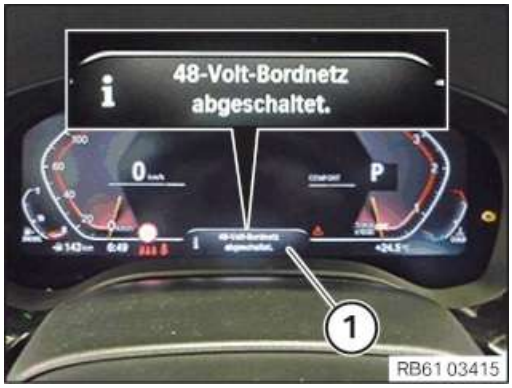
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove front door trim panel

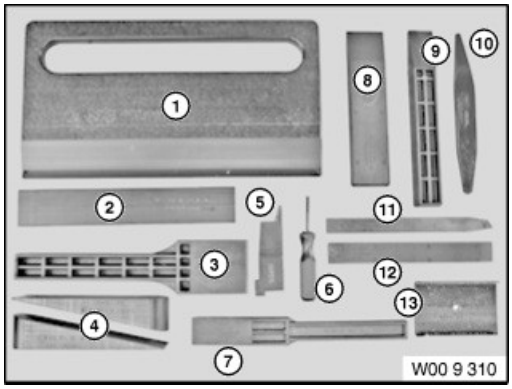
RISK OF DAMAGE

Damage of high-quality surfaces.

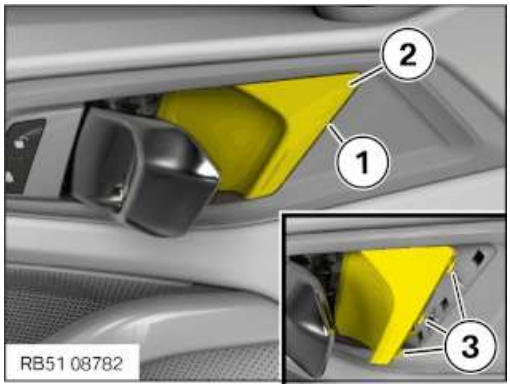
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

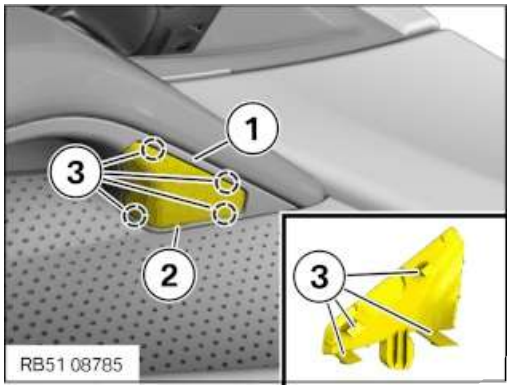
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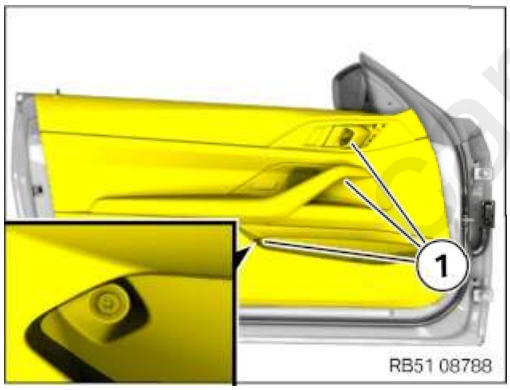
- Have the set of special tools 0 493 752 (00 9 329) ready.



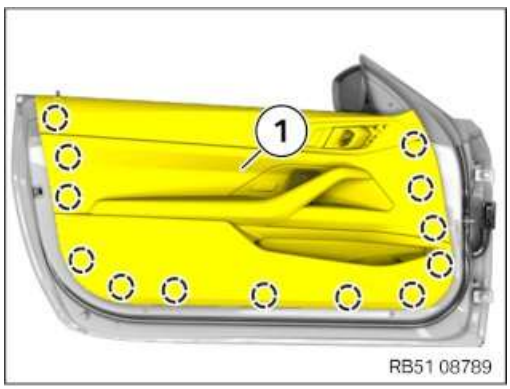
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

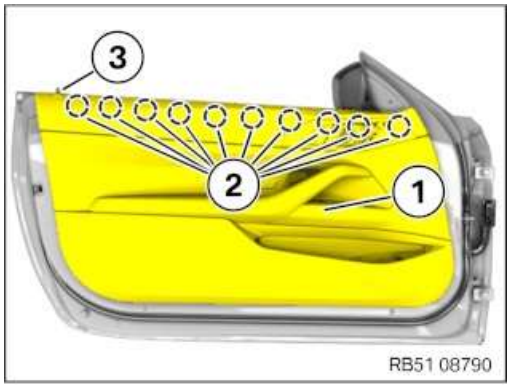


- Loosen screws (1).

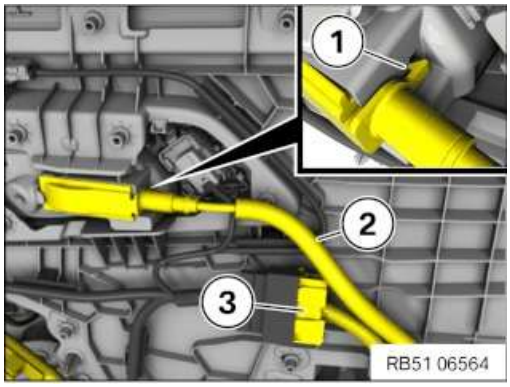


- Unclip the door trim panel (1) with the suitable special tool at the marked places.

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- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



NOTICE

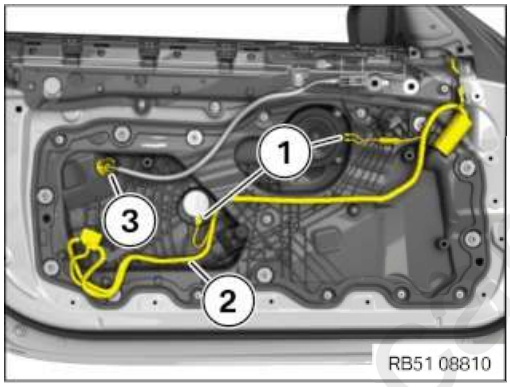
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

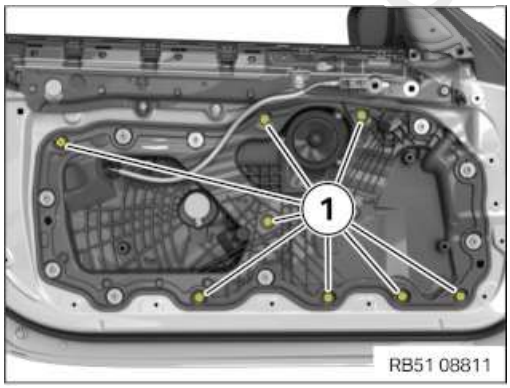
  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

MAIN WORK

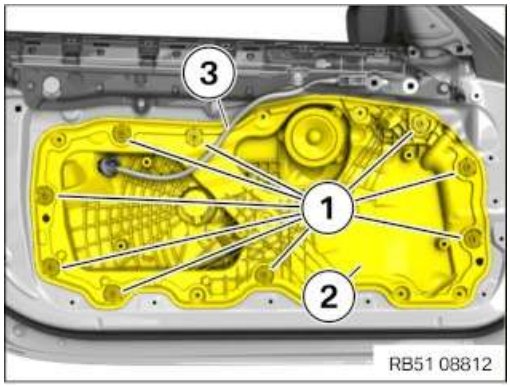
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



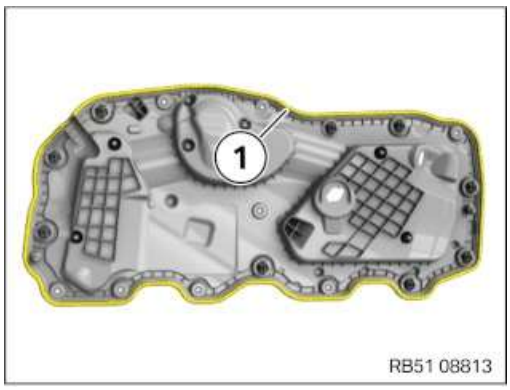
- Loosen screws (1).



- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

5 – Installing the module carrier on the front door



Check

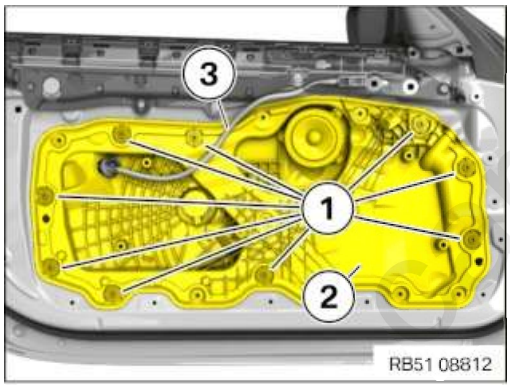
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

Measure

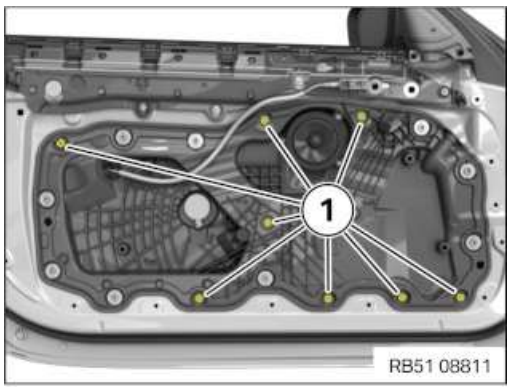
- Renew the module carrier on the front door.



- Position the module carrier on the front door (2).

  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).

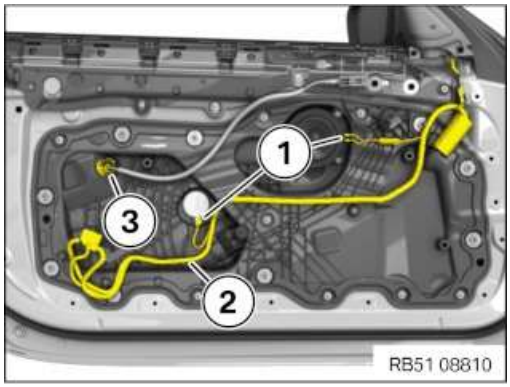
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

Module carrier to the front door

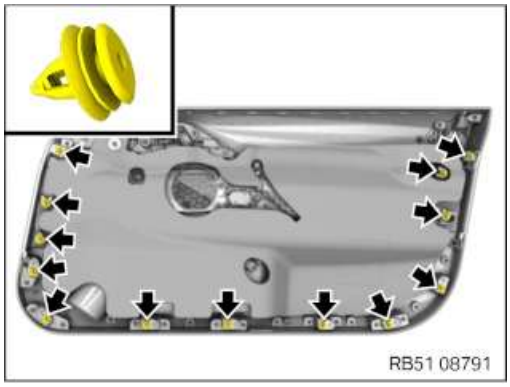
Oval-head screwM6		Tightening torque	9 Nm



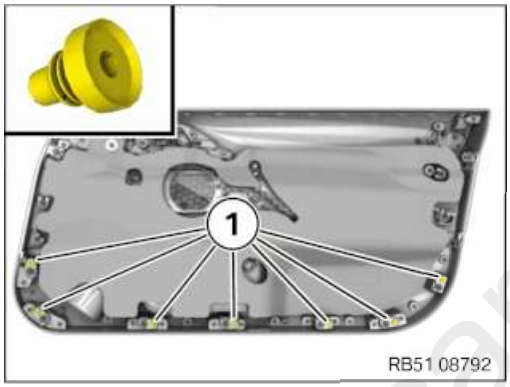
- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

POSTPROCESSES

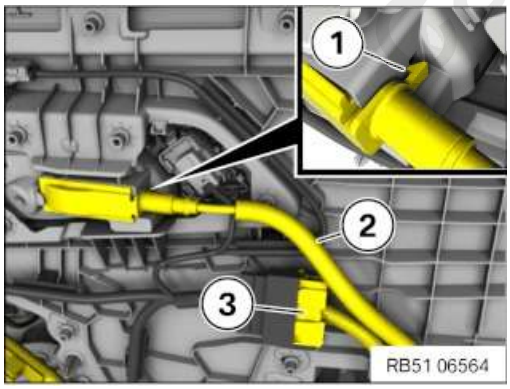
6 – Install front door trim panel



- Check clips (arrows) for damage and, if necessary, renew them.



- Check the stop pad (1) for damage, renew if necessary.

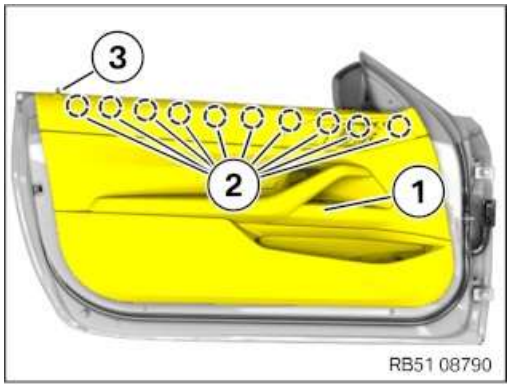


NOTICE

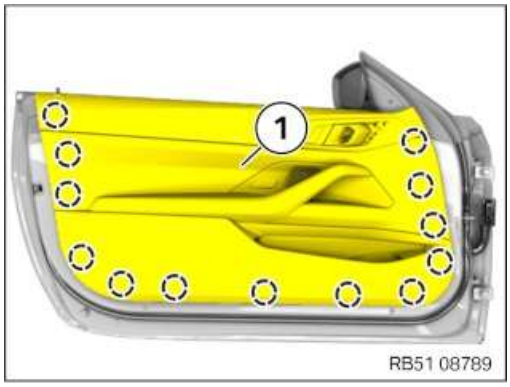
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.

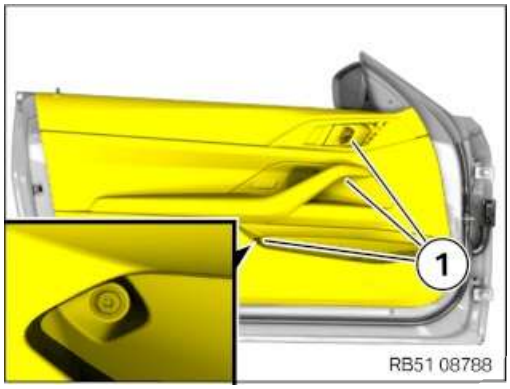
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- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

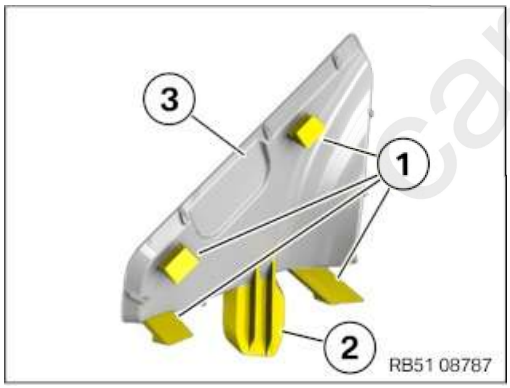


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

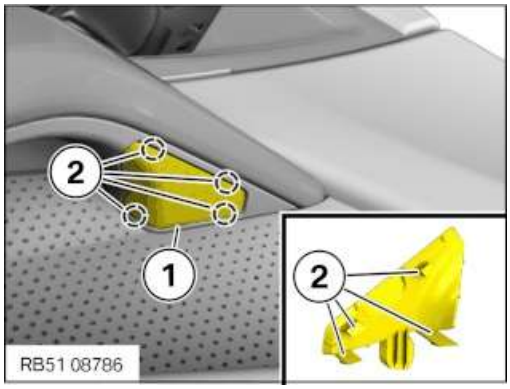
Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

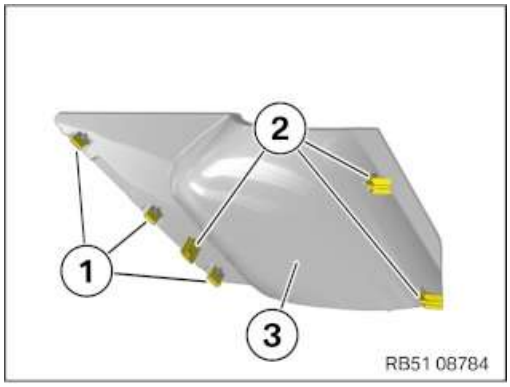
- Replace the cover (3).

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- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check



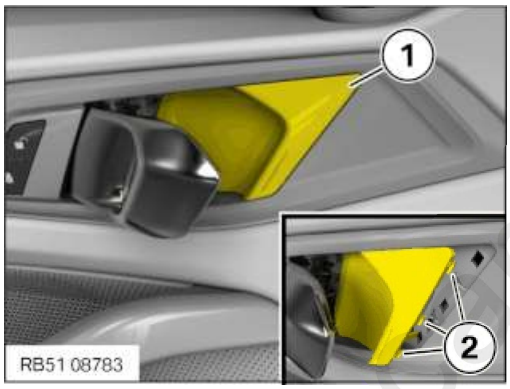
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

7 – Connecting all battery earth leads



- See additional information.

8 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

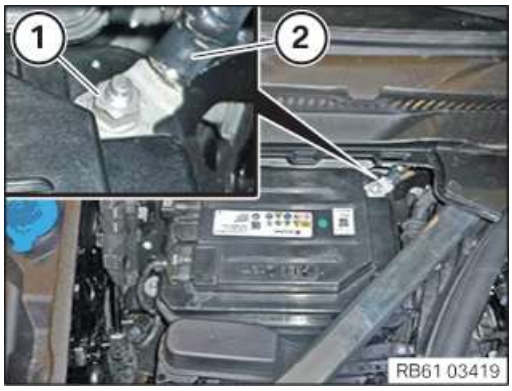
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

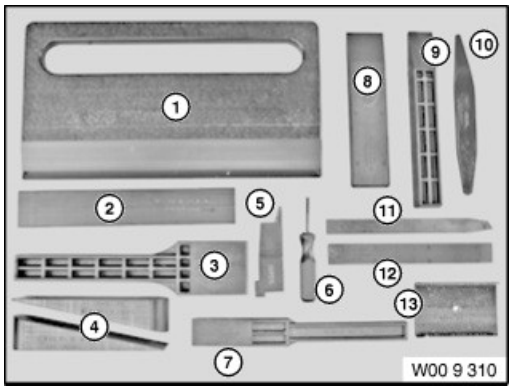
Module carrier to the front door			Used in step 5
Oval-head screwM6		Tightening torque	9 Nm

Door trim panel			Used in step 6
Oval-head screw		Tightening torque	3 Nm

Negative battery cable to 48-V battery			Used in step 8
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 3
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	18

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
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61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	27
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
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61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27
61 20 900 Disconnecting and connecting battery earth lead	27

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51 33 070 Replace left front door module carrier

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

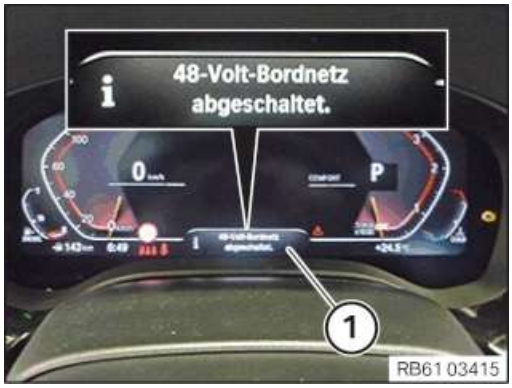
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.

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- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove front door trim panel

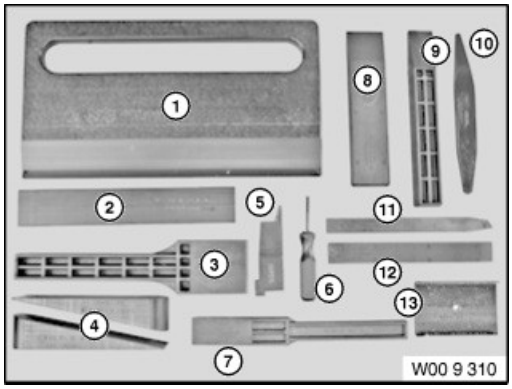
RISK OF DAMAGE

Damage of high-quality surfaces.

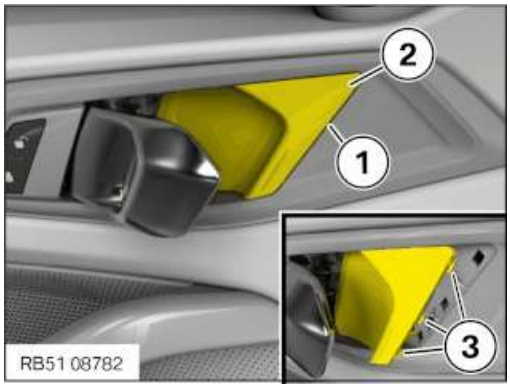
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

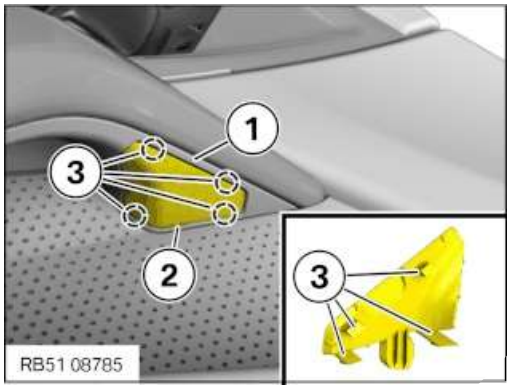
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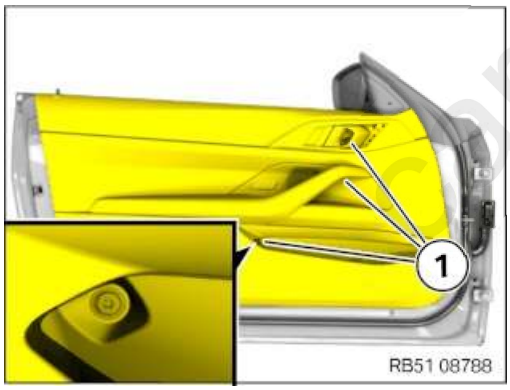
- Have the set of special tools 0 493 752 (00 9 329) ready.



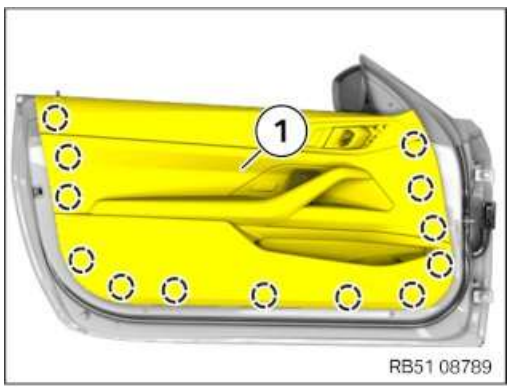
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

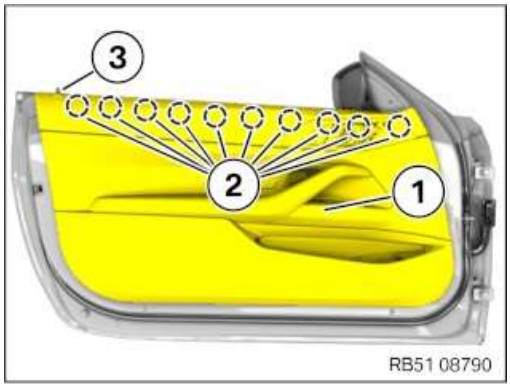


- Loosen screws (1).

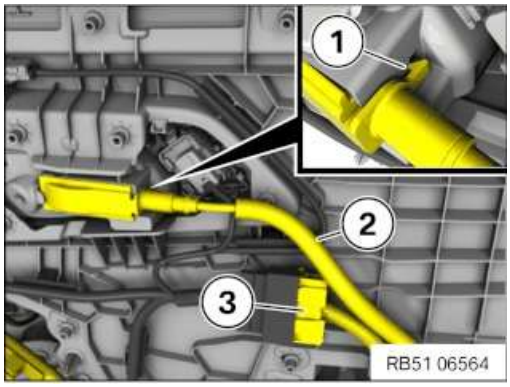


- Unclip the door trim panel (1) with the suitable special tool at the marked places.

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- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



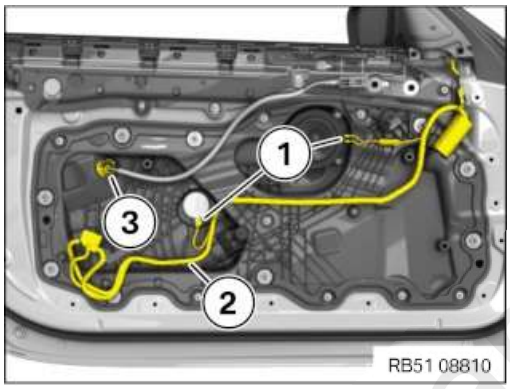
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

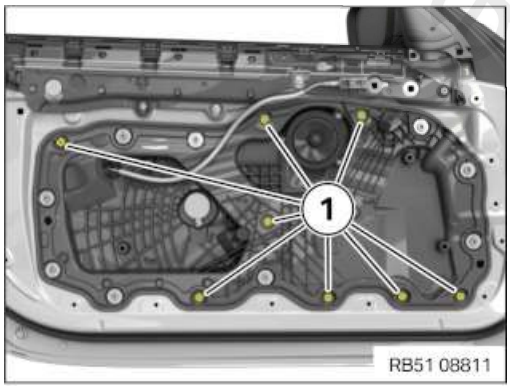
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

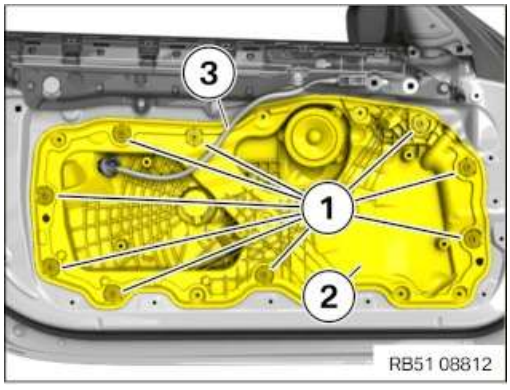
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).

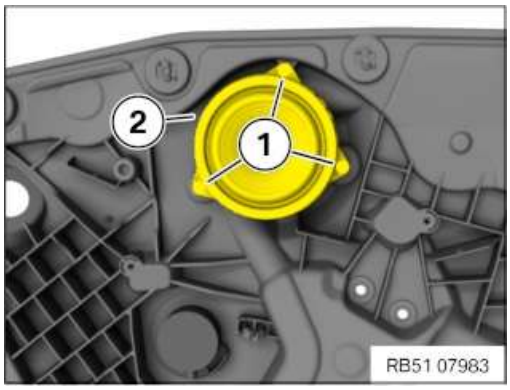


- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

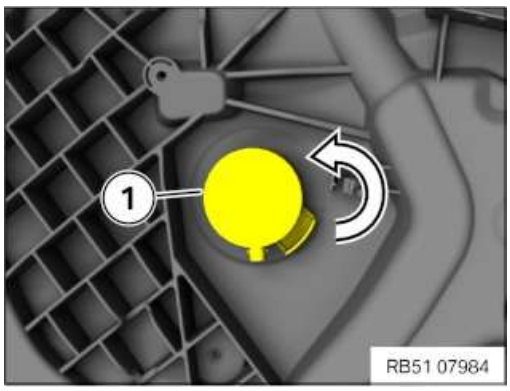
  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

rdiag.com

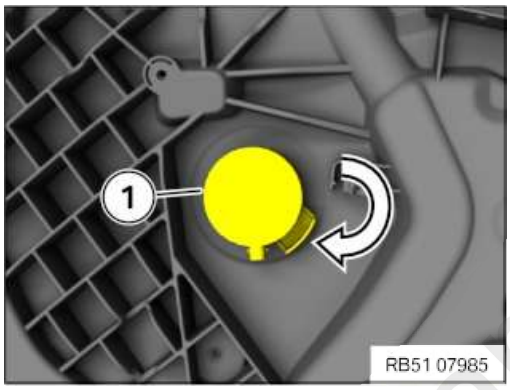
5 – Replacing the module carrier on the front door



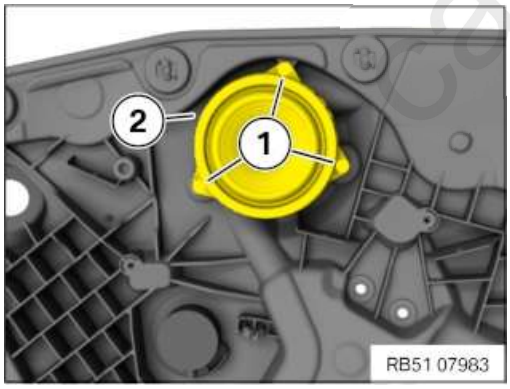
- Loosen screws (1).
- Remove the loudspeakers (2).



- Turn the sensor (1) in the direction of the arrow and remove it.



- Position the sensor (1) and turn in the direction of the arrow and lock it.



- Position the loudspeakers (2) and tighten the screws (1).

Speaker to door

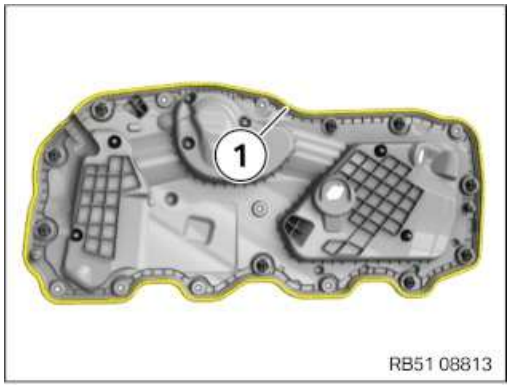
Screw		Tightening torque	2 Nm

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POSTPROCESSES

6 – Installing the module carrier on the front door

Check



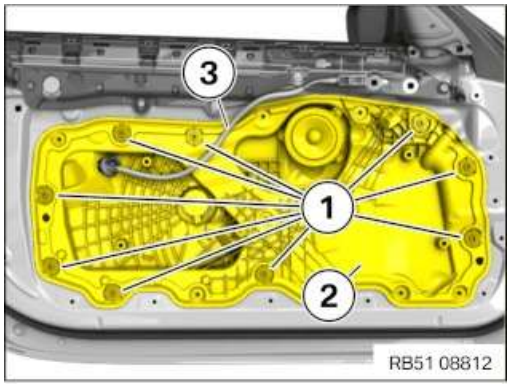
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

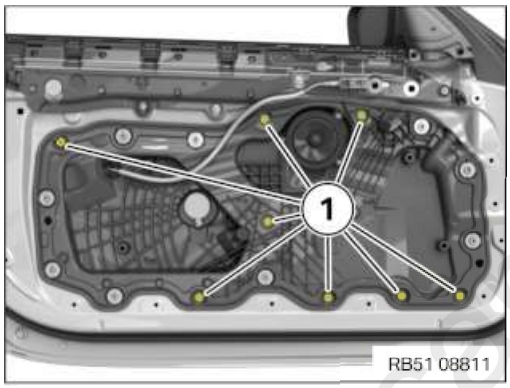
Measure

- Renew the module carrier on the front door.



- Position the module carrier on the front door (2).

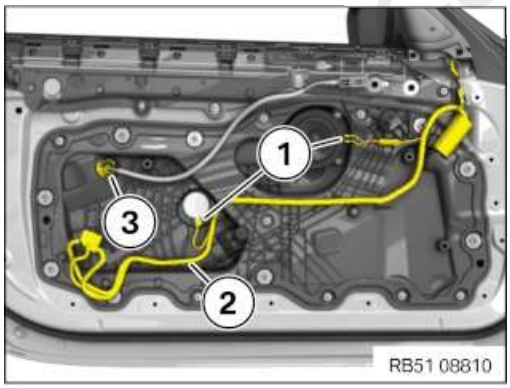
  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

Module carrier to the front door

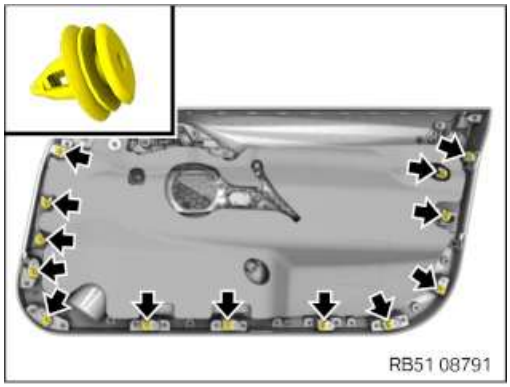
Oval-head screwM6	Tightening torque	9 Nm



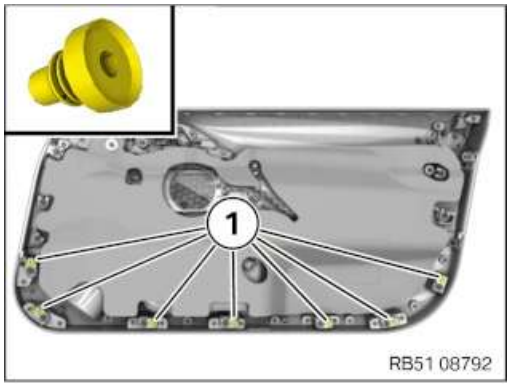
- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

7 – Install front door trim panel

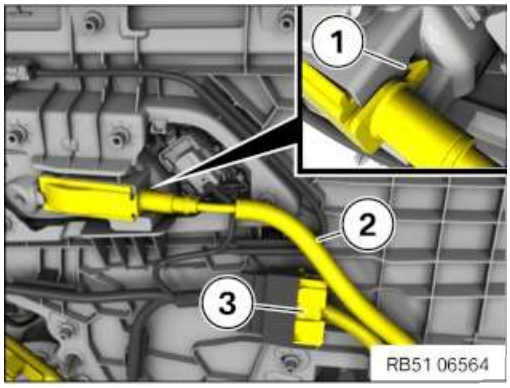
partdiagn.com



- Check clips (arrows) for damage and, if necessary, renew them.



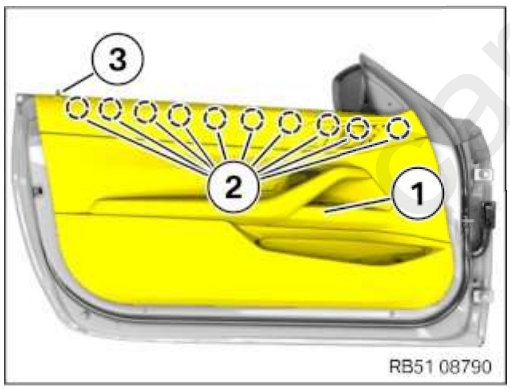
- Check the stop pad (1) for damage, renew if necessary.



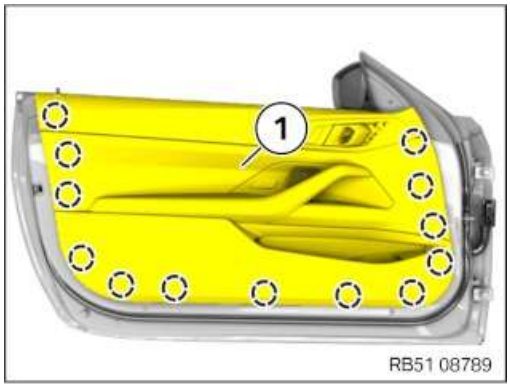
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.

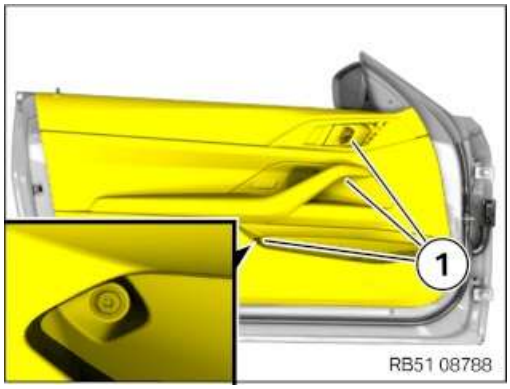


- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

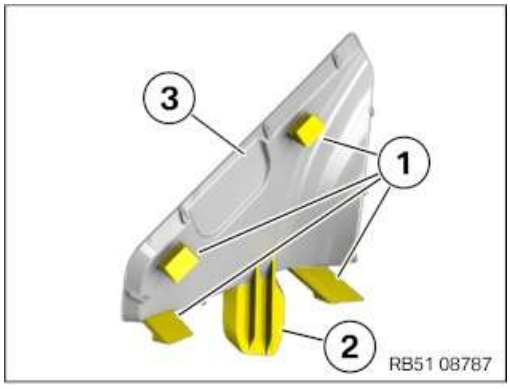
carmanual.com



- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm



Check

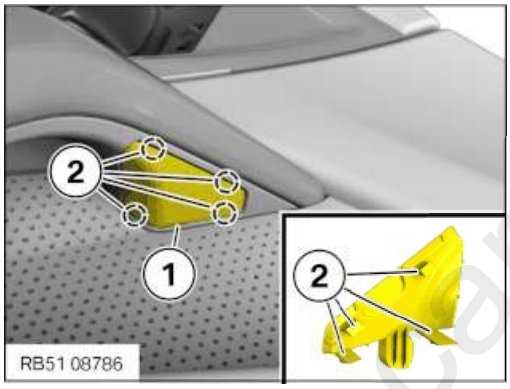
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

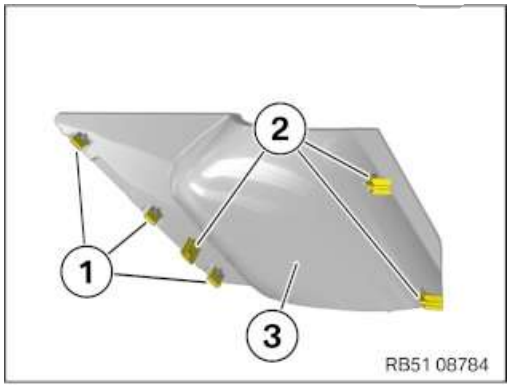
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.



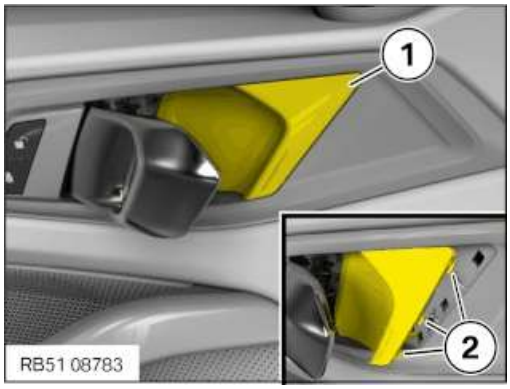
Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).

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- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

8 – Connecting all battery earth leads



- See additional information.

9 – Activating the 48 V electrical system

Prerequisite

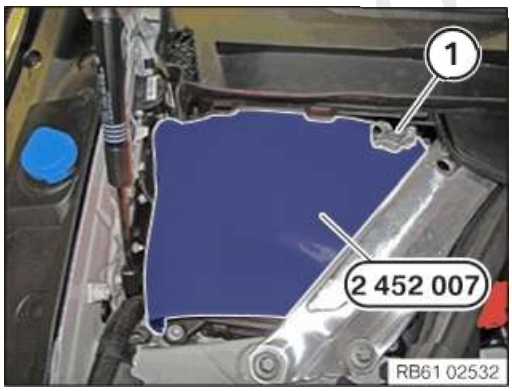
Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .

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- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

Speaker to door — Used in step 5

Screw		Tightening torque	2 Nm

Module carrier to the front door — Used in step 6

Oval-head screwM6		Tightening torque	9 Nm

Door trim panel — Used in step 7

Oval-head screw		Tightening torque	3 Nm

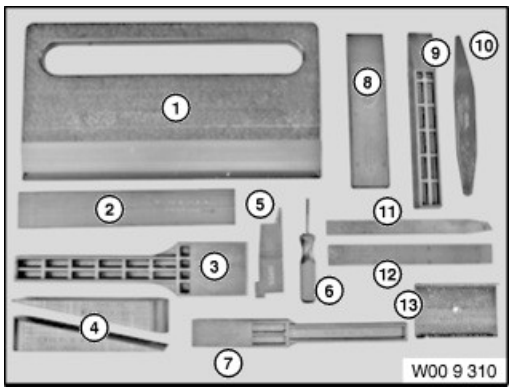
Negative battery cable to 48-V battery — Used in step 9

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

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0 493 752 (00 9 329) Case



Common	Used in step 3
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	19

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	28
61 20 900 Disconnecting and connecting battery earth lead	28
61 20 900 Disconnecting and connecting battery earth lead	28
61 20 900 Disconnecting and connecting battery earth lead	28
61 20 900 Disconnecting and connecting battery earth lead	28
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61 20 900 Disconnecting and connecting battery earth lead	28
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	28

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	28
61 20 900 Disconnecting and connecting battery earth lead	28
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	28
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	28
61 20 900 Disconnecting and connecting battery earth lead	28
61 20 900 Disconnecting and connecting battery earth lead	28
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	28
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61 20 900 Disconnecting and connecting battery earth lead	28

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51 33 072 Replace right front door module carrier

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove front door trim panel

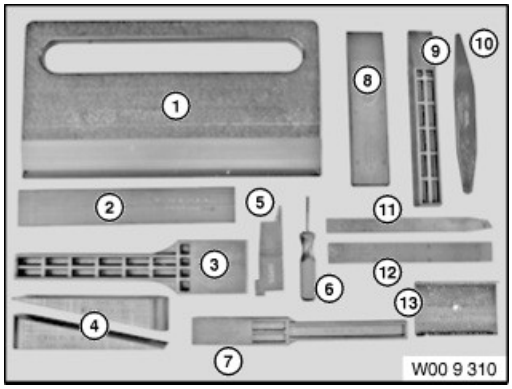
RISK OF DAMAGE

Damage of high-quality surfaces.

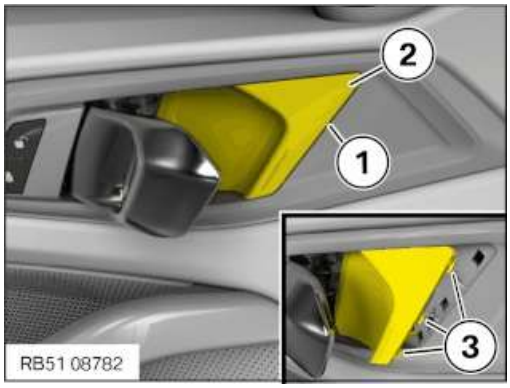
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

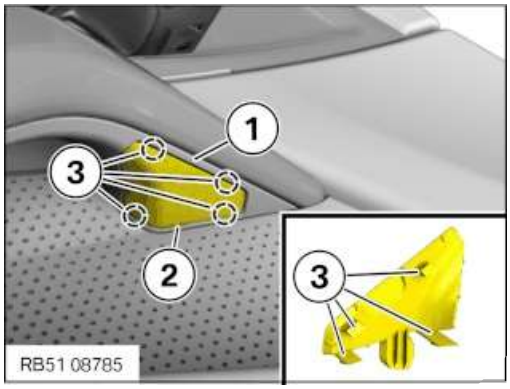
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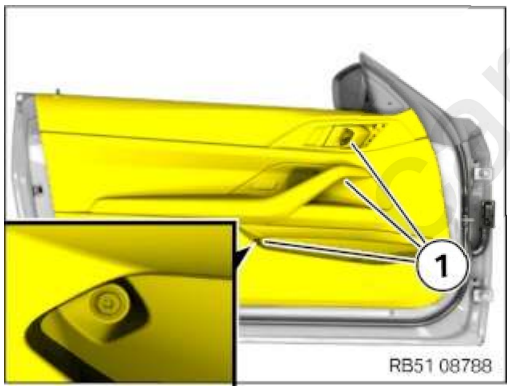
- Have the set of special tools 0 493 752 (00 9 329) ready.



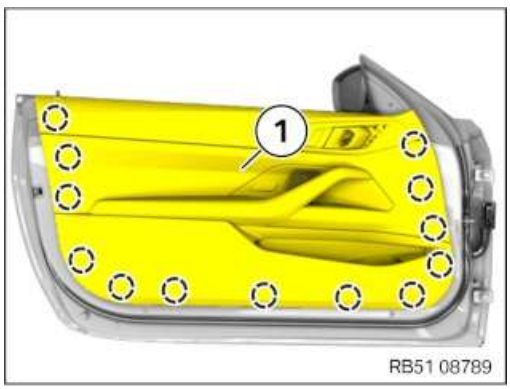
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

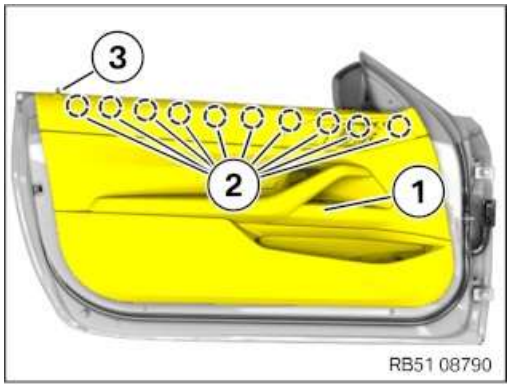


- Loosen screws (1).

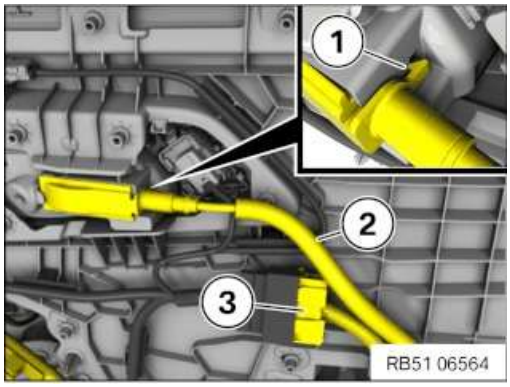


- Unclip the door trim panel (1) with the suitable special tool at the marked places.

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- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



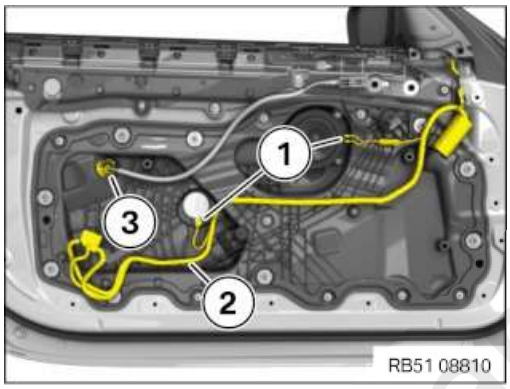
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

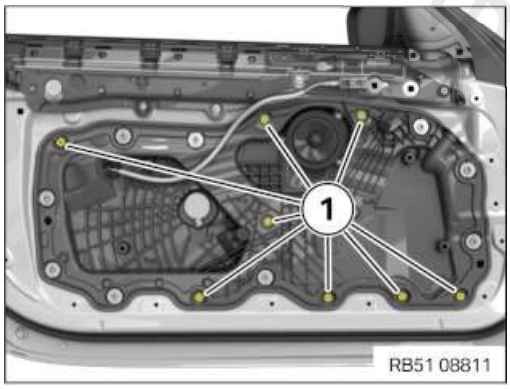
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

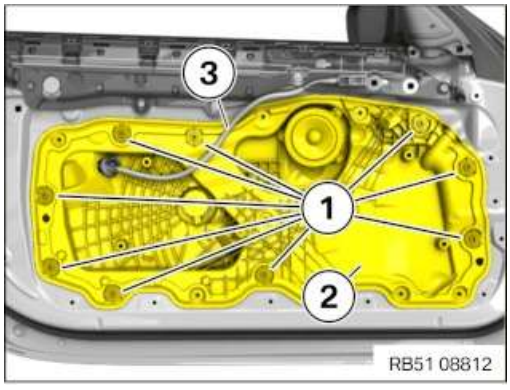
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).

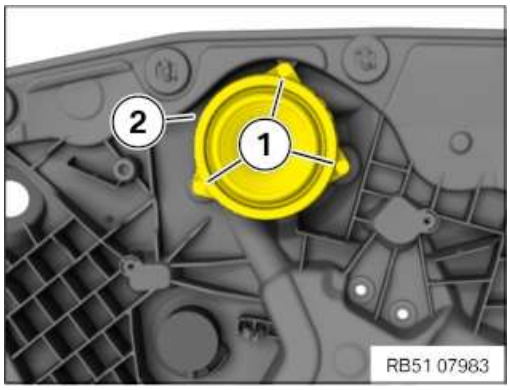


- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

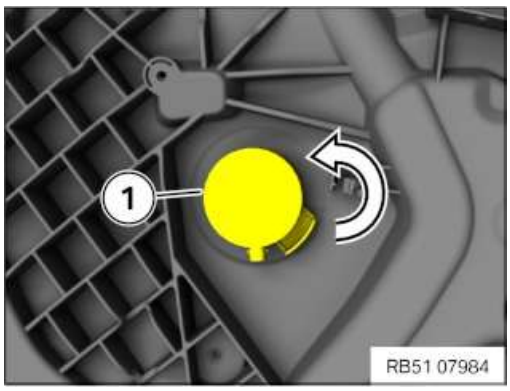
  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

rdiag.com

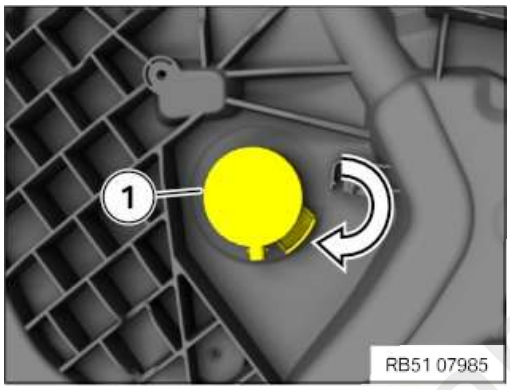
5 – Replacing the module carrier on the front door



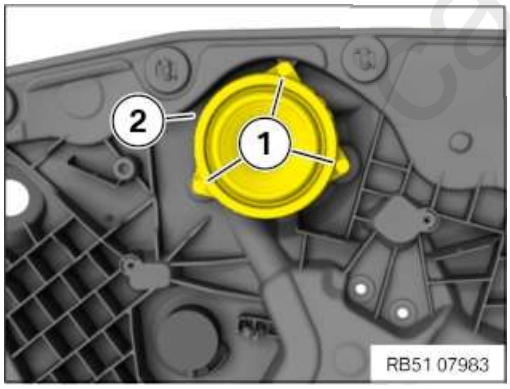
- Loosen screws (1).
- Remove the loudspeakers (2).



- Turn the sensor (1) in the direction of the arrow and remove it.



- Position the sensor (1) and turn in the direction of the arrow and lock it.



- Position the loudspeakers (2) and tighten the screws (1).

Speaker to door

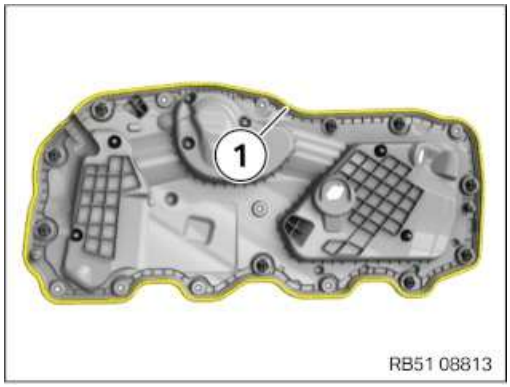
Screw		Tightening torque	2 Nm

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POSTPROCESSES

6 – Installing the module carrier on the front door

Check



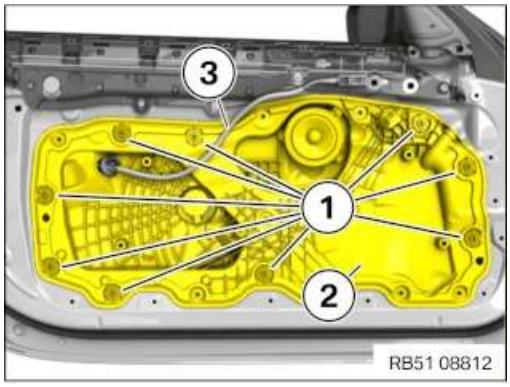
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

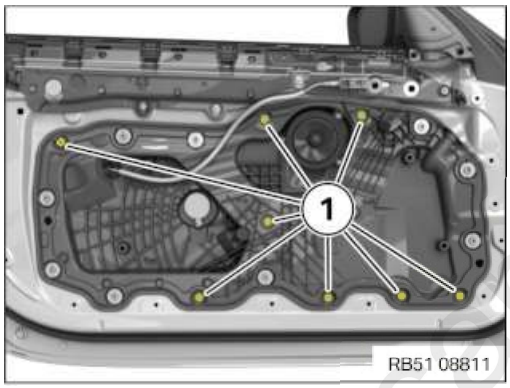
Measure

- Renew the module carrier on the front door.



- Position the module carrier on the front door (2).

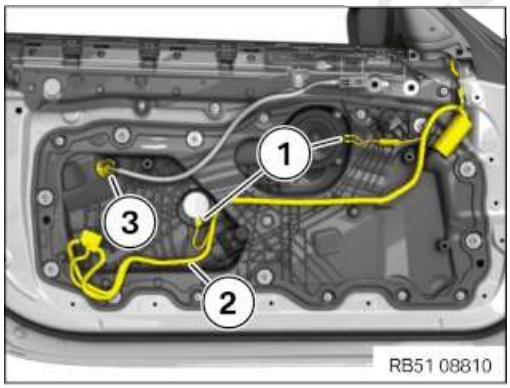
  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.



- Tighten the screws (1).

Module carrier to the front door

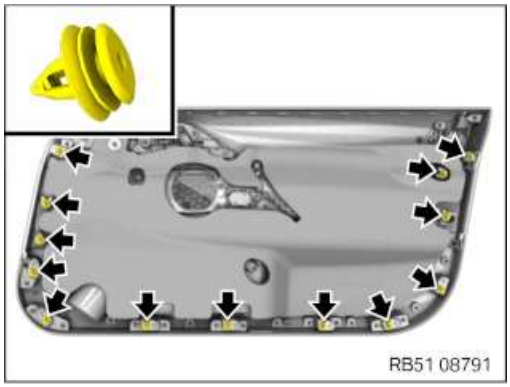
Oval-head screwM6	Tightening torque	9 Nm



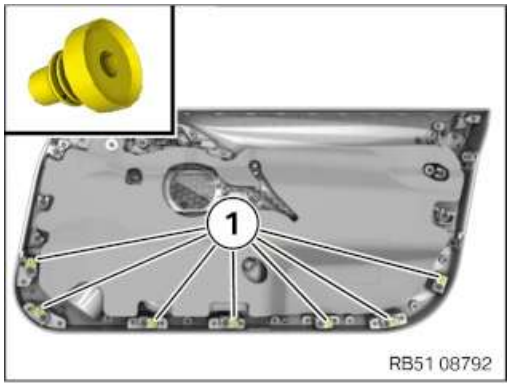
- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

7 – Install front door trim panel

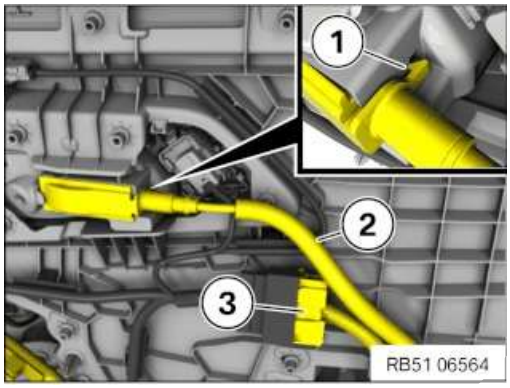
partdiagn.com



- Check clips (arrows) for damage and, if necessary, renew them.



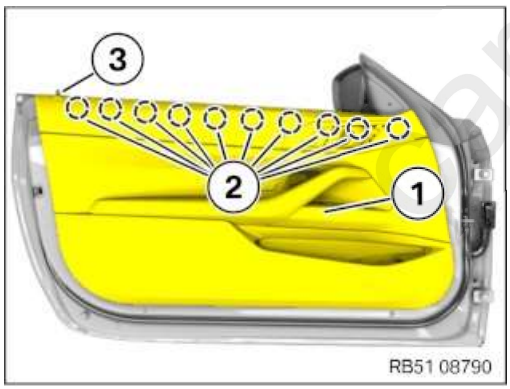
- Check the stop pad (1) for damage, renew if necessary.



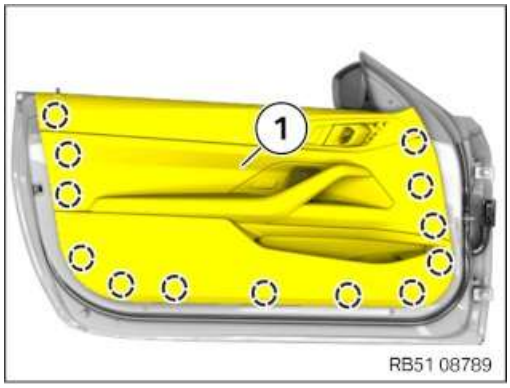
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.

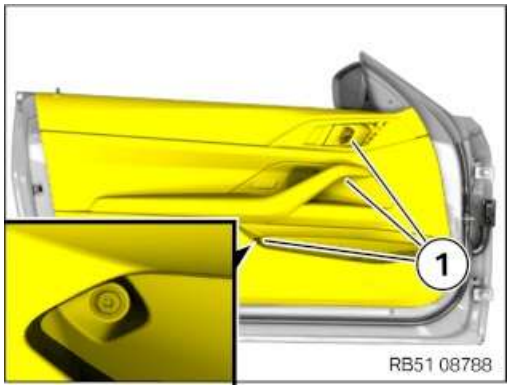


- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

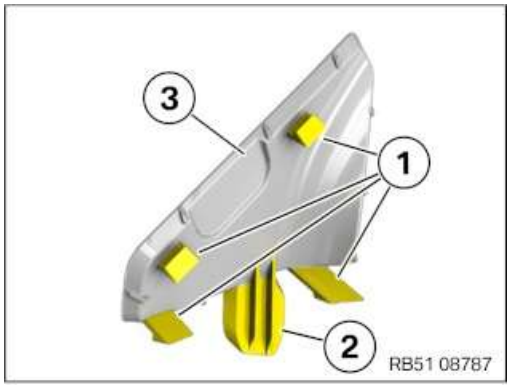
carmanual.com



- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm



Check

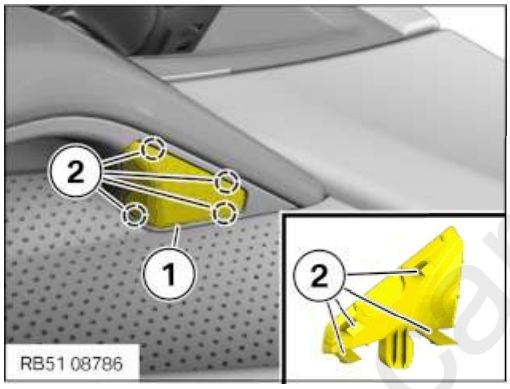
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

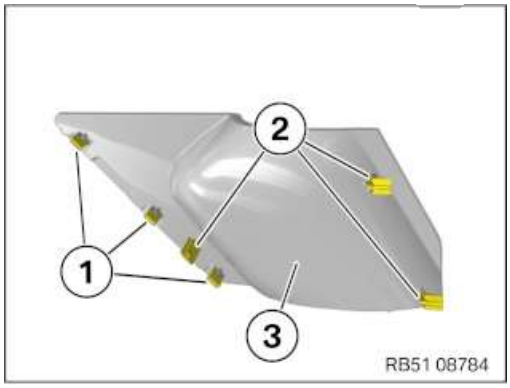
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.



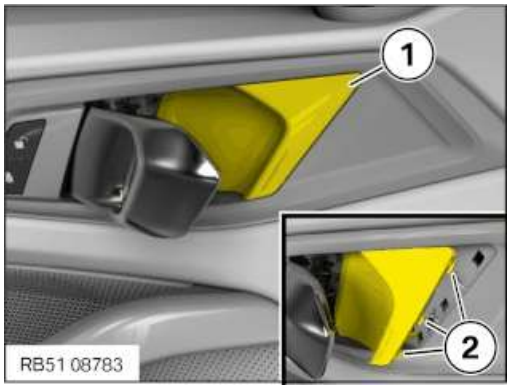
Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).

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- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

8 – Connecting all battery earth leads



- See additional information.

9 – Activating the 48 V electrical system

Prerequisite

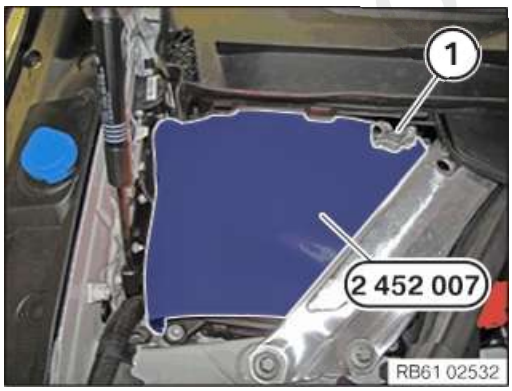
Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .

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- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

Speaker to door — Used in step 5

Screw		Tightening torque	2 Nm

Module carrier to the front door — Used in step 6

Oval-head screwM6		Tightening torque	9 Nm

Door trim panel — Used in step 7

Oval-head screw		Tightening torque	3 Nm

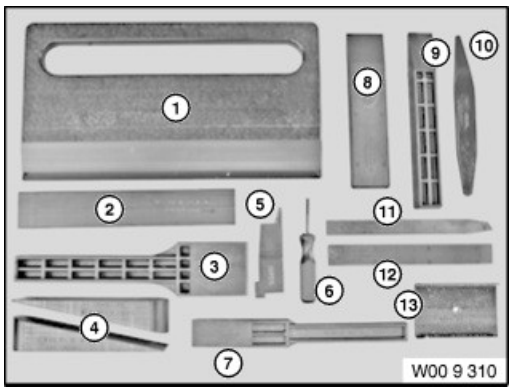
Negative battery cable to 48-V battery — Used in step 9

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

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0 493 752 (00 9 329) Case



Common	Used in step 3
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	19

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	28
61 20 900 Disconnecting and connecting battery earth lead	28
61 20 900 Disconnecting and connecting battery earth lead	28
61 20 900 Disconnecting and connecting battery earth lead	28
61 20 900 Disconnecting and connecting battery earth lead	28
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	28

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	28
61 20 900 Disconnecting and connecting battery earth lead	28
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	28
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	28
61 20 900 Disconnecting and connecting battery earth lead	28
61 20 900 Disconnecting and connecting battery earth lead	28
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	28
61 20 900 Disconnecting and connecting battery earth lead	28
61 20 900 Disconnecting and connecting battery earth lead	28
61 20 900 Disconnecting and connecting battery earth lead	28

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This documentation refers to special tools that were not yet available when going to press.

51 33 003 Replacing power window regulator in the left or right front door

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads



- See additional information.

3 – Remove front door trim panel

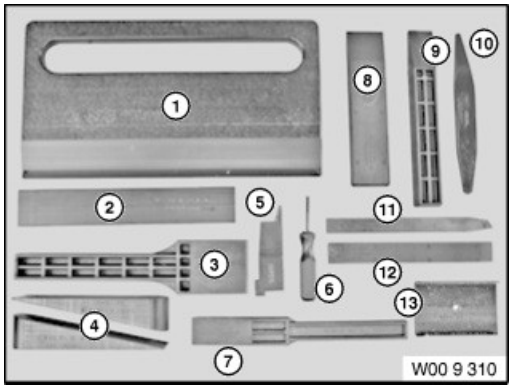
RISK OF DAMAGE

Damage of high-quality surfaces.

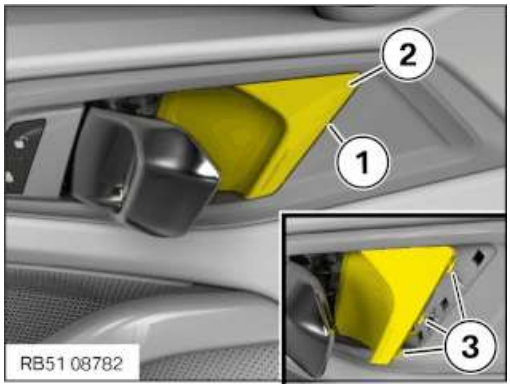
Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

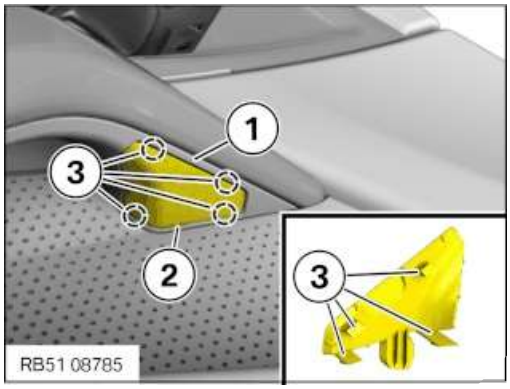
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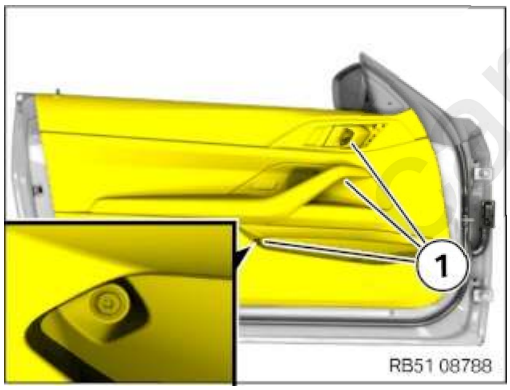
- Have the set of special tools 0 493 752 (00 9 329) ready.



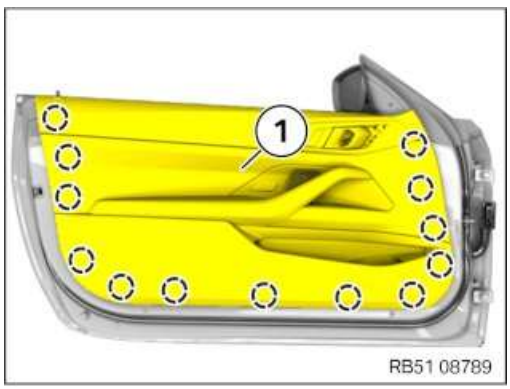
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

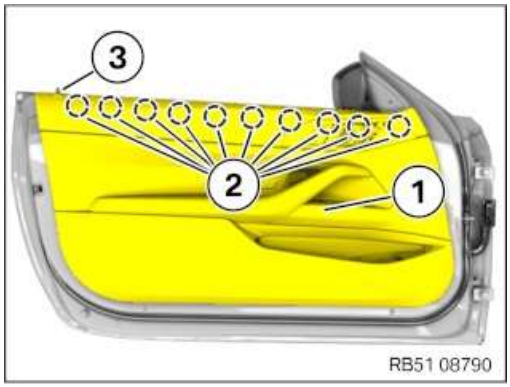


- Loosen screws (1).

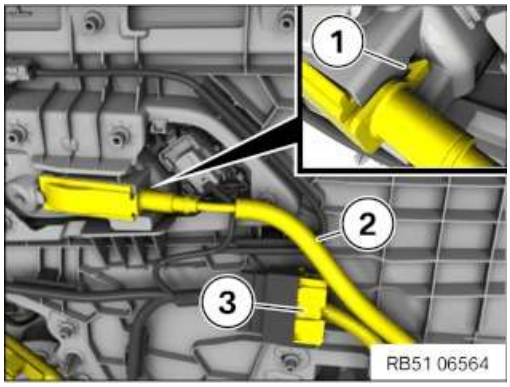


- Unclip the door trim panel (1) with the suitable special tool at the marked places.

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- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



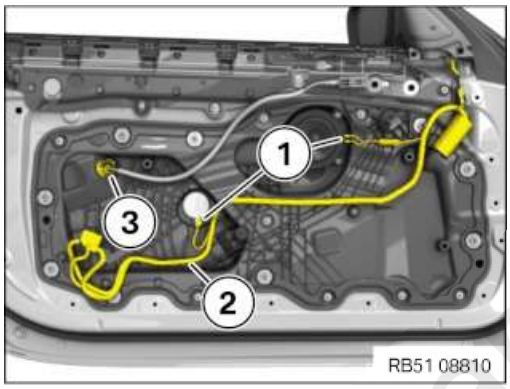
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

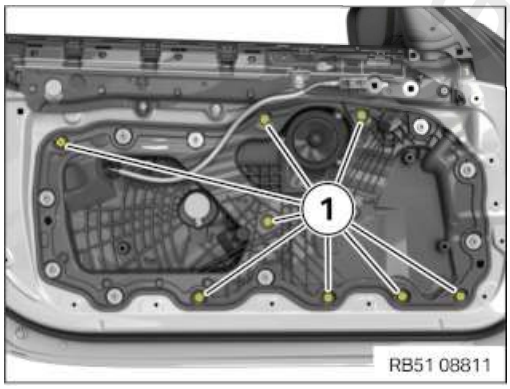
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

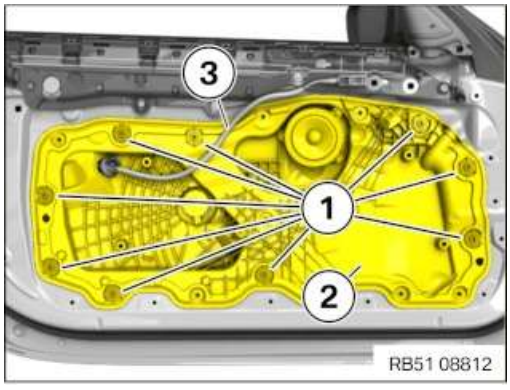
4 – Removing the module carrier from the front door



- Unlock plug connections (1) and disconnect.
- Unclip the wiring harness (2) at the module carrier on the front door.
- Release the rubber grommet of the Bowden cable for the inner door handle (3) .



- Loosen screws (1).



- Open the bayonet fittings (1) by twisting and remove the module carrier on the front door (2) .

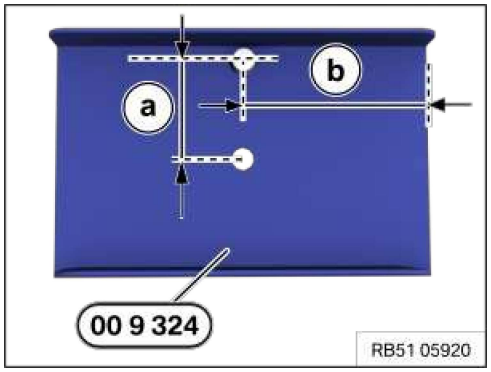
  Thereby, feed out the Bowden cable for the inner door handle (3) from the module carrier on the front door (2) .

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5 – Remove outer window cavity weather strip

Prerequisite

The door window glass is open.



▸ **Preparing the special tool**

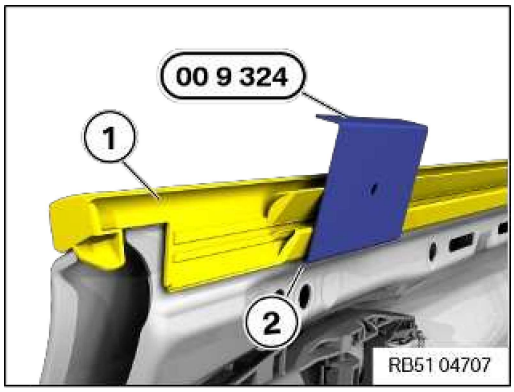
- **Do this only if the upper bore hole is missing.**
- Mark and make the bore hole on the special tool 0 495 484 (00 9 324) according to the specified dimensions.

  Make a bore hole on the side with the long shank.

  The diameter of the bore hole is 6 mm.

  Dimension (a) = 25 mm from the centre of the existing bore hole

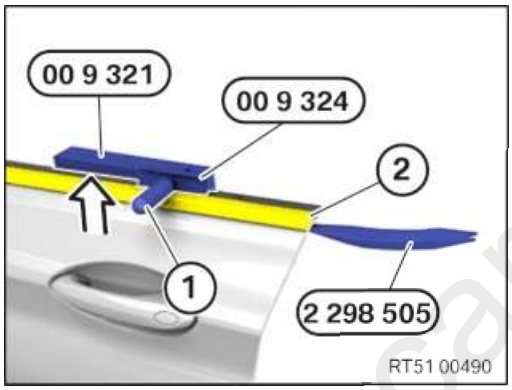
  Dimension (b) = 50 mm from the outer edge of the special tool



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Insert the special tool 0 495 484 (00 9 324) at the front on the A-pillar into the window recess and slide it backwards.
- Ensure that the special tool 0 495 484 (00 9 324) is positioned by the short shank (2) as shown on the lower edge of the window recess finisher strip (1).



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

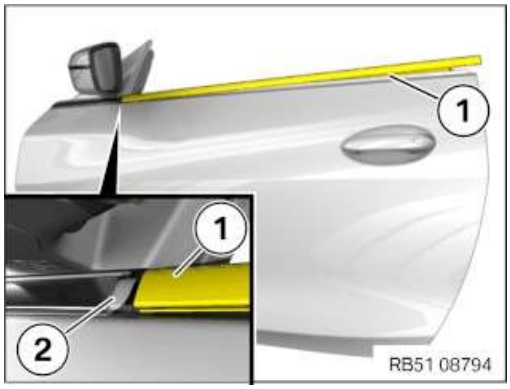
- Lever the outer window recess finisher strip (2) at the rear using the special tool 2 298 505 by a maximum of 5 mm upwards.
- Lever out the window recess finisher strip (2) using a suitable tool (1) in the direction of the arrow.

  The tool can be supported on the special tool 0 490 538 (00 9 321).

  When this happens, the special tool 0 495 484 (00 9 324) lifts the window recess finisher strip (2) upwards.
- Repeat this process step by step until the window recess finisher strip (2) is completely disassembled.

Note: In order to prevent scratches in the area of the mirror triangle, do not pull off the weather strip too far towards the top of the door.

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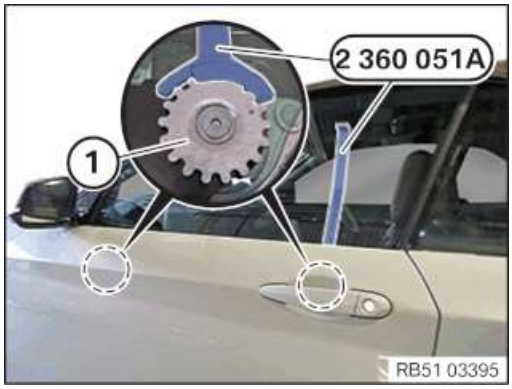


- Carefully feed out the outer window recess finisher strip (1) in the front area towards the rear from the adapter of the window recess finisher strips (2) .

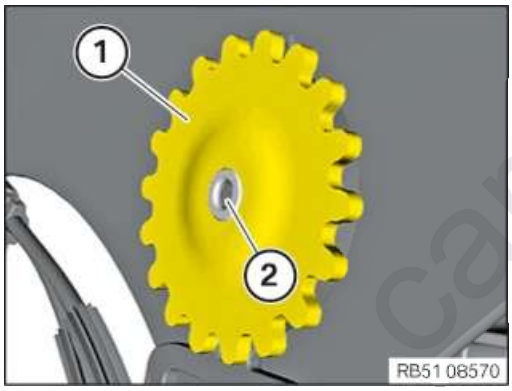
6 – Release door window at front

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

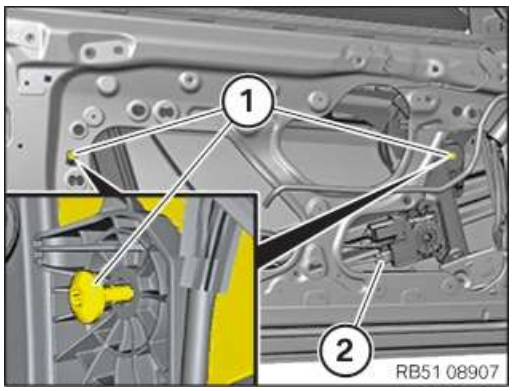


- Undo multi-tooth nuts (1) on side window glass with special tool **A**. (Observe next operation.)



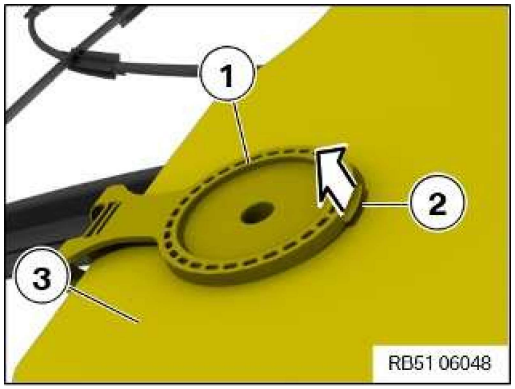
- Only undo the multi-tooth nut (1) to the extent it is flush with the socket (2).
- Lower front door window glass half way.

7 – Removing front door window glass



- Open the front door window glass so that the screws (1) are accessible.
- Unlock plug connection (2) and disconnect.
- Unscrew the screws (1) so far until the disassembly of the front door window glass is possible.

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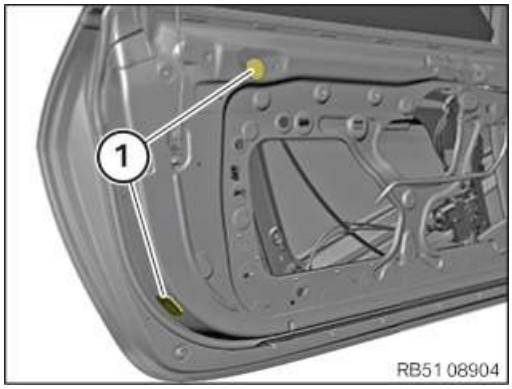
NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

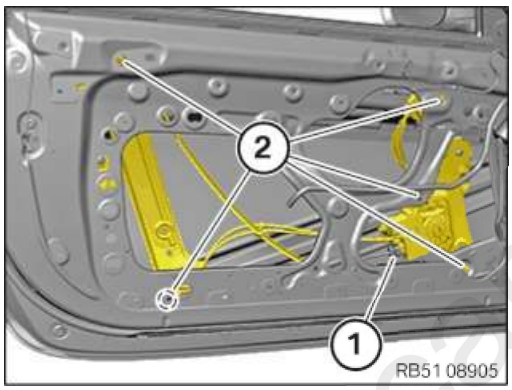
- Lift holder (1) on the tab (2) in the direction of arrow.
- Feed out the front door window glass (3) from the door upwards.

MAIN WORK

8 – Removing front door power window regulator

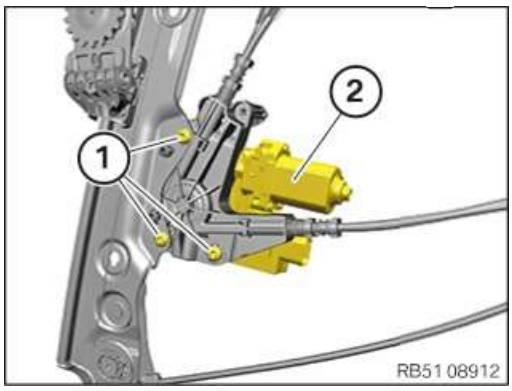


- Remove plug (1).



- Unlock plug connection (1) and disconnect.
- Release nuts (2).
- Feed the power window regulator out of the door and remove.

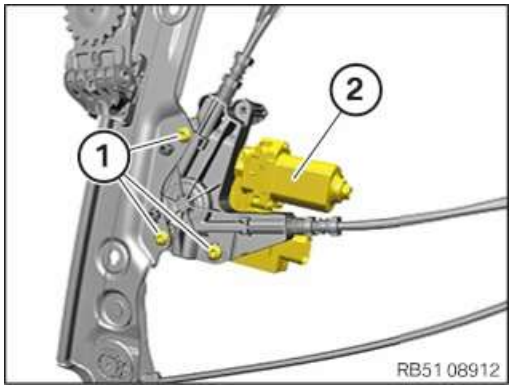
9 – Removing the flat motor for the front power windows



- Loosen screws (1).
- Feed out the flat motor (2) and remove.

10 – Install the flat motor for the front power windows

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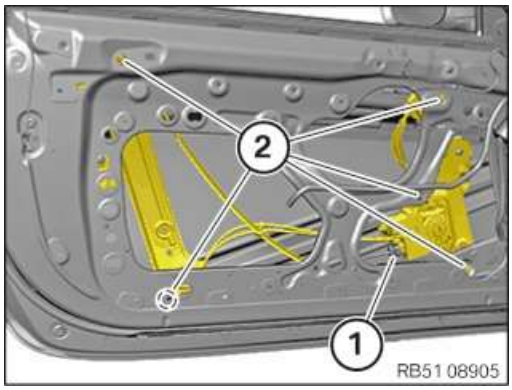


- Install the flap motor (2) and position it correctly.
- Tighten the screws (1).

Flat motor to power window regulator

Oval-head screw		Tightening torque	5 Nm

11 – Installing front door power window regulator

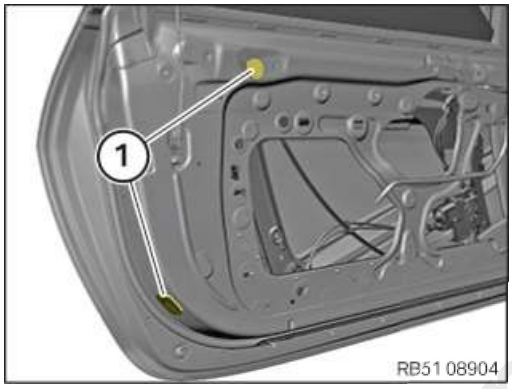


- Guide the power window regulator into door and position it correctly.
- Tighten nuts (2).

Power window regulator to inner door panel

M6			9,5 Nm

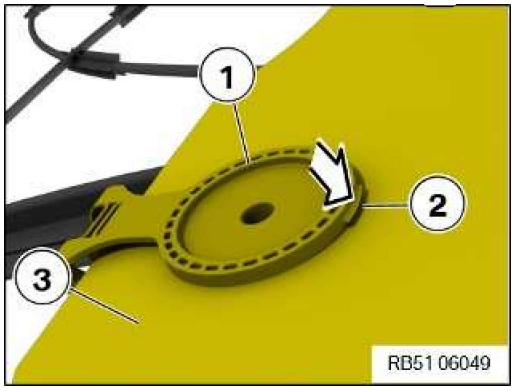
- Connect connectors (1) and lock.



- Install the plug (1).

POSTPROCESSES

12 – Installing front door window glass

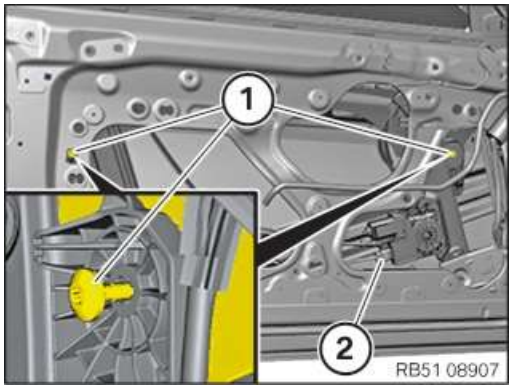


NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Insert door window glass front (3) from the top.
- Press holder (1) on the tab (2) in direction of arrow and lock.

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- Screw in the screws (1) and tighten them.

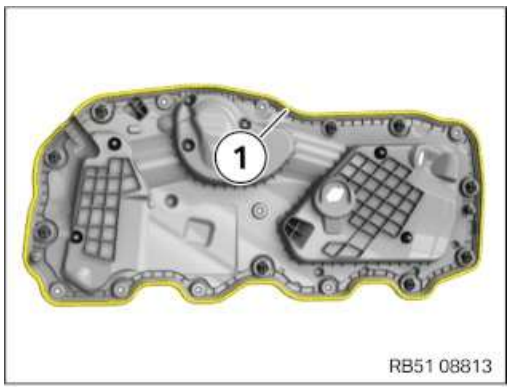
  In this process, counter support the multi-tooth nuts of the electric window.

Door window glass to power window regulator

Screw		Tightening torque	0.25 Nm

- Connect connectors (2) and lock.

13 – Installing the module carrier on the front door



Check

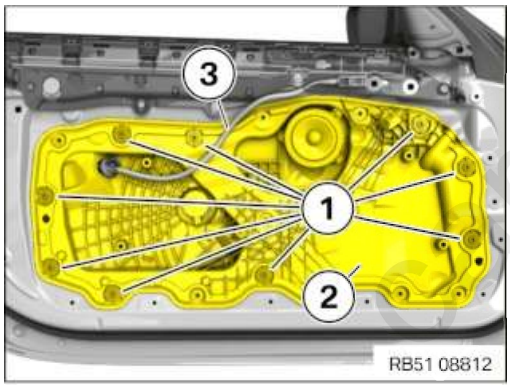
- Check the seal (1) of the module carrier on the front door for damage.

Result

» Seal (1) is damaged.

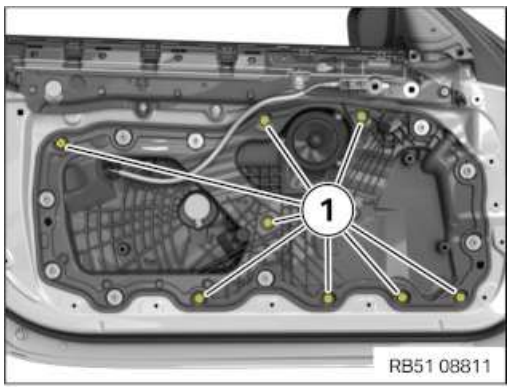
Measure

- Renew the module carrier on the front door.



- Position the module carrier on the front door (2).

  Thus, feed in the Bowden cable for the inner door handle (3) to the module carrier on the front door (2).
- Lock the bayonet fittings (1) by twisting them.

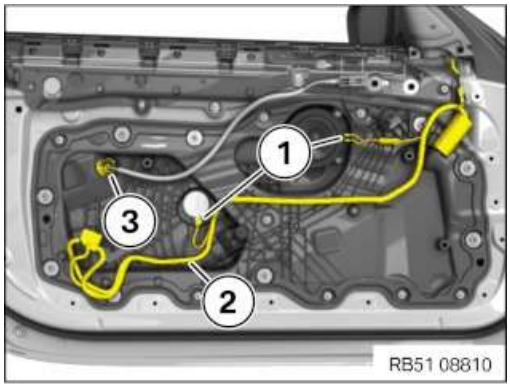


- Tighten the screws (1).

Module carrier to the front door

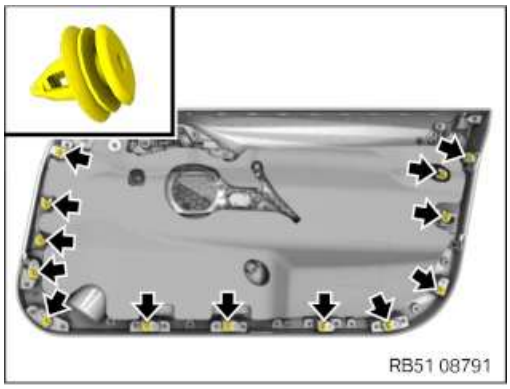
Oval-head screwM6		Tightening torque	9 Nm

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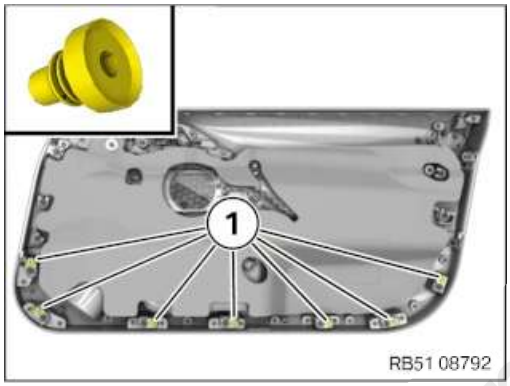


- Install the rubber grommet of the Bowden cable for the inner door handle(3).
- Clip in the wiring harness (2) on the module carrier to the front door.
- Connect connectors (1) and lock.

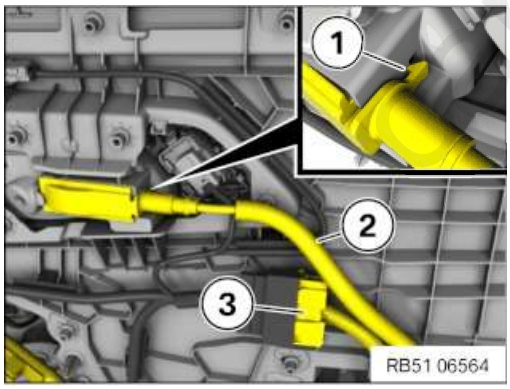
14 – Install front door trim panel



- Check clips (arrows) for damage and, if necessary, renew them.



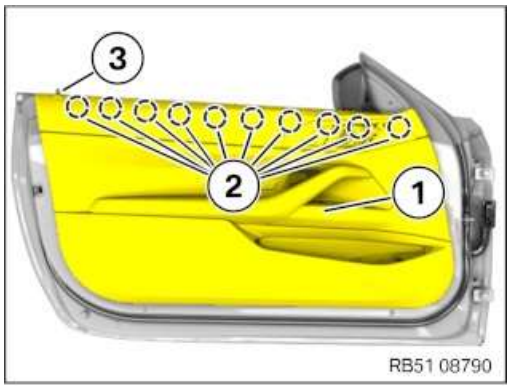
- Check the stop pad (1) for damage, renew if necessary.



NOTICE

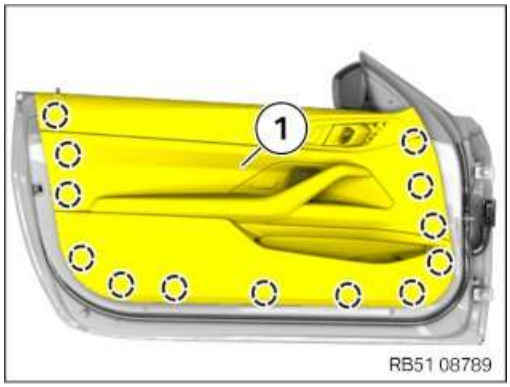
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.

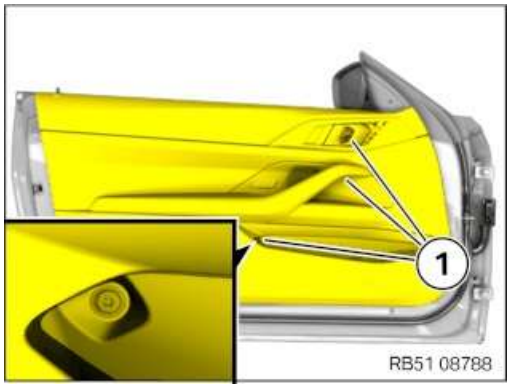


- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .

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- Clip in the door trim panel (1) at the marked places.

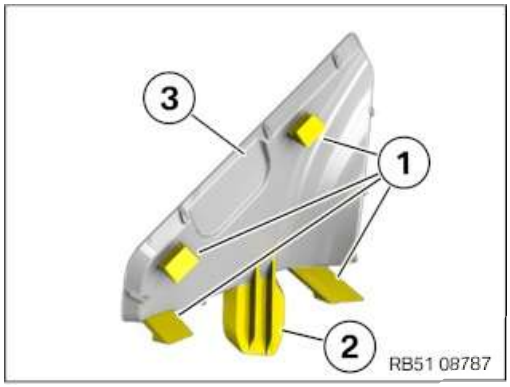


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



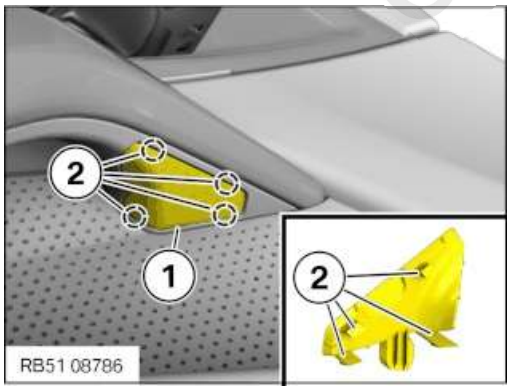
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

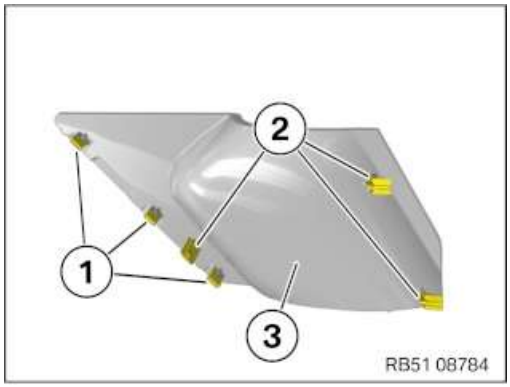
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

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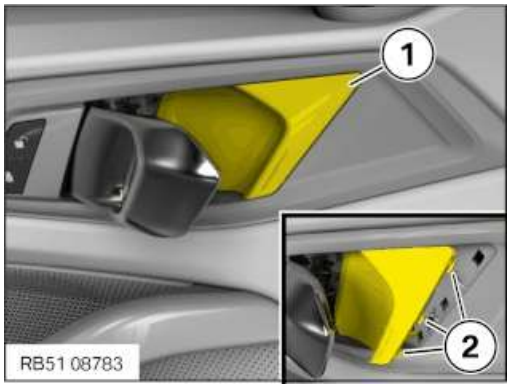
- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

15 – Connecting all battery earth leads



- See additional information.

16 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

17 – Adjusting door window glass

Prerequisite

Vehicle is supported on all wheels at ground level.

Front door has been correctly fitted.

Battery charger is connected (during adjustment work, the complete operability of the power window regulator is only guaranteed with external voltage supply).

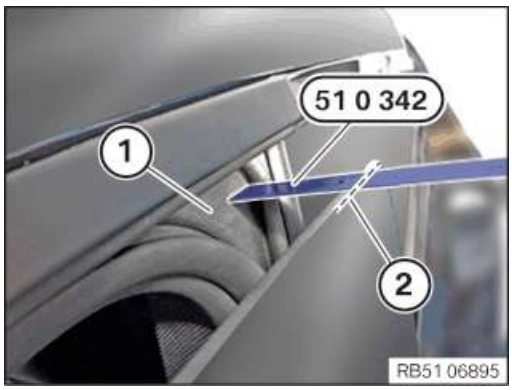
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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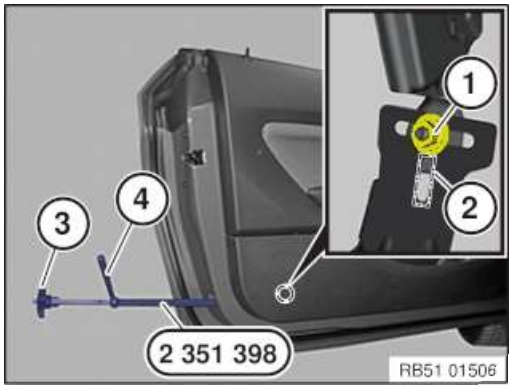


- Open door; move door window glass into uppermost position, if necessary.
- Insert special tool with the special tool in the rotary striker of the door lock and lock the rotary striker manually (door window glass moves fully upwards).
- Carefully close the door until the special tool lies on the striker (defined opening angle for the measurement).



- Do not exert any force on the door or door window glass during measurement.
- Abut special tool to the seal (1) and the door window glass (2).
- Determine dimension for preload between the seal (1) and outer edge of door window glass (2).

  Nominal dimension = 55 ± 1 mm



- Open door and remove sealing cap from door frame.
- Feed in special tool into the door and position at the nut (1) and the guide (2).
- Slacken nut (1) with knob (3).
- Turning the lever (4) to set the preload.

  Nominal dimension = 55 ± 1 mm
- Tighten nut (1).

Power window regulator to inner door panel

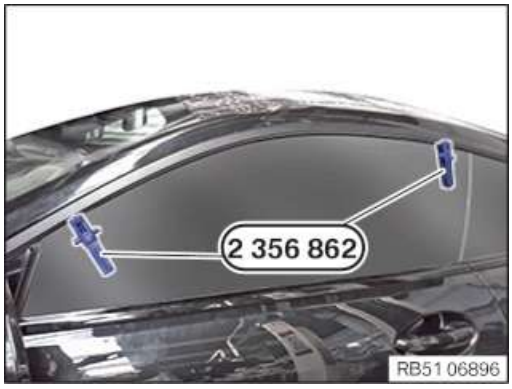
M6			9,5 Nm

- Check setting, repeat process if necessary.
- Remove special tool and fit the seal plug.
- Remove the special tool from the rotary striker of the door lock.



- Connect the special tool 2 356 862 to the holder (5 mm)(1) on the door window glass when it is locked (A).

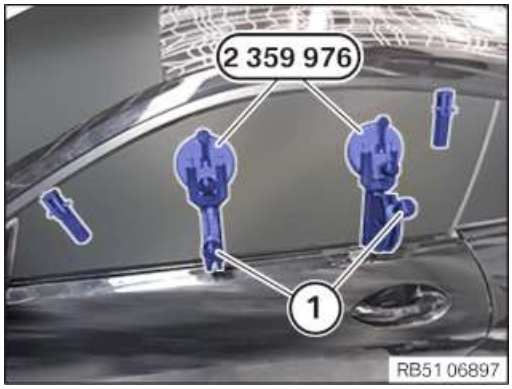
  Close the door and release the lock (2) (B).



- Open door.
- Place special tool 2 356 862 as shown on the door window glass.

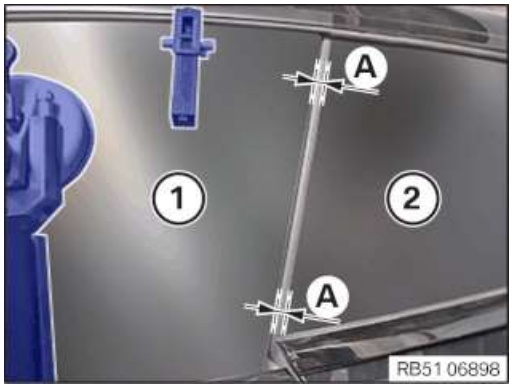
  Approx. displaced by 40 mm inwards in each case.
- Close door.
- Measure retraction depth.

  Nominal dimension: 5.5 ± 1 mm



- Attach special tool 2 359 976 on the door window glass so that the multi-tooth screws of the door window glass are still accessible.
- Release adjustment lever (1) by twisting.
- Set the retraction depth of the side window glass by moving the adjustment lever (1).

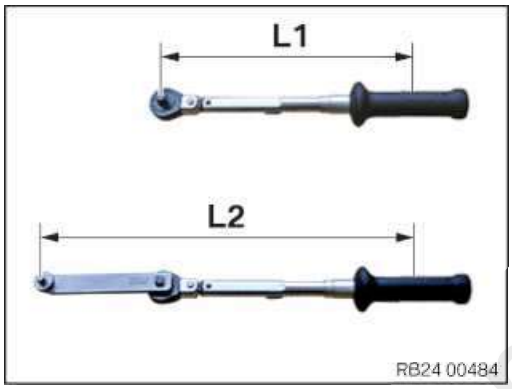
  Nominal dimension: 5.5 ± 1 mm
- Tighten adjustment lever (1).



- Adjust door window panel (1) parallel to the rear side window (2).

  Dimension (A) = 8.0 ± 1 mm

▸ **Tighten the front door window glass**



TECHNICAL INFORMATION

While using the special tool, that extends the lever arm of the torque wrench, the setpoint torque deviates from the torque to be set.

NOTICE

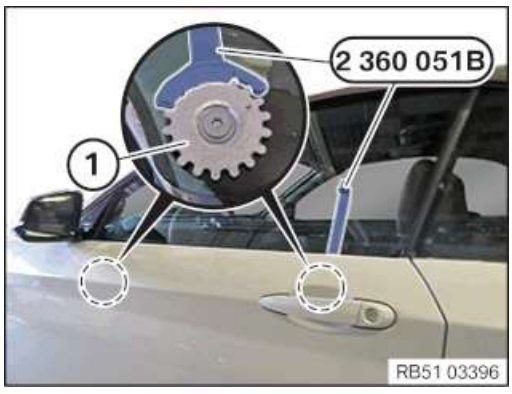
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten multi-point nuts (1) on the door window glass in the front using special tool **B** and a torque wrench.

Toothed nut of side window

Toothed nut		Tightening torque	11 Nm

18 – Install outer weather strip

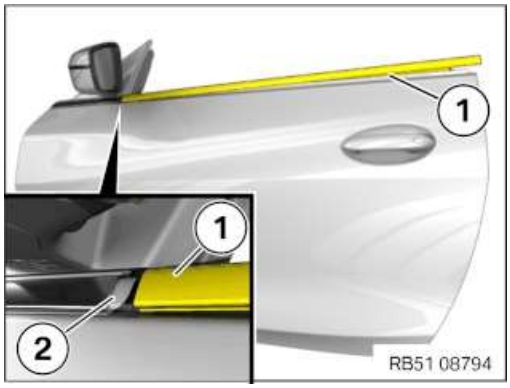
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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Check outer window recess finisher strip (1) for damage, renew if necessary.
- Coat the outer window recess finisher strip (1) before installation with a suitable lubricant.
- Attach outer window recess finisher strip (1) in front area to adapter (2) of window recess finisher strips.
- Press the outer window recess finisher strip (1) over the entire length.

Additional Information

Overview of Tightening Torques

Flat motor to power window regulator			Used in step 10
Oval-head screw		Tightening torque	5 Nm

Power window regulator to inner door panel			Used in step 1117
M6			9,5 Nm

Door window glass to power window regulator			Used in step 12
Screw		Tightening torque	0.25 Nm

Module carrier to the front door			Used in step 13
Oval-head screwM6		Tightening torque	9 Nm

Door trim panel			Used in step 14
Oval-head screw		Tightening torque	3 Nm

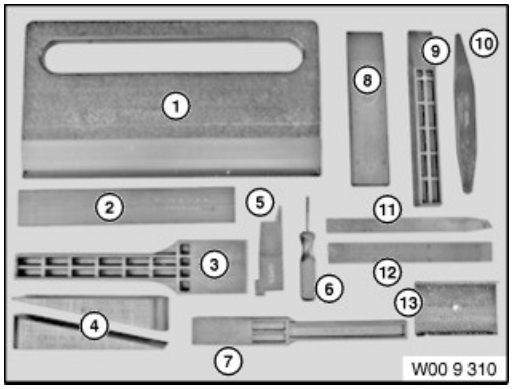
Negative battery cable to 48-V battery			Used in step 16
Nut M8		Tightening torque	19 Nm

Toothed nut of side window			Used in step 17
Toothed nut		Tightening torque	11 Nm

Overview of Special Tools

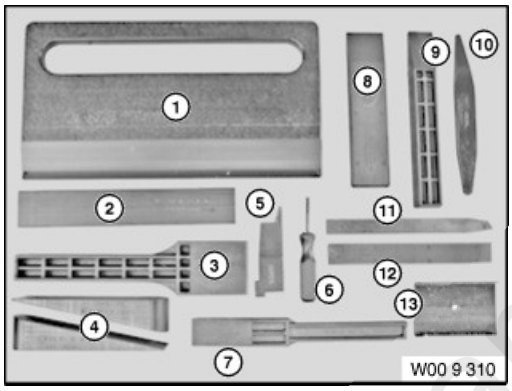
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0 493 752 (00 9 329) Case



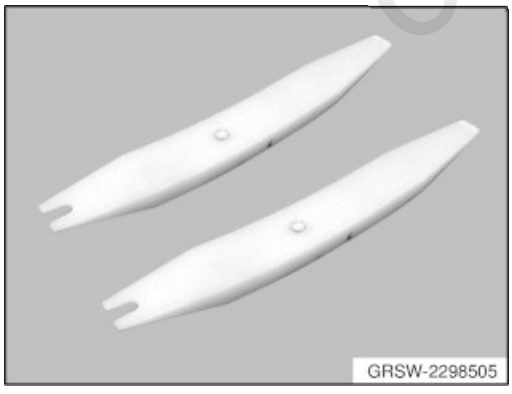
Common	Used in step 3
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 495 484 (00 9 324) Panel wedge



Common	Used in step 5
Usage	(Panel wedge (panel)) For removing cavity strips on the doors from E60
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 05 (230)

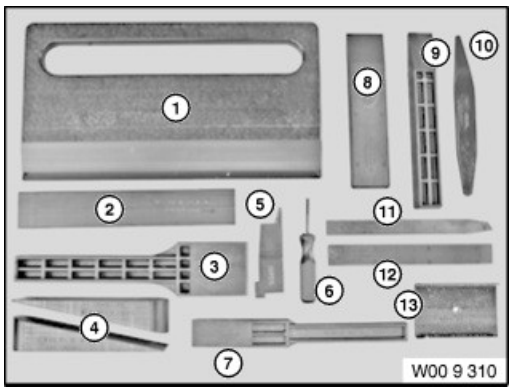
2 298 505 Wedge



Common	Used in step 5
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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0 490 538 (00 9 321) Folding stick



Common	Used in step 5
Usage	
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 356 862 Device



Common	Used in step 17
Usage	Device for measuring the side window retraction depth. Also valid for: BMW i Aftersales Basic. This tool set replaces the tool 2304553
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 29 13 (998)

2 359 976 Siphon



Common	Used in step 17
Usage	For fixing and adjusting frameless side/door window glass. Also valid for: BMW i Aftersales Basic
Included in the tool or work	
Storage location	A73
Replaced by	
In connection with	
SI-Number	01 27 14 (129)

Links

Repair instructions (PRE)	Used in step

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Notes on 48-V battery	116

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	215
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting battery earth lead	215
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	215
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	215
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	215
61 20 900 Disconnecting and connecting battery earth lead	215
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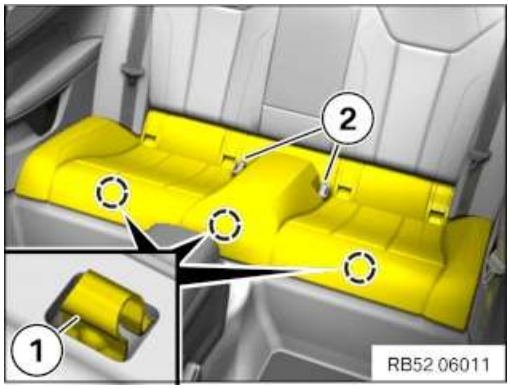
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	215
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting battery earth lead	215

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51 36 070 Removing and installing rear left or right side window

PRELIMINARY WORK

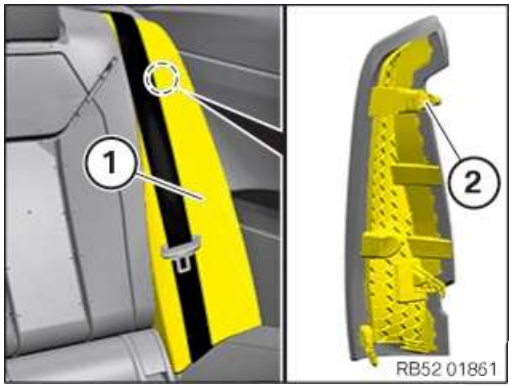
1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

2 – Remove armrest side section

▸ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

3 – Remove C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

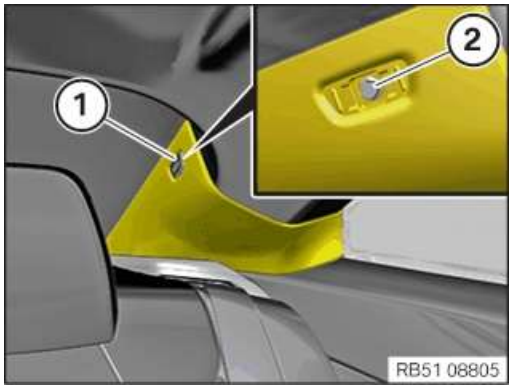
RISK OF DAMAGE

Damage to the head airbag.

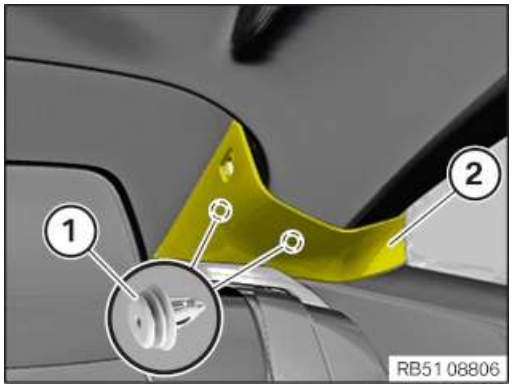
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

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- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

4 – Removing the inner door sill cover strip

RISK OF DAMAGE

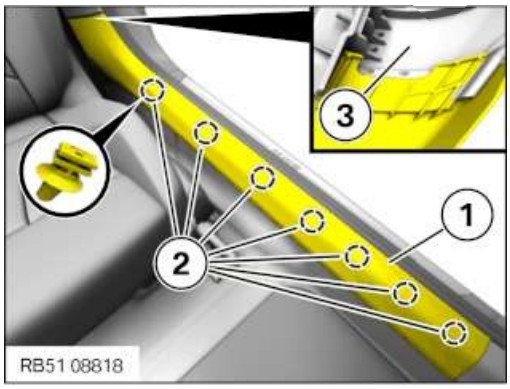
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

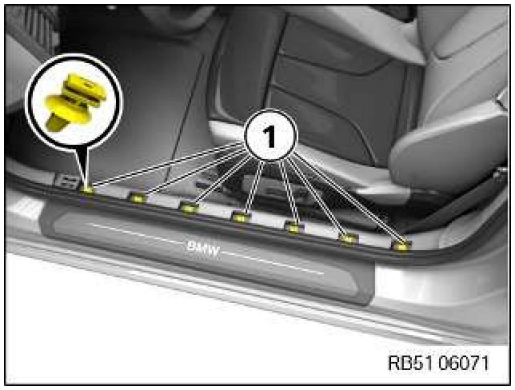
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



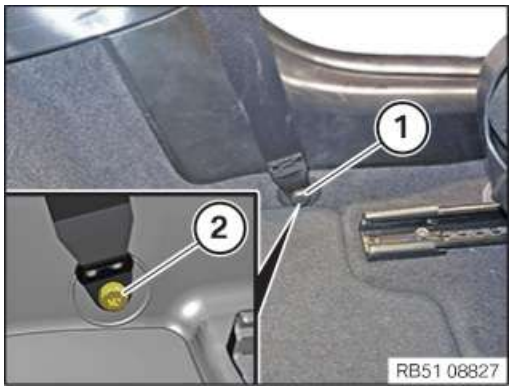
- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

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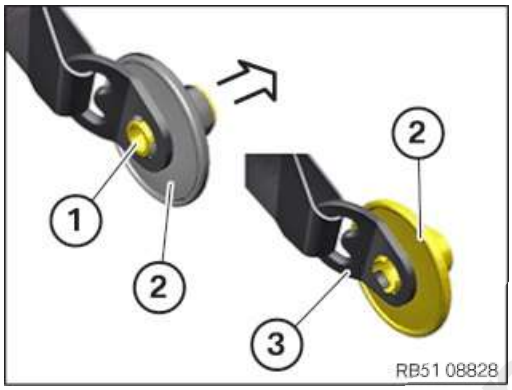


- If necessary, remove clips (1) and connect them to the door sill cover strip.

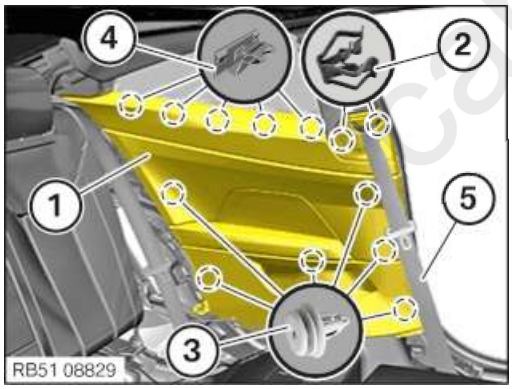
5 – Remove rear side trim panel



- Unclip the cover cap (1).
- Release the screw (2).

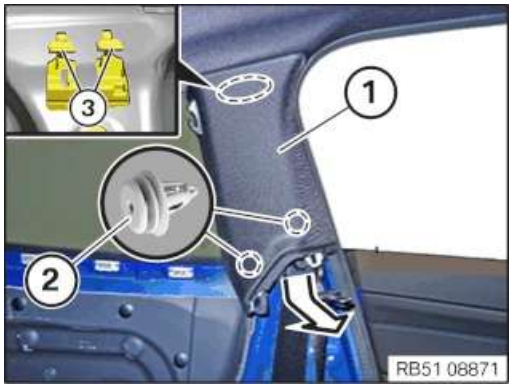


- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

6 – Remove the B-pillar trim panel



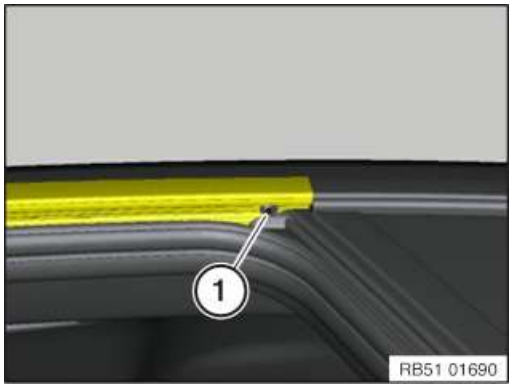
- Unclip the B-pillar trim panel (1) at the clips (2).
- Remove the B-pillar trim panel (1) from the lip of the edge protection and the guides (3) in the direction of the arrow.

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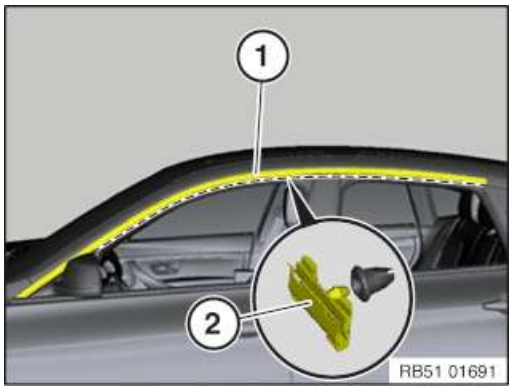
7 – Removing trim strip

Prerequisite

Front door is open.



- Release the screw (1) in the area of the B-pillar through the opening of the seal.



- Carefully release the trim strip (1) starting from the front with the special tool 0 496 569 (00 9 325) downwards at the clips (2).
- Carefully guide the trim strip (1) forward out of the trim strip on the side window and remove.

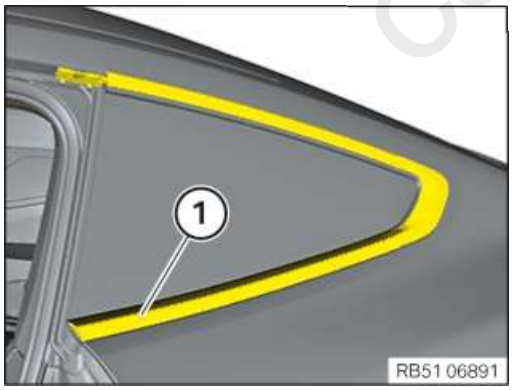
8 – Removing the trim strip on the rear side window

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.



- Carefully lever the trim strip on the read side window (1) outwards using the special tool 0 496 569 (00 9 325), starting at the front.

MAIN WORK

9 – Remove the rear side window

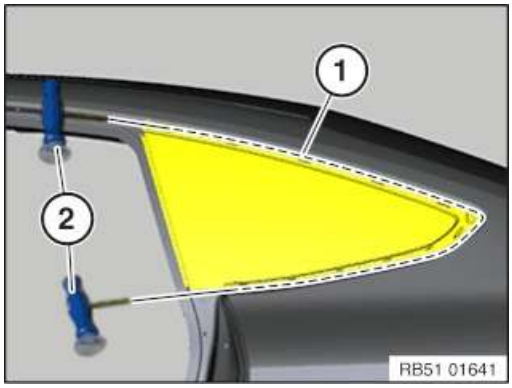
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RISK OF DAMAGE

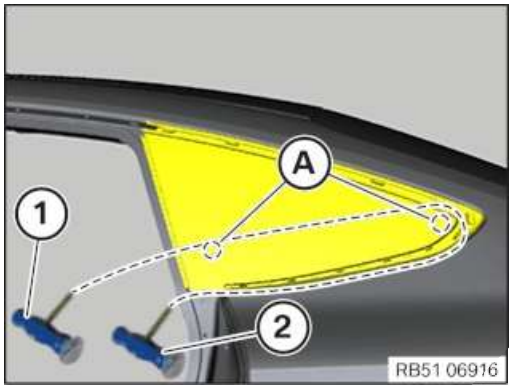
Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
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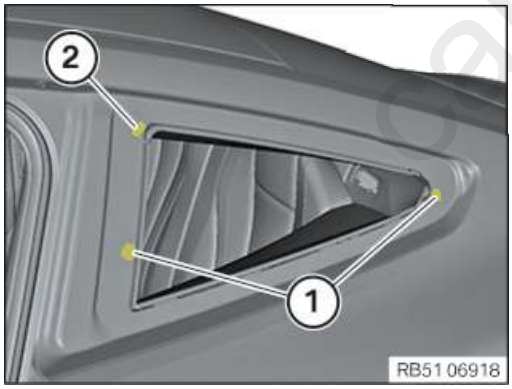


- Guide the wire (1) behind the PVC coating of the side window and wrap it completely around the side window.
- Ensure that the rubber seal is not cut through by the wire in the rear corner.
- Attach the wire pull handles (2) to the wire (1).
- Secure the side window on the body with adhesive tape.
- To facilitate cutting through the adhesive bead, heat the wire (1) with sawing motions.
- Cut through the adhesive bead from back to front.
- Pull the wire pull handles (2) outwards so that the wire will not be pulled across body.



- Pull the wire pull handle (1) downwards and counter support at the wire pull handle (2).
- Cut through guide pins in the area (A)with increased effort.
- Cut through the adhesive bead completely and remove the side window.

10 – Install the rear side window



- Use a scraper to remove the adhesive bead from the body and, if necessary, from the side window.

TECHNICAL INFORMATION

Protect components from corrosion. Treat paint damage with corrosion protection.

- Remove the remaining guide pins (1) and Dual Lock tape (2) and clean the bonding surface.

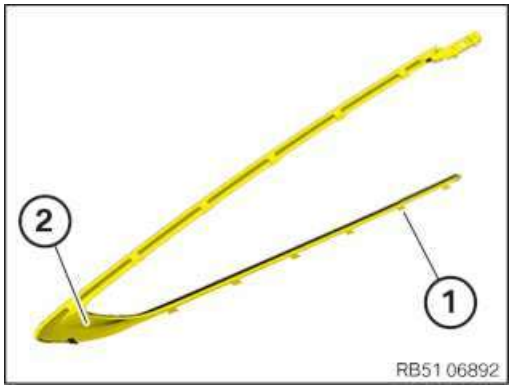
Expendable materials

Cleaning agent R2	500 ml	83190417324

- Apply new Dual-Lock tape (2) in the area shown on the body.

Check

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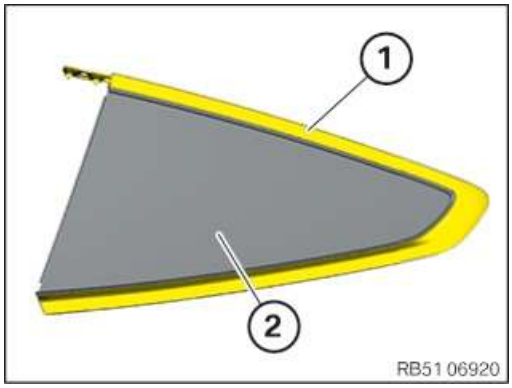
- Check tabs (1) on the trim strip on the rear side window (2) for damage.

Result

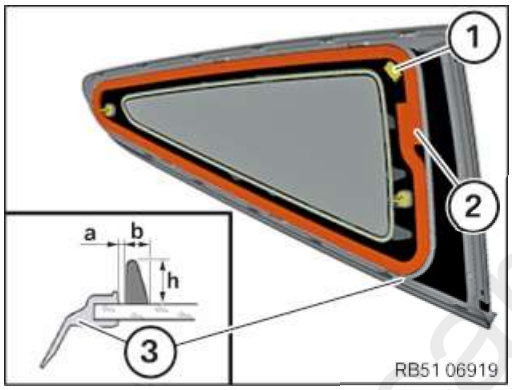
» Tabs (1) are damaged.

Measure

- Replace trim strip on the rear side window (2).



- Clip the trim strip (1) at the rear side window (2) into place.



-

a	Position of adhesive bead	2 ±1 mm
b	Width of adhesive bead	8 ±2 mm
C	Height of adhesive bead	13 +2 mm

When reusing side window:

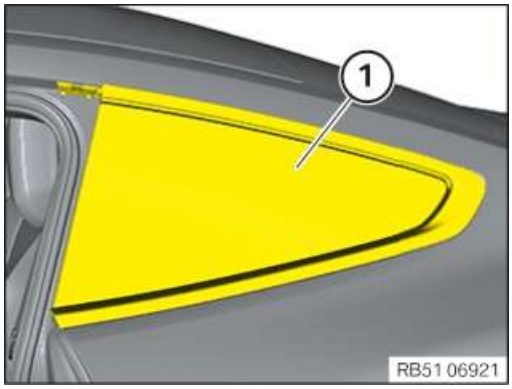
Remove remnants of the Dual-Lock tape (1).

Clean bonding surface and stick on new Dual-Lock tape (1).

- Clean the bonding surfaces on the side window and the body.
- For reuse of the side window glass, apply the adhesive bead to the cut back adhesive bead of the side window glass.
- For use of a new side window glass, apply the adhesive bead on the cut back adhesive bead of the body.
- Apply adhesive bead as shown along the PVC encapsulation (3).

  Apply bead joint in area (2).

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TECHNICAL INFORMATION

Conduct the following operation with the assistance of a second person.

- Align the side window (1) with the special tool on the side wall and guide in with the guide pins.
- Press the side window (1) onto the Dual-Lock tape.
- Affix the side window (1) with plastic adhesive tape, yellow.

Expendable materials

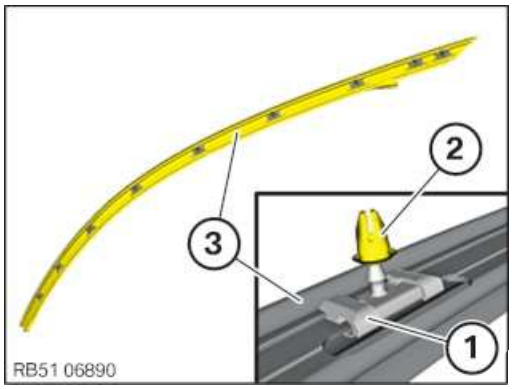
Yellow plastic adhesive tape		83199410979

POSTPROCESSES

11 – Installing the trim strip

Prerequisite

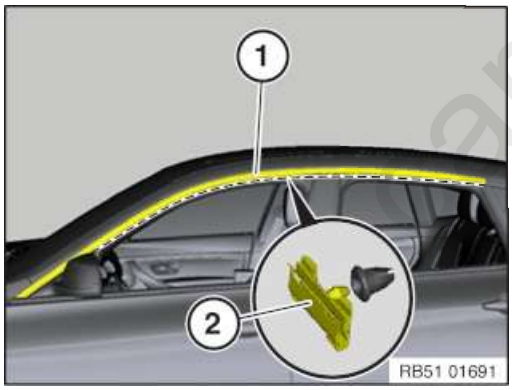
Front door is open.



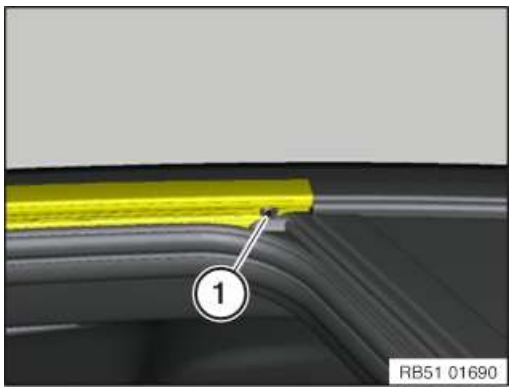
- Checks clamps (1) for damage.

  Defective or missing clamps (1) need to be renewed.
- If required, release the grommets (2) from the clamps (1) and mount on the body.

  Faults or missing grommets (2) must be renewed.
- Correctly position clamps (1) on trim panel (3).



- Carefully attach trim strip (1) and feed in at the trim strip on the side window.
- Carefully clip in the trim strip (1) starting from the rear at the clips (2).

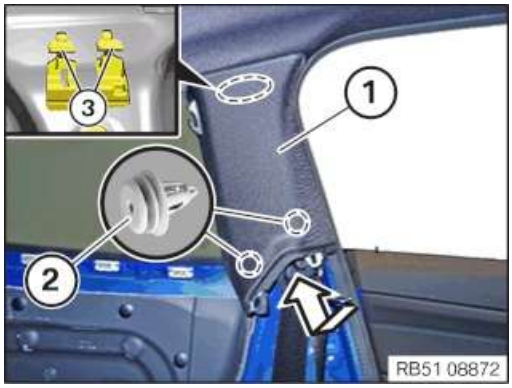


- Tighten down screw (1).

12 – Install the B-pillar trim panel

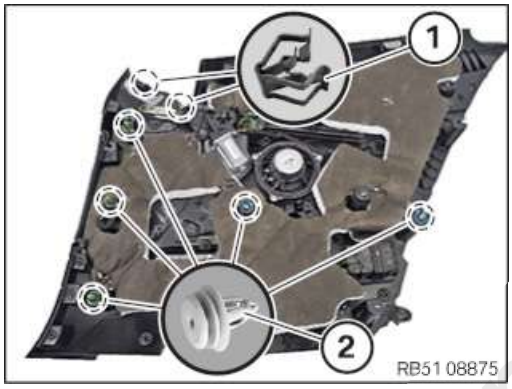


- Check clips (1) for damage and renew if necessary.

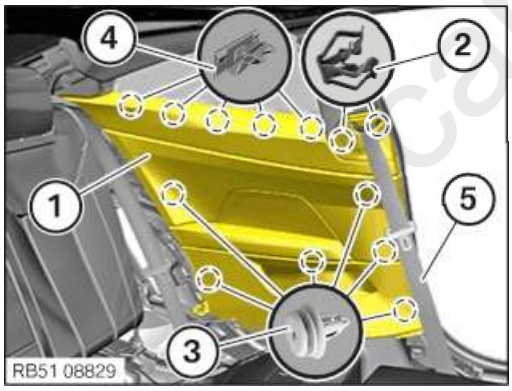


- Insert B-pillar trim panel (1) in direction of arrow into the guides (3) and under the lip of edge protection.
- Clip in the B-pillar trim panel (1) at the clips (2).

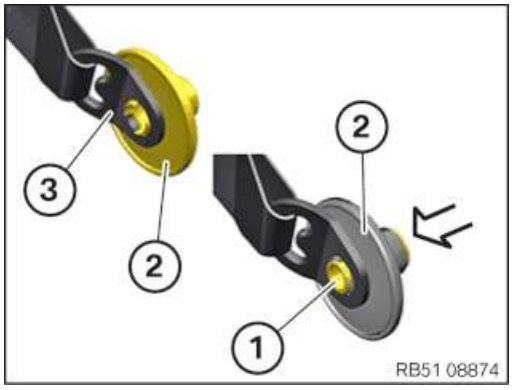
13 – Install rear side trim panel



- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.

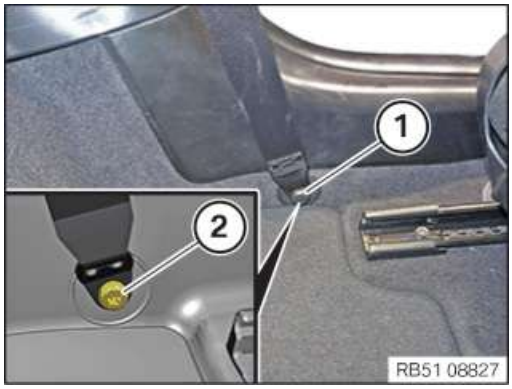


- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).



- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).

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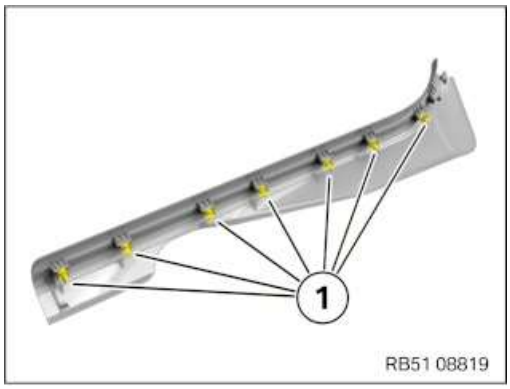
- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

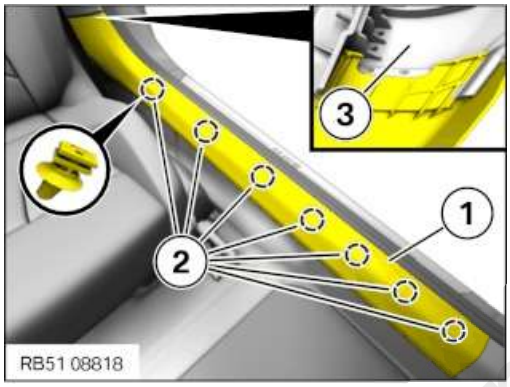
14 – Installing the inner door sill cover strip



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

15 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

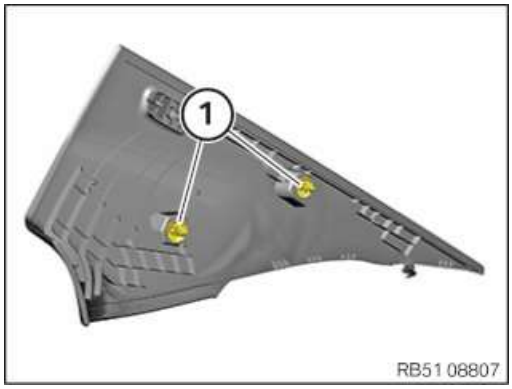
RISK OF DAMAGE

Damage to the head airbag.

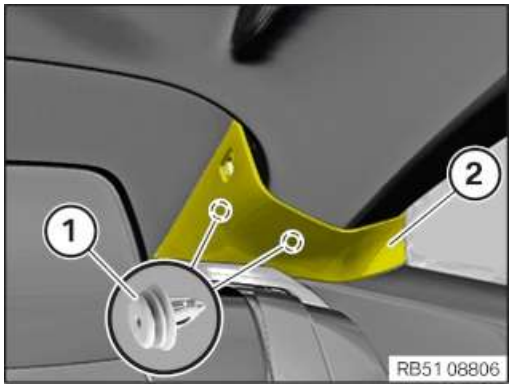
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

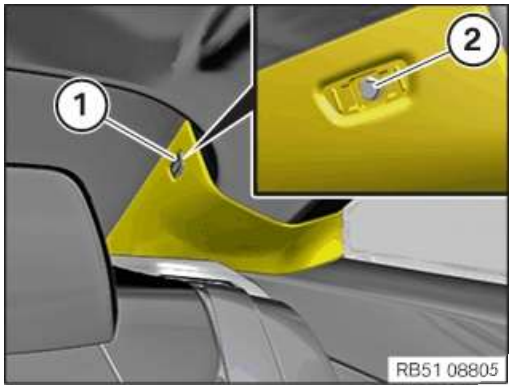
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- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

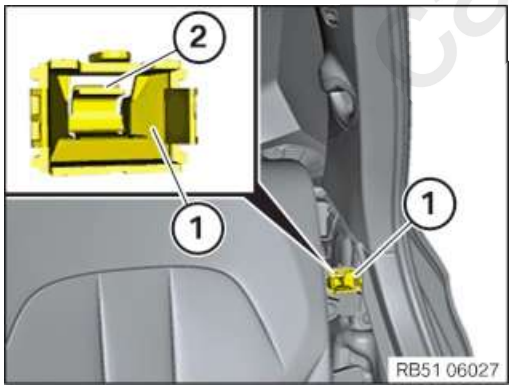
C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

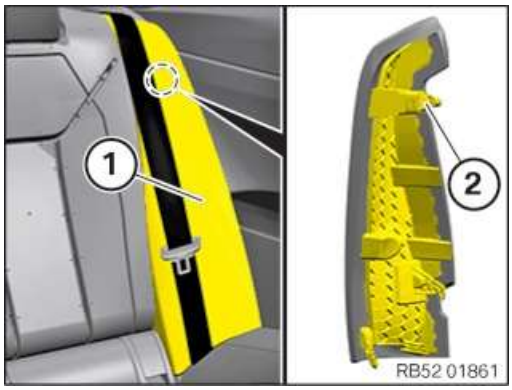
16 – Installing backrest side section

▶ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

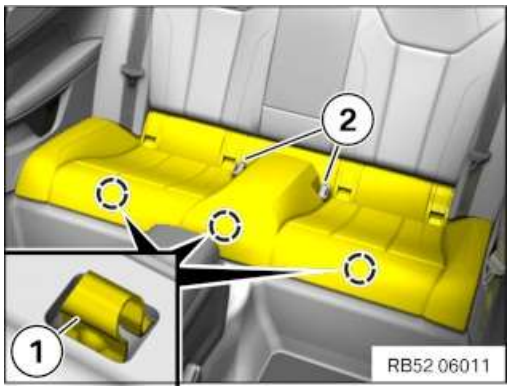
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

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17 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

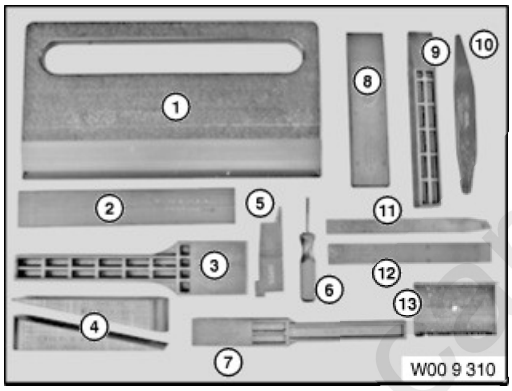
Overview of Tightening Torques

End fitting to body			Used in step 13
M10		Tightening torque	42 Nm

C-pillar trim panel to body			Used in step 15
Screw		Tightening torque	2,6 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 4
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 496 569 (00 9 325) Wedge



Common	Used in step 78
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 (PRE)	Used in step
Notes on 48-V battery	216

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General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	216

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting battery earth lead	216
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
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61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216

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51 36 056 Removing and installing/replacing trim strip on side window on rear left or right

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

NOTICE

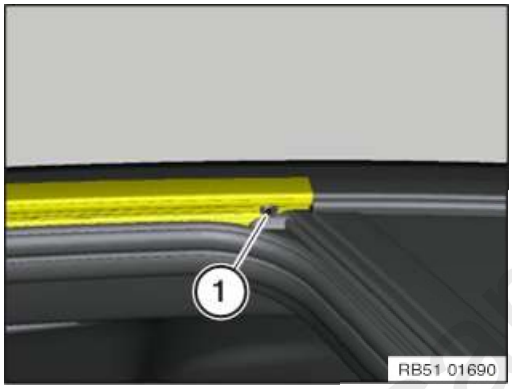
Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

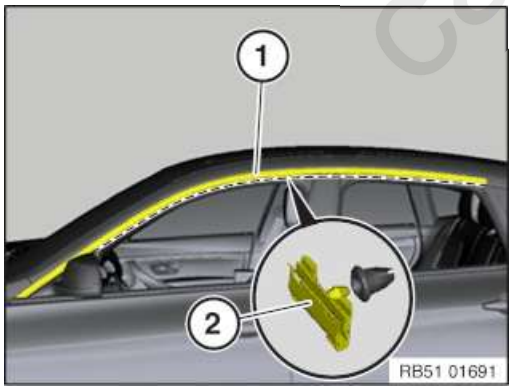
1 – Removing trim strip

Prerequisite

Front door is open.



- Release the screw (1) in the area of the B-pillar through the opening of the seal.



- Carefully release the trim strip (1) starting from the front with the special tool 0 496 569 (00 9 325) downwards at the clips (2).
- Carefully guide the trim strip (1) forward out of the trim strip on the side window and remove.

MAIN WORK

2 – Removing the trim strip on the rear side window

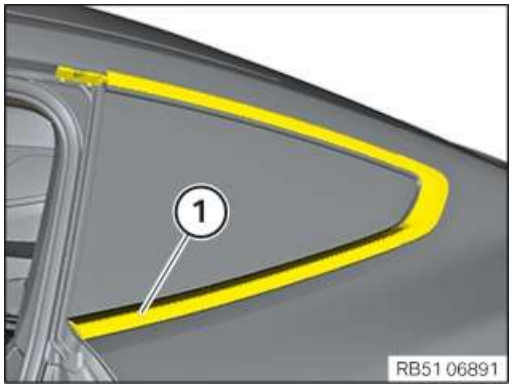
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RISK OF DAMAGE

Mechanical effects.

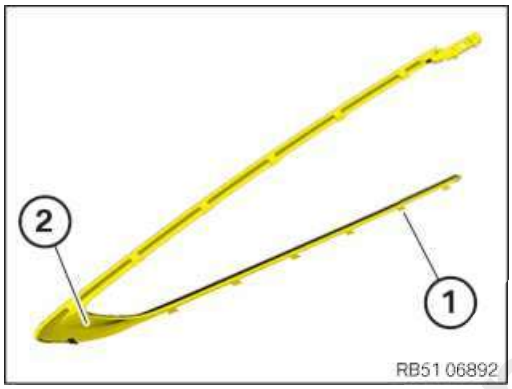
Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.



- Carefully lever the trim strip on the read side window (1) outwards using the special tool 0 496 569 (00 9 325), starting at the front.

3 – Install trim strip on the rear side window



Check

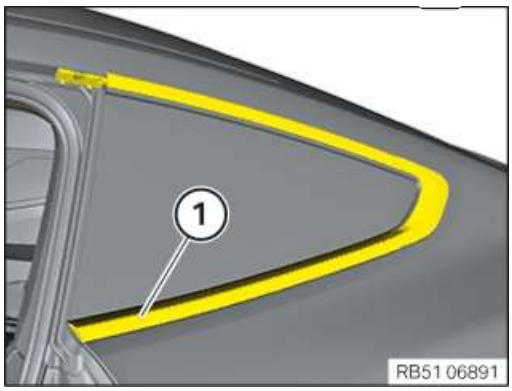
- Check tabs (1) on the trim strip on the rear side window (2) for damage.

Result

» Tabs (1) are damaged.

Measure

- Renew trim strip on the rear side window (2).



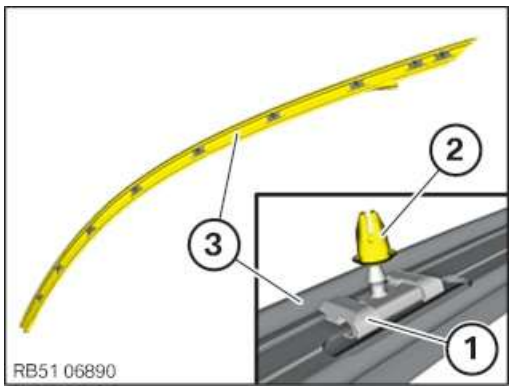
- Clip in the trim strip on the rear side window (1) on the body and clip onto the side window glass.

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4 – Installing the trim strip

Prerequisite

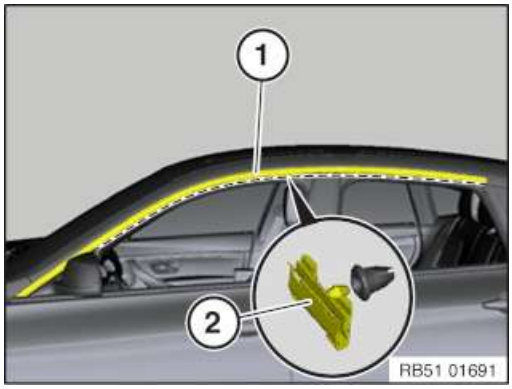
Front door is open.



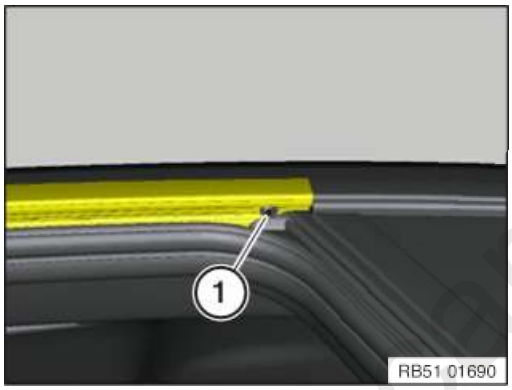
- Checks clamps (1) for damage.

  Defective or missing clamps (1) need to be renewed.
- If required, release the grommets (2) from the clamps (1) and mount on the body.

  Faults or missing grommets (2) must be renewed.
- Correctly position clamps (1) on trim panel (3).



- Carefully attach trim strip (1) and feed in at the trim strip on the side window.
- Carefully clip in the trim strip (1) starting from the rear at the clips (2).



- Tighten down screw (1).

Additional Information

Overview of Tightening Torques

Overview of Special Tools

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0 496 569 (00 9 325) Wedge



Common Used in step 12

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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51 41 000 Removing and installing left or right front door trim panel

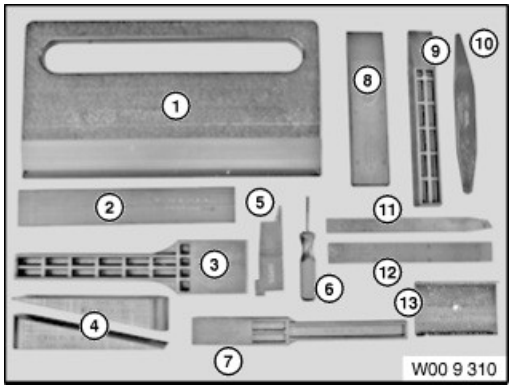
1 – Remove front door trim panel

RISK OF DAMAGE

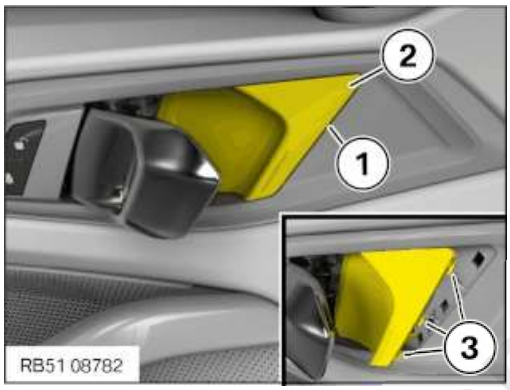
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

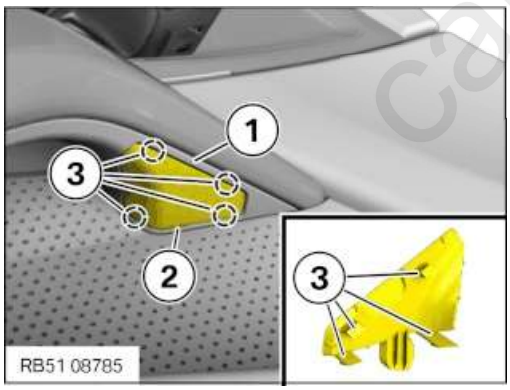
- Protect surfaces from damage.



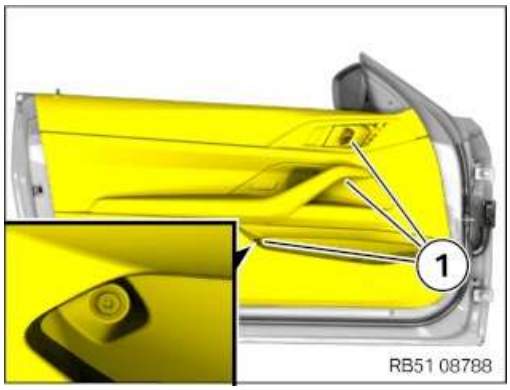
- Have the set of special tools 0 493 752 (00 9 329) ready.



- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.

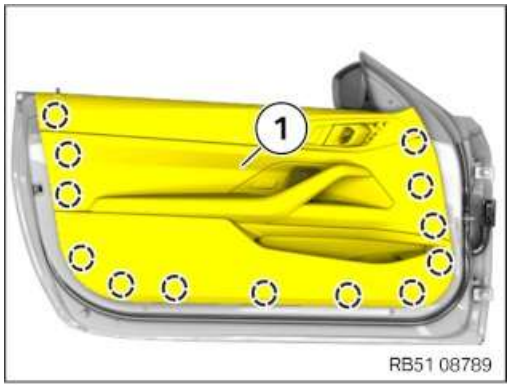


- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.

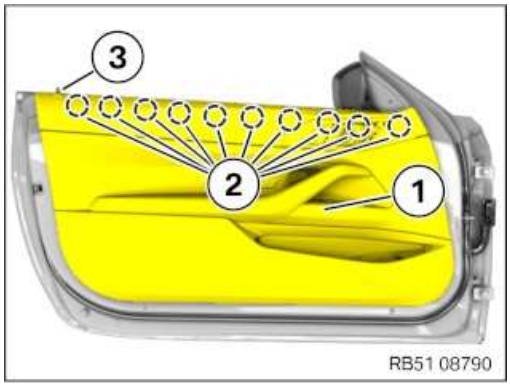


- Loosen screws (1).

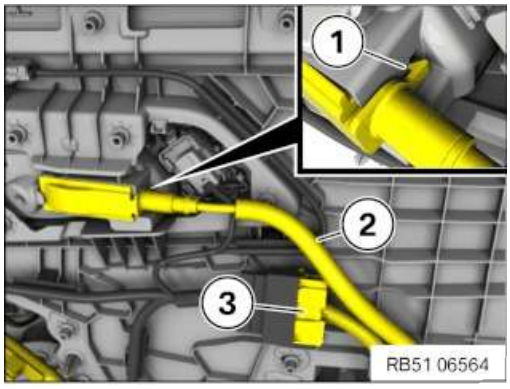
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- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



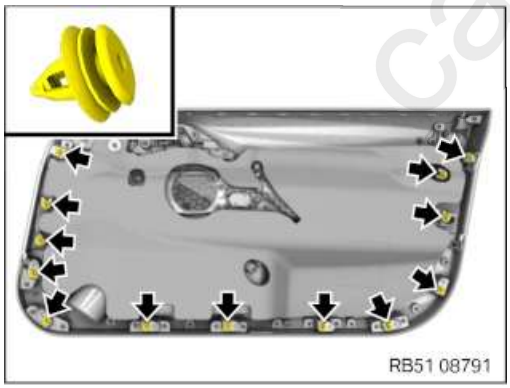
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

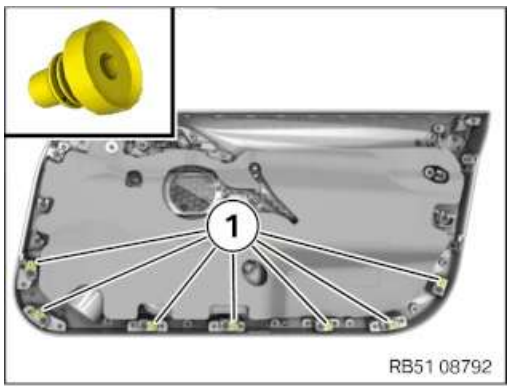
- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

2 – Install front door trim panel

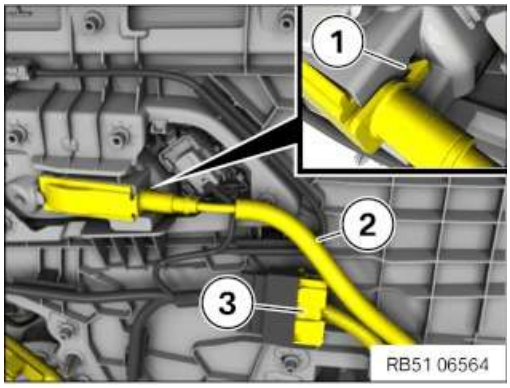


- Check clips (arrows) for damage and, if necessary, renew them.



- Check the stop pad (1) for damage, renew if necessary.

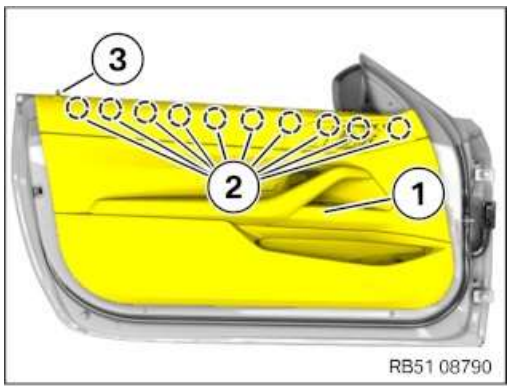
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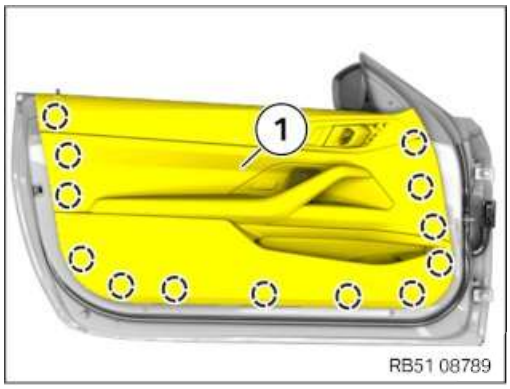
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

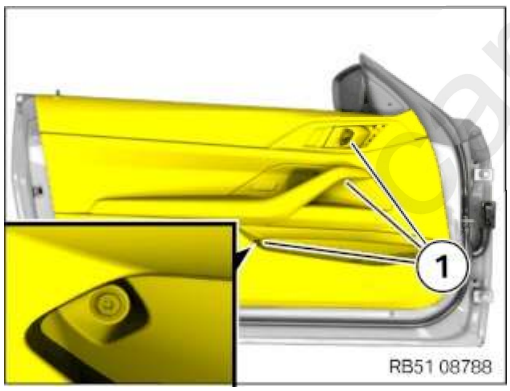
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

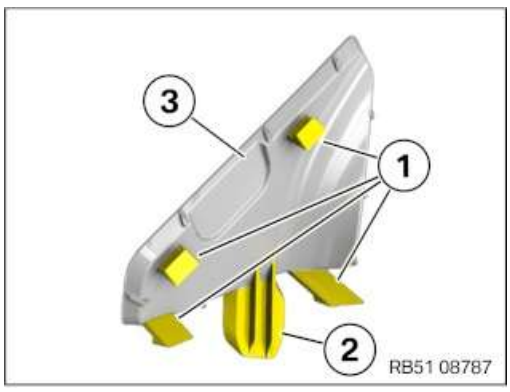


- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm

Check



- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

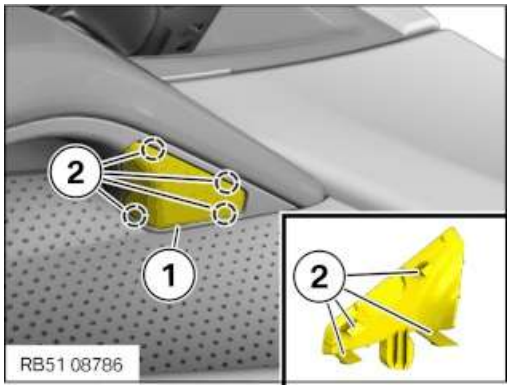
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Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

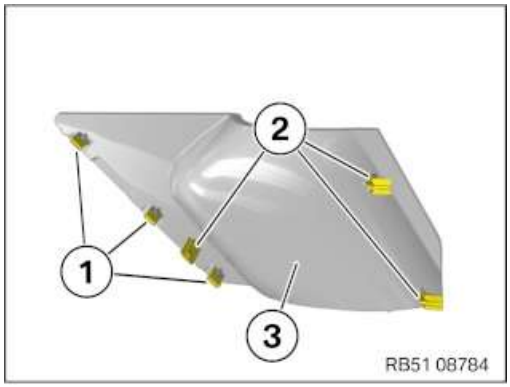
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.

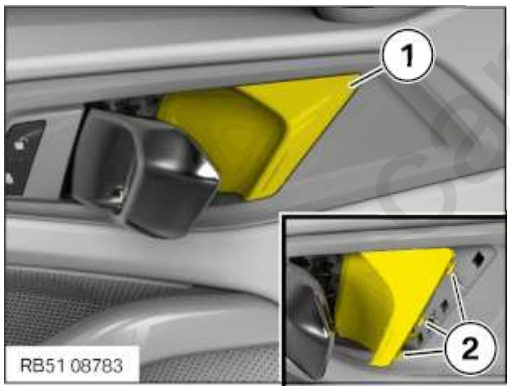


Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).



- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

Additional Information

Overview of Tightening Torques

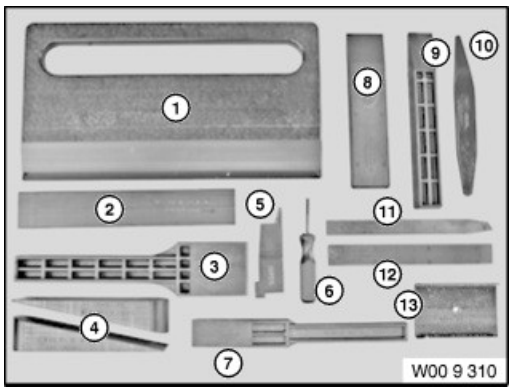
Door trim panel Used in step 2

Oval-head screw		Tightening torque	3 Nm

Overview of Special Tools

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0 493 752 (00 9 329) Case



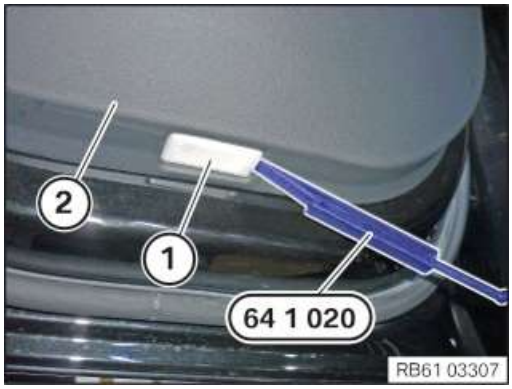
Common	Used in step 1
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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51 41 001 Replacing left or right front door trim panel

PRELIMINARY WORK

1 – Remove the entry door light in the front door trim panel



- Remove the door entry light (1) from the front door trim panel (2) using the special tool 0 493 681 (64 1 020).
- Disconnect the plug connection and remove the door entry light (1).

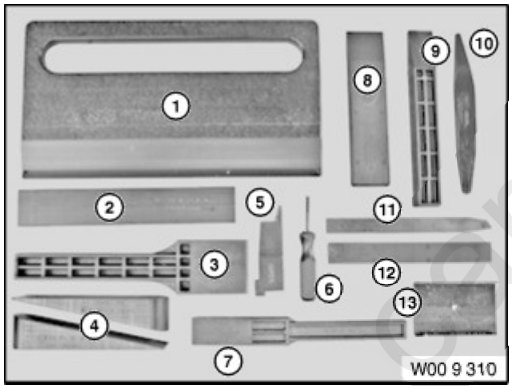
2 – Remove front door trim panel

RISK OF DAMAGE

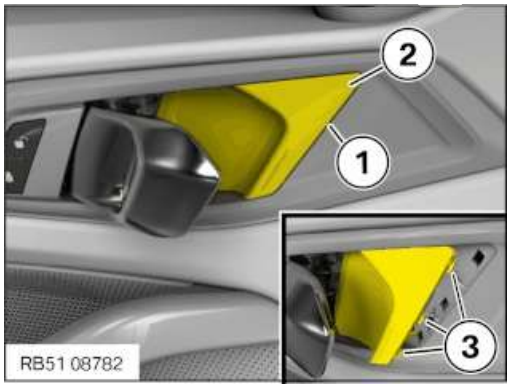
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

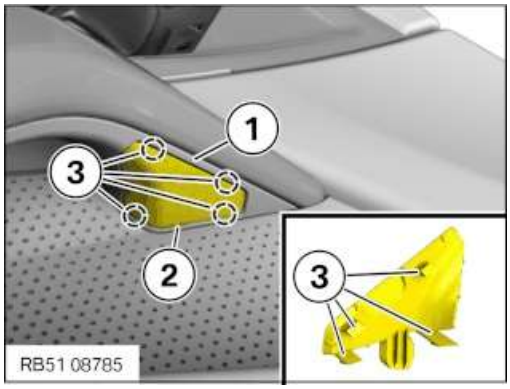


- Have the set of special tools 0 493 752 (00 9 329) ready.

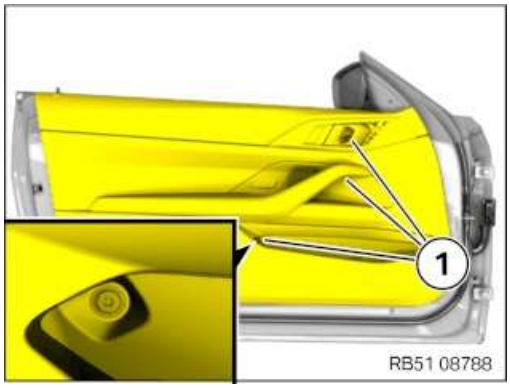


- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.

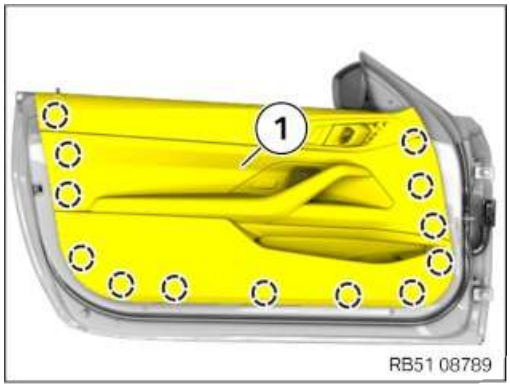
carsdiagn.com



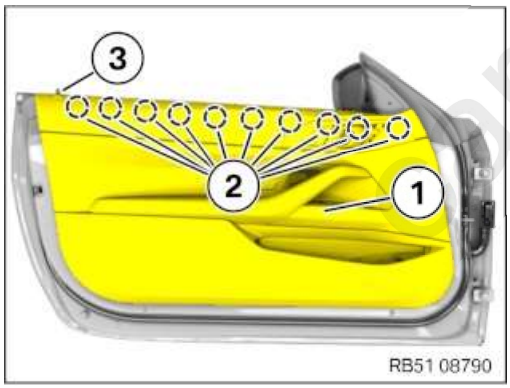
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.



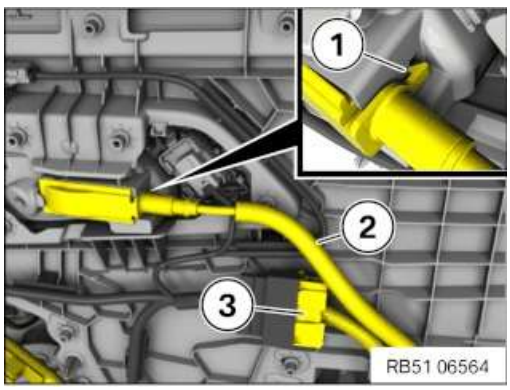
- Loosen screws (1).



- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



NOTICE

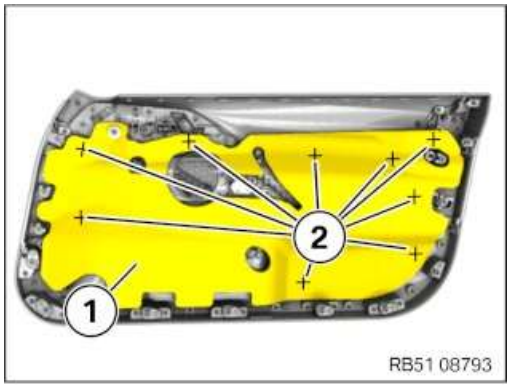
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

3 – Removing the sound insulation on the front door trim panel

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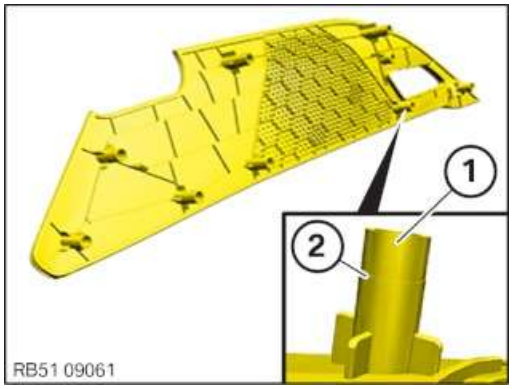


- Detach and remove the sound insulation from the front door trim panel (1) at the mountings (2) .

MAIN WORK

4 – Replacing the door trim panel

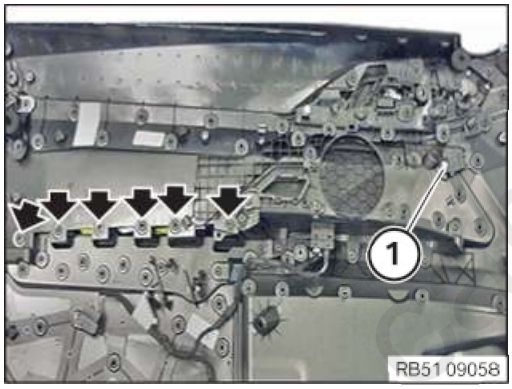
▸ **Removing the speaker cover on the door trim panel**



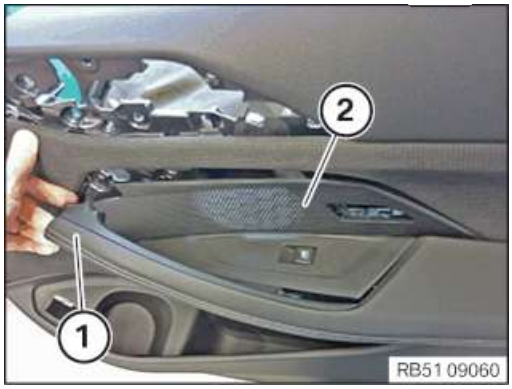
- Replace speaker cover.

  Parts: Speaker cover

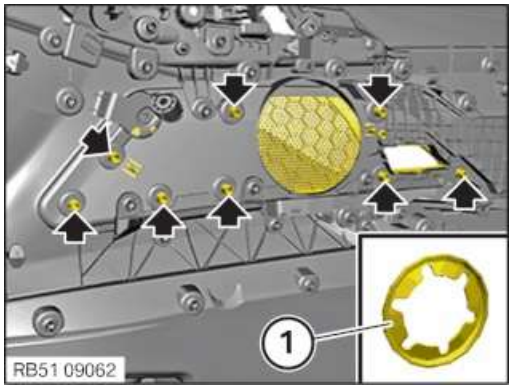
- Saw off all welding pins (1) along the moulding (2).



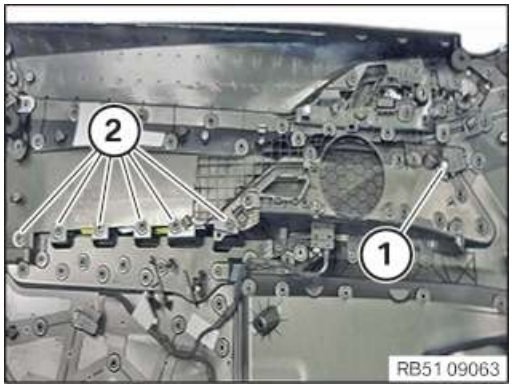
- Carefully spot-weld (arrows) and drill out with special tool 5 A3C D25.
- Release the screw (1).



- Pull the handle (1) off the door trim panel as shown and install the speaker cover (2).



- Secure all welding pins (arrows) with the lock washers (1).



- Position the handle correctly.
- Insert and tighten repair screws (2).

Repair screw to door trim panel

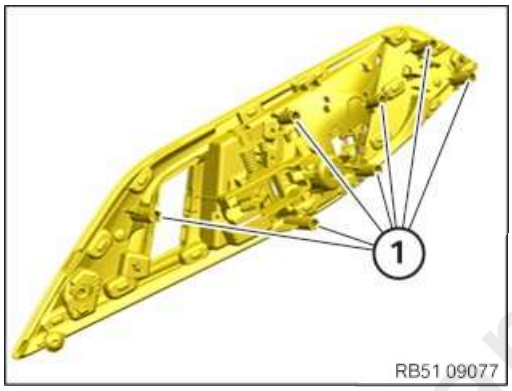
Oval-head screw M4x10		Tightening torque	2,0 Nm

- Tighten down screw (1).

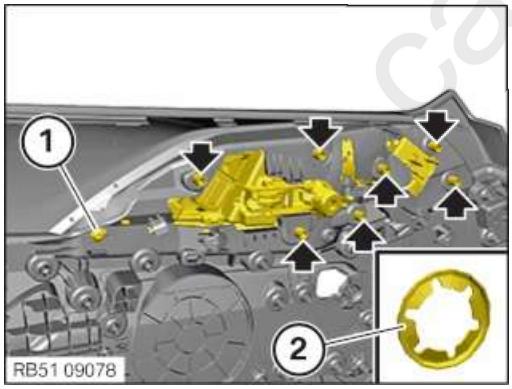
Handle on door trim panel

Oval-head screw		Tightening torque	2.0 Nm

▸ Installing the inner door opener



- Shorten all welding pins (1) by 6 mm.



- Remove welding remnants on door trim panel with a scalpel.
- Install the door handle in the door trim panel.
- Secure all welding pins (arrows) with the lock washers (2).
- Tighten down screw (1).

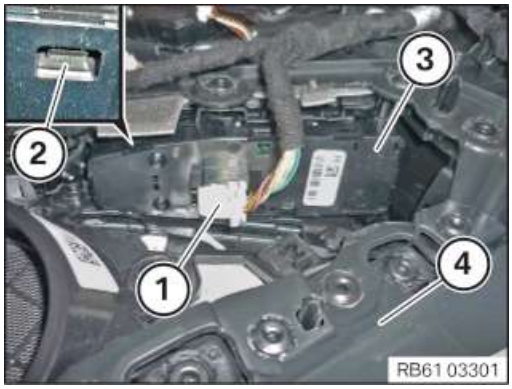
Inner door opener on door trim panel

Oval-head screw		Tightening torque	2.0 Nm

- Install the existing LED modules if necessary.

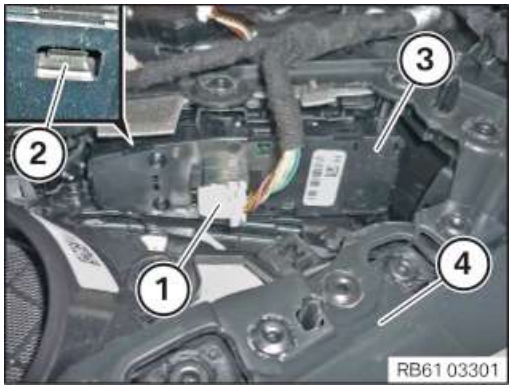
▸ Removing power window switch on the driver's side

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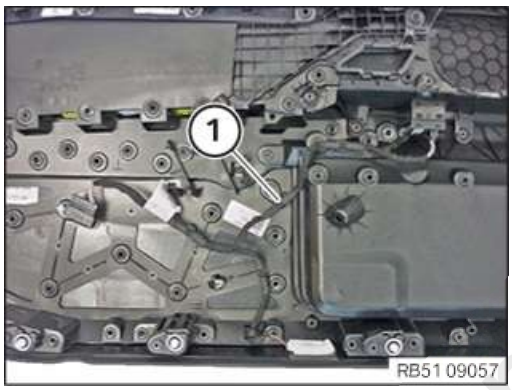


- Unlock plug connection (1) and disconnect.
- Release latch mechanisms (2) and remove the power window switch (3) from the door trim panel (4).

▸ **Install the power window switch on the driver's side**



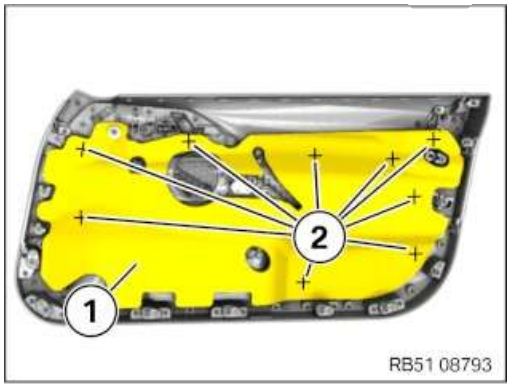
- Position the power window switch (3) on the door trim panel (4) and engage it in all latch mechanisms (2).
- Connect connectors (1) and lock.



- Remount door wiring harness (1).

POSTPROCESSES

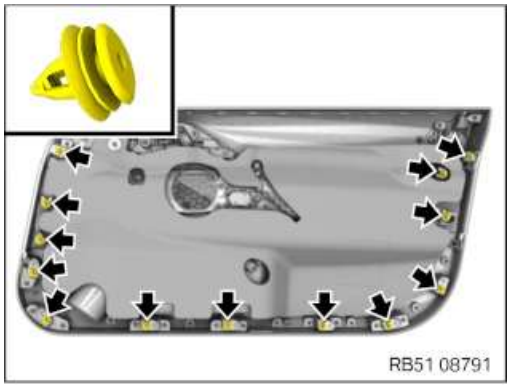
5 – Installing the sound insulation on front door trim panel



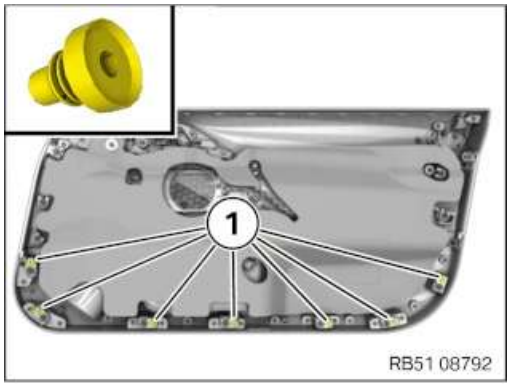
- Position the sound insulation on the front door trim panel (1) and attach to the mountings (2) .

6 – Install front door trim panel

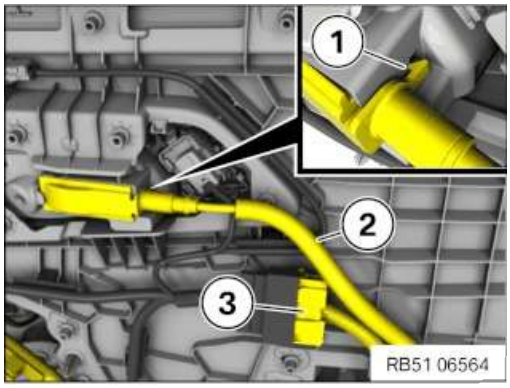
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- Check clips (arrows) for damage and, if necessary, renew them.



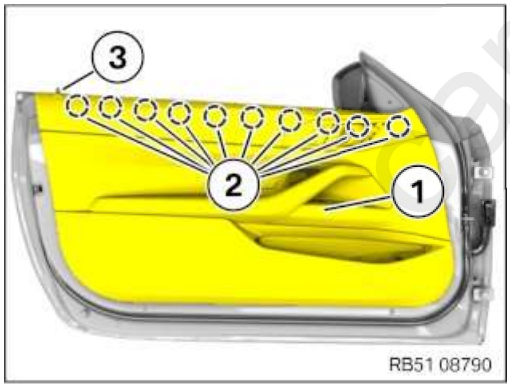
- Check the stop pad (1) for damage, renew if necessary.



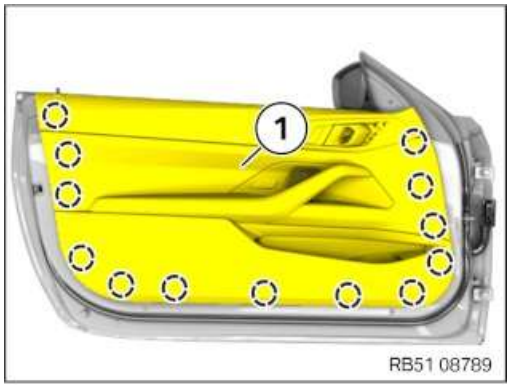
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

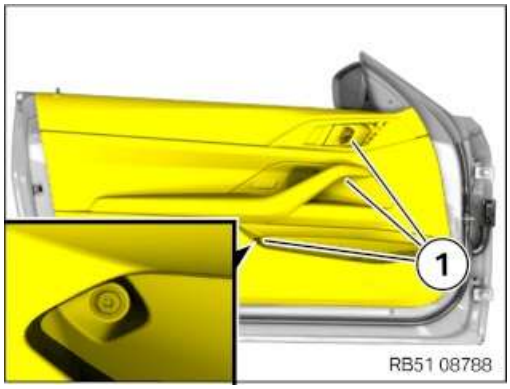
- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.



- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



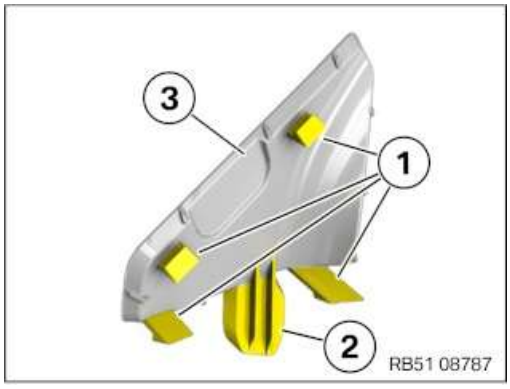
- Clip in the door trim panel (1) at the marked places.



- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm



Check

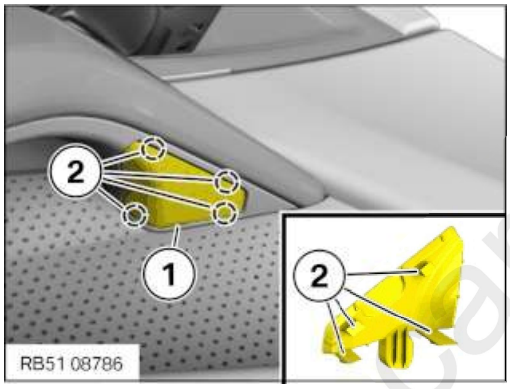
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

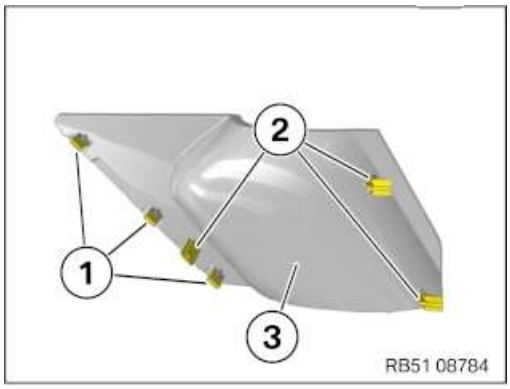
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.



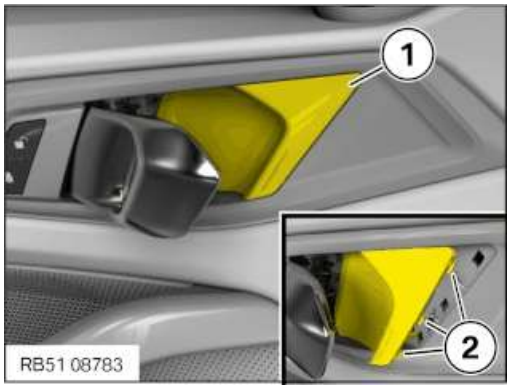
Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

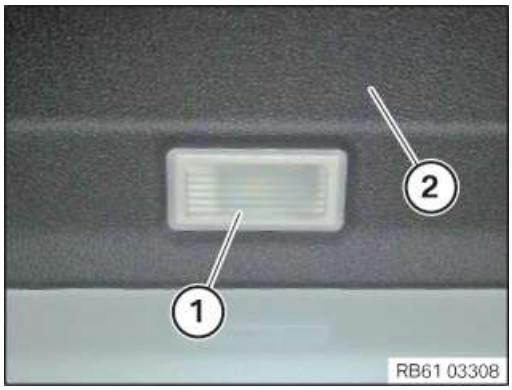
- Replace door handle cover (3).

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- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

7 – Installing the door entry light in the front door trim panel



- Connect the connector with the door entry light (1).
- Position the door entry light (1)and install it in the door trim panel (2).

Additional Information

Overview of Tightening Torques

Repair screw to door trim panel			Used in step 4
Oval-head screw M4x10		Tightening torque	2,0 Nm

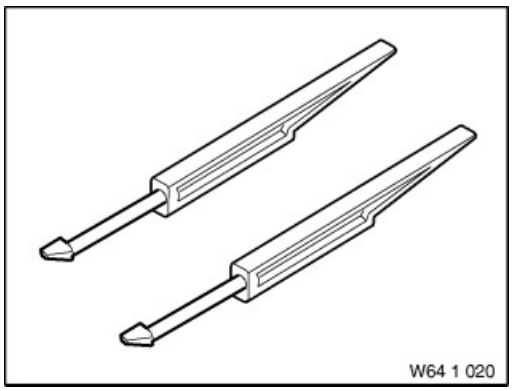
Handle on door trim panel			Used in step 4
Oval-head screw		Tightening torque	2.0 Nm

Inner door opener on door trim panel			Used in step 4
Oval-head screw		Tightening torque	2.0 Nm

Door trim panel			Used in step 6
Oval-head screw		Tightening torque	3 Nm

Overview of Special Tools

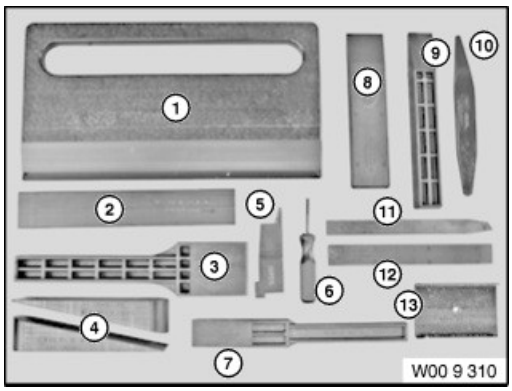
0 493 681 (64 1 020) Hook



Common	Used in step 1
Usage	(release hook) For releasing and removing fresh air grille. For removing various covers.
Included in the tool or work	
Storage location	C2
Replaced by	
In connection with	
SI-Number	01 15 99 (483)

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0 493 752 (00 9 329) Case



Common	Used in step 2
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

5 A3C D25 Milling cutter



Common	Used in step 4
Usage	Forstner bit Ø 15 mm for drilling out the welding pins, e.g. for door trim panels
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	01 03 21 (806)

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51 41 902 Replacing the speaker cover

PRELIMINARY WORK

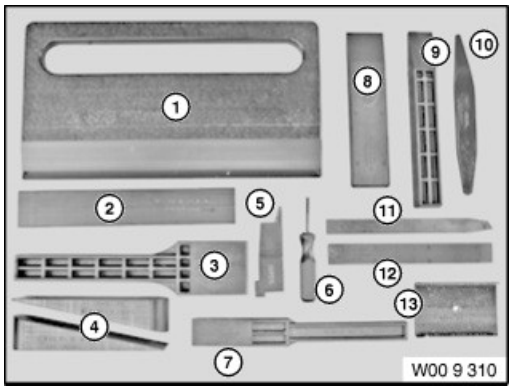
1 – Remove front door trim panel

RISK OF DAMAGE

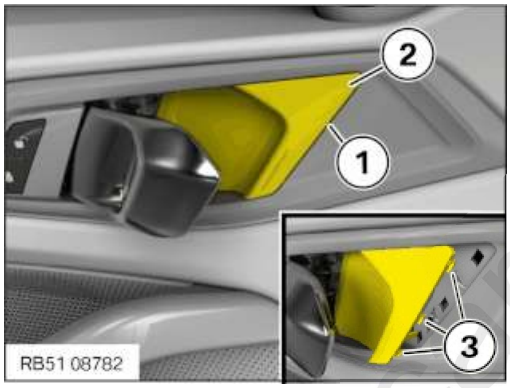
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

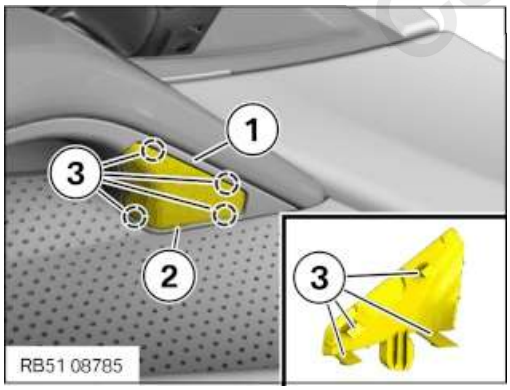
- Protect surfaces from damage.



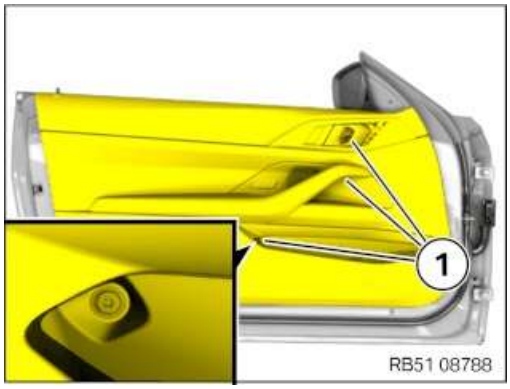
- Have the set of special tools 0 493 752 (00 9 329) ready.



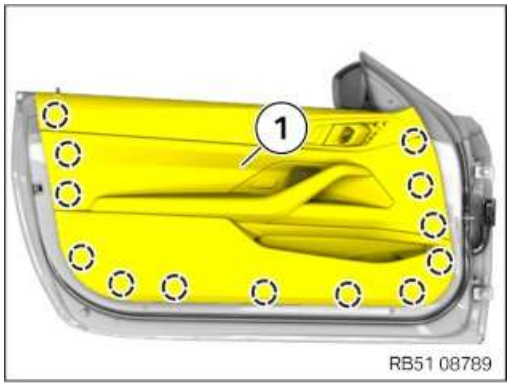
- Pull the door handle.
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover of the door handle (2) with the latch mechanisms (3).
- Feed out the cover of the door handle (2) from the latch mechanisms and remove it forwards.



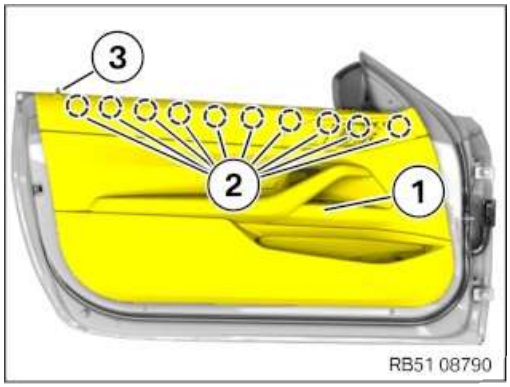
- Position suitable special tool on the recess in the area (1) .
- Unclip the cover (2) with the latch mechanisms (3) and remove it downwards.



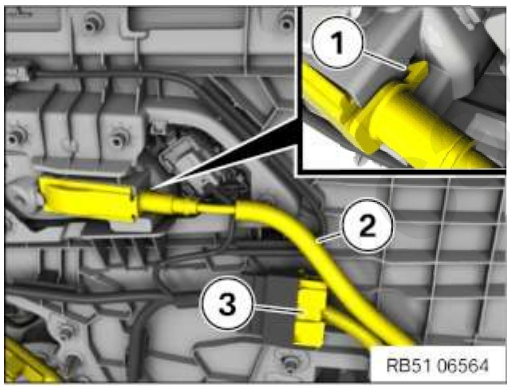
- Loosen screws (1).



- Unclip the door trim panel (1) with the suitable special tool at the marked places.



- Release the door trim panel (1) with the latch mechanisms (2).
- Lift the door trim panel (1) upwards over the operating rod (3).



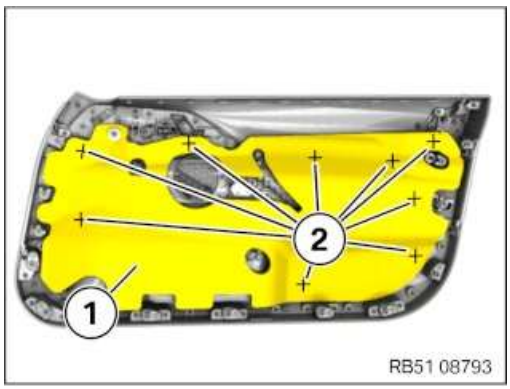
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Release the latch mechanism (1) and feed out the Bowden cable for the inner door handle (2).

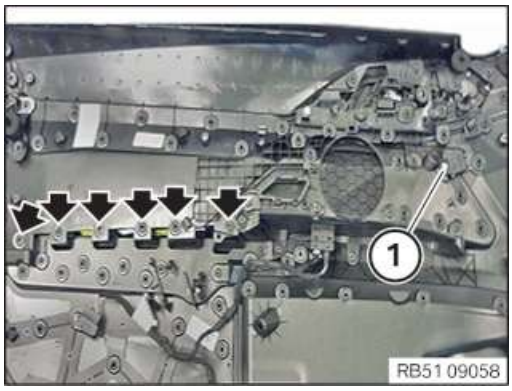
  While doing so, the Bowden cable for the inner door handle (2) is guided out independently from the door handle.
- Unlock the plug connection (3), disconnect and remove the door trim panel.

2 – Removing the sound insulation on the front door trim panel

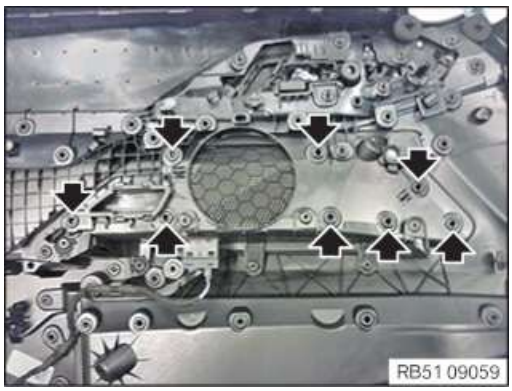


- Detach and remove the sound insulation from the front door trim panel (1) at the mountings (2) .

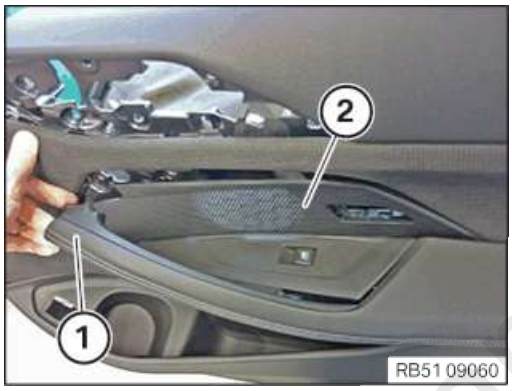
3 – Removing the speaker cover from the door trim panel



- Carefully drill out spot-welds (arrows) on the handle with the special tool 5 A3C D25.
- Release screw (1) on handle.

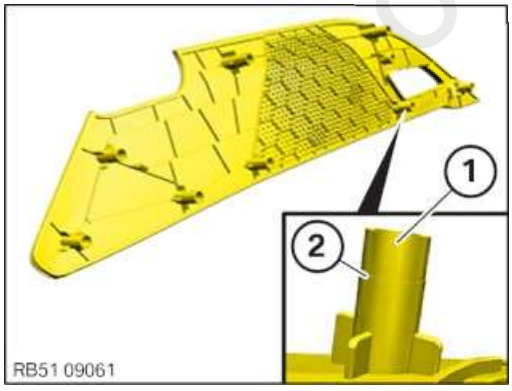


- Carefully drill out spot-welds (arrows) with the special tool 5 A3C D25.



- Pull the handle (1) away from the door trim panel and remove the speaker cover (2).

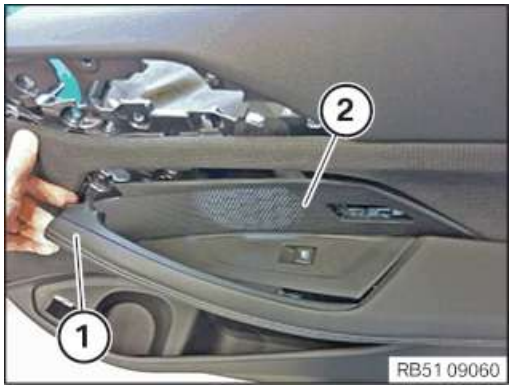
4 – Install the speaker cover on the door trim panel



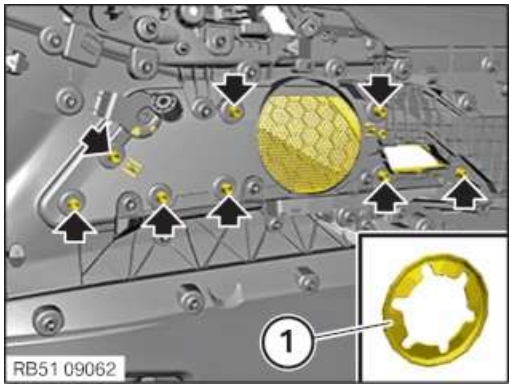
- Renew the speaker cover.

  Parts: Speaker cover
- Saw off all welding pins (1) along the moulding (2).

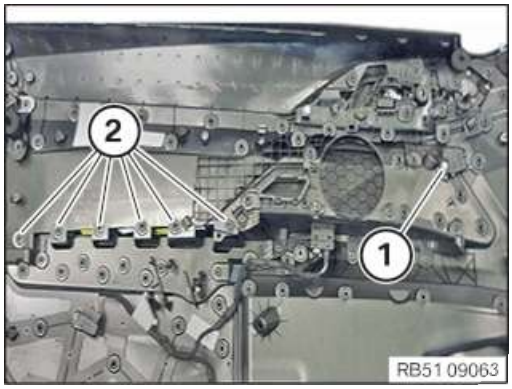
cardiagn.com



- Pull the handle slightly away (1)from the door trim panel as shown and install the speaker cover (2).



- Fasten all welding pins (arrows) with the lock washers (1).



- Position the handle correctly.
- Insert and tighten the repair screws (2).

Repair screw to door trim panel

Oval-head screw M4x10		Tightening torque	2,0 Nm

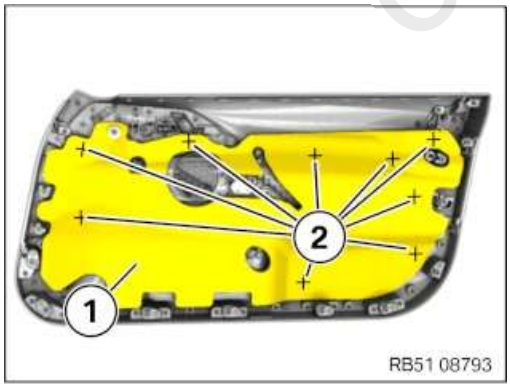
- Tighten down screw (1).

Handle on door trim panel

Oval-head screw		Tightening torque	2.0 Nm

POSTPROCESSES

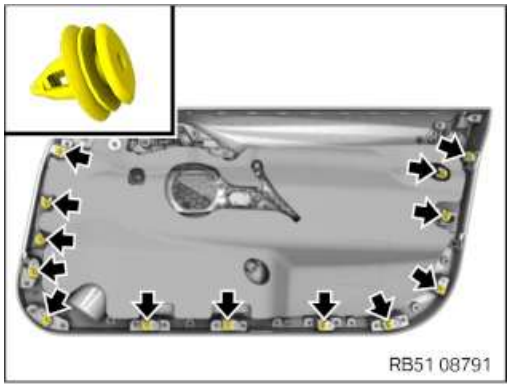
5 – Installing the sound insulation on front door trim panel



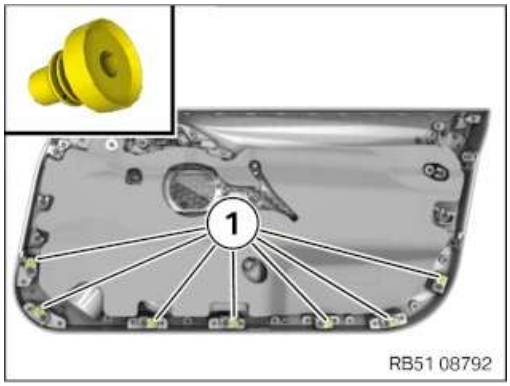
- Position the sound insulation on the front door trim panel (1) and attach to the mountings (2) .

6 – Install front door trim panel

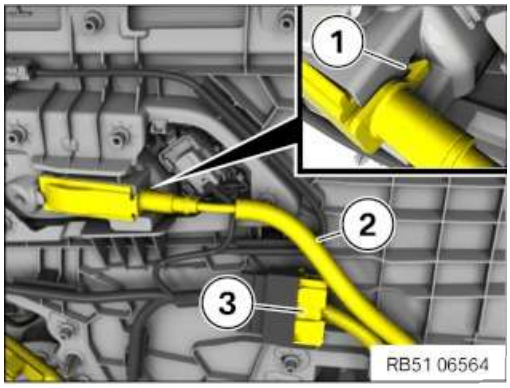
cardiagn.com



- Check clips (arrows) for damage and, if necessary, renew them.



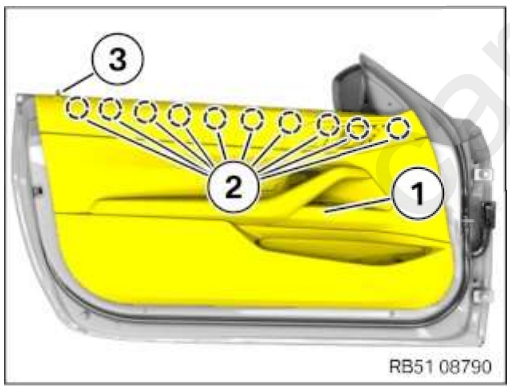
- Check the stop pad (1) for damage, renew if necessary.



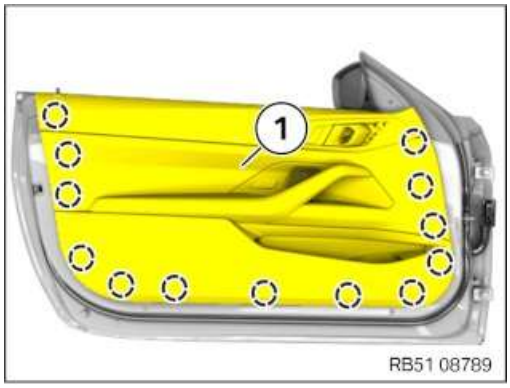
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Push the inner door opener in closed direction.
- Insert the Bowden cable for the door handle inside (2) and clip it in with the latch mechanism (1) .
- Connect connectors (3) and lock.

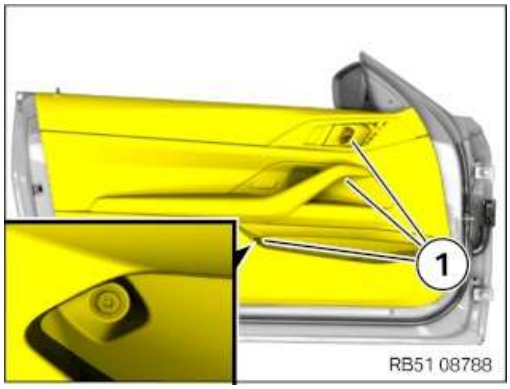


- Insert the front door trim panel (1) from the top over the operating rod (3) and clip it in with the latch mechanisms (2) .



- Clip in the door trim panel (1) at the marked places.

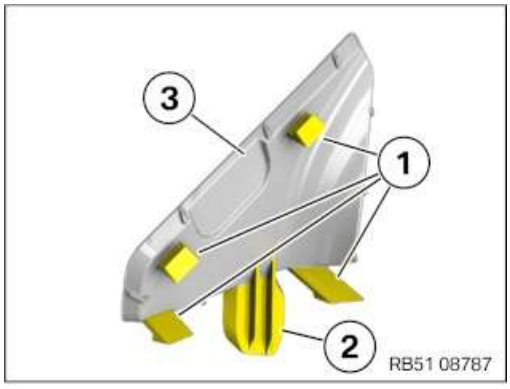
carmanual.com



- Tighten the screws (1).

Door trim panel

Oval-head screw		Tightening torque	3 Nm



Check

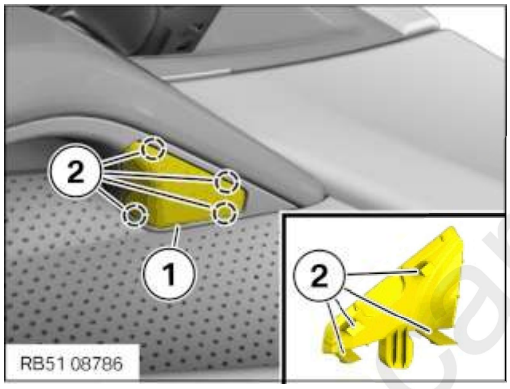
- Check the latch mechanisms (1) and the guide (2) at the cover (3) for damage.

Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

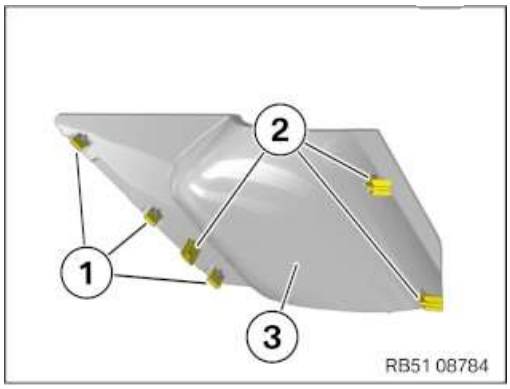
- Replace the cover (3).



- Position the cover (1) and clip it in with the latch mechanisms (2) .

Check

- Check the latch mechanisms (1) and the guides (2) at the cover of the door handle (3) for door handle.



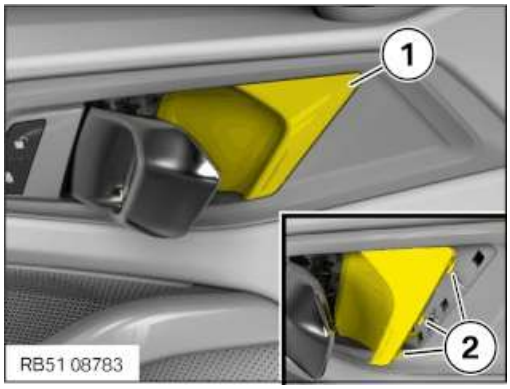
Result

» The latch mechanisms (1) or the guides (2) are damaged.

Measure

- Replace door handle cover (3).

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- Pull the door handle.
- Insert the cover of the door handle (1) with the guides and clip it in with the latch mechanisms (2) .

Additional Information

Overview of Tightening Torques

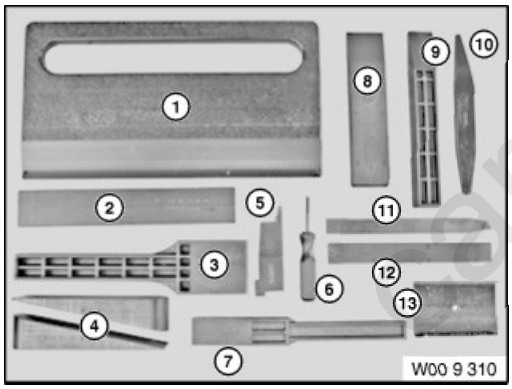
Repair screw to door trim panel			Used in step 4
Oval-head screw M4x10		Tightening torque	2,0 Nm

Handle on door trim panel			Used in step 4
Oval-head screw		Tightening torque	2.0 Nm

Door trim panel			Used in step 6
Oval-head screw		Tightening torque	3 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 1
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

carmagn.com

5 A3C D25 Milling cutter



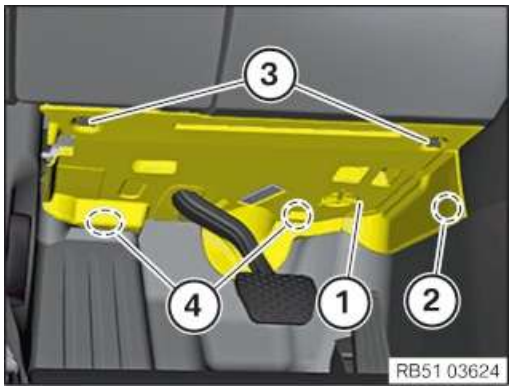
Common	Used in step 3
Usage	Forstner bit Ø 15 mm for drilling out the welding pins, e.g. for door trim panels
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	01 03 21 (806)

cardiagn.com

51 43 070 Remove and install/replace side trim panel, footwell, on A-pillar, left

cardiagn.com

1 – Removing the trim panel for pedal mechanism



- Unclip the trim panel for the pedal mechanism (1) towards the inside in this area (2).
- Turn the locks (3) by 90°.
- Detach the trim panel for the pedal mechanism (1) inwards out of the guides (4).
- Unlock associated plug connection and disconnect.

2 – Removing the inner door sill cover strip

RISK OF DAMAGE

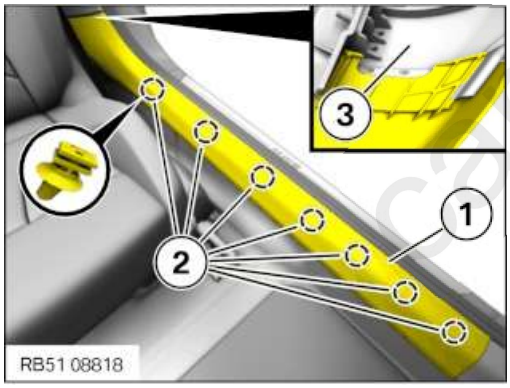
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

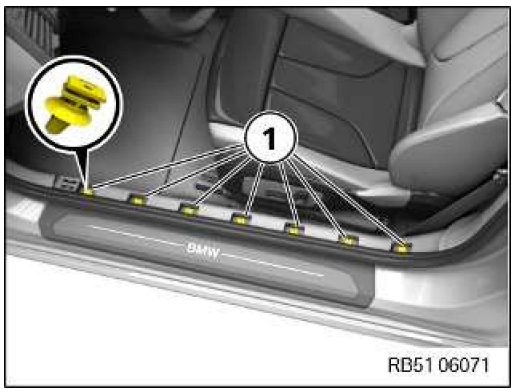
- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

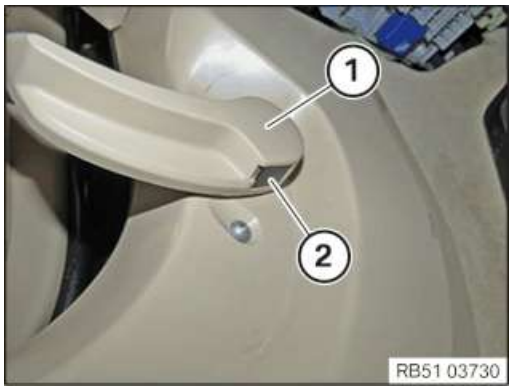


- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

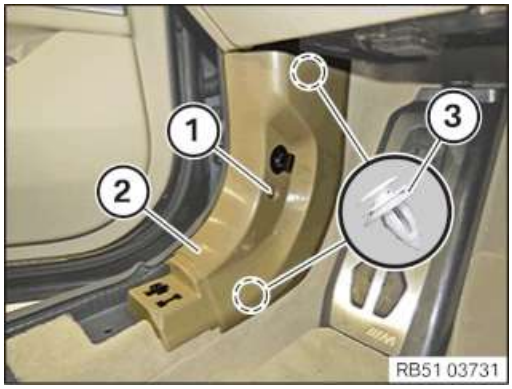


- If necessary, remove clips (1) and connect them to the door sill cover strip.

3 – Remove the side trim panel in the footwell at the left A-pillar

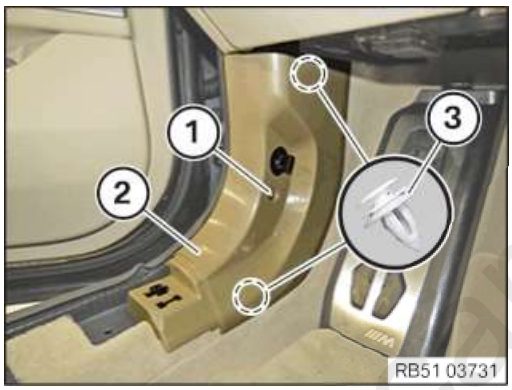


- Pull bonnet release lever (1) towards the rear.
- Lever out the locking wedge (2).
- Remove the bonnet release lever (1) inward.



- Loosen screw (1).
- Loosen the side trim panel (2) at the clips (3) and remove it toward the inside.

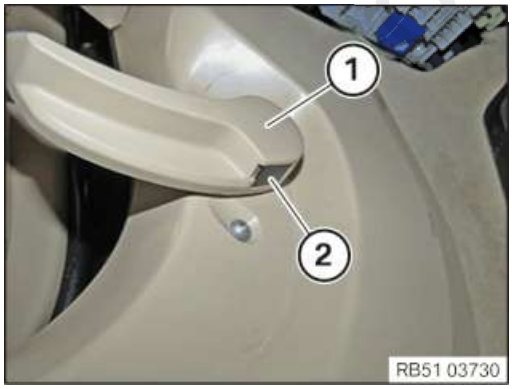
4 – Install the side trim panel in the footwell at the left A-pillar



- Check the clips (3) for damage and renew if necessary.
- Position the side trim panel (2) and engage it in the clips (3).
- Make sure that the side trim panel (2) is correctly fitted against edge protection.
- Tighten down screw (1).

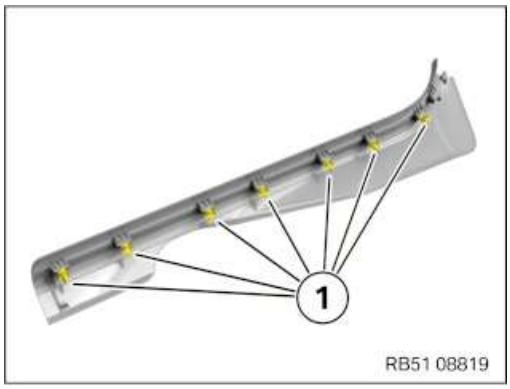
A-pillar footwell side trim panel

Screw		Tightening torque	2,5 Nm



- Install bonnet release lever (1).
- Pull bonnet release lever (1) towards the rear.
- Install locking wedge (2).

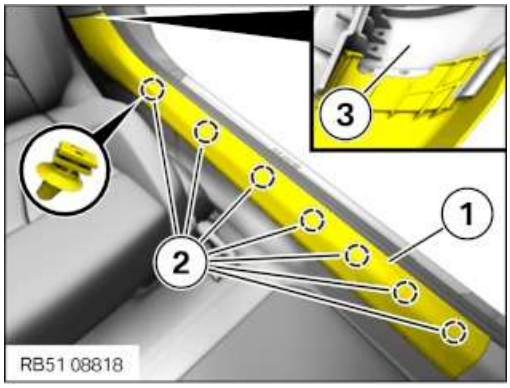
5 – Installing the inner door sill cover strip



NOTICE

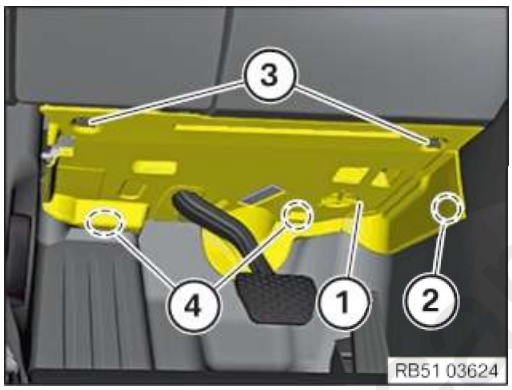
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

6 – Installing the trim panel for the pedal mechanism



- Connect associated connector.
- Attach the trim panel for the pedal mechanism (1) in the guides (4) and fold it up.
- Clip the trim panel for the pedal mechanism (1) into the centre console in this area (2).

TECHNICAL INFORMATION

It is **imperative** that the screws caps of the trim panel be correctly locked. This is the only way to ensure that the trim panel does not come loose and potentially tilt into the pedal area.

- Insert screw caps (3) correctly and turn by 90° to lock.

Additional Information

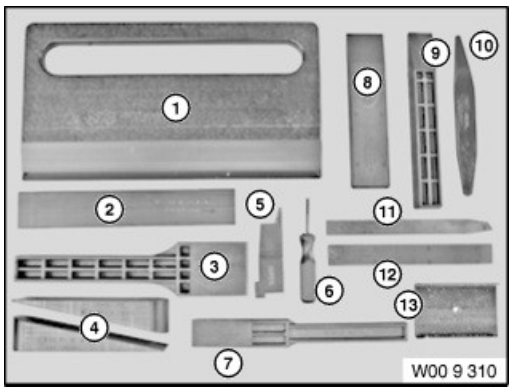
Overview of Tightening Torques

A-pillar footwell side trim panel — Used in step 4

Screw		Tightening torque	2,5 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



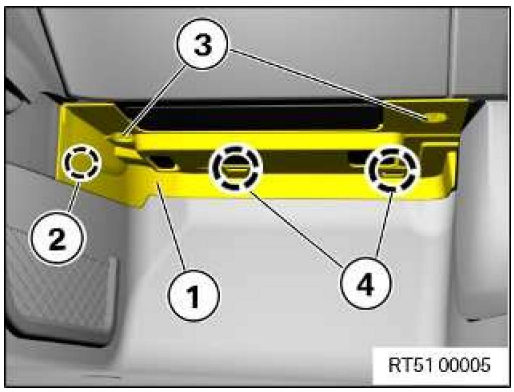
Common	Used in step 2
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

cardiagn.com

51 43 075 Remove and install/replace side trim panel, footwell, on A-pillar, right

PRELIMINARY WORK

1 – Remove the right footwell trim



- Turn the locks (3) by 90°.
- Feed the footwell trim (1) out of the guide (2).
- Detach the footwell trim (1) inward out of the guides (4).
- Unlock associated plug connection and disconnect.

2 – Removing inner right door sill cover strip

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the inner door sill cover strip**

RISK OF DAMAGE

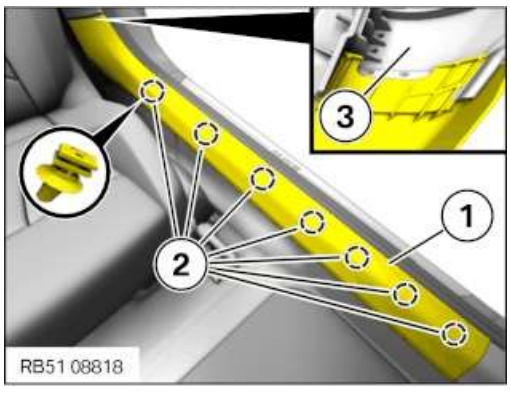
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

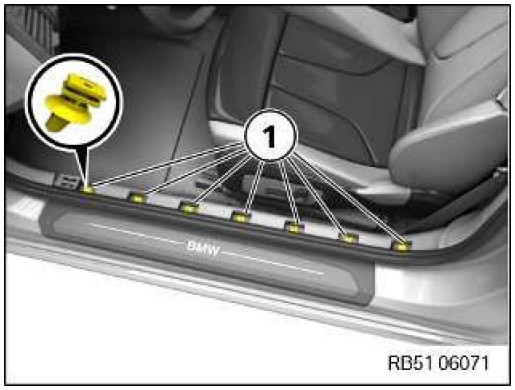
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

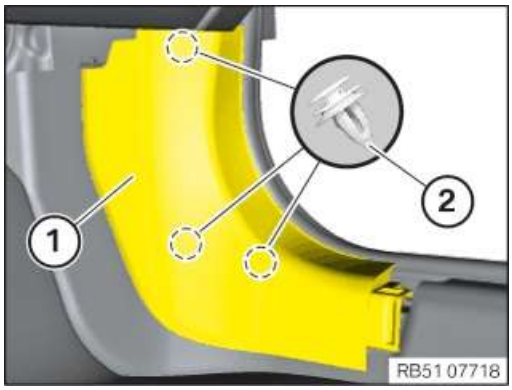
cardiagn.com



- If necessary, remove clips (1) and connect them to the door sill cover strip.

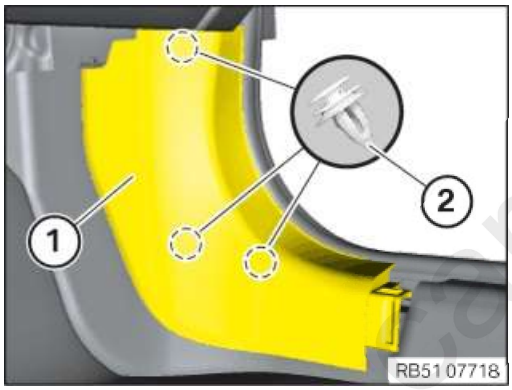
MAIN WORK

3 – Removing the side trim panel in the footwell at the right-hand A-pillar



- Loosen the side trim panel (1) at the clips (2) and remove it toward the inside.

4 – Installing side trim panel in footwell on right A-pillar



- Check the clips (2) for damage.

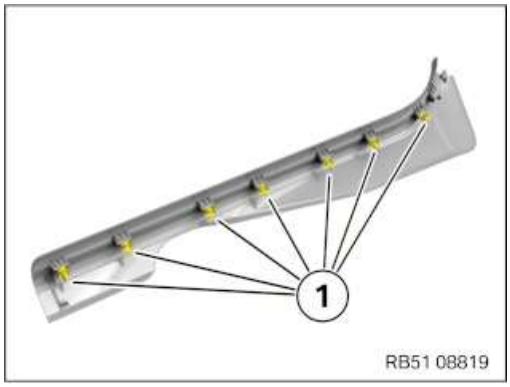
  Renew damaged or missing clips (2).
- Correctly position the side trim panel (1) and clip in to the clips (2).
- Make sure that the side trim panel (1) is correctly fitted against edge protection.

5 – Installing inner right door sill cover strip

NOTICE

Description is for left component only. Procedure on the right side is identical.

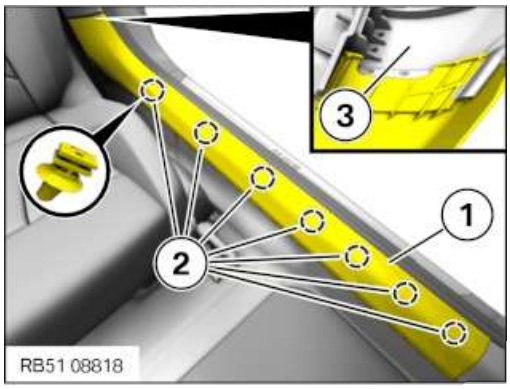
▸ **Installing the inner door sill cover strip**



NOTICE

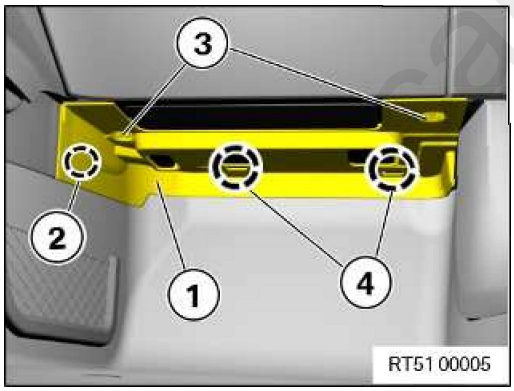
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

6 – Install the right footwell trim panel

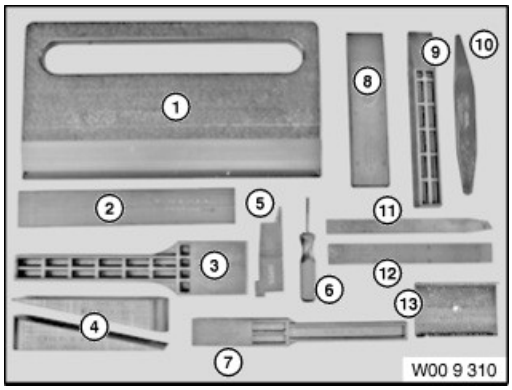


- Connect associated connector.
- Attach the footwell trim (1) to the guides (4) and fold up.
- Guide the footwell trim (1) into the guide (2) of the centre console.
- Position the locks (3) correctly and turn by 90°.

Additional Information

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 2
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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51 43 201 Removing and installing or replacing trim for front left or right roof pillar

NOTICE

Description is for left component only. Procedure on the right side is identical.

1 – Remove the A-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

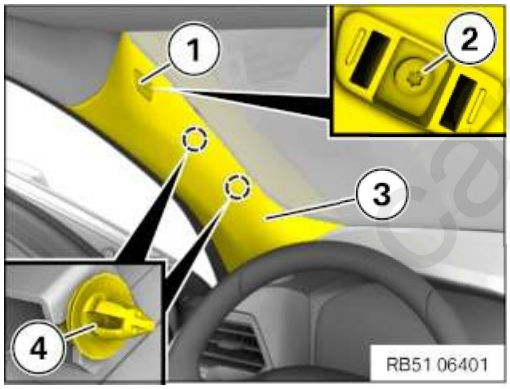
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

2 – Installing the A-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

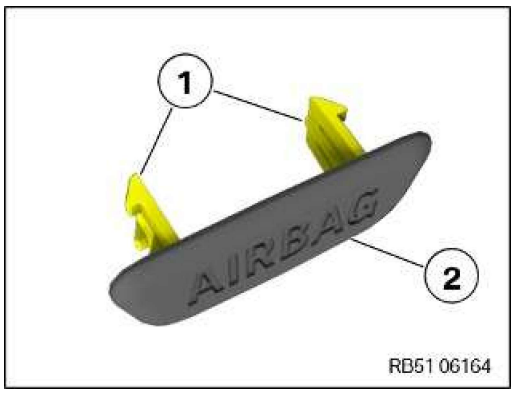
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



Check

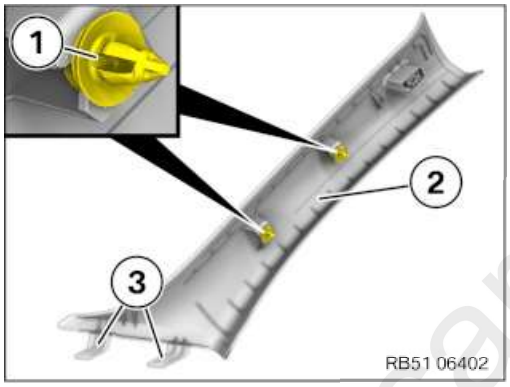
- Check retaining lugs (1) of cover (2) for damage.

Result

» Retaining lug is damaged.

Measure

- Renew the cover.



Check

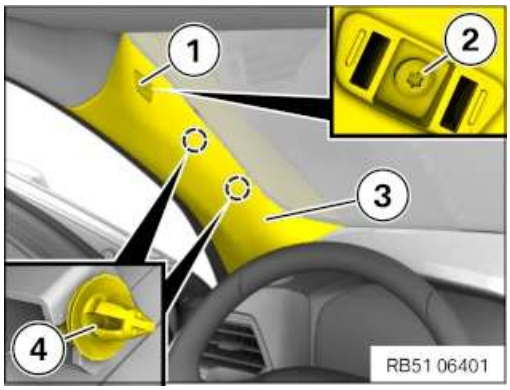
- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.



- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

- Clip in the cover (1).

Additional Information

Overview of Tightening Torques

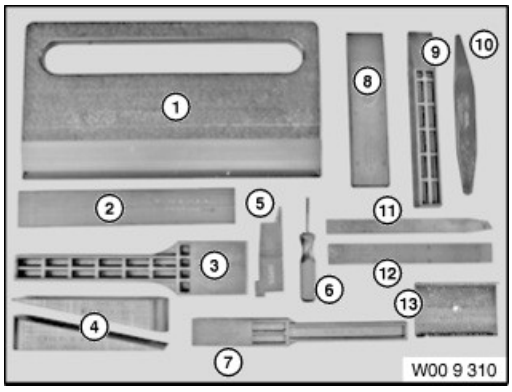
cardiagn.com

A-pillar trim panel to body Used in step 2

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common Used in step 1

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	1
72 00 ... Safety regulations for handling components with gas generators	1

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51 43 251 Removing and installing or replacing trim panel from rear left or right roof pillar

NOTICE

Description is for left component only. Procedure on the right side is identical.

1 – Remove C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

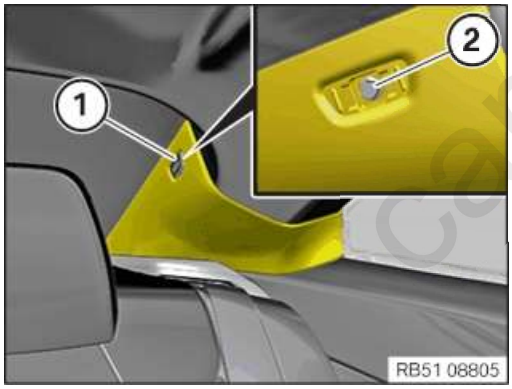
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

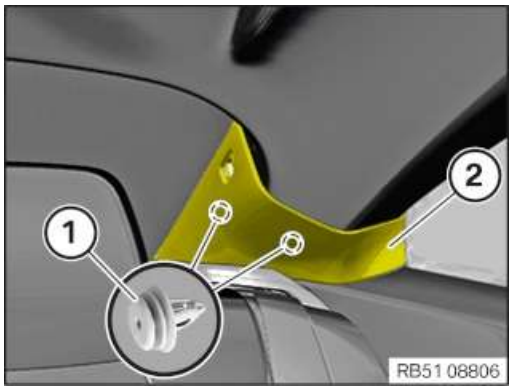
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

2 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

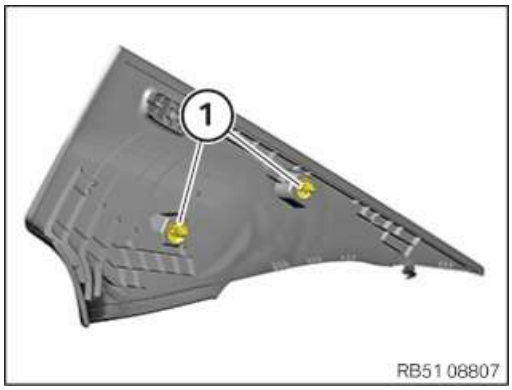
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

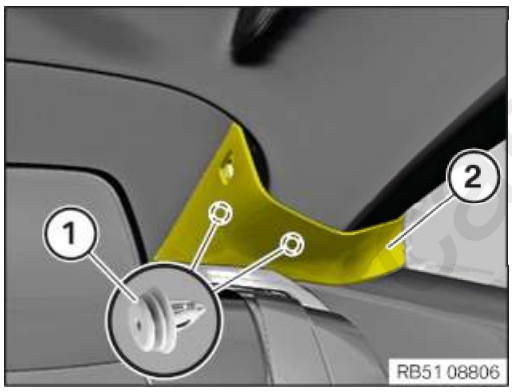
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

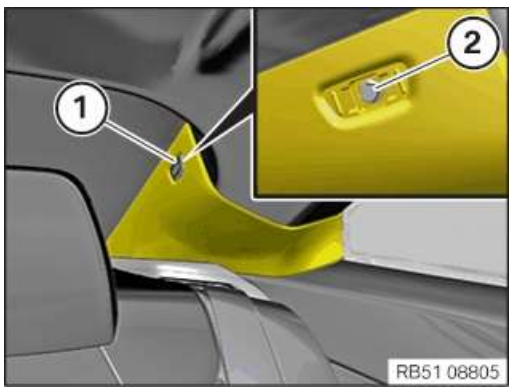
- Do not use sharp-edged tools when removing the trim panel.



- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

Additional Information

Overview of Tightening Torques

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C-pillar trim panel to body			Used in step 2
Screw		Tightening torque	2,6 Nm

Links

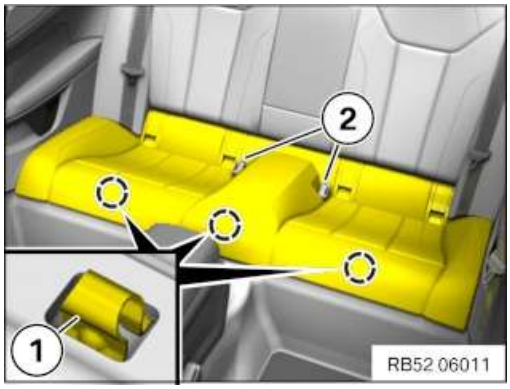
General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	

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51 43 002 Removing and installing rear left or right side trim panel

PRELIMINARY WORK

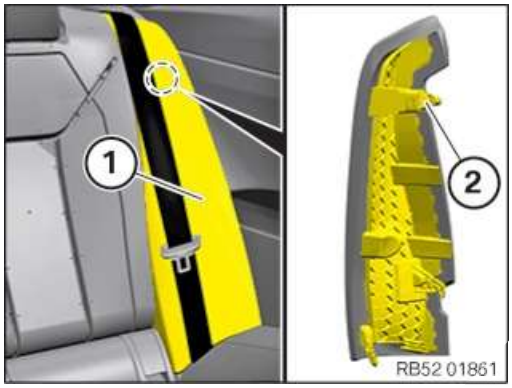
1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

2 – Remove armrest side section

▸ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

3 – Remove C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

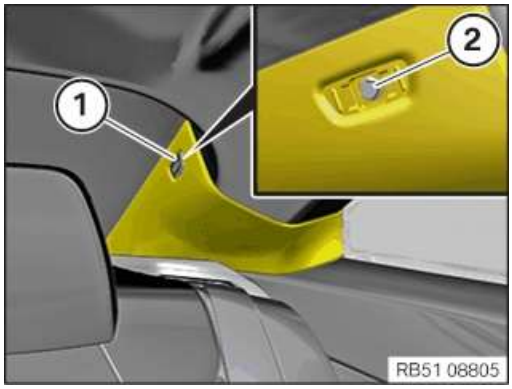
RISK OF DAMAGE

Damage to the head airbag.

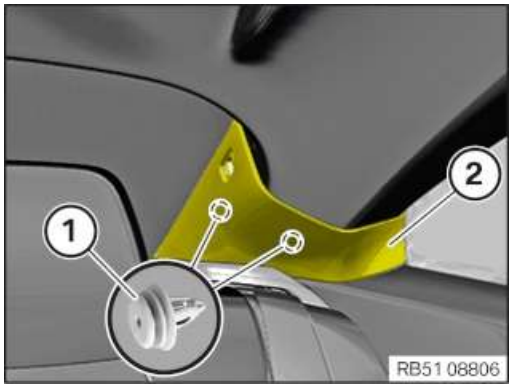
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

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- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

4 – Removing the inner door sill cover strip

RISK OF DAMAGE

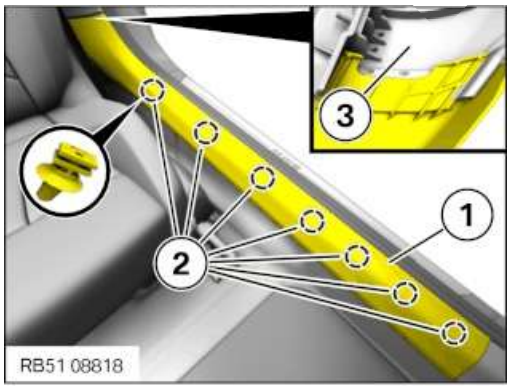
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

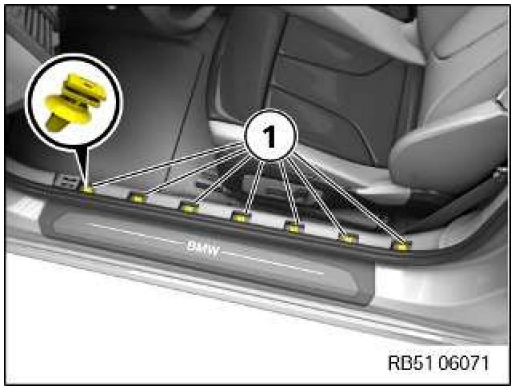
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

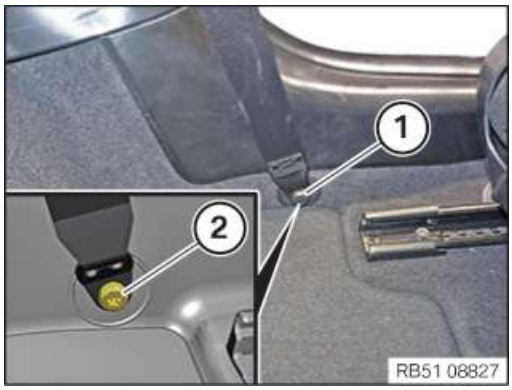
cardiagn.com



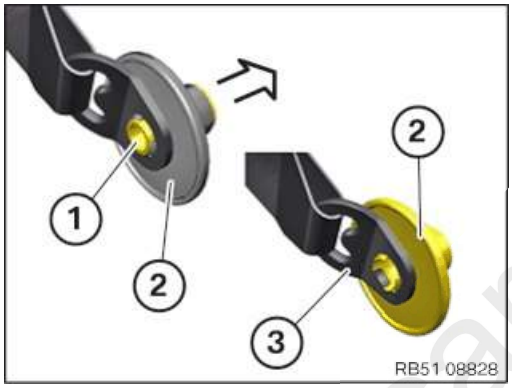
- If necessary, remove clips (1) and connect them to the door sill cover strip.

MAIN WORK

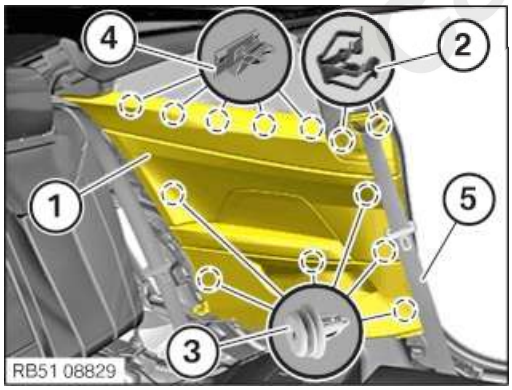
5 – Remove rear side trim panel



- Unclip the cover cap (1).
- Release the screw (2).



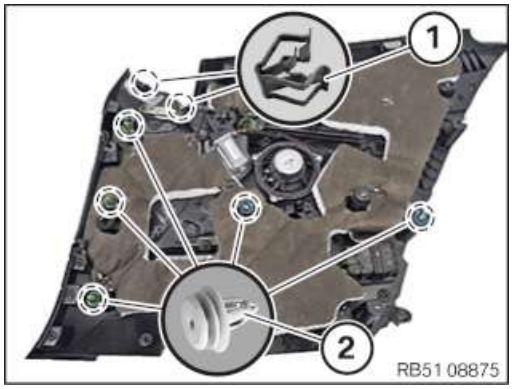
- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



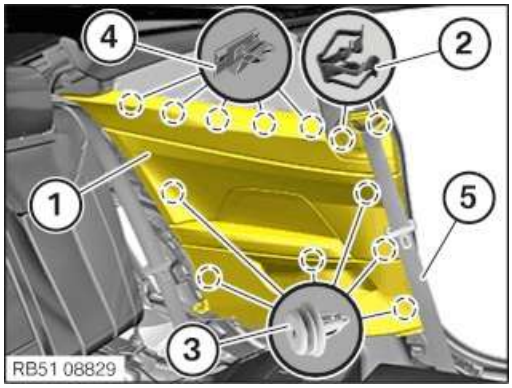
- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

6 – Install rear side trim panel

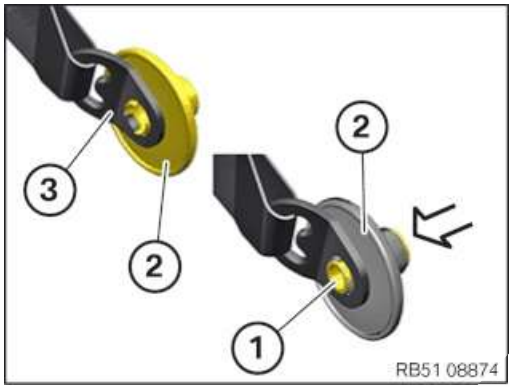
cardiagn.com



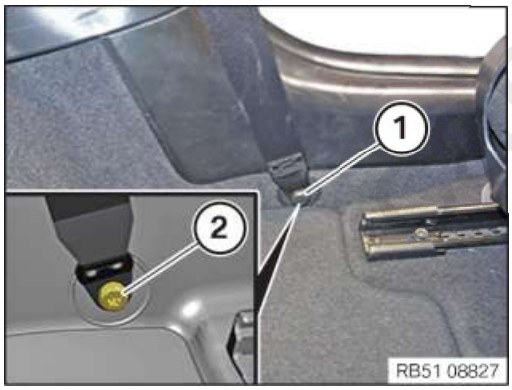
- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.



- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).



- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

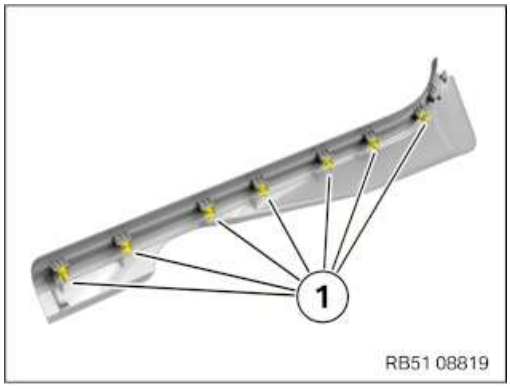
M10		Tightening torque	42 Nm

- Clip in cover cap (1).

POSTPROCESSES

7 – Installing the inner door sill cover strip

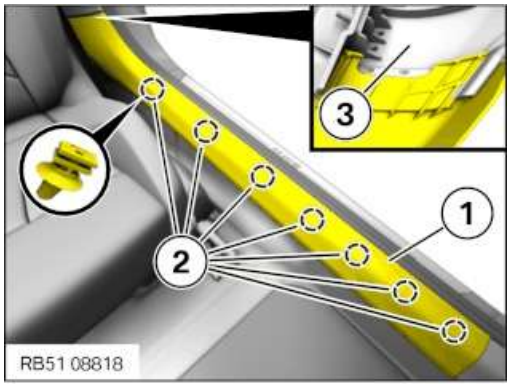
rdiagn.com



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

8 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

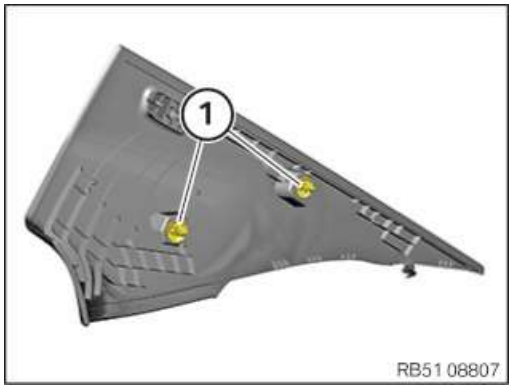
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

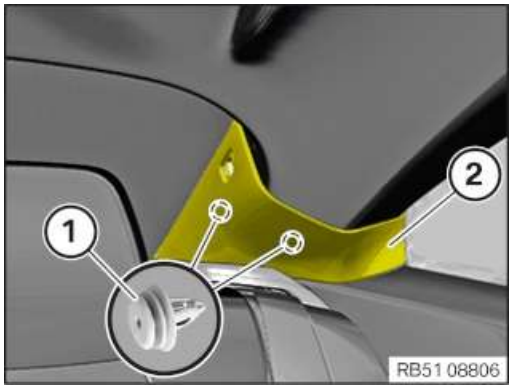
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

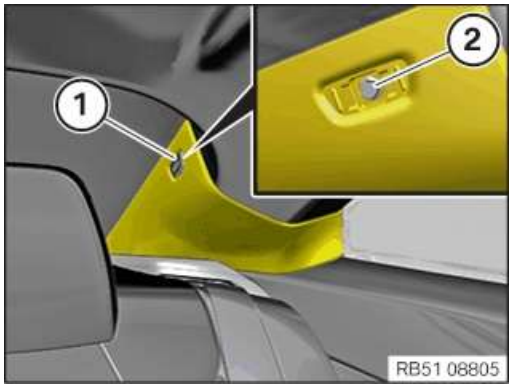


- Check clips (1) for damage and, if necessary, renew them.

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- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

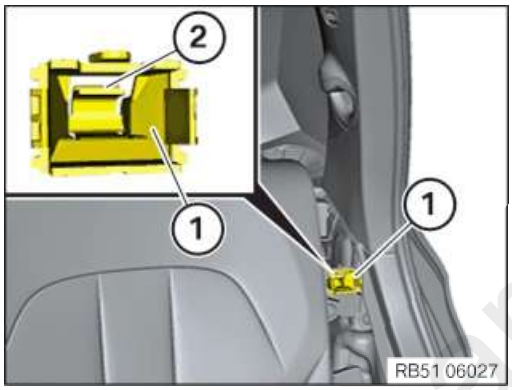
C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

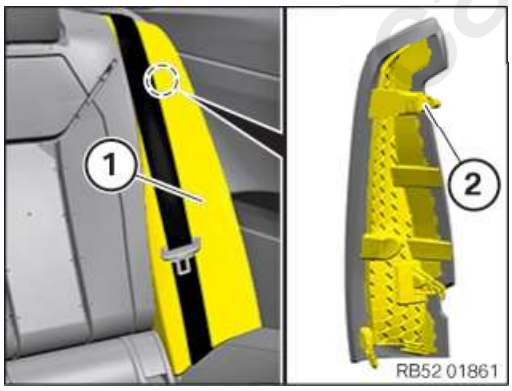
9 – Installing backrest side section

▶ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

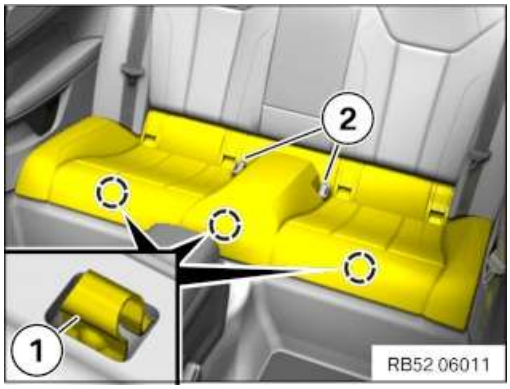
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

10 – Installing the rear seat bench

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- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

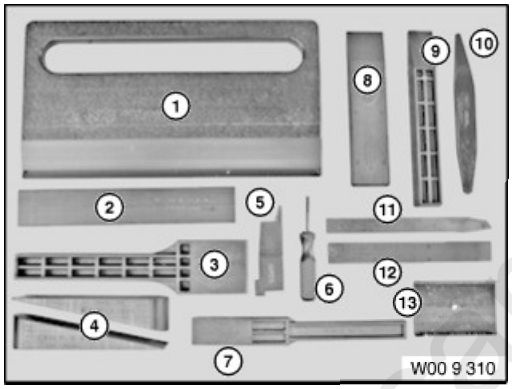
Overview of Tightening Torques

End fitting to body			Used in step 6
M10		Tightening torque	42 Nm

C-pillar trim panel to body			Used in step 8
Screw		Tightening torque	2,6 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 4
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	29

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	29

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29

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61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	29
61 20 900 Disconnecting and connecting battery earth lead	29
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61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29

cardiagn.com

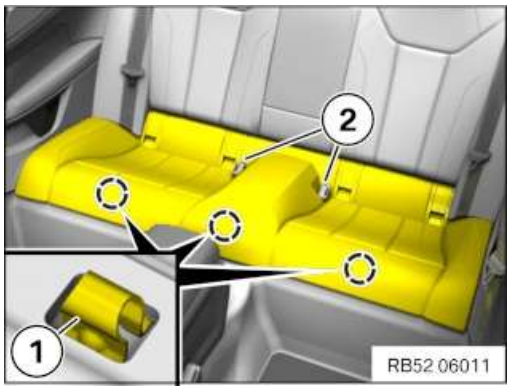
51 43 060 Removing and installing/replacing armrest on rear left or right side trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

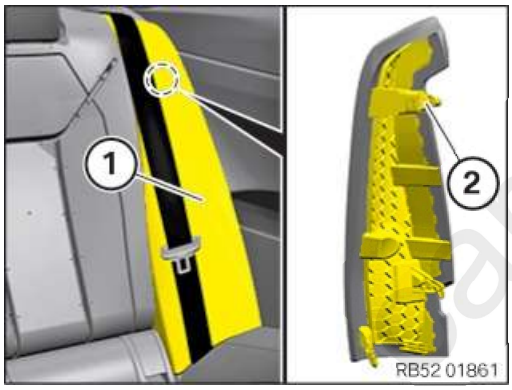
PRELIMINARY WORK

1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

2 – Remove armrest side section



▸ **Remove armrest side section**

- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

3 – Remove C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

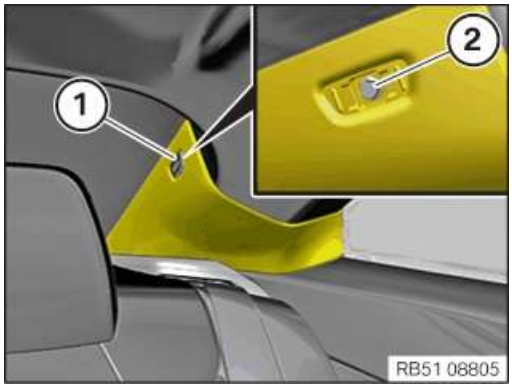
carldiag.com

RISK OF DAMAGE

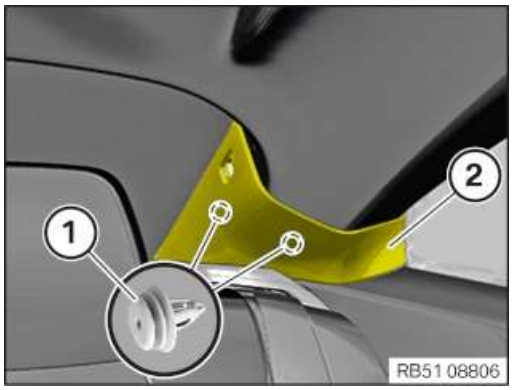
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

4 – Removing the inner door sill cover strip

RISK OF DAMAGE

Bending of plastic parts.

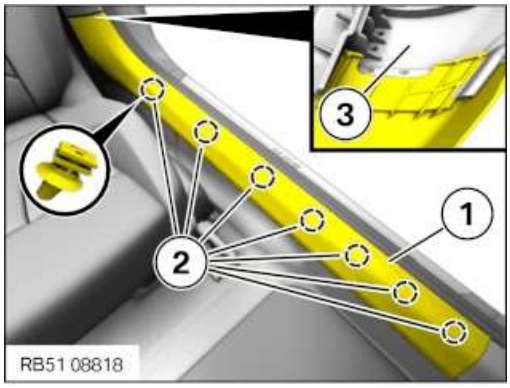
Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

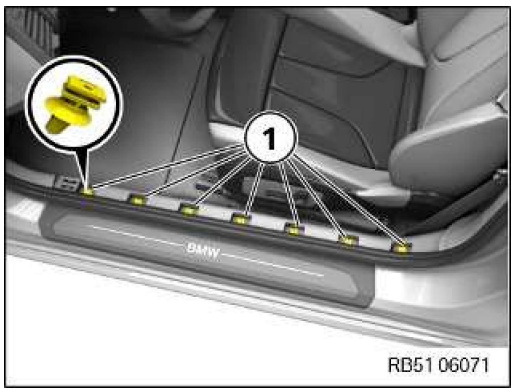
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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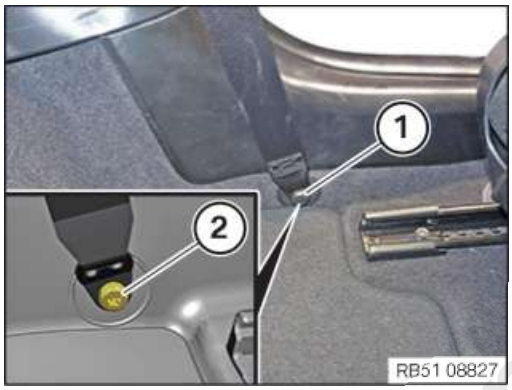


- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

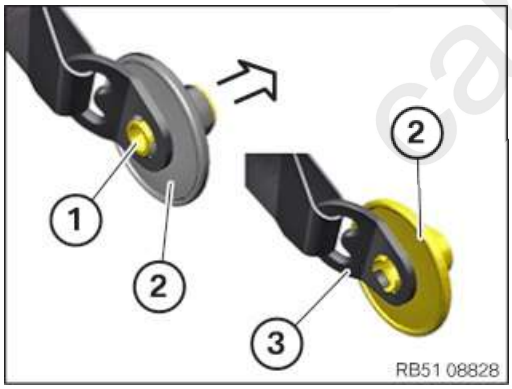


- If necessary, remove clips (1) and connect them to the door sill cover strip.

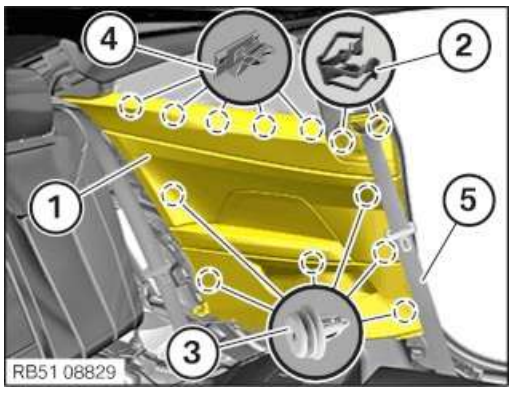
5 – Remove rear side trim panel



- Unclip the cover cap (1).
- Release the screw (2).



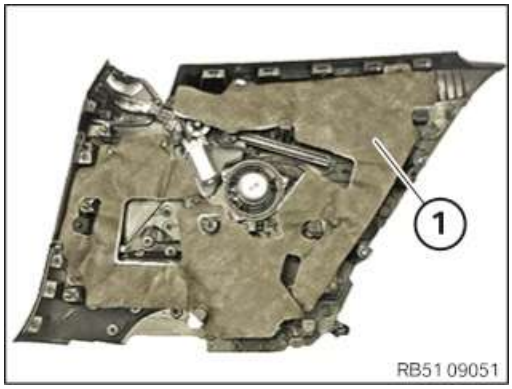
- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

6 – Removing sound insulation on the side trim panel

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- Carefully remove the sound insulation (1).

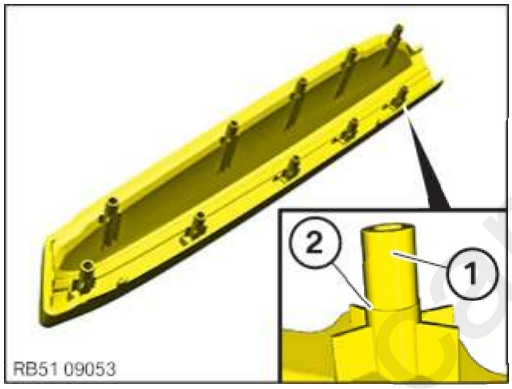
MAIN WORK

7 – Removing the armrest on the side trim panel



- Carefully spot-weld (arrows) and drill out with special tool 5 A3C D25.
- Pull out the armrest and remove it.

8 – Installing the armrest on the side trim panel



- Cut off all welding pins (1) of the armrest as shown at the mark (2).
  The welding pins (1) **must not protrude on the side trim panel.**



- Install the armrest.
- Screw in and tighten the repair screws (arrows).

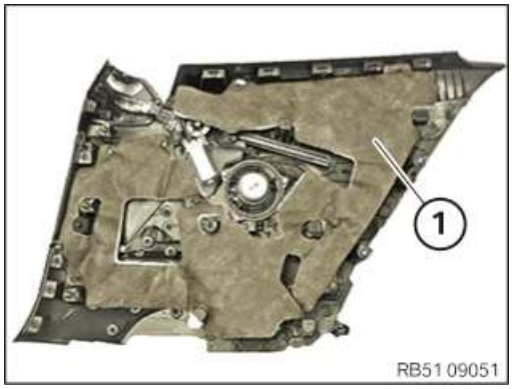
Armrest to side trim panel

Screw		Tightening torque	1,8 Nm

POSTPROCESSES

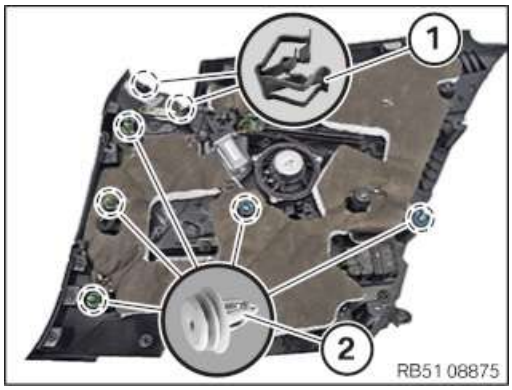
9 – Installing the sound insulation on the side trim panel

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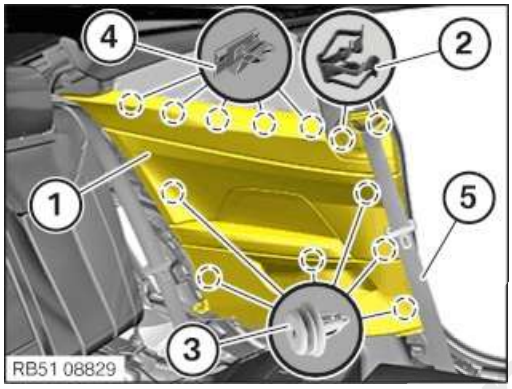


- Install the sound insulation (1) and fasten it.

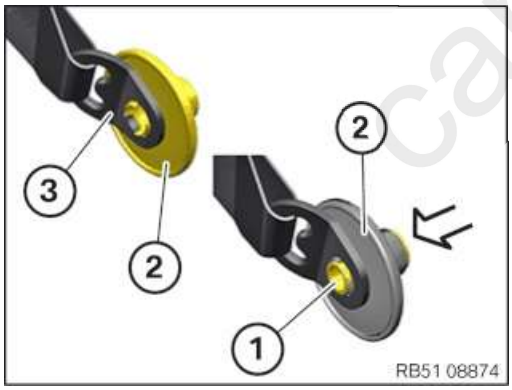
10 – Install rear side trim panel



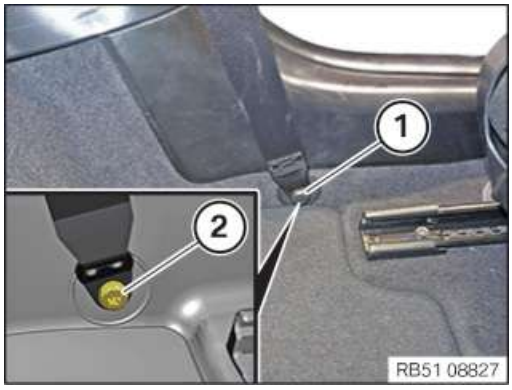
- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.



- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).



- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



- Correctly position the seat belt end fitting.
- Tighten down screw (2).

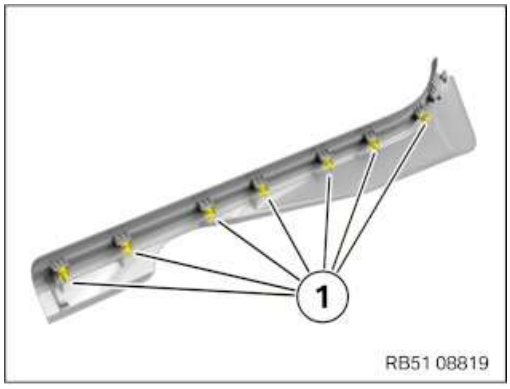
End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

11 – Installing the inner door sill cover strip

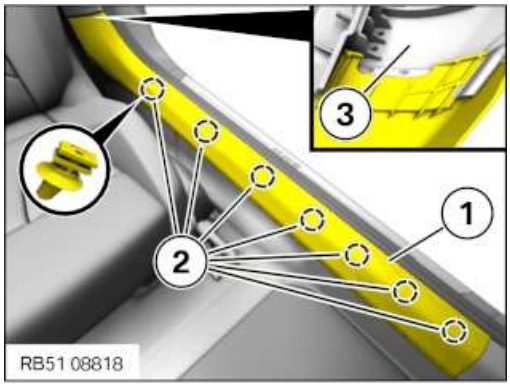
cardiagn.com



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

12 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

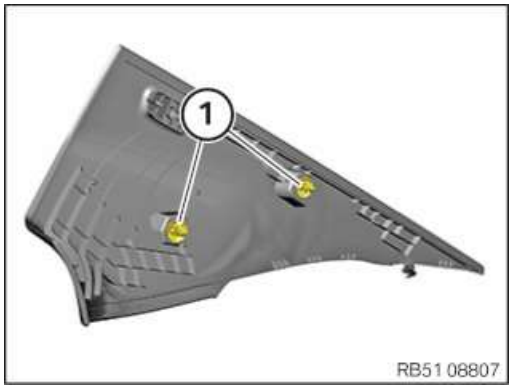
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

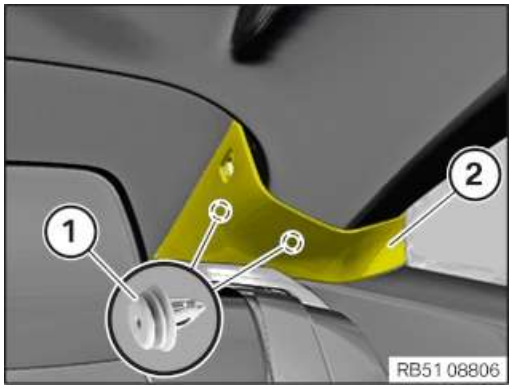
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

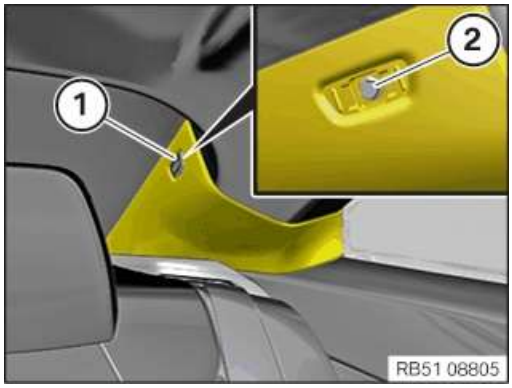


- Check clips (1) for damage and, if necessary, renew them.

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- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

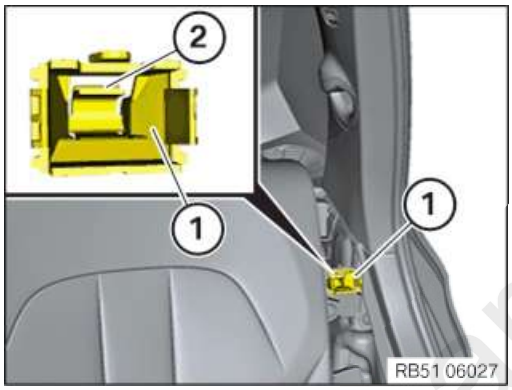
C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

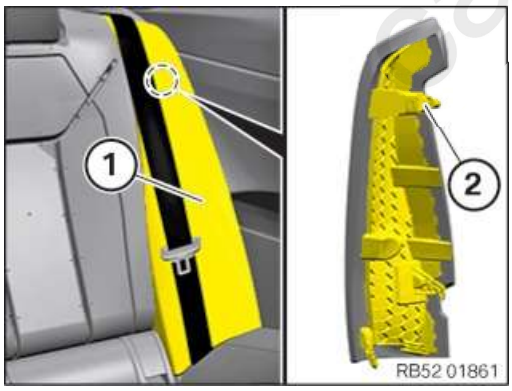
13 – Installing backrest side section

▶ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

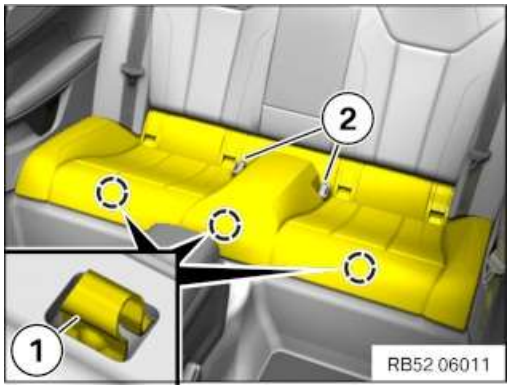
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

14 – Installing the rear seat bench

carmanualsdiagram.com



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

Overview of Tightening Torques

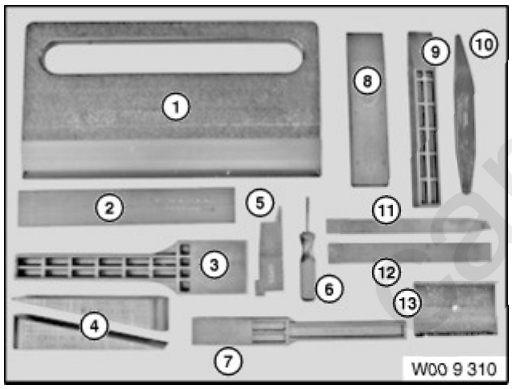
Armrest to side trim panel			Used in step 8
Screw		Tightening torque	1,8 Nm

End fitting to body			Used in step 10
M10		Tightening torque	42 Nm

C-pillar trim panel to body			Used in step 12
Screw		Tightening torque	2,6 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 4
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

erdiagn.com

5 A3C D25 Milling cutter



Common	Used in step 7
Usage	Forstner bit Ø 15 mm for drilling out the welding pins, e.g. for door trim panels
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	01 03 21 (806)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	213

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	213

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
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61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
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61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213
61 20 900 Disconnecting and connecting battery earth lead	213

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51 43 721 Removing and installing/replacing both trim panels for roof pillar

1 – Remove left and right A-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

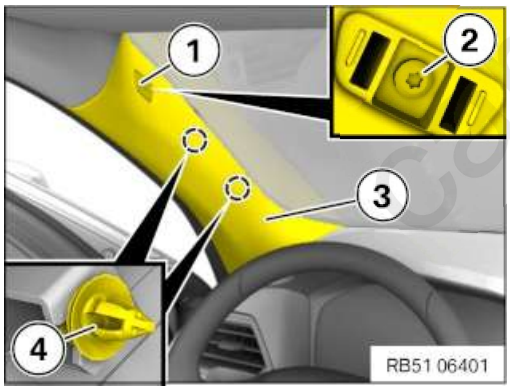
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

2 – Install the A-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the A-pillar trim panel**

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

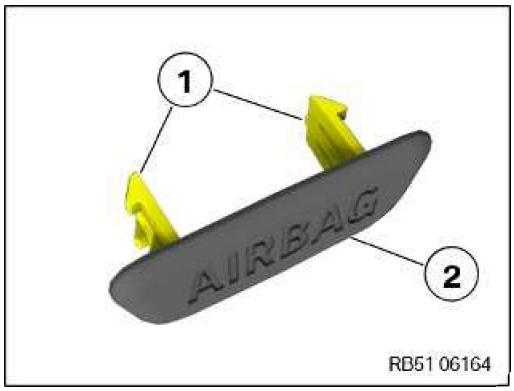
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



Check

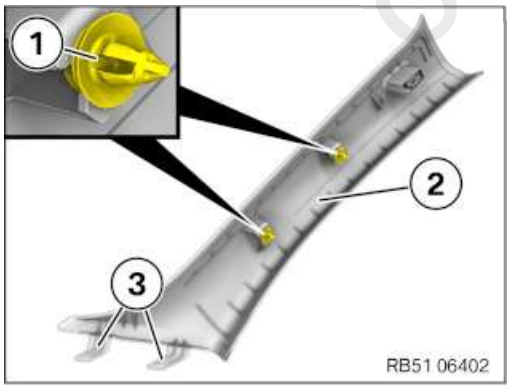
- Check retaining lugs (1) of cover (2) for damage.

Result

» Retaining lug is damaged.

Measure

- Renew the cover.



Check

- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

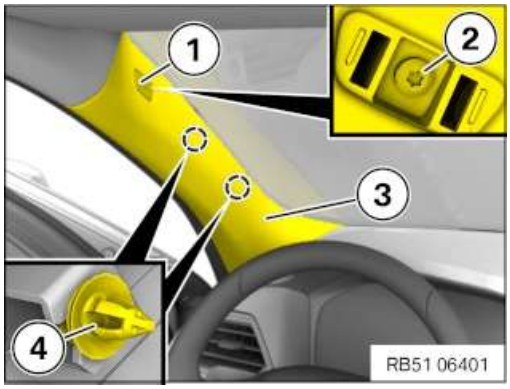
Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.

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- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

- Clip in the cover (1).

Additional Information

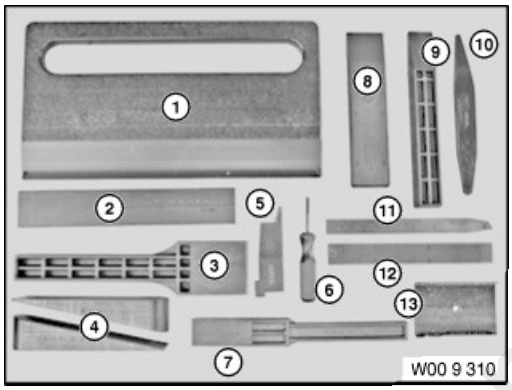
Overview of Tightening Torques

A-pillar trim panel to body — Used in step 2

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common — Used in step 1

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

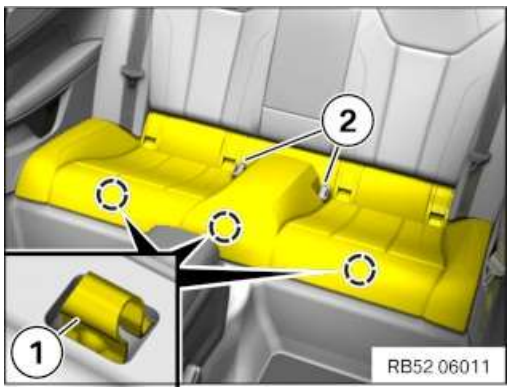
General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	1
72 00 ... Safety regulations for handling components with gas generators	1

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51 43 148 Removing and installing/replacing trim panel for left or right door pillar

PRELIMINARY WORK

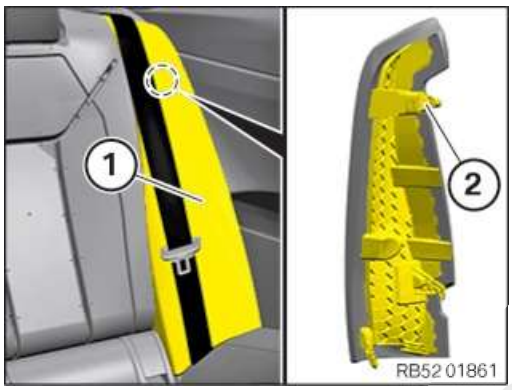
1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

2 – Remove armrest side section

▸ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

3 – Remove C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

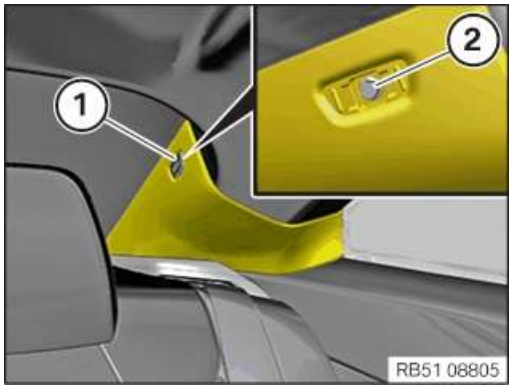
RISK OF DAMAGE

Damage to the head airbag.

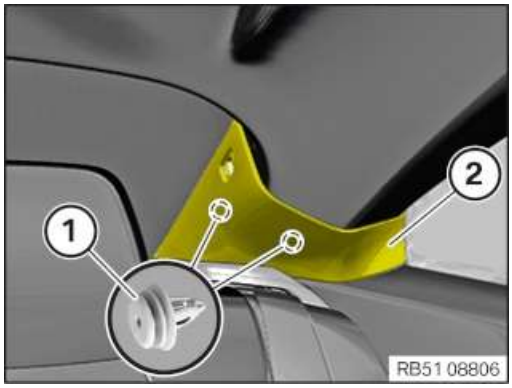
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

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- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

4 – Removing the inner door sill cover strip

RISK OF DAMAGE

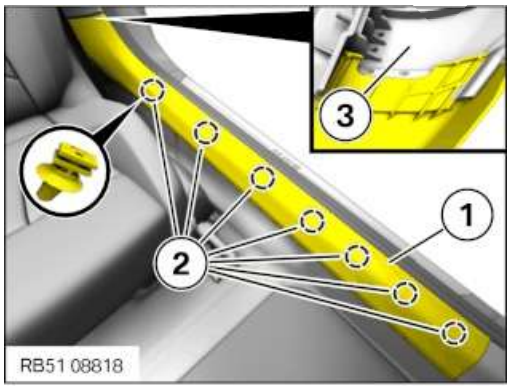
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

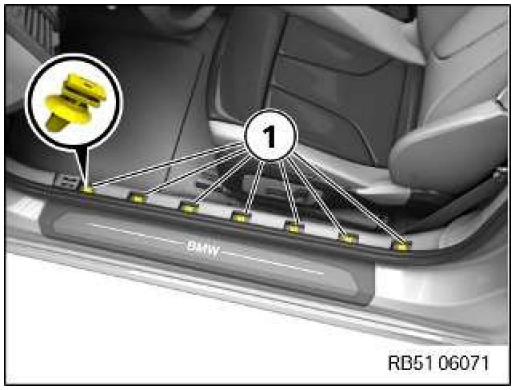
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



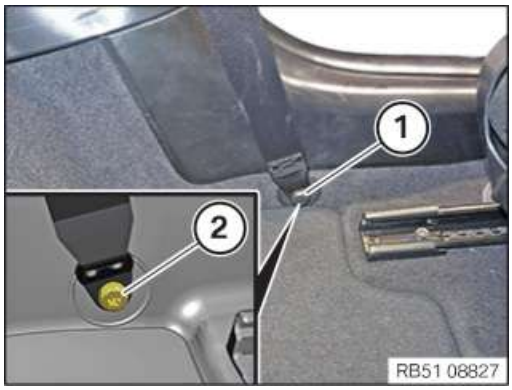
- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

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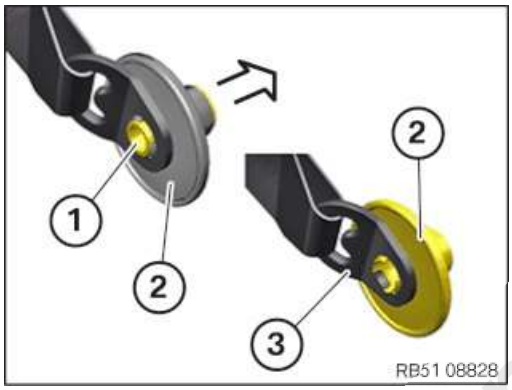


- If necessary, remove clips (1) and connect them to the door sill cover strip.

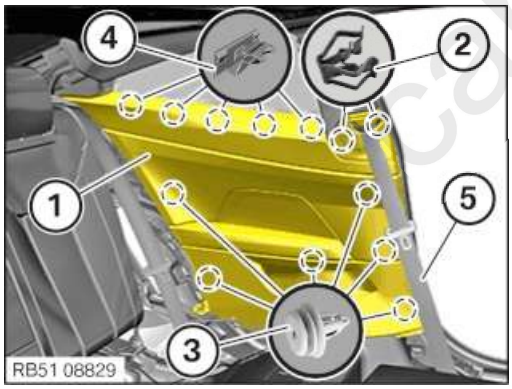
5 – Remove rear side trim panel



- Unclip the cover cap (1).
- Release the screw (2).



- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).

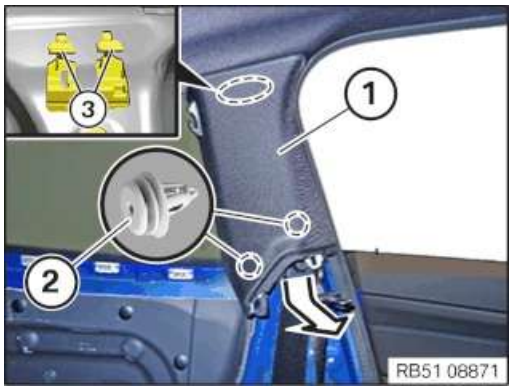


- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

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MAIN WORK

6 – Remove the B-pillar trim panel

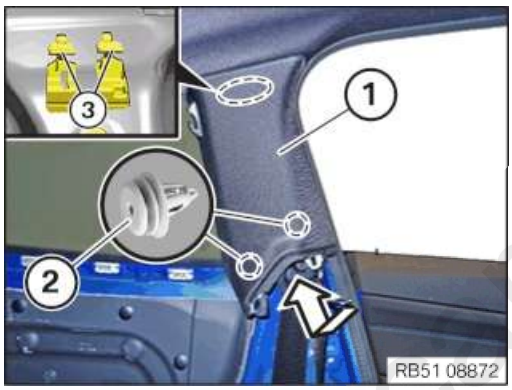


- Unclip the B-pillar trim panel (1) at the clips (2).
- Remove the B-pillar trim panel (1) from the lip of the edge protection and the guides (3) in the direction of the arrow.

7 – Install the B-pillar trim panel



- Check clips (1) for damage and renew if necessary.

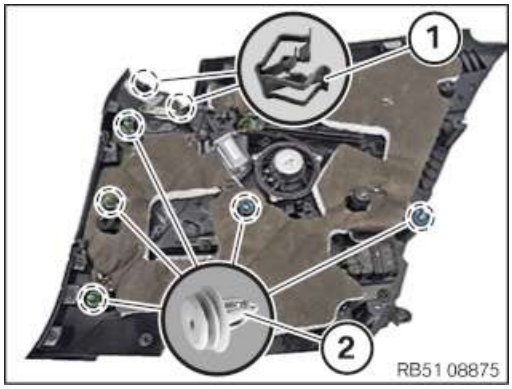


- Insert B-pillar trim panel (1) in direction of arrow into the guides (3) and under the lip of edge protection.
- Clip in the B-pillar trim panel (1) at the clips (2).

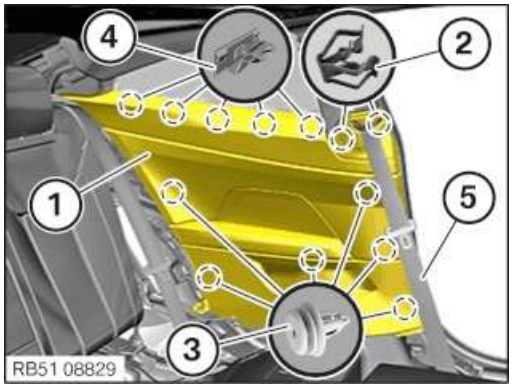
carsdiagn.com

POSTPROCESSES

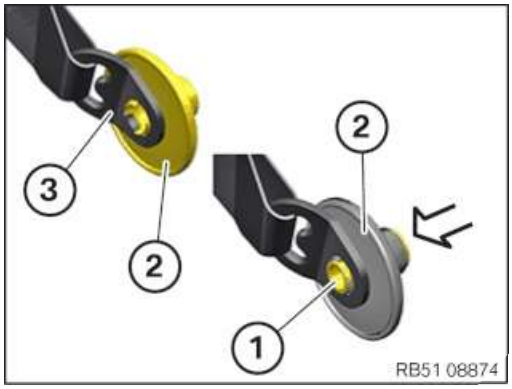
8 – Install rear side trim panel



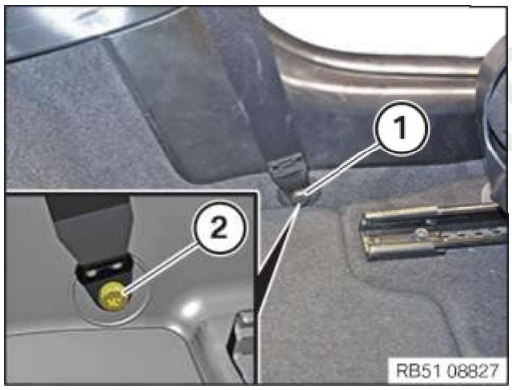
- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.



- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).



- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



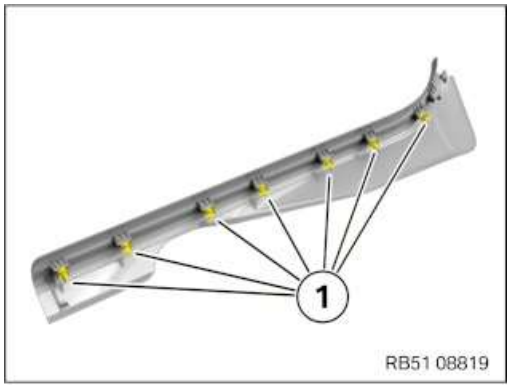
- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

9 – Installing the inner door sill cover strip

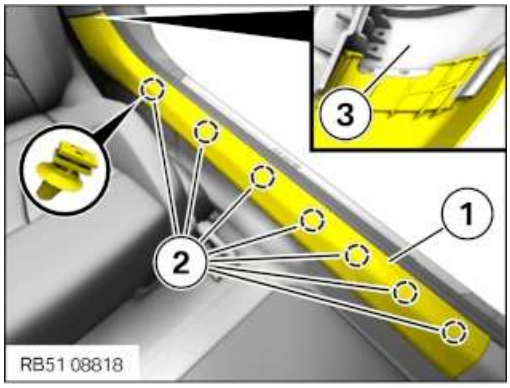


NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.

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- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

10 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

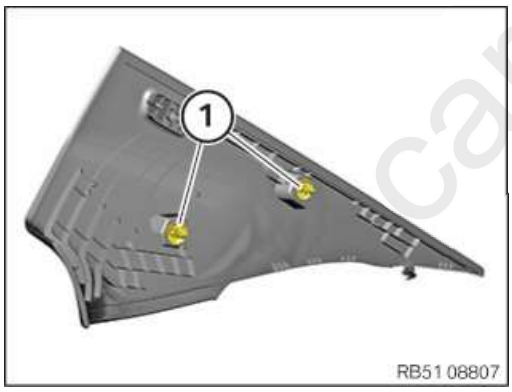
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

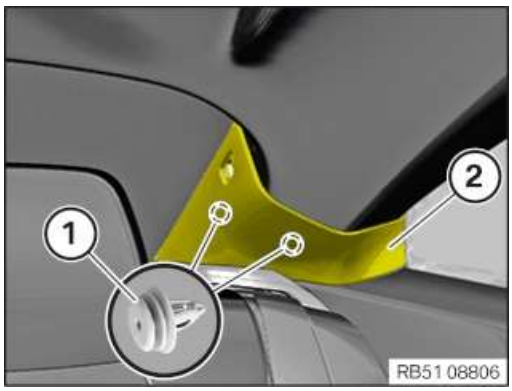
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

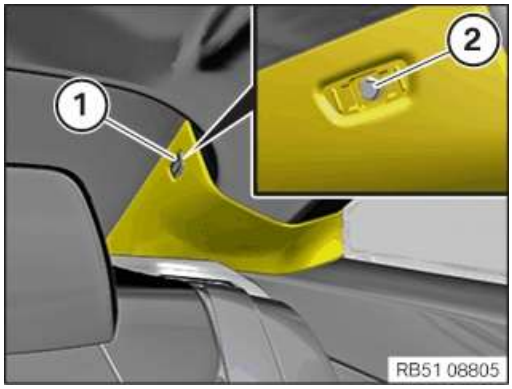


- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).

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- Tighten down screw (2).

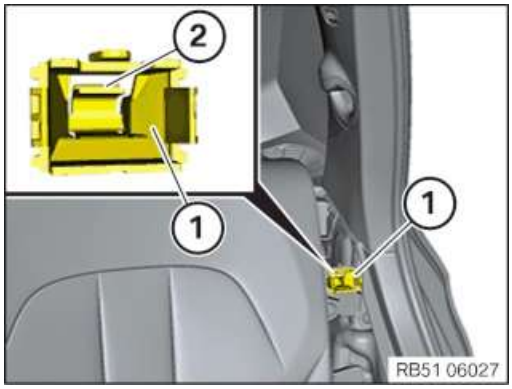
C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

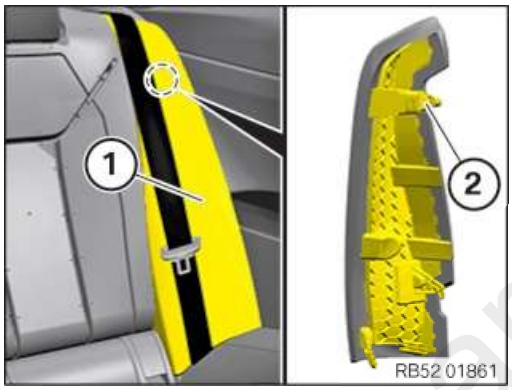
11 – Installing backrest side section

▸ **Installing backrest side section**



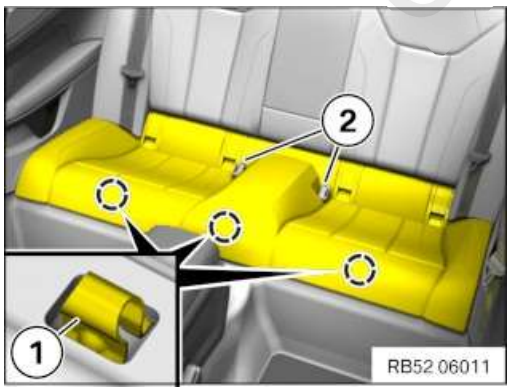
- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

12 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

Overview of Tightening Torques

End fitting to body Used in step 8

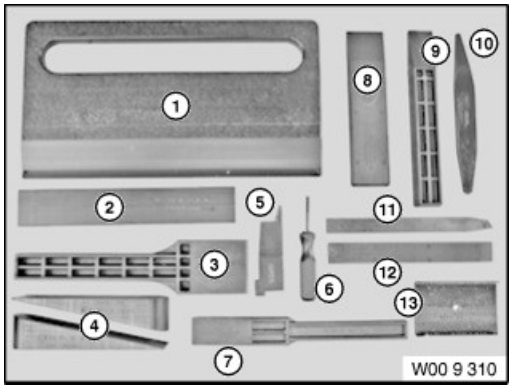
M10		Tightening torque	42 Nm

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C-pillar trim panel to body			Used in step 10
Screw		Tightening torque	2,6 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 4
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	211

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	211

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211
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61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	211
61 20 900 Disconnecting and connecting battery earth lead	211
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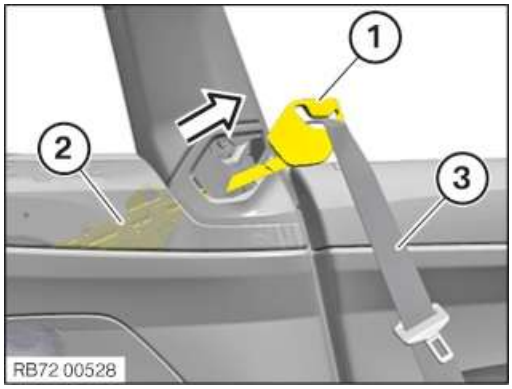
51 43 005 Replacing rear left or right side trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Removing seat-belt assistant hand

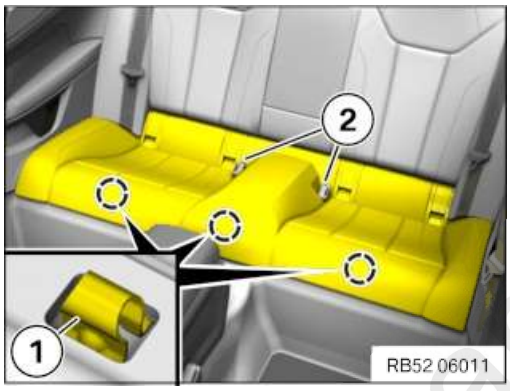


NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Feed out the seat-belt assistant hand (1) in direction of arrow from the seat belt extender (2) carefully.
- Feed out upper seat belt (3) from the seat-belt assistant hand (1).

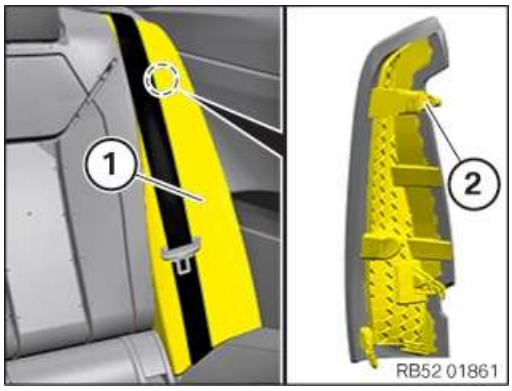
2 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

3 – Remove armrest side section

▸ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

4 – Remove C-pillar trim panel

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

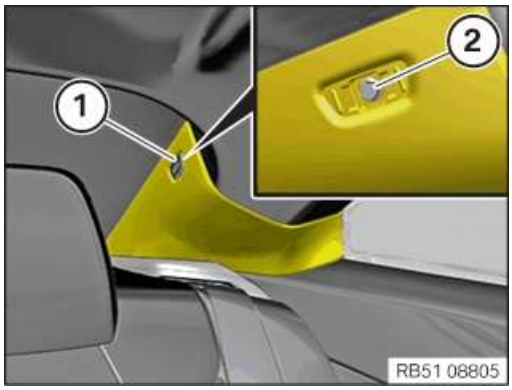
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

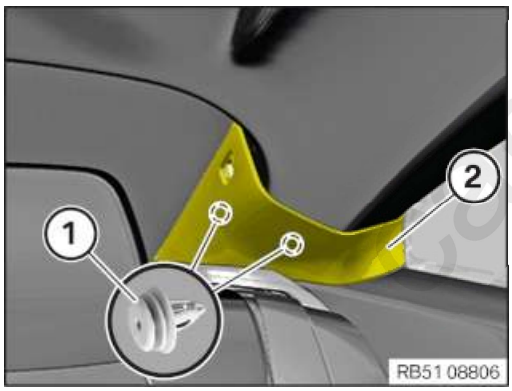
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

5 – Removing the inner door sill cover strip

RISK OF DAMAGE

Bending of plastic parts.

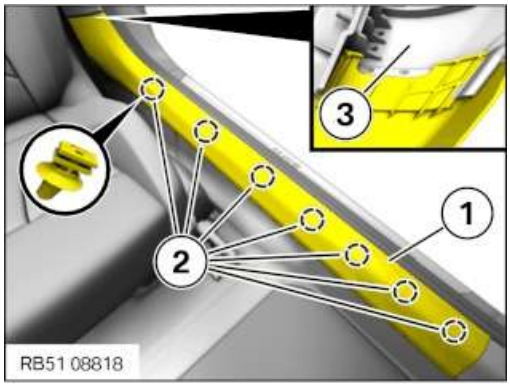
Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

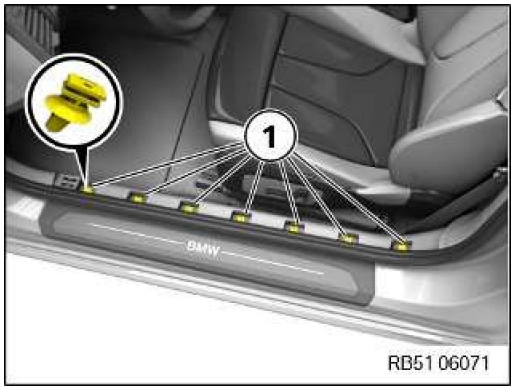
cardiagn.com

NOTICE

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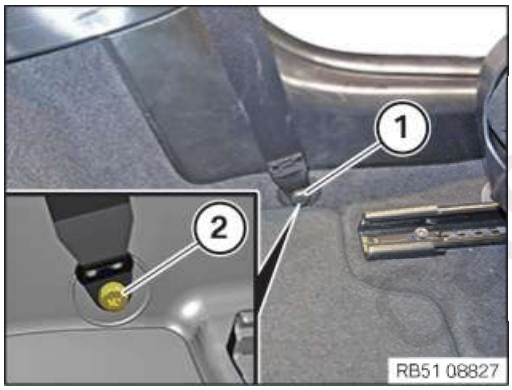


- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

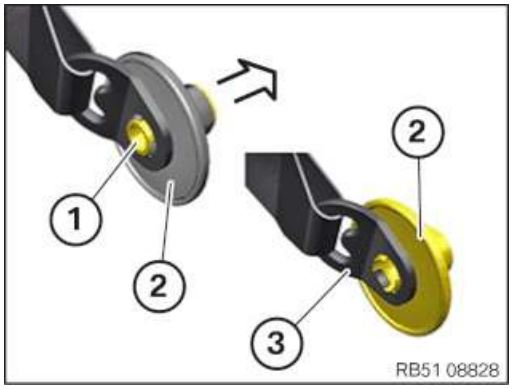


- If necessary, remove clips (1) and connect them to the door sill cover strip.

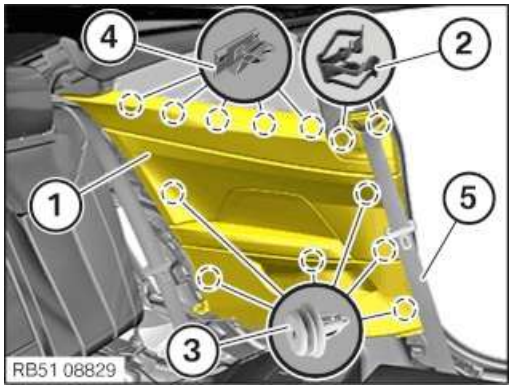
6 – Remove rear side trim panel



- Unclip the cover cap (1).
- Release the screw (2).

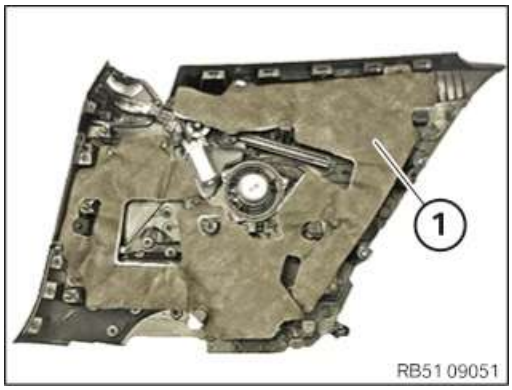


- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



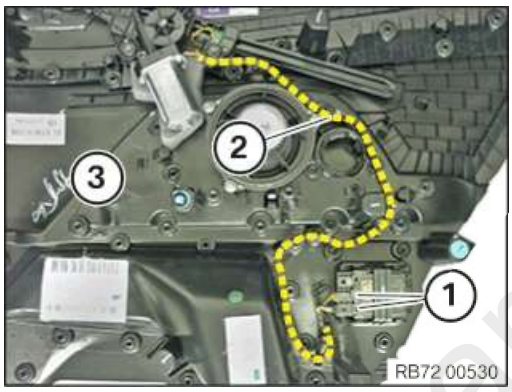
- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

7 – Removing sound insulation on the side trim panel

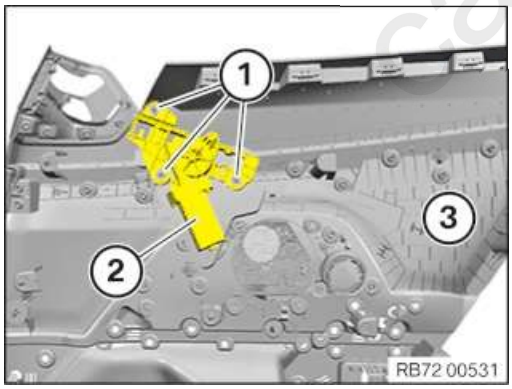


- Carefully remove the sound insulation (1).

8 – Removing seat belt extender



- Unlock plug connections (1) and disconnect.
- Unclip cable marked in yellow (2) from the side trim panel (3).



- Release nuts (1).
- Remove seat belt extender (2) from the side trim panel (3).

9 – Removing the armrest on the side trim panel

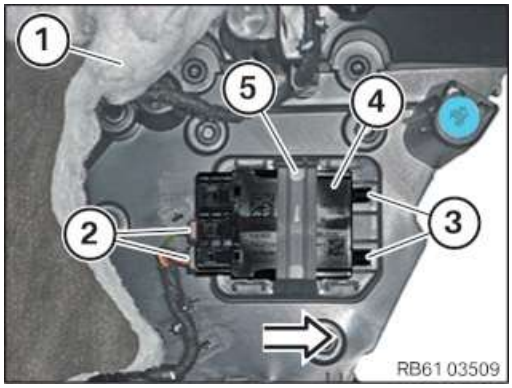
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- Carefully spot-weld (arrows) and drill out with special tool 5 A3C D25.
- Pull out the armrest and remove it.

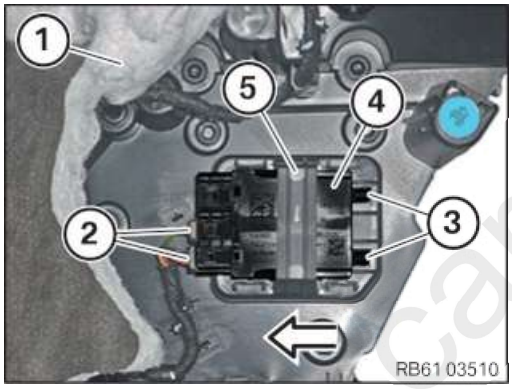
MAIN WORK

10 – Removing the seat-belt extender controller (LCPA)



- Slide the insulation (1) as shown to the side.
- Unlock plug connections (2) and disconnect.
- Unlock the latch mechanisms (3).
- Pull the seat-belt extender controller (LCPA) (4) in the direction of arrow from the holder (5).

11 – Installing the seat-belt extender controller (LCPA)

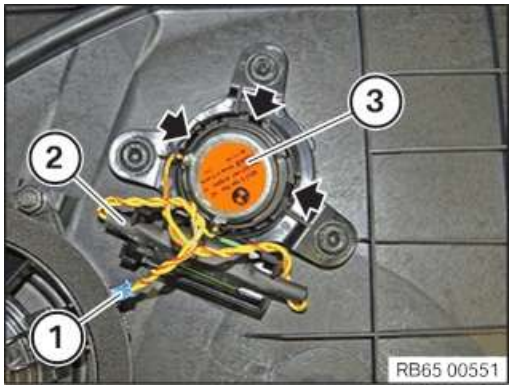


- Position the seat-belt extender controller (LCPA) (4) on the holder (5) and move in the direction of arrow, until the latch mechanisms (3) engage.
- Connect connector (2).
- Route the insulation (1) correctly.

12 – Removing the tweeter in the rear side trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



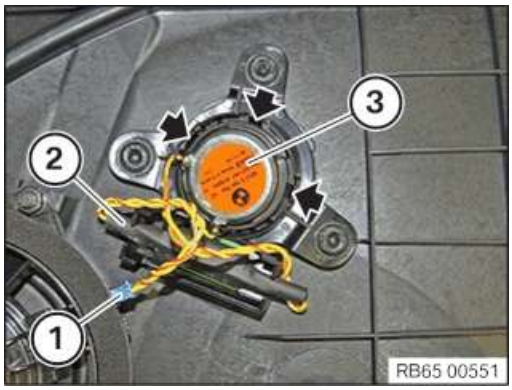
- Push the acoustic fleece a little to one side if required.
- Unlock plug connection (1) and disconnect.
- Unclip the resistance (2).
- Unlock the latch mechanisms (arrows).
- Remove tweeter (3).

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13 – Installing tweeter in the rear side trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

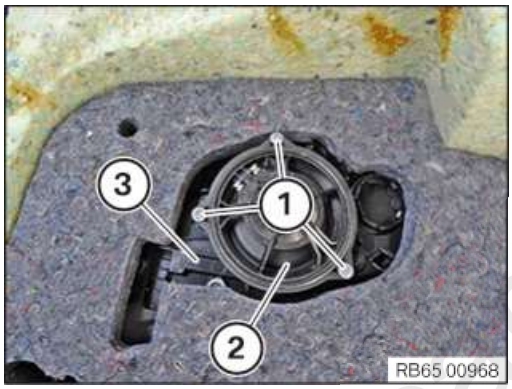


- Attach the tweeter (3) and engage it into the latch mechanisms (arrows).
- Clip in the resistor (2).
- Connect plug connection (1) and lock.
- Position the acoustic fleece correctly as needed.

14 – Removing the mid-range speaker in the rear side trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

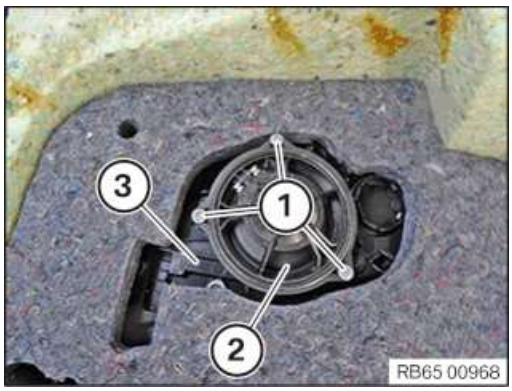


- Push the acoustic fleece to one side if required.
- Loosen screws (1).
- Remove mid-range speaker (2) from side trim panel (3) .

15 – Installing mid-range speaker in the rear side trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Insert the mid-range speaker (2) into the side trim panel (3) and position it correctly.
- Tighten the screws (1).

Loudspeakers on the door / trim panel

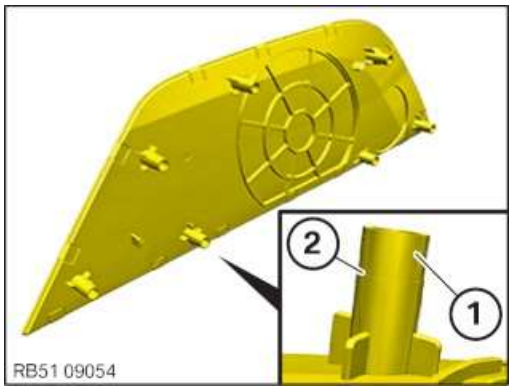
Screw		Tightening torque	2 Nm

- Position the acoustic fleece correctly as needed.

POSTPROCESSES

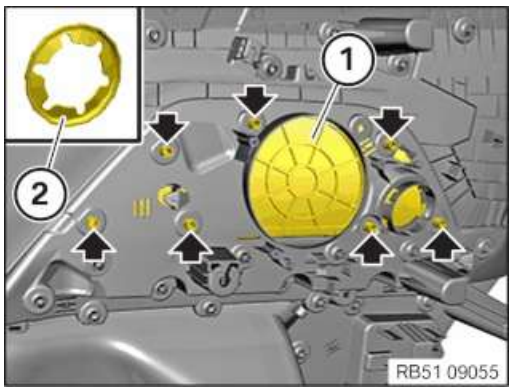
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16 – Installing the speaker cover on the side trim panel



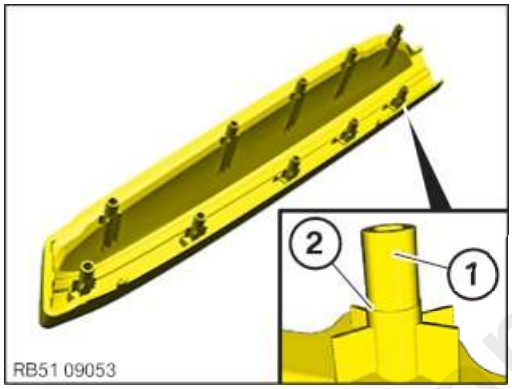
- Renew the speaker cover.

  Parts: Speaker cover
- Cut off all the welding pins (1) at the marks (2).



- Install the speaker cover (1).
- Secure all welding pins (arrows) with the lock washers (2).

17 – Installing the armrest on the side trim panel



- Cut off all welding pins (1) of the armrest as shown at the mark (2).

  The welding pins (1) **must not protrude on the side trim panel.**

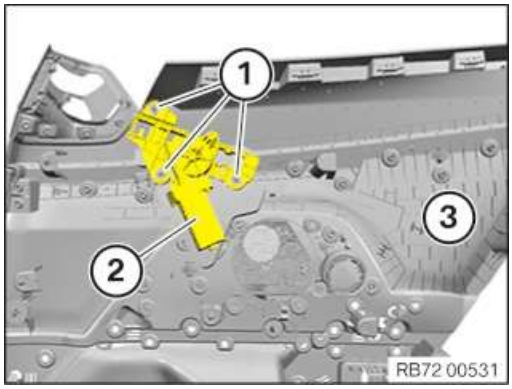


- Install the armrest.
- Screw in and tighten the repair screws (arrows).

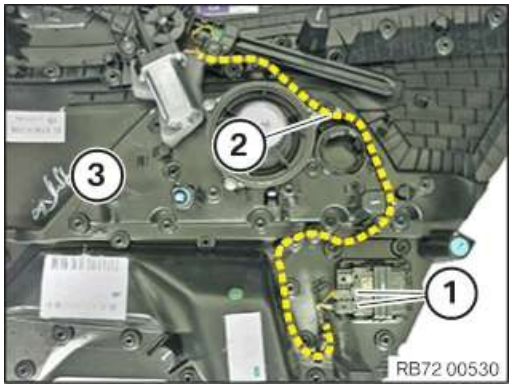
Armrest to side trim panel

Screw		Tightening torque	1,8 Nm

18 – Install the seat belt extender

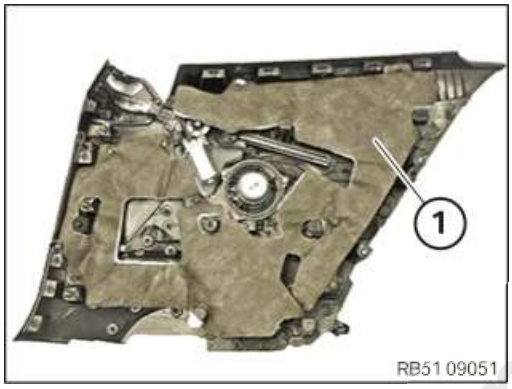


- Position the seat belt extender (2) on side trim panel (3) as shown.
- Tighten nuts (1).



- Clip in yellow-marked cable (2) in side trim panel (3).
- Connect connectors (1) and lock.

19 – Installing the sound insulation on the side trim panel

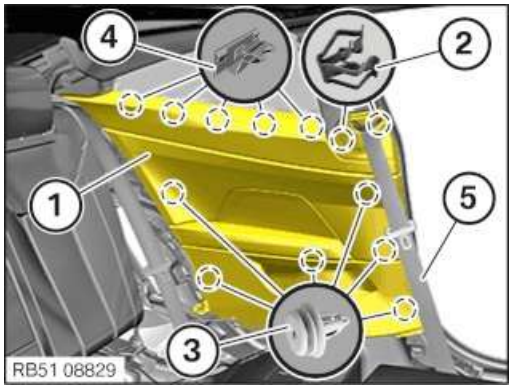


- Install the sound insulation (1) and fasten it.

20 – Install rear side trim panel

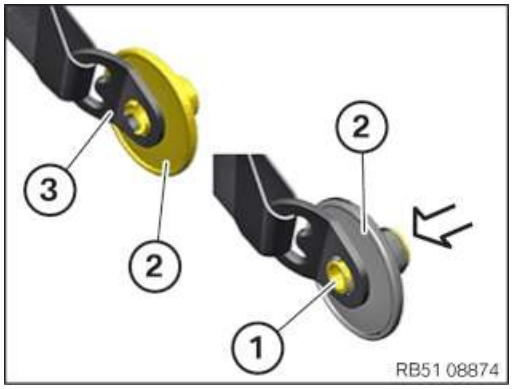


- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.

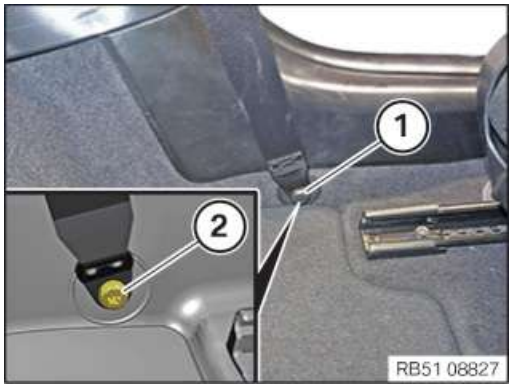


- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).

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- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



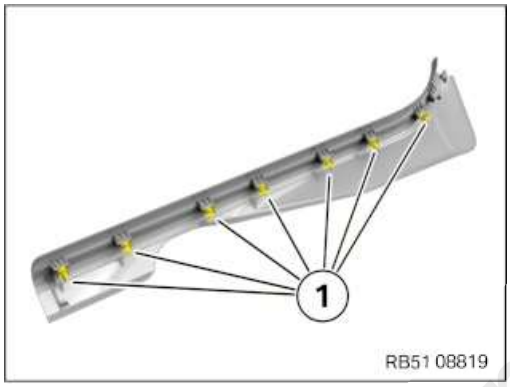
- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

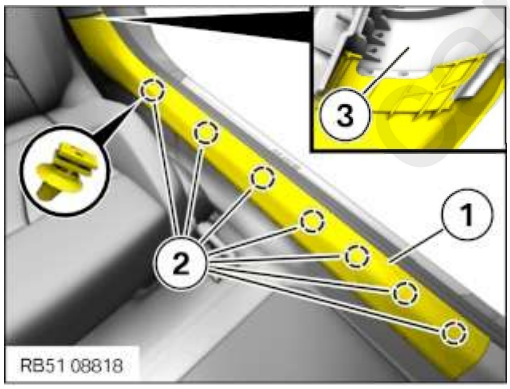
21 – Installing the inner door sill cover strip



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

22 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

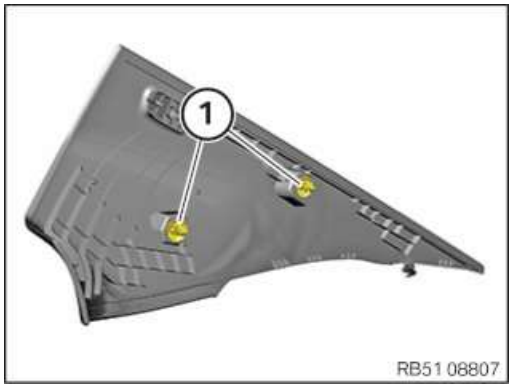
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RISK OF DAMAGE

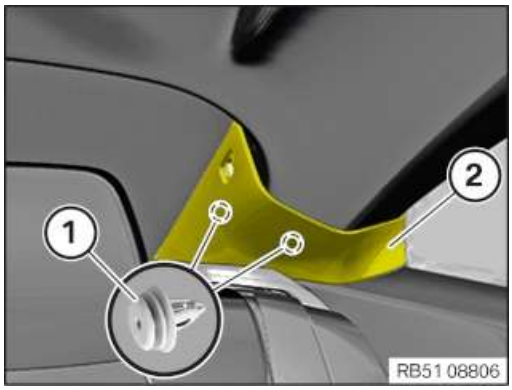
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

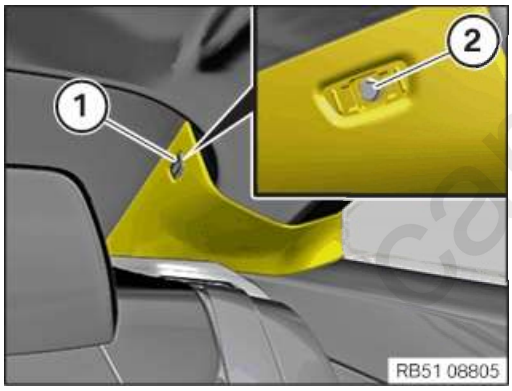
- Do not use sharp-edged tools when removing the trim panel.



- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

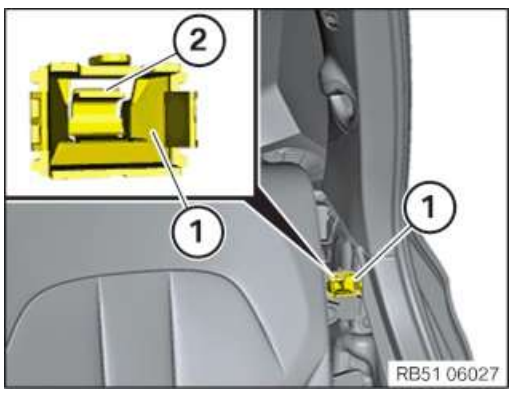
C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

23 – Installing backrest side section

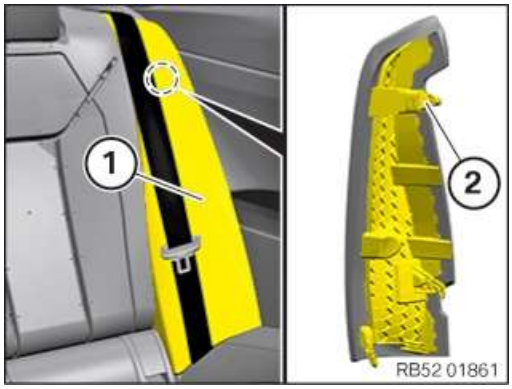
▸ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

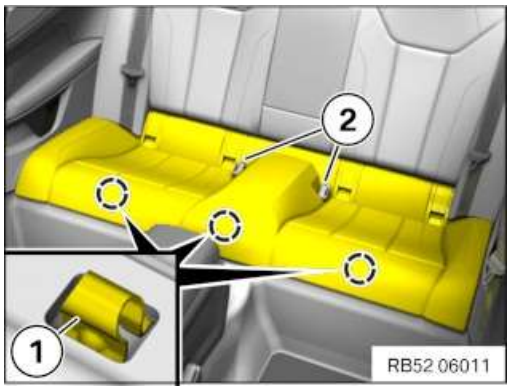
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.

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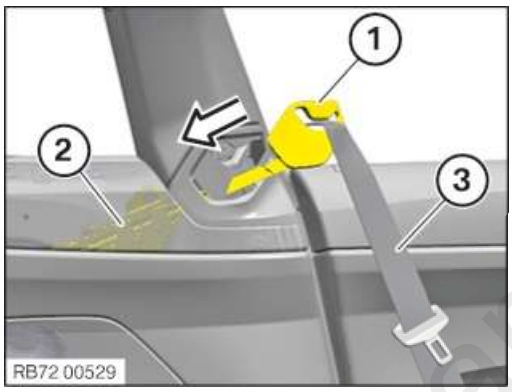
- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

24 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

25 – Installing seat-belt assistant hand



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Guide in upper seat belt (3) into the seat-belt assistant hand (1).
- Guide in seat-belt assistant hand (1) in direction of arrow into the seat belt extender (2) carefully.

Additional Information

Overview of Tightening Torques

Loudspeakers on the door / trim panel — Used in step 15

Screw		Tightening torque	2 Nm

Armrest to side trim panel — Used in step 17

Screw		Tightening torque	1,8 Nm

End fitting to body — Used in step 20

M10		Tightening torque	42 Nm

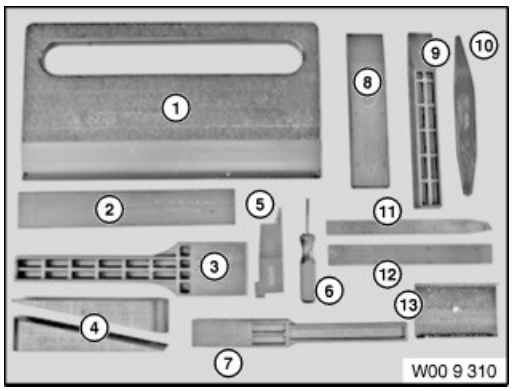
C-pillar trim panel to body — Used in step 22

Screw		Tightening torque	2,6 Nm

Overview of Special Tools

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0 493 752 (00 9 329) Case



Common	Used in step 5
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

5 A3C D25 Milling cutter



Common	Used in step 9
Usage	Forstner bit Ø 15 mm for drilling out the welding pins, e.g. for door trim panels
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	01 03 21 (806)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	323

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	323

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	323
61 20 900 Disconnecting and connecting battery earth lead	323
61 20 900 Disconnecting and connecting battery earth lead	323
61 20 900 Disconnecting and connecting battery earth lead	323
61 20 900 Disconnecting and connecting battery earth lead	323
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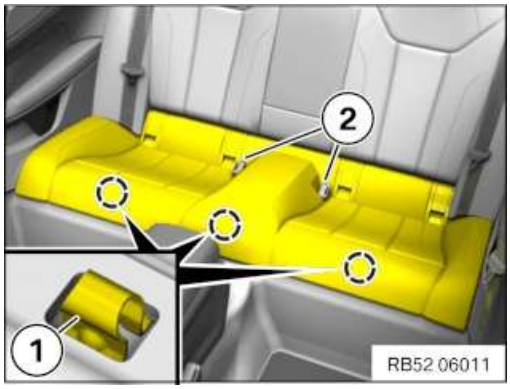
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	323
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	323
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	323
61 20 900 Disconnecting and connecting battery earth lead	323
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	323
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	323
61 20 900 Disconnecting and connecting battery earth lead	323
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	323
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61 20 900 Disconnecting and connecting battery earth lead	323

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51 43 903 Replacing speaker cover on side trim panel

PRELIMINARY WORK

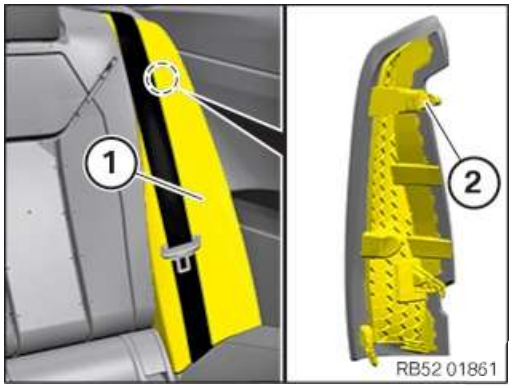
1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

2 – Remove armrest side section

▸ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

3 – Remove C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

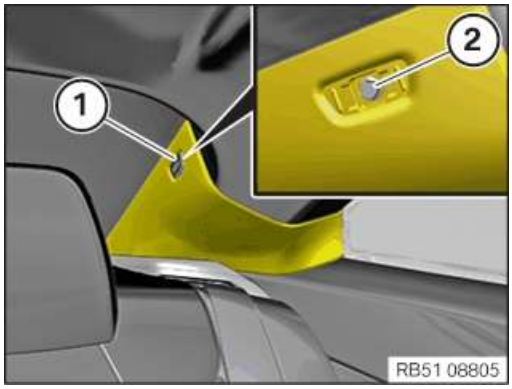
RISK OF DAMAGE

Damage to the head airbag.

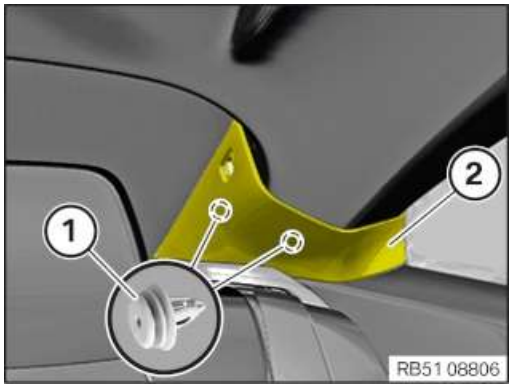
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

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- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

4 – Removing the inner door sill cover strip

RISK OF DAMAGE

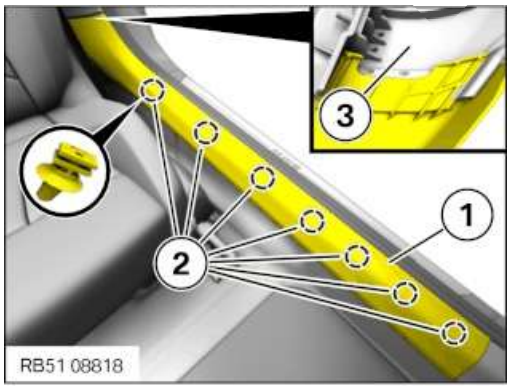
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

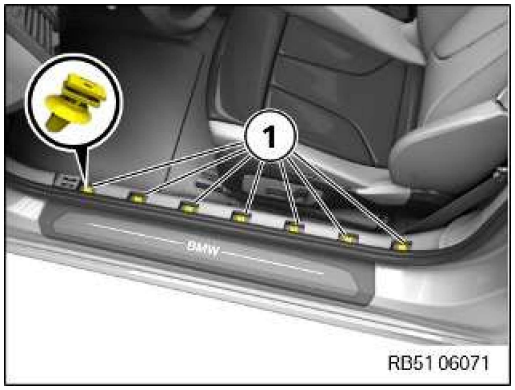
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



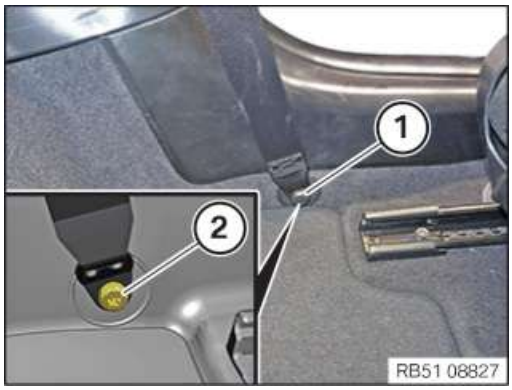
- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

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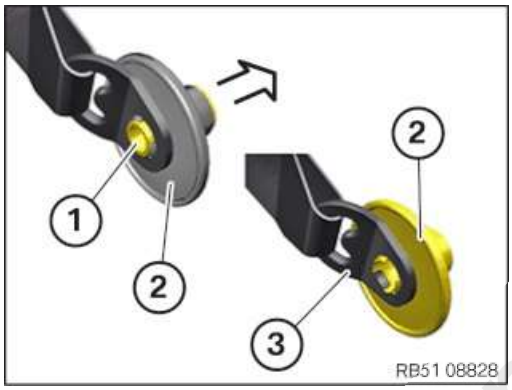


- If necessary, remove clips (1) and connect them to the door sill cover strip.

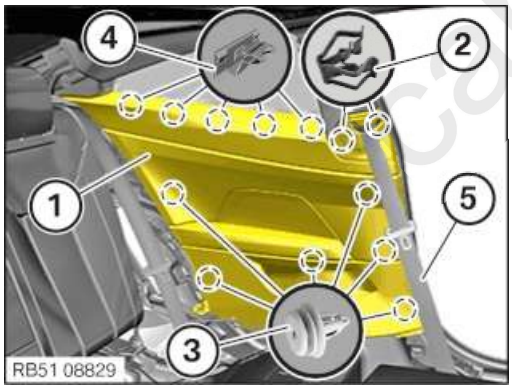
5 – Remove rear side trim panel



- Unclip the cover cap (1).
- Release the screw (2).

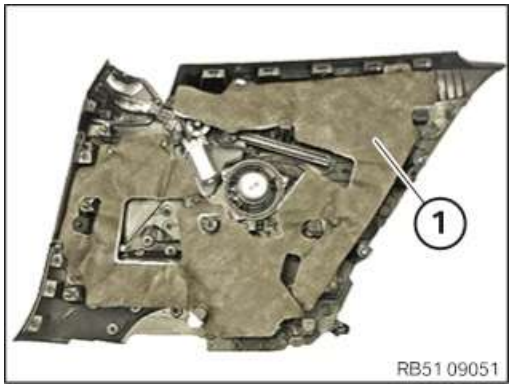


- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

6 – Removing sound insulation on the side trim panel

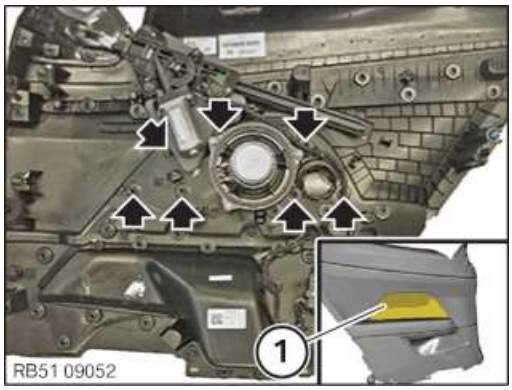


- Carefully remove the sound insulation (1).

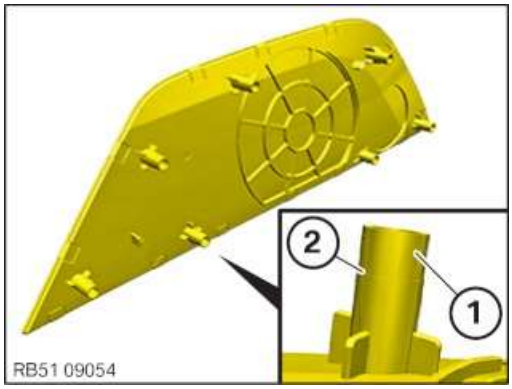
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MAIN WORK

7 – Replacing speaker cover on side trim panel

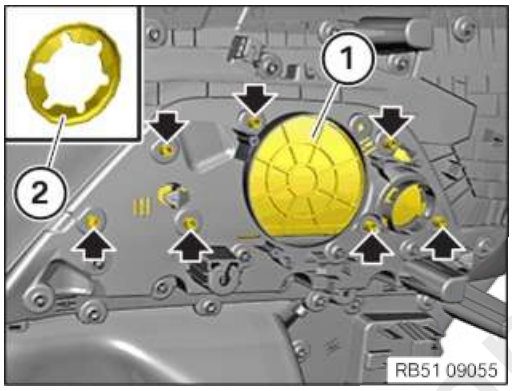


- Drill out spot-welds (arrows) carefully using special tool 5 A3C D25.
- Guide out and remove speaker cover (1).



- Renew the speaker trim.

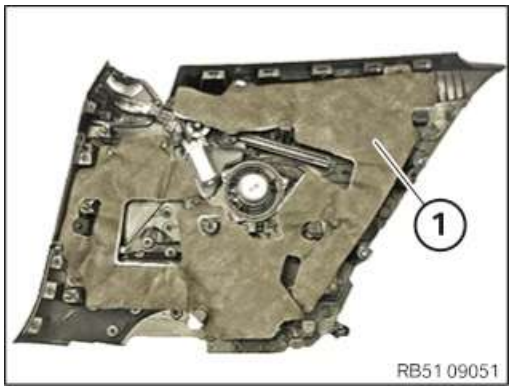
  Parts: Speaker trim
- Cut off all the welding pins (1) at the marks (2).



- Remove welding residue on the side trim panel using a scalpel.
- Install speaker trim (1).
- Secure all welding pins (arrows) with the lock washers (2).

POSTPROCESSES

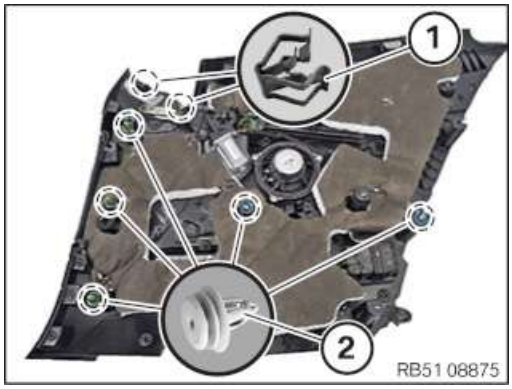
8 – Installing the sound insulation on the side trim panel



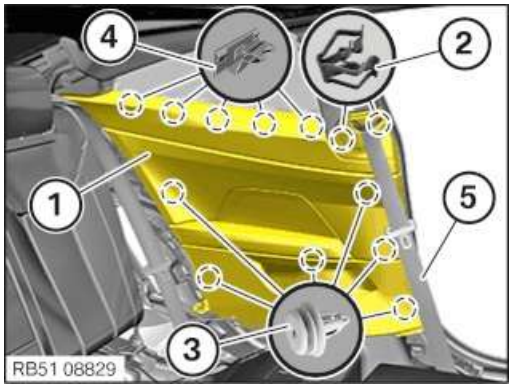
- Install the sound insulation (1) and fasten it.

9 – Install rear side trim panel

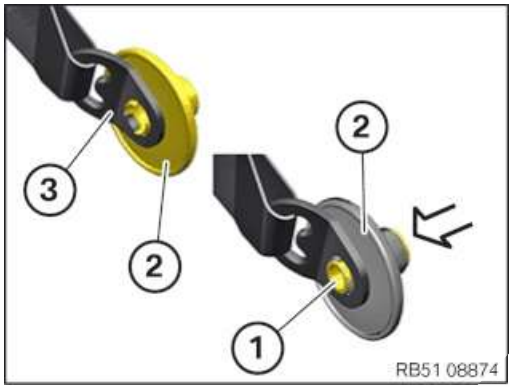
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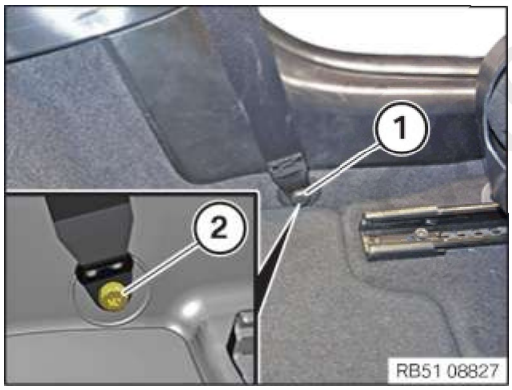
- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.



- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).



- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



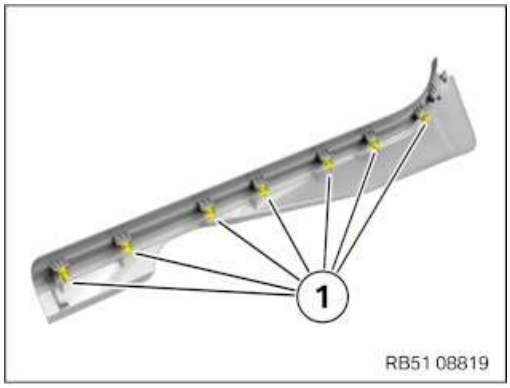
- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

10 – Installing the inner door sill cover strip

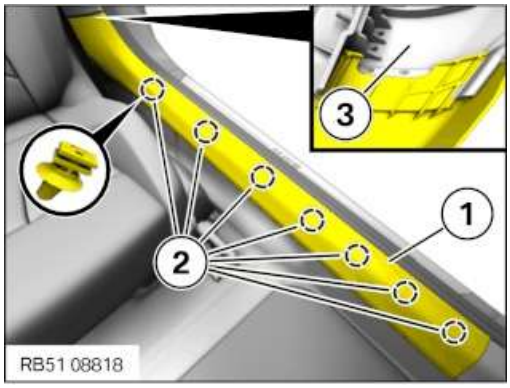


NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.

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- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

11 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

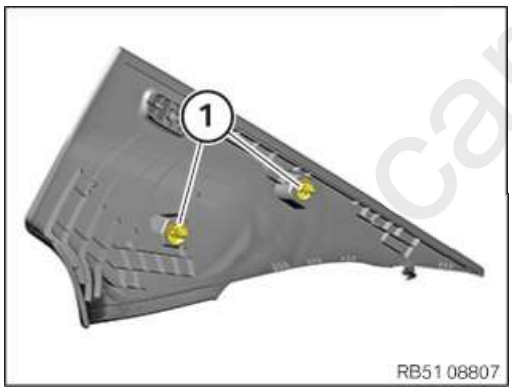
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

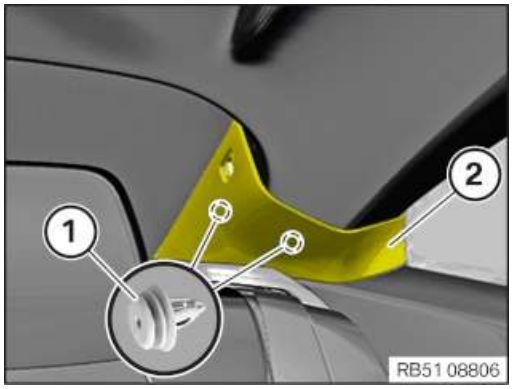
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

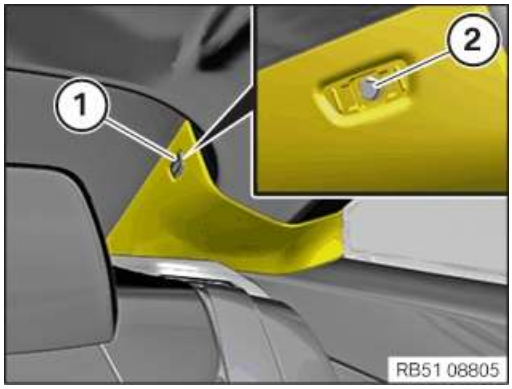


- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).

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- Tighten down screw (2).

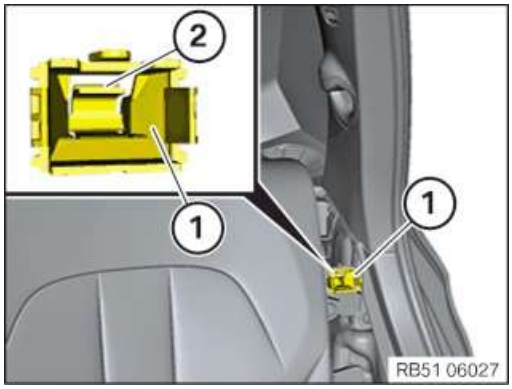
C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

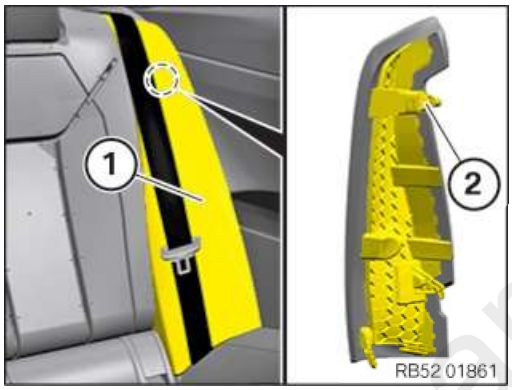
12 – Installing backrest side section

▸ **Installing backrest side section**



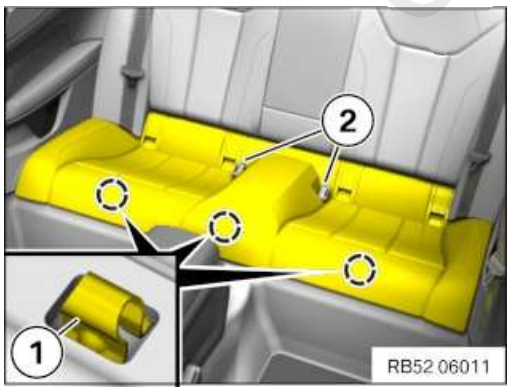
- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

13 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

Overview of Tightening Torques

End fitting to body Used in step 9

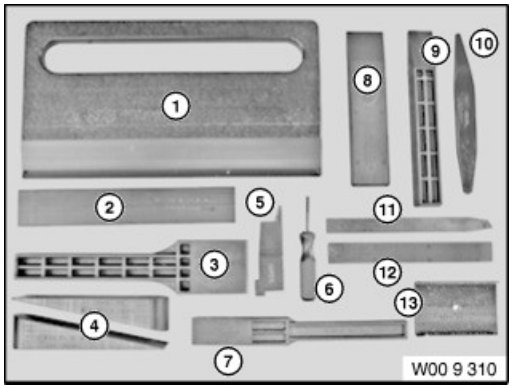
M10		Tightening torque	42 Nm

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C-pillar trim panel to body			Used in step 11
Screw		Tightening torque	2,6 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 4
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

5 A3C D25 Milling cutter



Common	Used in step 7
Usage	Forstner bit Ø 15 mm for drilling out the welding pins, e.g. for door trim panels
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	01 03 21 (806)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	212

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	212

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	212
61 20 900 Disconnecting and connecting battery earth lead	212
61 20 900 Disconnecting and connecting battery earth lead	212
61 20 900 Disconnecting and connecting battery earth lead	212
61 20 900 Disconnecting and connecting battery earth lead	212
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61 20 900 Disconnecting and connecting battery earth lead	212
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	212

61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	212
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61 20 900 Disconnecting and connecting battery earth lead	212
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	212
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	212
61 20 900 Disconnecting and connecting battery earth lead	212
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	212
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	212
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61 20 900 Disconnecting and connecting battery earth lead	212
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61 20 900 Disconnecting and connecting battery earth lead	212
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	212
61 20 900 Disconnecting and connecting battery earth lead	212
61 20 900 Disconnecting and connecting battery earth lead	212
61 20 900 Disconnecting and connecting battery earth lead	212

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51 44 915 Lower roofliner

PRELIMINARY WORK

1 – Remove left and right A-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

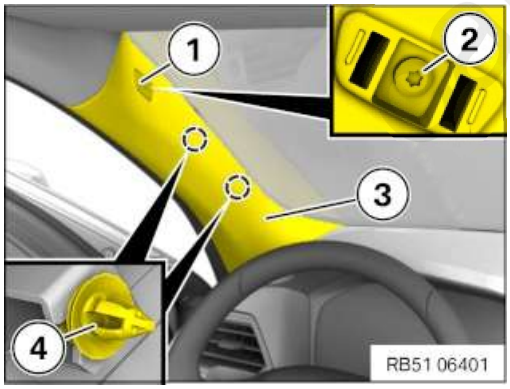
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

2 – Removing the sun visors and the end support on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

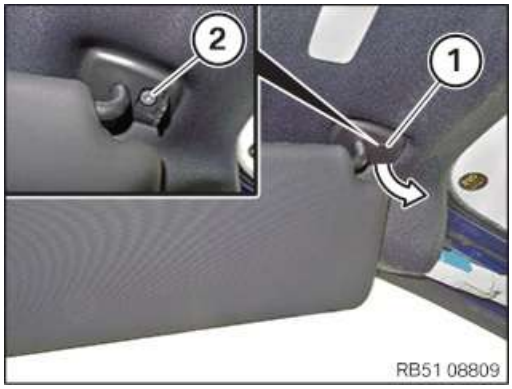
▸ **Remove the sun visor and the counter support**

NOTICE

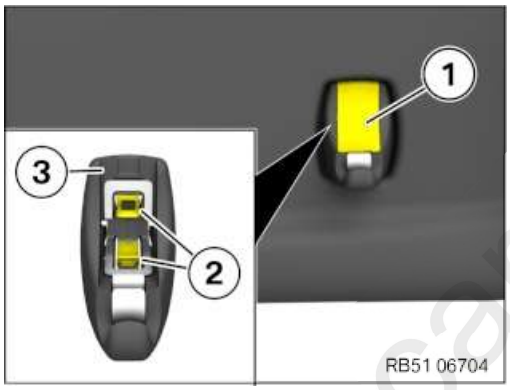
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Detach sun visors (1) from end support (2) and swivel to the side.



- Fold open cover (1).
- Loosen screw (2).
- Remove sun visors and unlock and disconnect the associated plug connection.



- Unclip cover (1) using a suitable tool.
- Push the clamps (2) together and pull the counter support (3) out of the headlining.

3 – Removing the roof function centre (FZD)



- Unclip the cover (1).

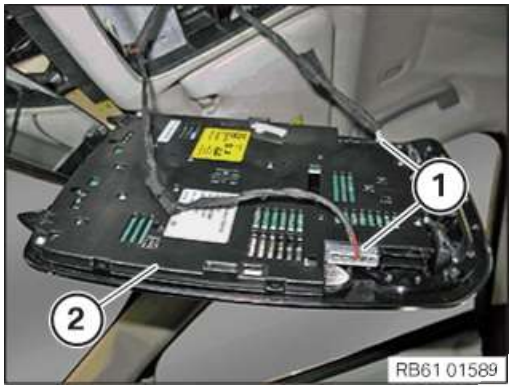
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- Loosen screws (1).

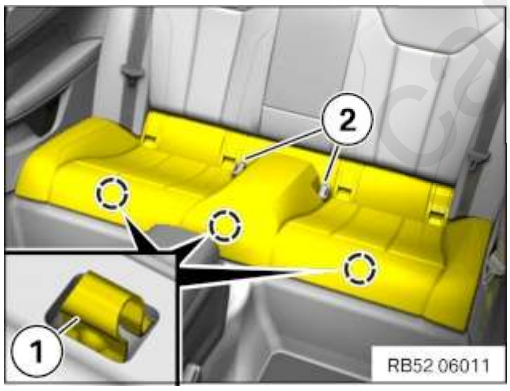


- Unclip the roof function centre (FZD) (1) from the clamps (2).
- Thread the roof function centre (FZD) (1) out of the guides (3).



- Unlock and disconnect plug connections (1).
- Unclip the cable clip from roof function centre (FZD) (2) and remove the roof function centre (FZD) (2).

4 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

5 – Remove backrest side section on left and right

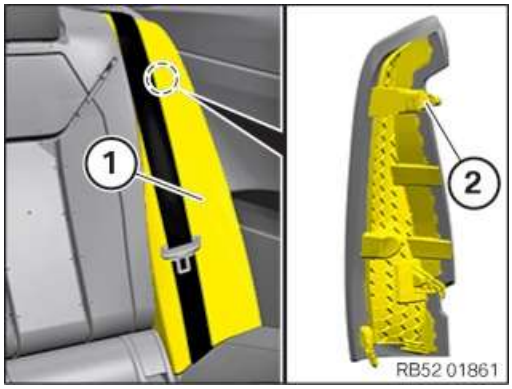
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove armrest side section**

▹ **Remove armrest side section**

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- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

6 – Removing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

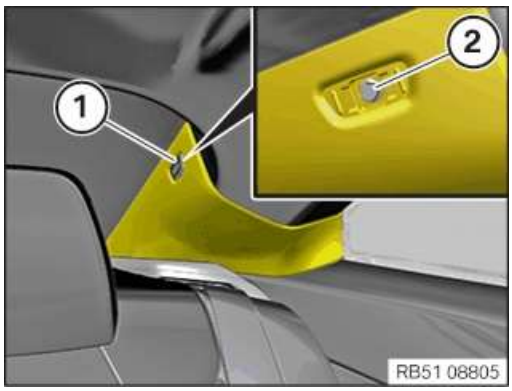
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

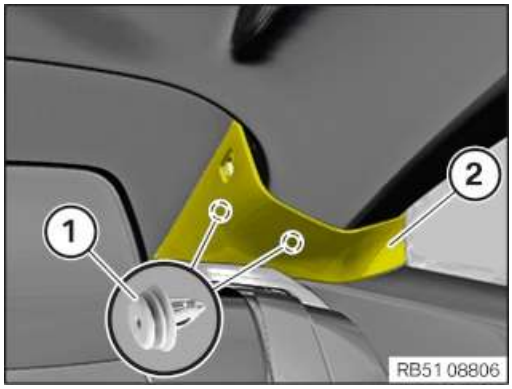
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).

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- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

7 – Removing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the inner door sill cover strip**

RISK OF DAMAGE

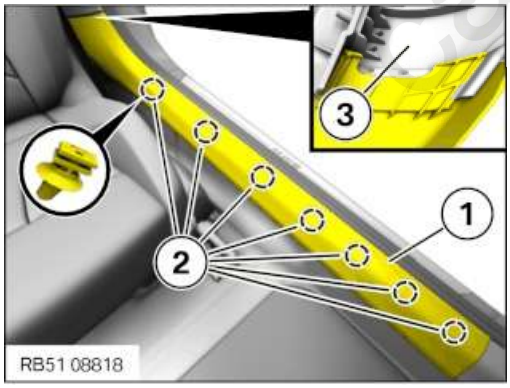
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

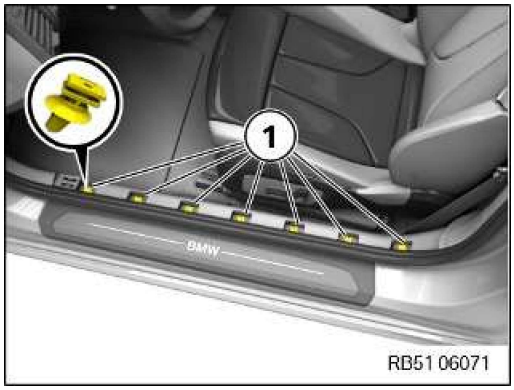
- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .



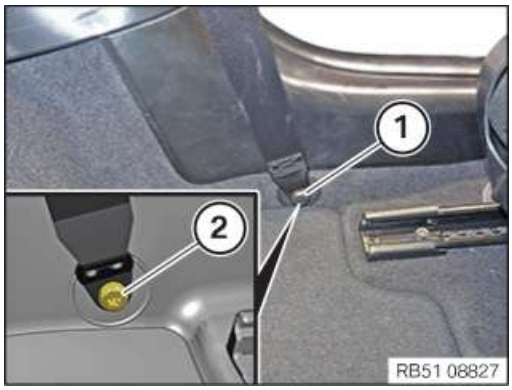
- If necessary, remove clips (1) and connect them to the door sill cover strip.

8 – Remove side trim panel, rear left and right

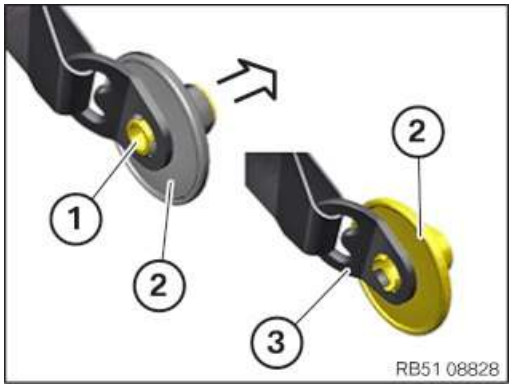
NOTICE

Description is for left component only. Procedure on the right side is identical.

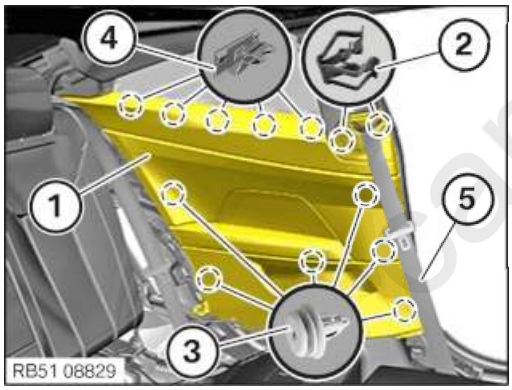
▸ **Remove rear side trim panel**



- Unclip the cover cap (1).
- Release the screw (2).



- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

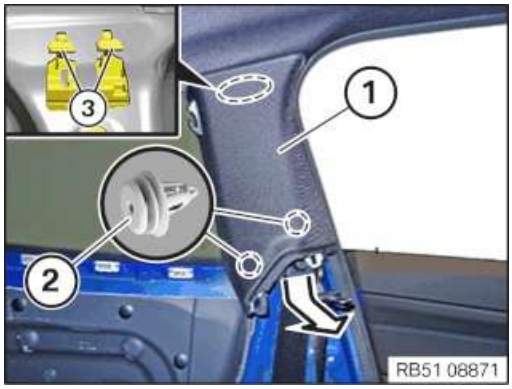
9 – Removing left and right B-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

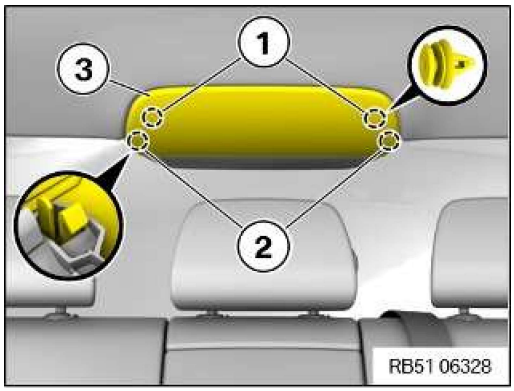
▸ **Remove the B-pillar trim panel**

ecordiagn.com



- Unclip the B-pillar trim panel (1) at the clips (2).
- Remove the B-pillar trim panel (1) from the lip of the edge protection and the guides (3) in the direction of the arrow.

10 – Removing the trim of the additional brake light



- Loosen the clips (1).
- Release the latch mechanisms (2) and remove the trim of the additional brake light (3).

MAIN WORK

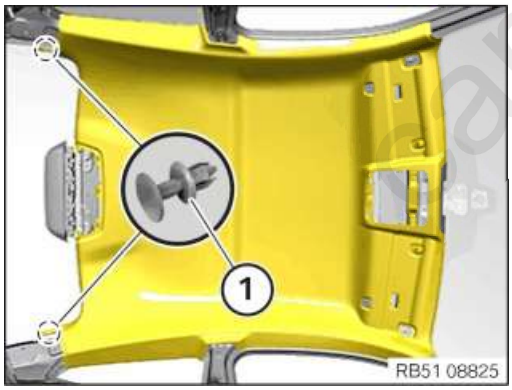
11 – Lower roofliner

Prerequisite

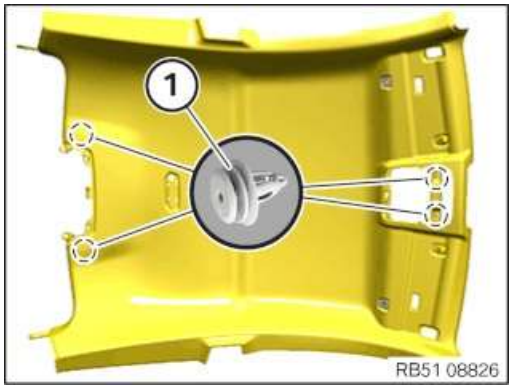
The front seats have been fully adjusted towards the bottom.

The front seat backrests have been fully adjusted towards the rear.

The rear seat backrest is folded down toward the front.



- Loosen the expanding rivet (1).



- Unclip the headlining at the clips (1) downwards.

cardiagn.com



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Feed out headlining (1) from the respective lips of edge protection with the assistance of a second person.
- Place the headlining (1) in the vehicle with an auxiliary person.

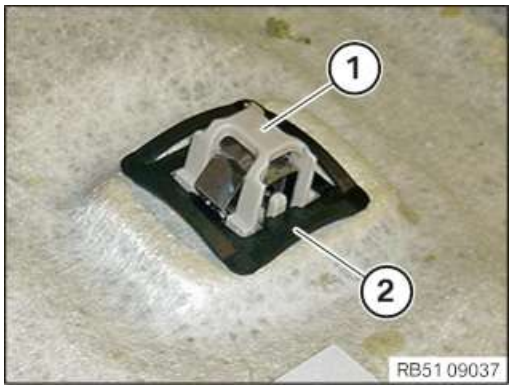
12 – Install the headlining (lowered)

Prerequisite

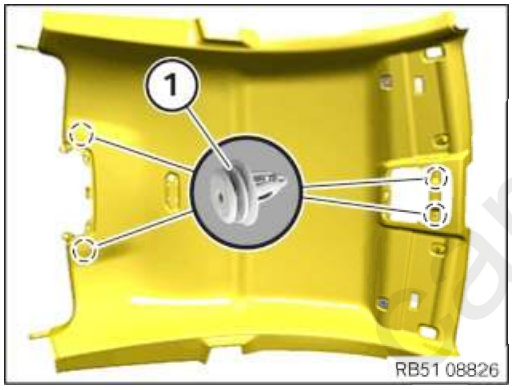
The front seats have been fully adjusted towards the bottom.

The front seat backrests have been fully adjusted towards the rear.

The rear seat backrest is folded down toward the front.

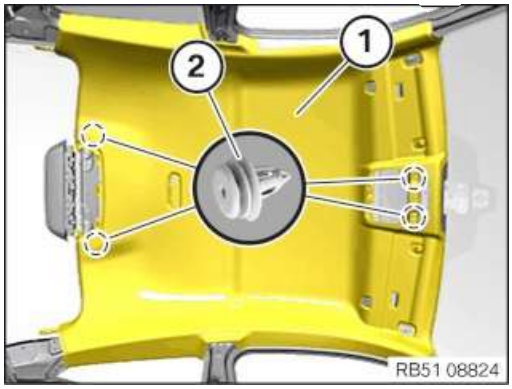


- Install the end support of the sun visors (1) in the headlining and mount it with clamps (2).



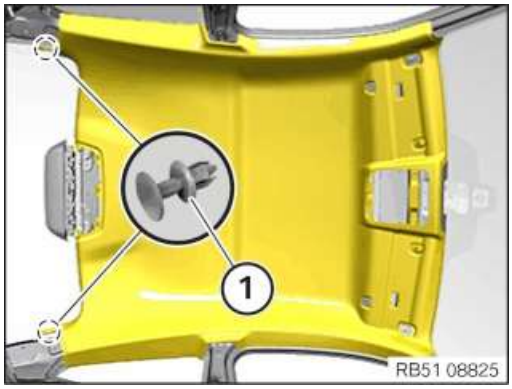
- Check the clips (1) on the headlining for damage.

  Defective or missing clips (1) must be renewed.



- Insert the headlining (1) with the help of an auxiliary person onto the respective edge protection.
- Clip in headlining (1) on the clips (2).

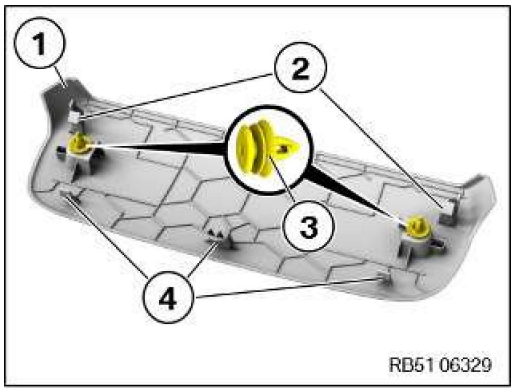
ardiagn.com



- Secure expanding rivet (1).

POSTPROCESSES

13 – Installing trim for additional brake light



Check

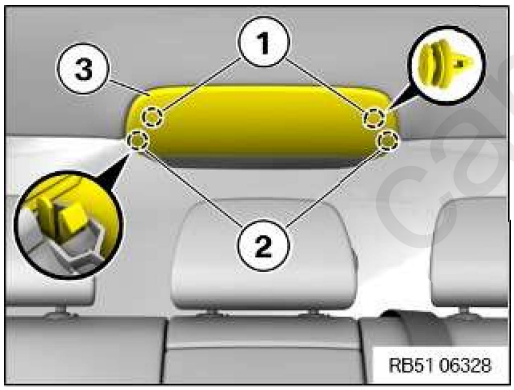
- Check the clips (3) for damage and renew if necessary.
- Check latch mechanisms (2) and guides (4) for damage.

Result

» The latch mechanism or the guide is damaged.

Measure

- Renew the trim for the additional brake light.



- Position trim for additional brake light (1) from the bottom and clip it in with latch mechanisms (2).
- Clip in clips (1).

14 – Installing the left and right B-pillar trim panel

NOTICE

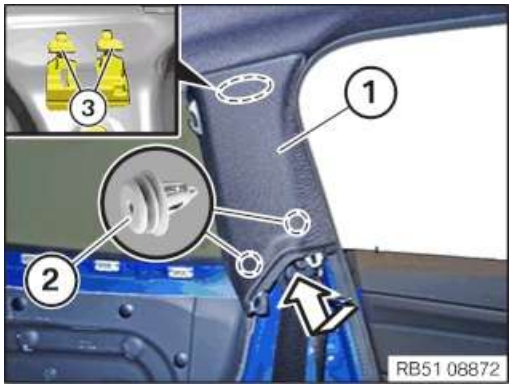
Description is for left component only. Procedure on the right side is identical.

▸ **Install the B-pillar trim panel**

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- Check clips (1) for damage and renew if necessary.



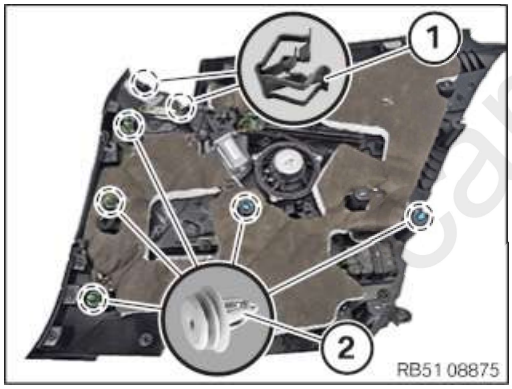
- Insert B-pillar trim panel (1) in direction of arrow into the guides (3) and under the lip of edge protection.
- Clip in the B-pillar trim panel (1) at the clips (2).

15 – Install side trim panel, rear left and right

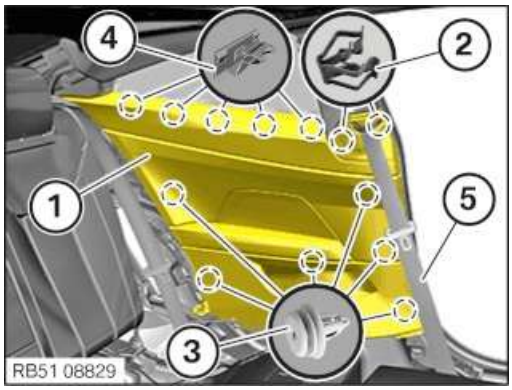
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ Install rear side trim panel

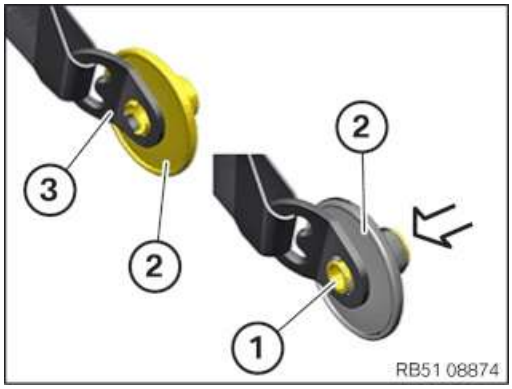


- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.

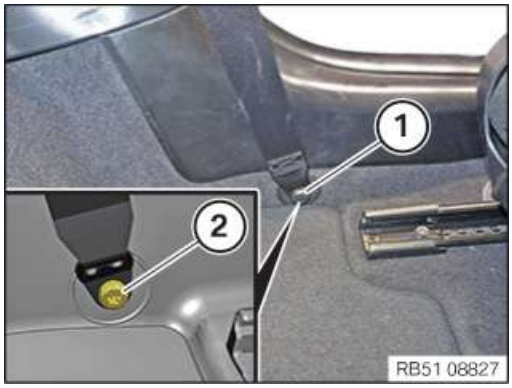


- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).

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- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

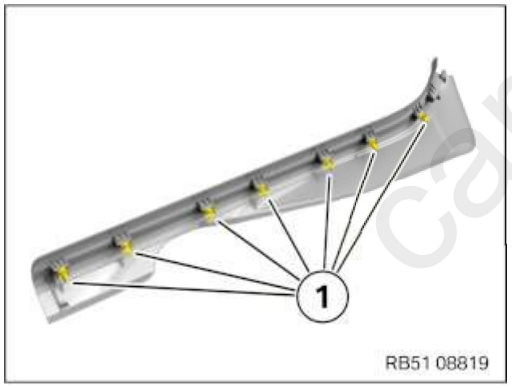
- Clip in cover cap (1).

16 – Installing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

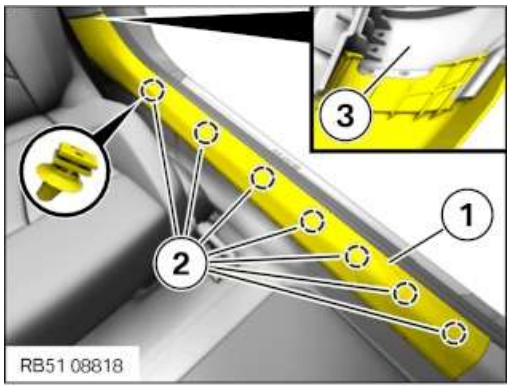
▸ **Installing the inner door sill cover strip**



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

17 – Installing the C-pillar trim panel on the left and right

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NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

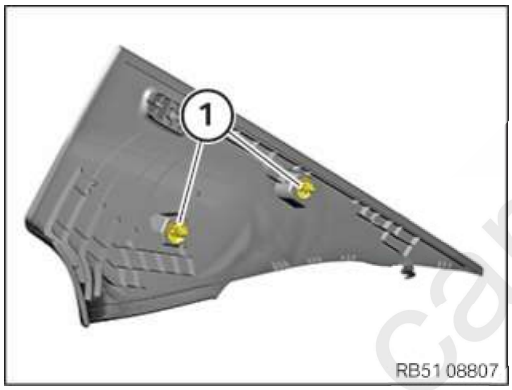
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

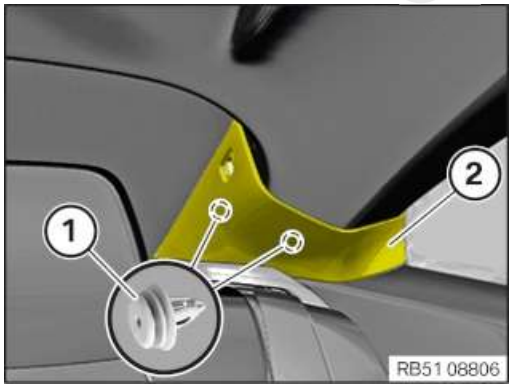
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

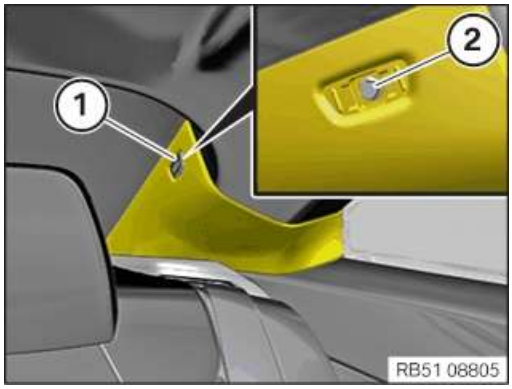


- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).

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- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

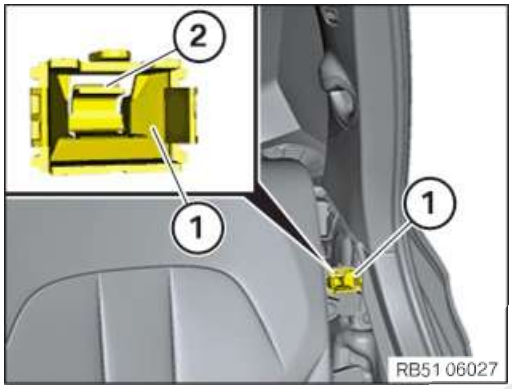
18 – Install the backrest side section on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

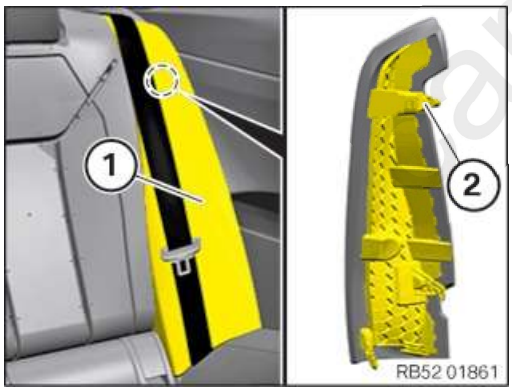
▶ **Installing backrest side section**

▷ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.

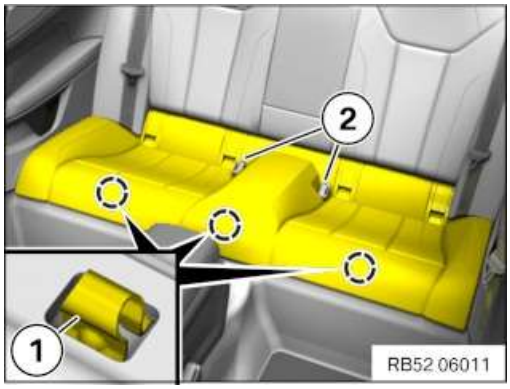


- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

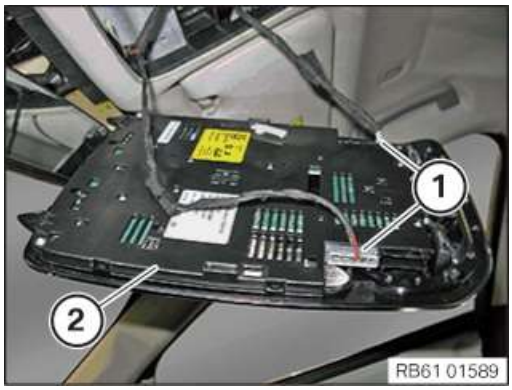
19 – Installing the rear seat bench

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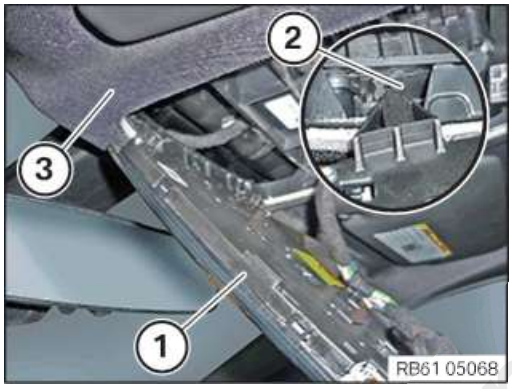


- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

20 – Installing roof function centre (FZD)



- Connect connectors (1) and lock.
- Clip in the cable for the roof function centre (FZD) (2) in the cable clip.



- Insert the roof function centre (FZD) (1) as shown at a steep angle in the two guides (2) on the headlining (3).
- Make sure the headlining is not deformed during this operation.



- Clip the roof function centre (FZD) (1) upwards into the clamps (2).



- Slide the special tool 2 298 505 in the direction of arrow between the FZD frame and the headlining along the dotted line to adjust the headlining correctly.

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- Tighten the screws (1).

Roof function centre (FZD)

	Tightening torque	1.2 Nm



- Clip in the cover (1).

21 – Installing the sun visors and the end support on the left and right

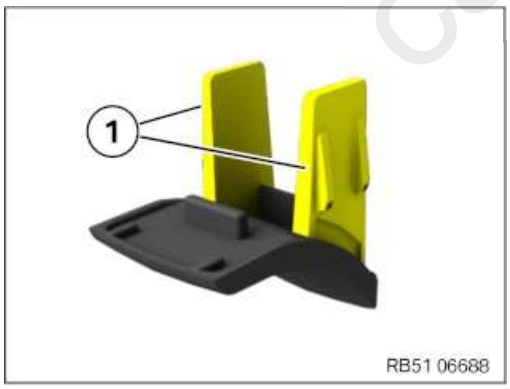
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install the sun visor and the counter support**

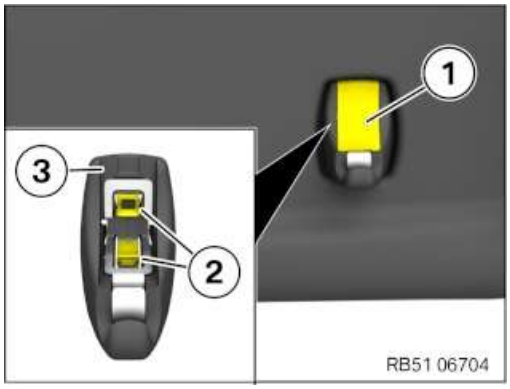
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

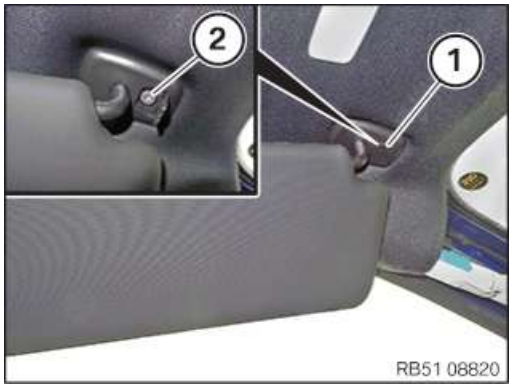


- Check the guides (1) on the cover of the end support for damage, renew if necessary.

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- Clip in the counter support (3) to the headlining.
- Make sure the clamps (2) are engaged correctly.
- Clip in the cover (1).



- Connect and lock corresponding connectors.
- Install the sun visors.
- Tighten down screw (2).

Sun visor to body

Screw		Tightening torque	3.3 Nm

- Close the cover (1).



- Hook the sun visors (1) to the end support (2).

22 – Install the A-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

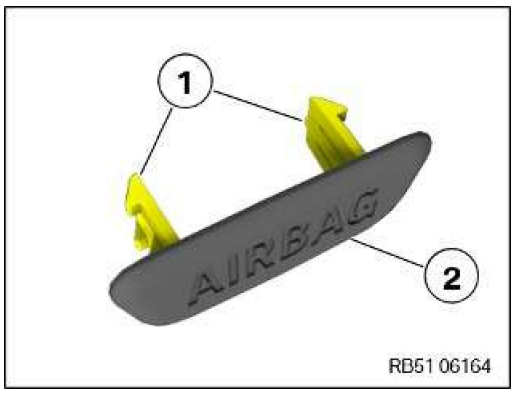
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RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



Check

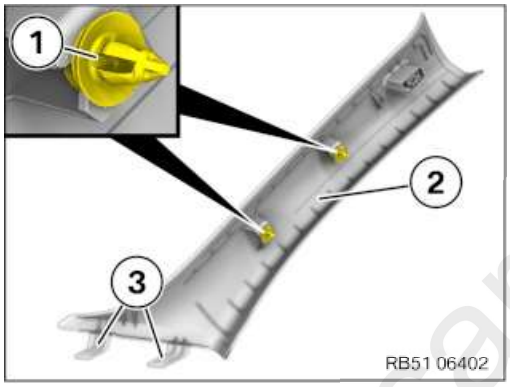
- Check retaining lugs (1) of cover (2) for damage.

Result

» Retaining lug is damaged.

Measure

- Renew the cover.



Check

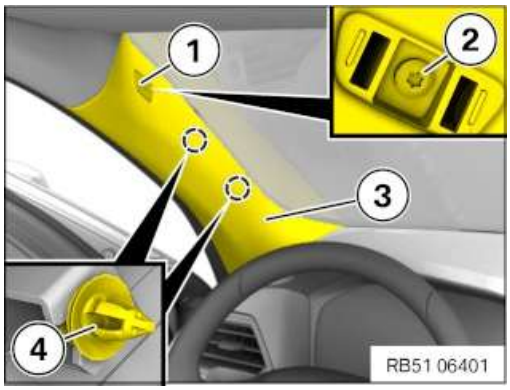
- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.



- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

- Clip in the cover (1).

Additional Information

Overview of Tightening Torques

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End fitting to body			Used in step 15
M10		Tightening torque	42 Nm

C-pillar trim panel to body			Used in step 17
Screw		Tightening torque	2,6 Nm

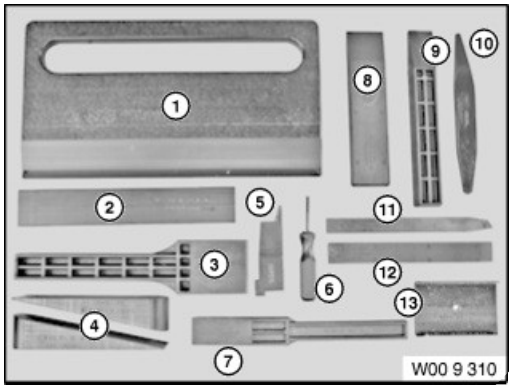
Roof function centre (FZD)			Used in step 20
		Tightening torque	1.2 Nm

Sun visor to body			Used in step 21
Screw		Tightening torque	3.3 Nm

A-pillar trim panel to body			Used in step 22
Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

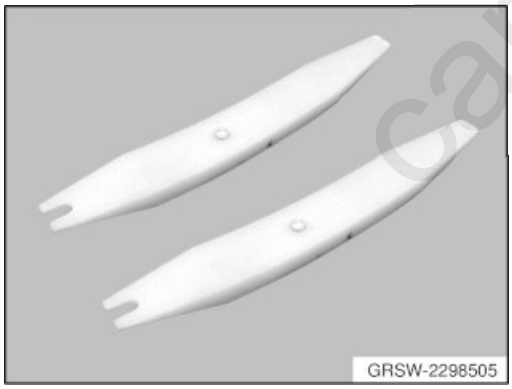
Overview of Special Tools

0 493 752 (00 9 329) Case



Common		Used in step 17
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.	
Included in the tool or work	0 490 527	
Storage location	Individual	
Replaced by		
In connection with		
SI-Number	01 07 09 (530)	

2 298 505 Wedge



Common		Used in step 20
Usage	Set (delivery of 2 pieces)	
Included in the tool or work		
Storage location	C34	
Replaced by		
In connection with		
SI-Number	01 03 12 (792)	

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	518

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	1518
72 00 ... Safety regulations for handling components with gas generators	1

Repair instructions	Used in step

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	518
61 20 900 Disconnecting and connecting battery earth lead	518
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61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518

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61 20 900 Disconnecting and connecting battery earth lead 518
61 20 900 Disconnecting and connecting battery earth lead 518
61 20 900 Disconnecting and connecting battery earth lead 518

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51 44 925 Lowering the headlining with SHD

PRELIMINARY WORK

1 – Remove left and right A-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

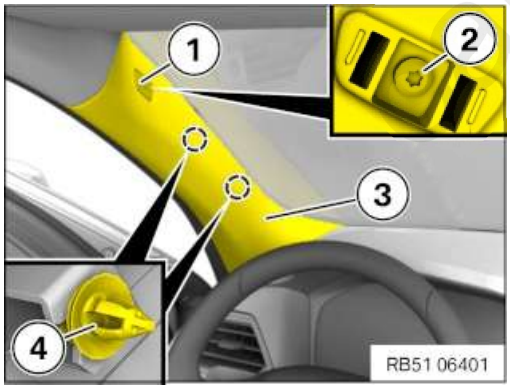
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

2 – Removing the sun visors and the end support on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

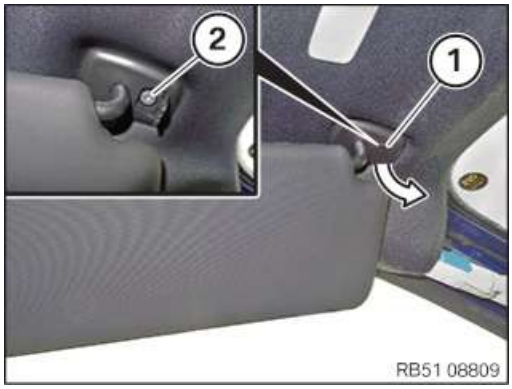
▸ **Remove the sun visor and the counter support**

NOTICE

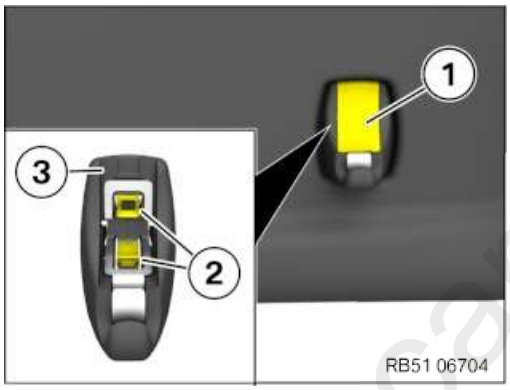
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Detach sun visors (1) from end support (2) and swivel to the side.



- Fold open cover (1).
- Loosen screw (2).
- Remove sun visors and unlock and disconnect the associated plug connection.



- Unclip cover (1) using a suitable tool.
- Push the clamps (2) together and pull the counter support (3) out of the headlining.

3 – Removing the roof function centre (FZD)



- Unclip the cover (1).

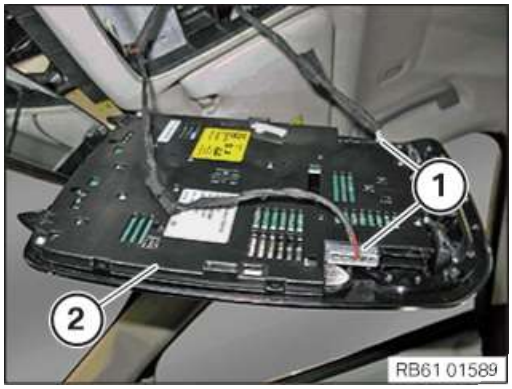
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- Loosen screws (1).

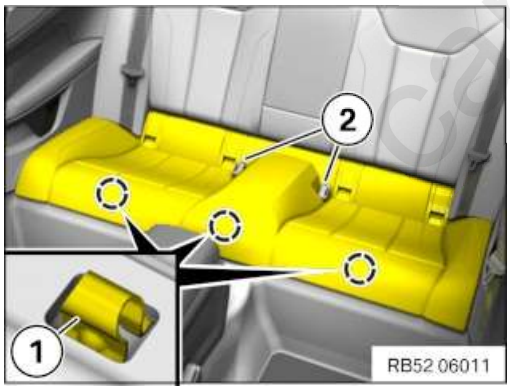


- Unclip the roof function centre (FZD) (1) from the clamps (2).
- Thread the roof function centre (FZD) (1) out of the guides (3).



- Unlock and disconnect plug connections (1).
- Unclip the cable clip from roof function centre (FZD) (2) and remove the roof function centre (FZD) (2).

4 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

5 – Remove backrest side section on left and right

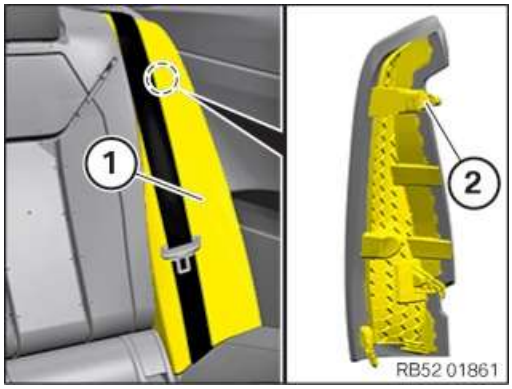
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove armrest side section**

▹ **Remove armrest side section**

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- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

6 – Removing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

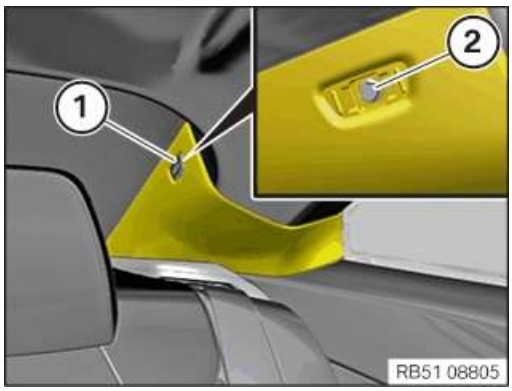
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

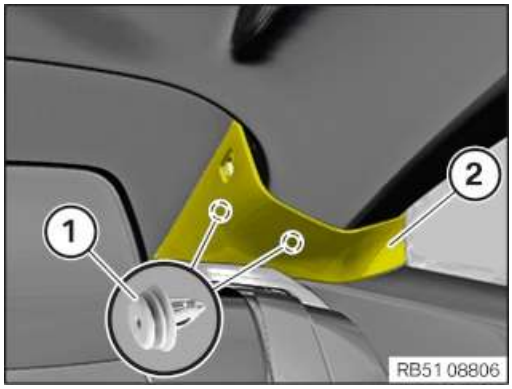
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).

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- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

7 – Removing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the inner door sill cover strip**

RISK OF DAMAGE

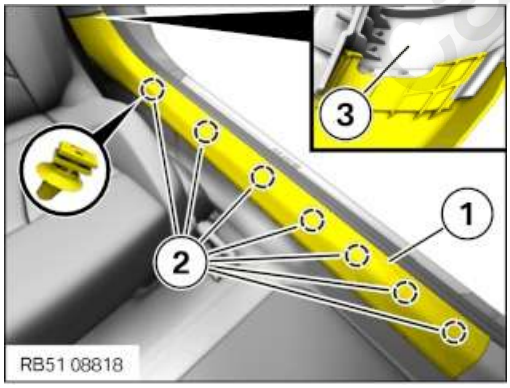
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

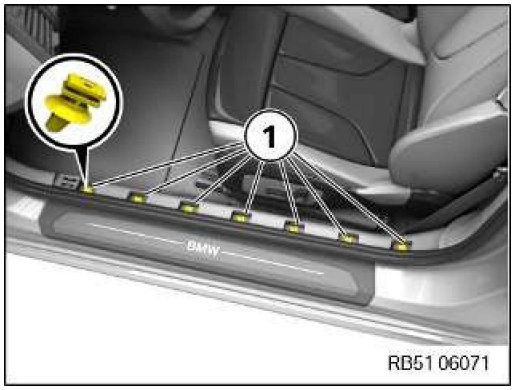
- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .



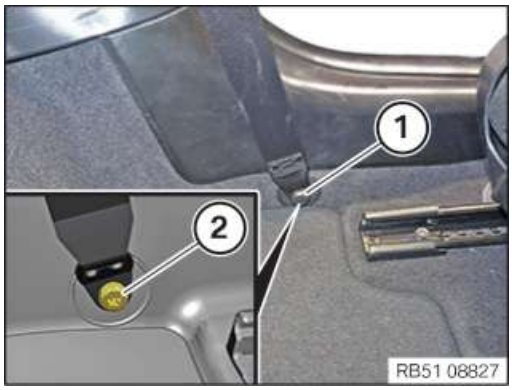
- If necessary, remove clips (1) and connect them to the door sill cover strip.

8 – Remove side trim panel, rear left and right

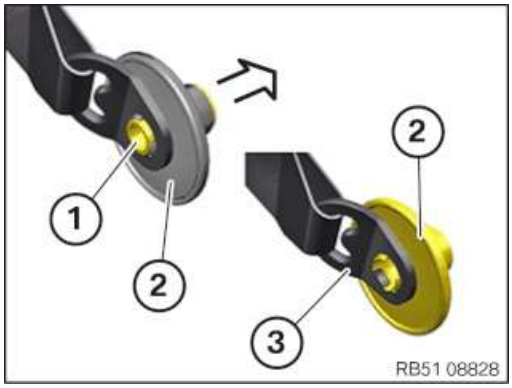
NOTICE

Description is for left component only. Procedure on the right side is identical.

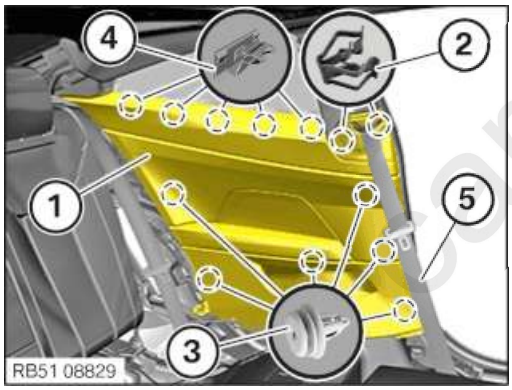
▸ **Remove rear side trim panel**



- Unclip the cover cap (1).
- Release the screw (2).



- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

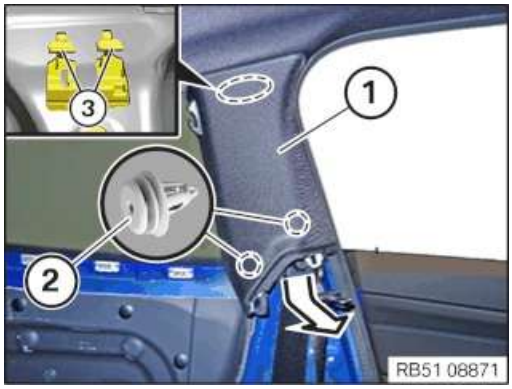
9 – Removing left and right B-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

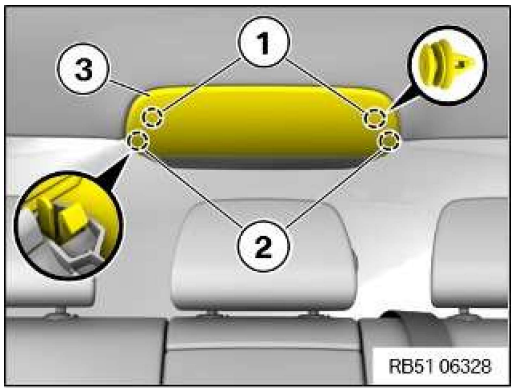
▸ **Remove the B-pillar trim panel**

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- Unclip the B-pillar trim panel (1) at the clips (2).
- Remove the B-pillar trim panel (1) from the lip of the edge protection and the guides (3) in the direction of the arrow.

10 – Removing the trim of the additional brake light



- Loosen the clips (1).
- Release the latch mechanisms (2) and remove the trim of the additional brake light (3).

MAIN WORK

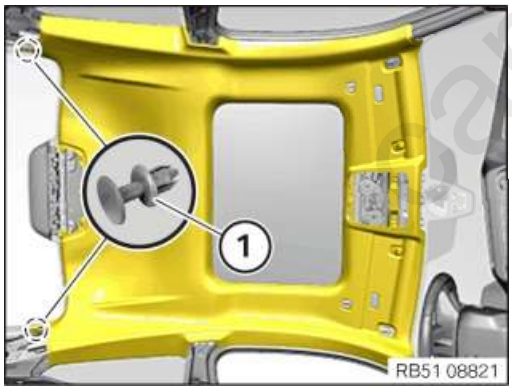
11 – Lower the headlining (with SHD)

Prerequisite

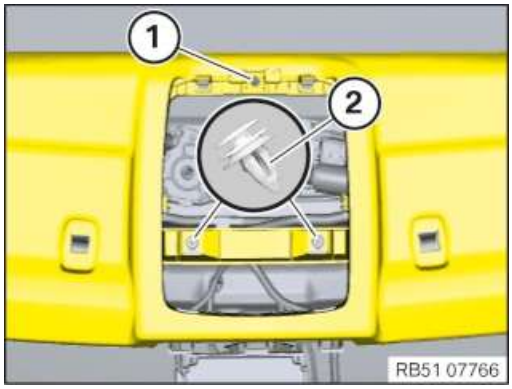
The front seats have been fully adjusted towards the bottom.

The front seat backrests have been fully adjusted towards the rear.

The rear seat backrest is folded down toward the front.

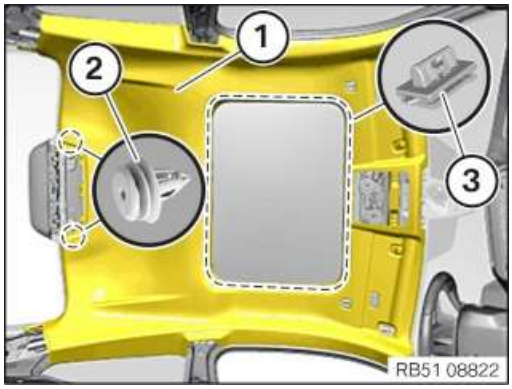


- Loosen the expanding rivet (1).



- Loosen screw (1).
- Unclip the headlining on the clips (2) downwards.

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- Unclip headlining (1) downwards from clips (2).
- Carefully unclip headlining (1) from the slide/tilt sunroof unit and clamps and the clamps (3) in the area of the dotted line.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Feed out headlining (1) from the respective lips of edge protection with the assistance of a second person.
- Place the headlining (1) in the vehicle with an auxiliary person.

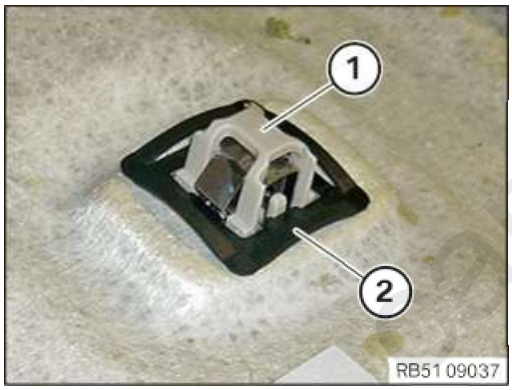
12 – Install the headlining (with slide/tilt sunroof) (lowered)

Prerequisite

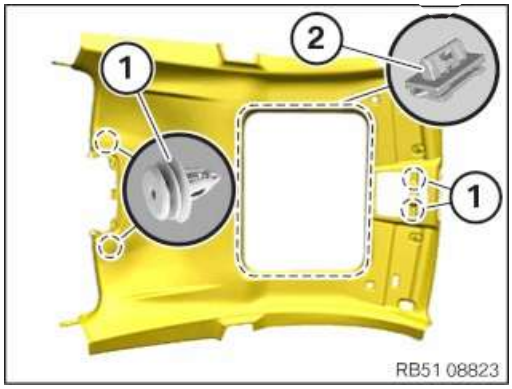
The front seats have been fully adjusted towards the bottom.

The front seat backrests have been fully adjusted towards the rear.

The rear seat backrest is folded down toward the front.



- Install the end support of the sun visors (1) in the headlining and mount it with clamps (2).

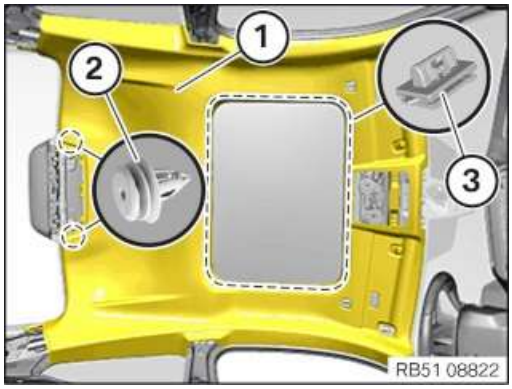


- Check the clips (1) on the headlining for damage.

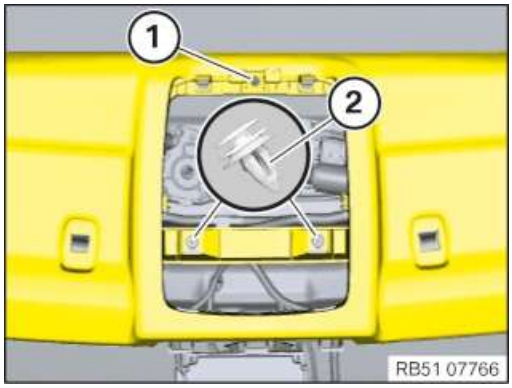
  Defective or missing clips (1) must be renewed.
- Check the clamps (2) along the dotted line for damage.

  Defective or missing clamps (2) need to be renewed.

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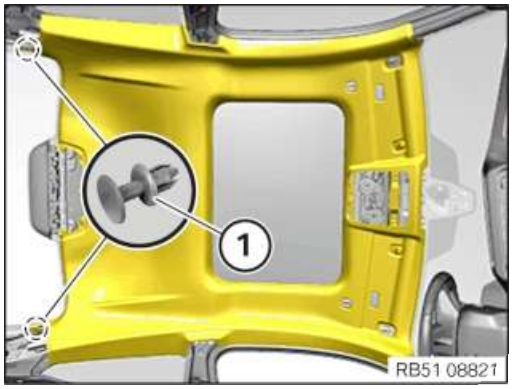
- Insert the headlining (1) with the help of an auxiliary person onto the respective edge protection.
- Clip in headlining (1) on the clips (2).
- Clip the headlining (1) in the area of the dotted line at the slide/tilt sunroof unit and the clamps (3).



- Clip headlining to the clips (2).
- Tighten down screw (1).

Headlining to frame

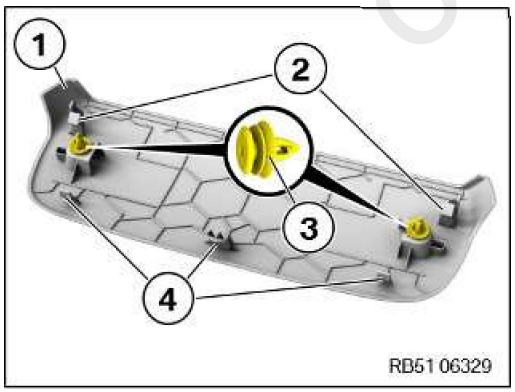
Oval-head screw		Tightening torque	1,5 Nm



- Secure expanding rivet (1).

POSTPROCESSES

13 – Installing trim for additional brake light



Check

- Check the clips (3) for damage and renew if necessary.
- Check latch mechanisms (2) and guides (4) for damage.

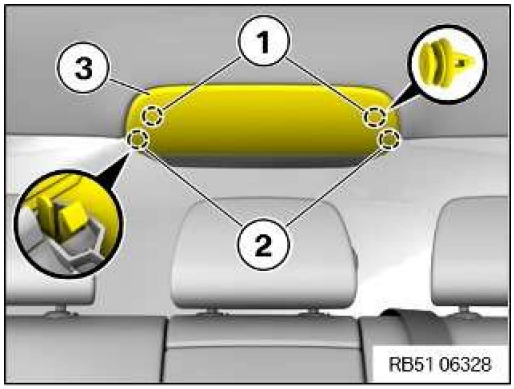
Result

» The latch mechanism or the guide is damaged.

Measure

- Renew the trim for the additional brake light.

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- Position trim for additional brake light (1) from the bottom and clip it in with latch mechanisms (2).
- Clip in clips (1).

14 – Installing the left and right B-pillar trim panel

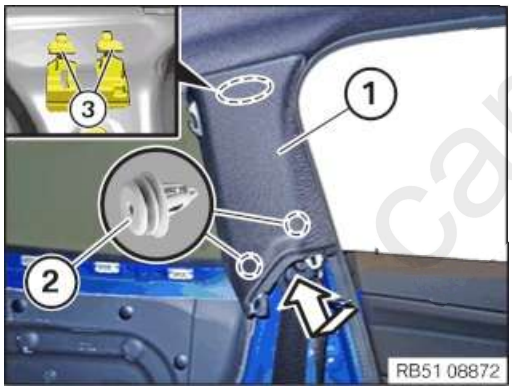
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install the B-pillar trim panel**



- Check clips (1) for damage and renew if necessary.



- Insert B-pillar trim panel (1) in direction of arrow into the guides (3) and under the lip of edge protection.
- Clip in the B-pillar trim panel (1) at the clips (2).

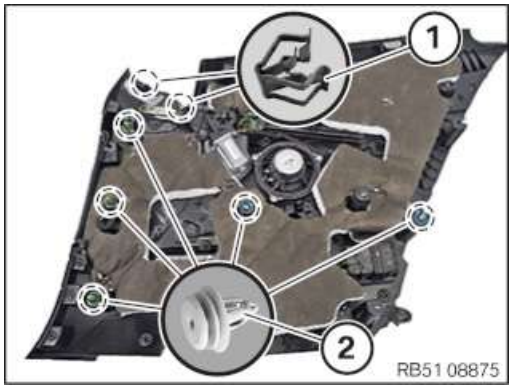
15 – Install side trim panel, rear left and right

NOTICE

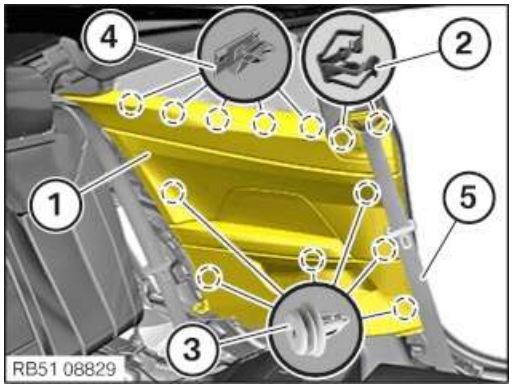
Description is for left component only. Procedure on the right side is identical.

▸ **Install rear side trim panel**

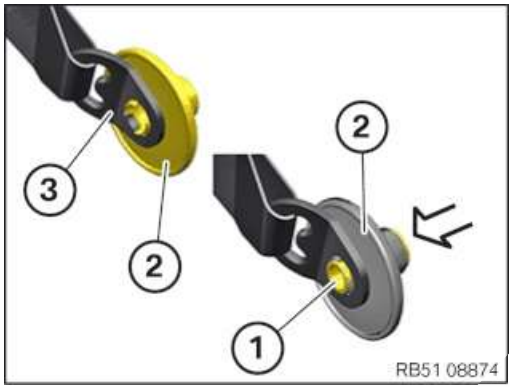
carmagn.com



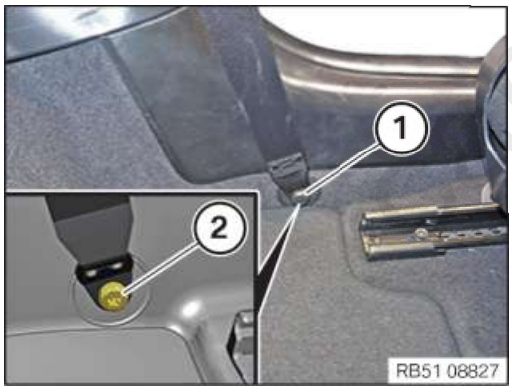
- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.



- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).



- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

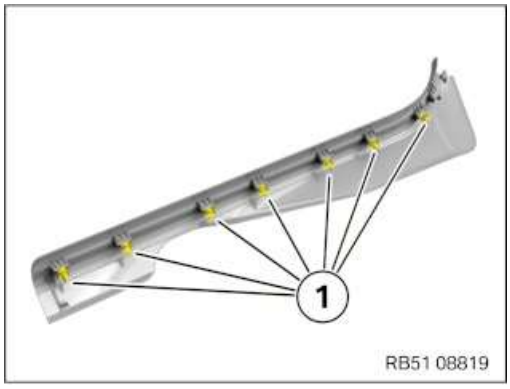
16 – Installing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the inner door sill cover strip**

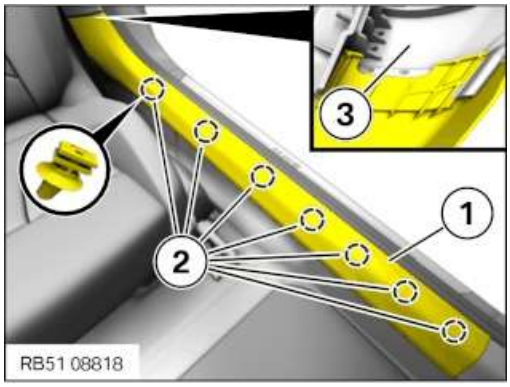
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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

17 – Installing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

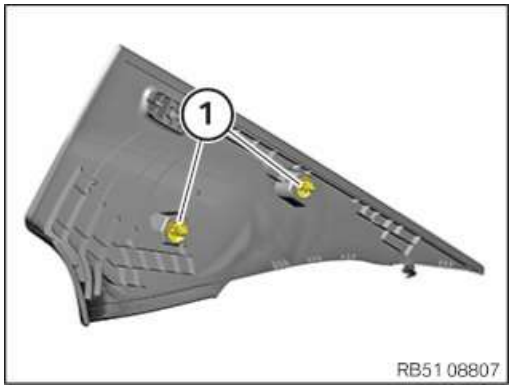
RISK OF DAMAGE

Damage to the head airbag.

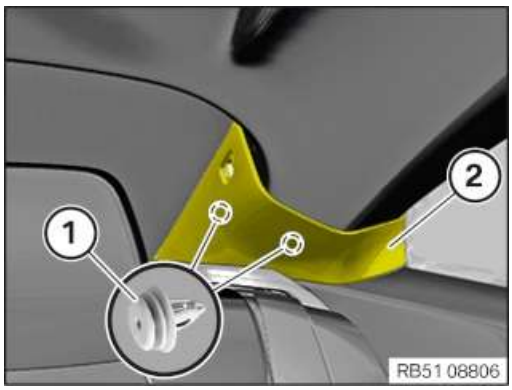
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

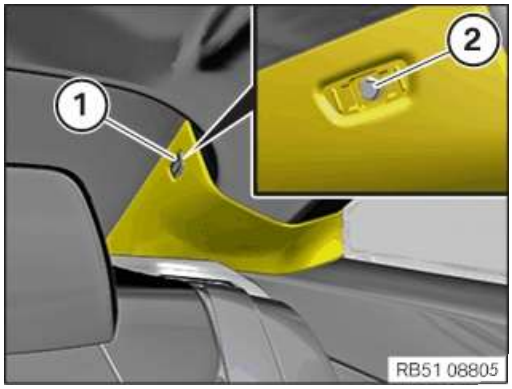
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- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

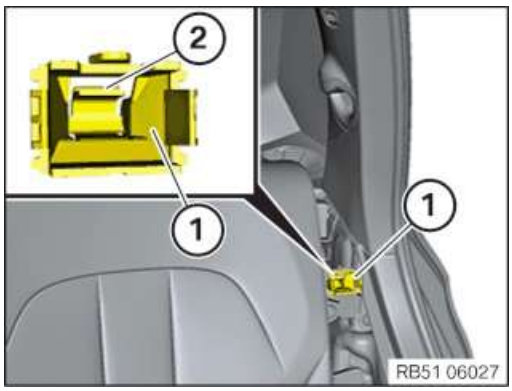
18 – Install the backrest side section on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing backrest side section**

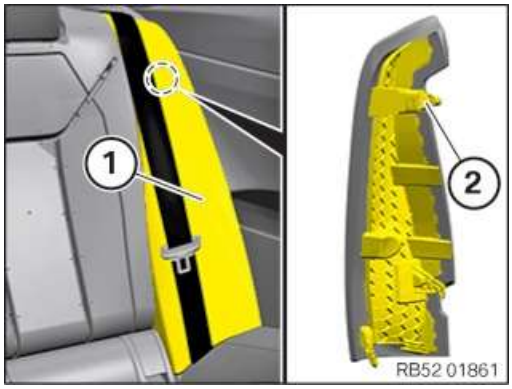
▹ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.

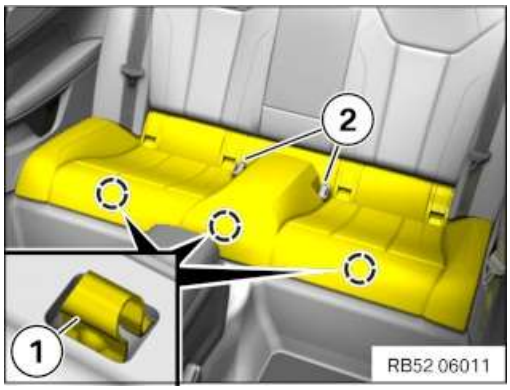
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- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

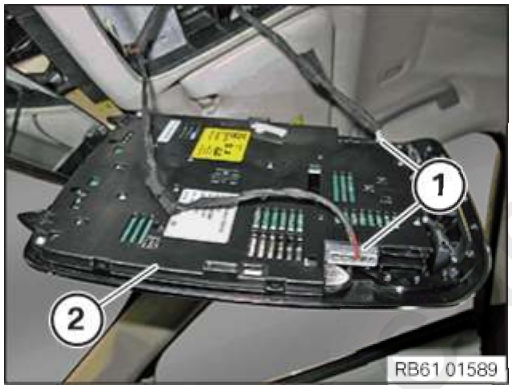
◁

19 – Installing the rear seat bench

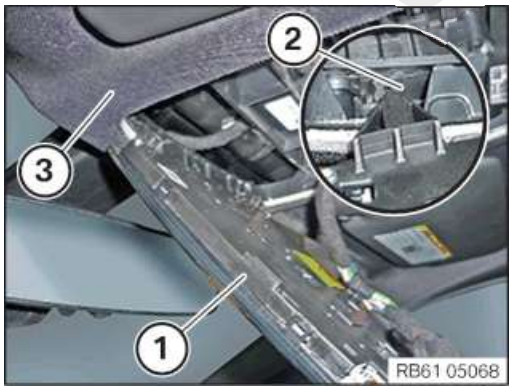


- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

20 – Installing roof function centre (FZD)



- Connect connectors (1) and lock.
- Clip in the cable for the roof function centre (FZD) (2) in the cable clip.



- Insert the roof function centre (FZD) (1) as shown at a steep angle in the two guides (2) on the headlining (3).
- Make sure the headlining is not deformed during this operation.

.com



- Clip the roof function centre (FZD) (1) upwards into the clamps (2).



- Slide the special tool 2 298 505 in the direction of arrow between the FZD frame and the headlining along the dotted line to adjust the headlining correctly.



- Tighten the screws (1).

Roof function centre (FZD)

	Tightening torque	1.2 Nm



- Clip in the cover (1).

21 – Installing the sun visors and the end support on the left and right

NOTICE

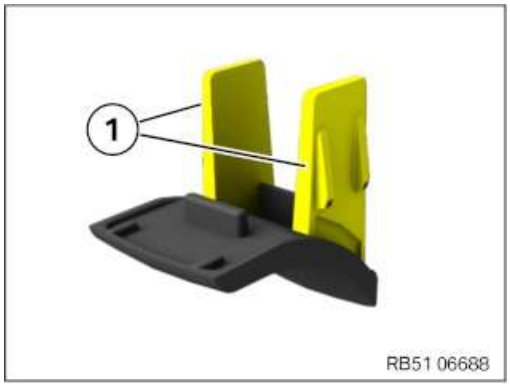
Description is for left component only. Procedure on the right side is identical.

▸ **Install the sun visor and the counter support**

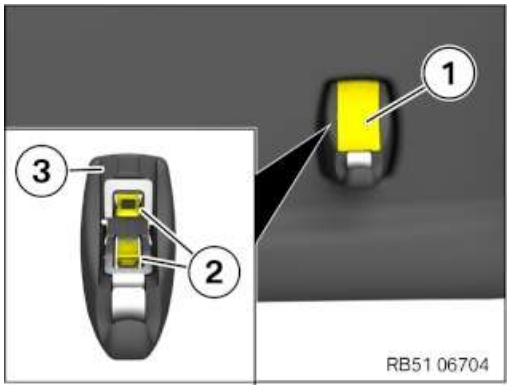
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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check the guides (1) on the cover of the end support for damage, renew if necessary.



- Clip in the counter support (3) to the headlining.
- Make sure the clamps (2) are engaged correctly.
- Clip in the cover (1).



- Connect and lock corresponding connectors.
- Install the sun visors.
- Tighten down screw (2).

Sun visor to body

Screw		Tightening torque	3.3 Nm

- Close the cover (1).



- Hook the sun visors (1) to the end support (2).

22 – Install the A-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

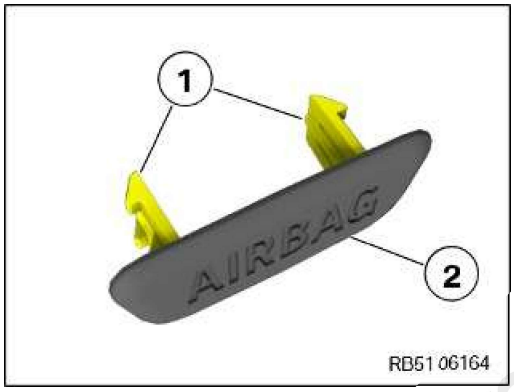
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



Check

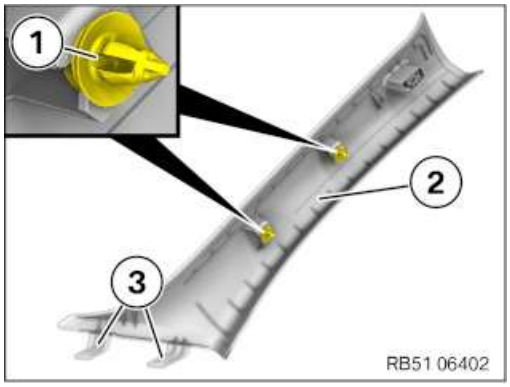
- Check retaining lugs (1) of cover (2) for damage.

Result

» Retaining lug is damaged.

Measure

- Renew the cover.



Check

- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

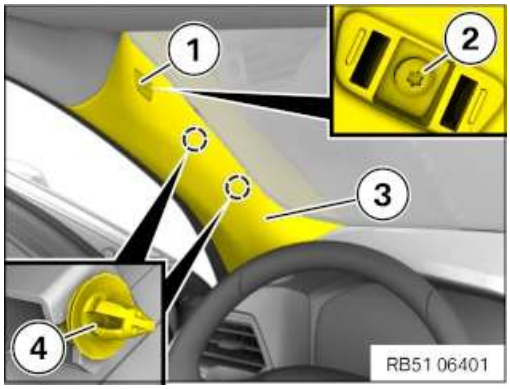
Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.

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- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

- Clip in the cover (1).

Additional Information

Overview of Tightening Torques

Headlining to frame — Used in step 12

Oval-head screw		Tightening torque	1,5 Nm

End fitting to body — Used in step 15

M10		Tightening torque	42 Nm

C-pillar trim panel to body — Used in step 17

Screw		Tightening torque	2,6 Nm

Roof function centre (FZD) — Used in step 20

		Tightening torque	1.2 Nm

Sun visor to body — Used in step 21

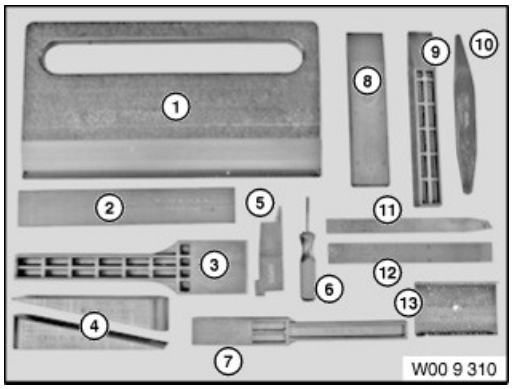
Screw		Tightening torque	3.3 Nm

A-pillar trim panel to body — Used in step 22

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case

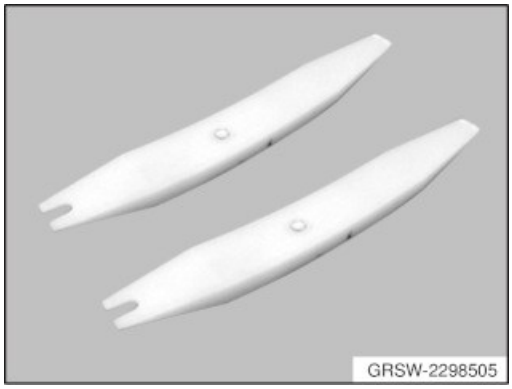


Common — Used in step 17

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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2 298 505 Wedge



Common	Used in step 20
Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	518

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	1518
72 00 ... Safety regulations for handling components with gas generators	1

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
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61 20 900 Disconnecting and connecting battery earth lead	518
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	518
61 20 900 Disconnecting and connecting battery earth lead	518
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518

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51 44 910 Releasing and securing the headlining on the left

RISK OF DAMAGE

Fold the headlining.

If the headlining is folded, it may have to be replaced.

- Carry out tasks with a second person to assist.
- Support the headlining at the front and back.

PRELIMINARY WORK

1 – Remove the A-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

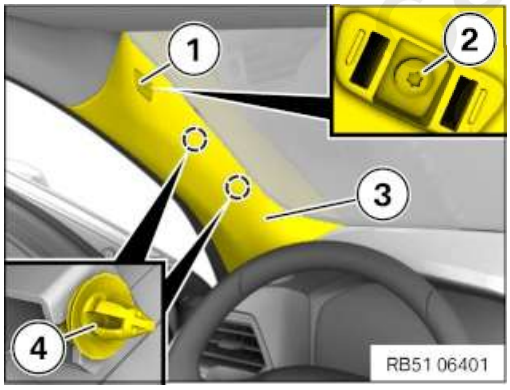
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

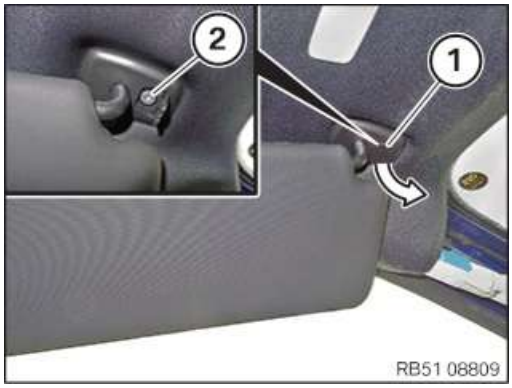
2 – Remove the sun visor and the counter support

NOTICE

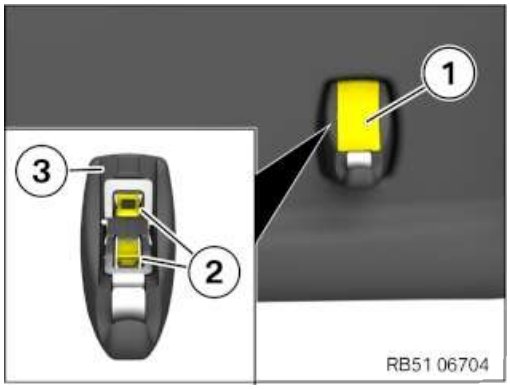
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Detach sun visors (1) from end support (2) and swivel to the side.



- Fold open cover (1).
- Loosen screw (2).
- Remove sun visors and unlock and disconnect the associated plug connection.



- Unclip cover (1) using a suitable tool.
- Push the clamps (2) together and pull the counter support (3) out of the headlining.

3 – Removing the roof function centre (FZD)



- Unclip the cover (1).

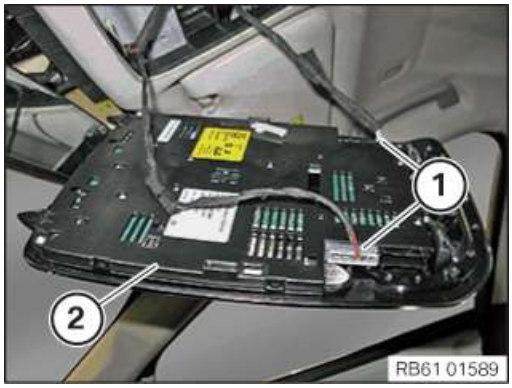


- Loosen screws (1).

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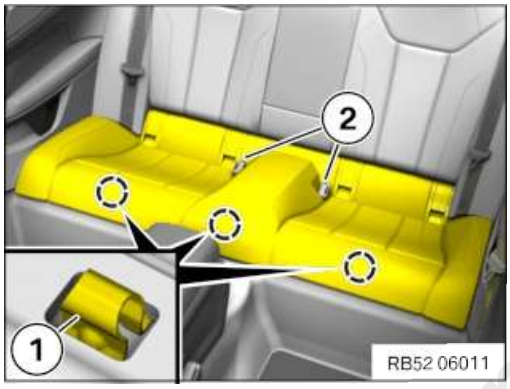


- Unclip the roof function centre (FZD) (1) from the clamps (2).
- Thread the roof function centre (FZD) (1) out of the guides (3).



- Unlock and disconnect plug connections (1).
- Unclip the cable clip from roof function centre (FZD) (2) and remove the roof function centre (FZD) (2).

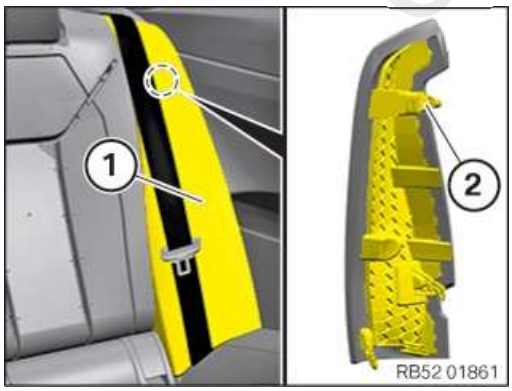
4 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

5 – Remove armrest side section

▸ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

6 – Remove C-pillar trim panel

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

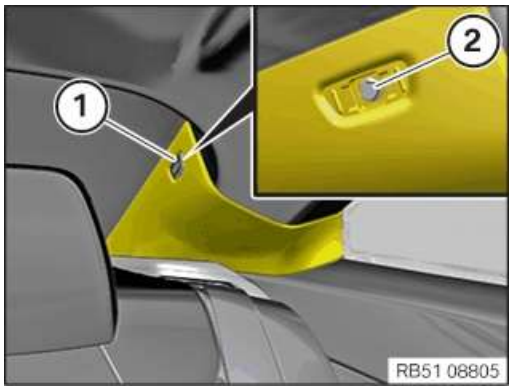
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

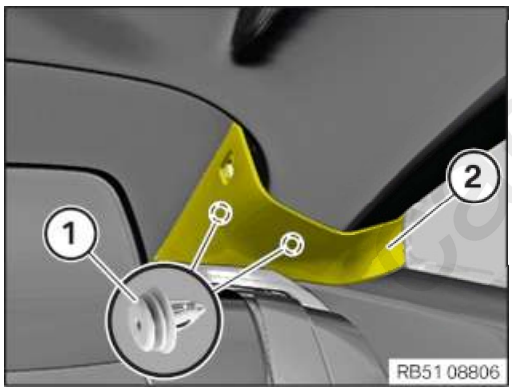
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

7 – Removing the inner door sill cover strip

RISK OF DAMAGE

Bending of plastic parts.

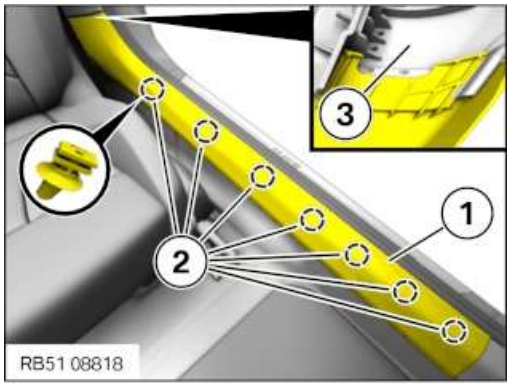
Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

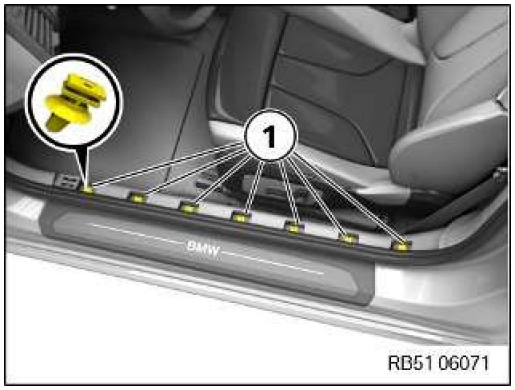
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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

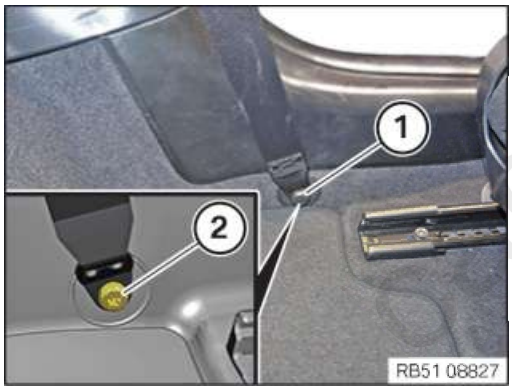


- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

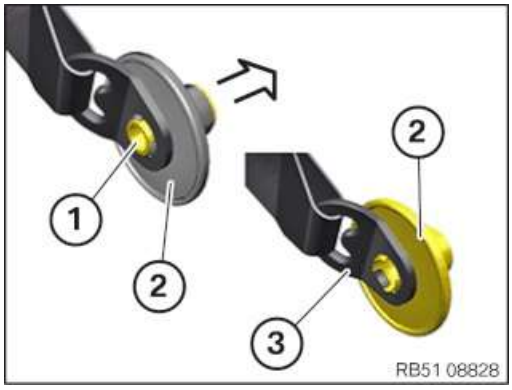


- If necessary, remove clips (1) and connect them to the door sill cover strip.

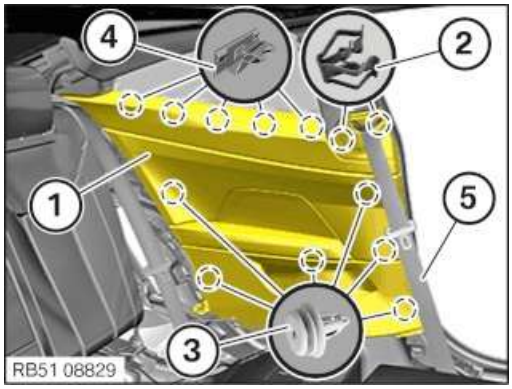
8 – Remove rear side trim panel



- Unclip the cover cap (1).
- Release the screw (2).

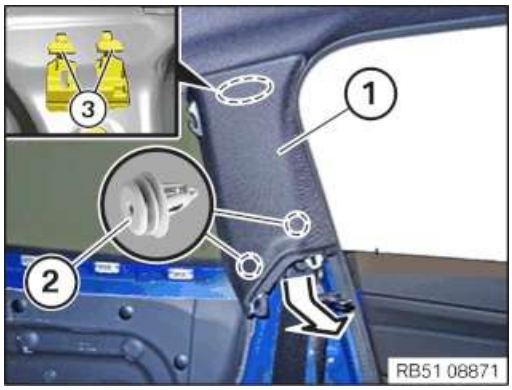


- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



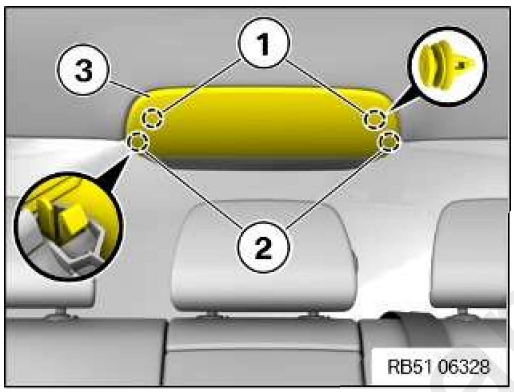
- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

9 – Remove the B-pillar trim panel



- Unclip the B-pillar trim panel (1) at the clips (2).
- Remove the B-pillar trim panel (1) from the lip of the edge protection and the guides (3) in the direction of the arrow.

10 – Removing the trim of the additional brake light



- Loosen the clips (1).
- Release the latch mechanisms (2) and remove the trim of the additional brake light (3).

MAIN WORK

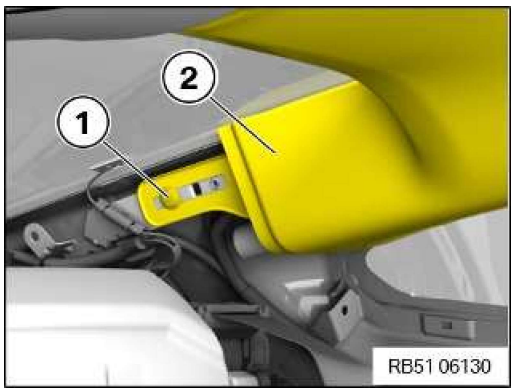
11 – Lower the headlining on the left or right

Prerequisite

The front seats have been fully adjusted towards the bottom.

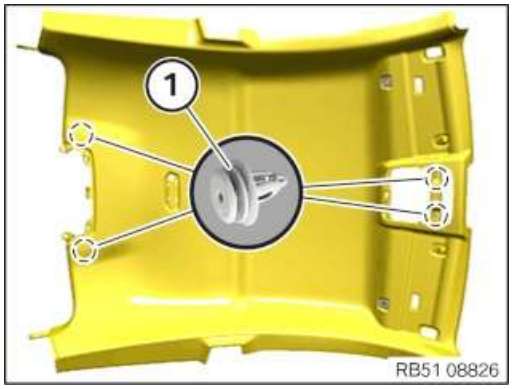
The front seat backrests have been fully adjusted towards the rear.

The rear seat backrest is folded down toward the front.



- Release the expanding rivets (1) on the headlining (2).

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- Unclip the headlining at the clips (1) downwards.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Guide out the headlining at the respective edge protection.
- Lower the headlining and place it onto the head restraints as shown.

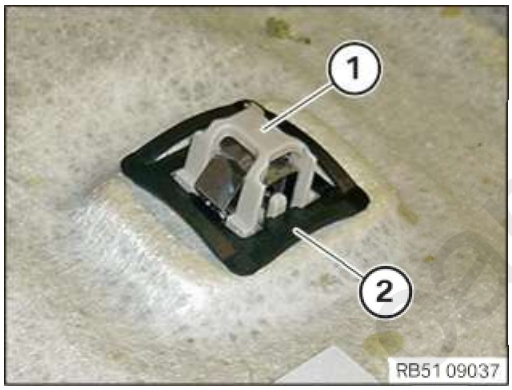
12 – Install the headlining (lowered)

Prerequisite

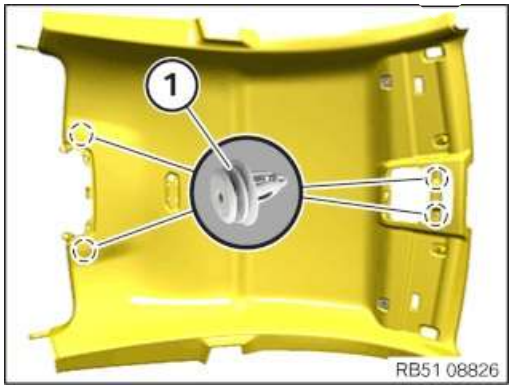
The front seats have been fully adjusted towards the bottom.

The front seat backrests have been fully adjusted towards the rear.

The rear seat backrest is folded down toward the front.



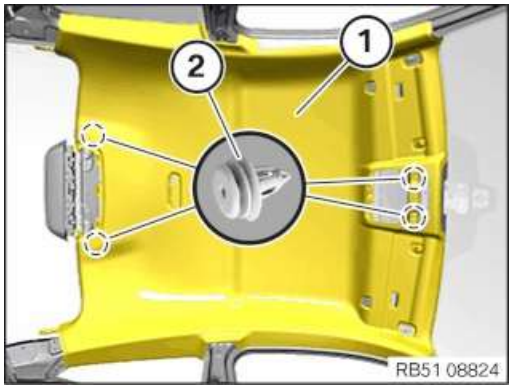
- Install the end support of the sun visors (1) in the headlining and mount it with clamps (2).



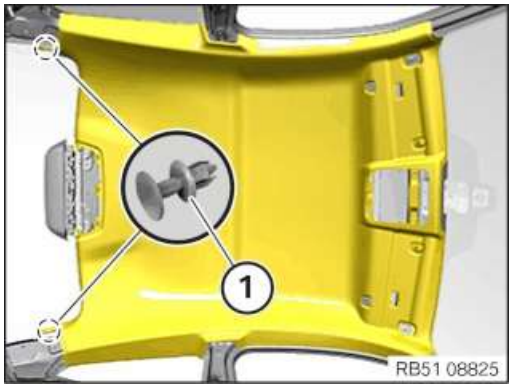
- Check the clips (1) on the headlining for damage.

  Defective or missing clips (1) must be renewed.

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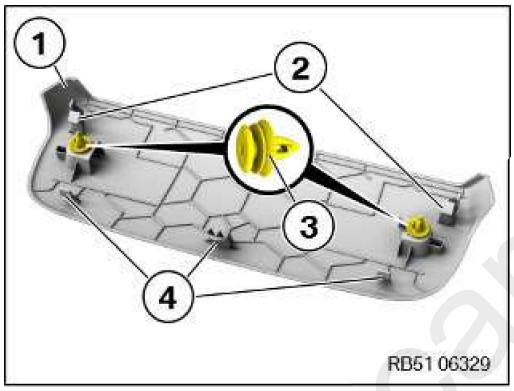
- Insert the headlining (1) with the help of an auxiliary person onto the respective edge protection.
- Clip in headlining (1) on the clips (2).



- Secure expanding rivet (1).

POSTPROCESSES

13 – Installing trim for additional brake light



Check

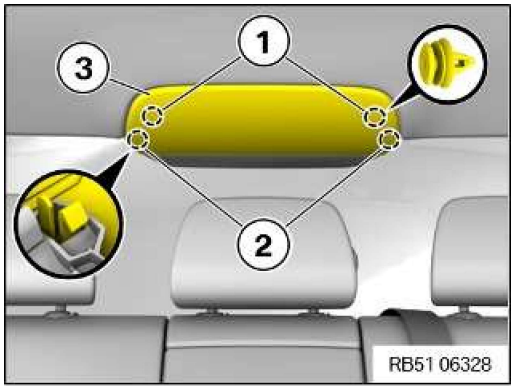
- Check the clips (3) for damage and renew if necessary.
- Check latch mechanisms (2) and guides (4) for damage.

Result

» The latch mechanism or the guide is damaged.

Measure

- Renew the trim for the additional brake light.



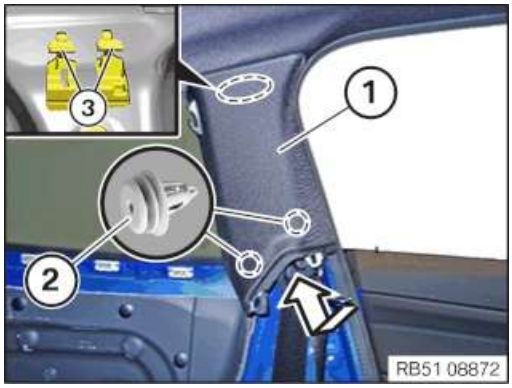
- Position trim for additional brake light (1) from the bottom and clip it in with latch mechanisms (2).
- Clip in clips (1).

14 – Install the B-pillar trim panel

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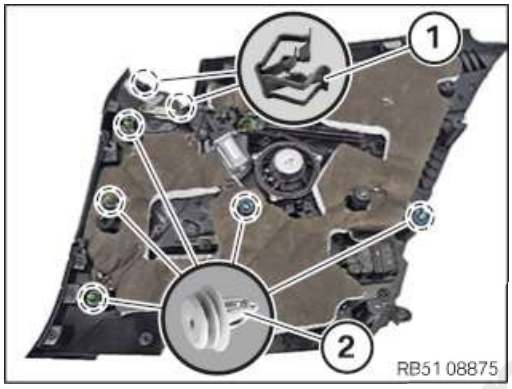


- Check clips (1) for damage and renew if necessary.

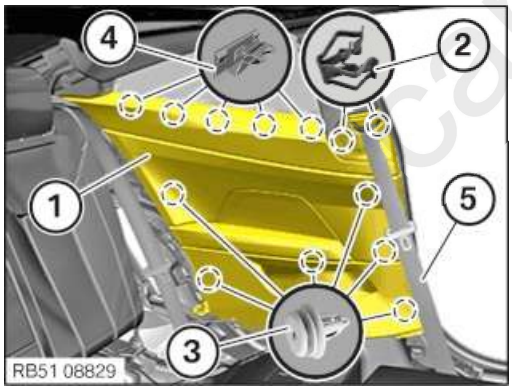


- Insert B-pillar trim panel (1) in direction of arrow into the guides (3) and under the lip of edge protection.
- Clip in the B-pillar trim panel (1) at the clips (2).

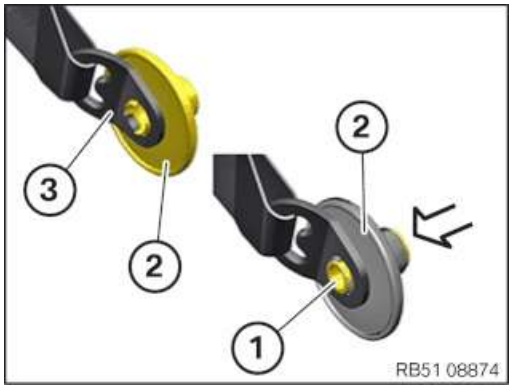
15 – Install rear side trim panel



- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.

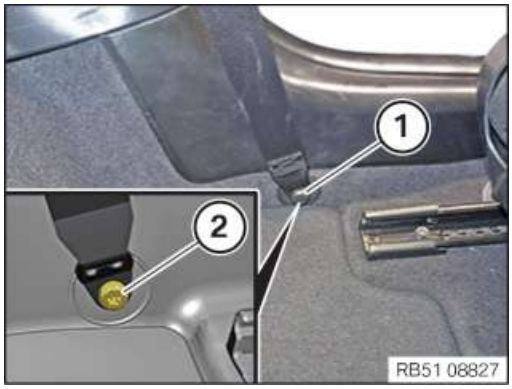


- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).



- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).

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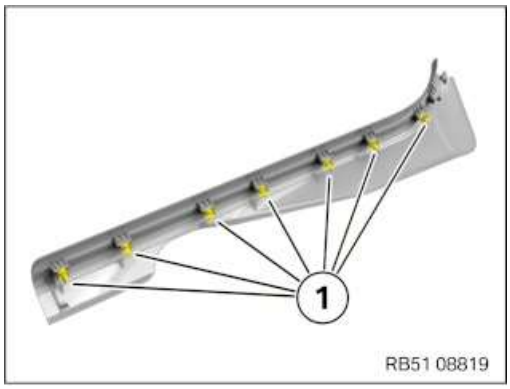
- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

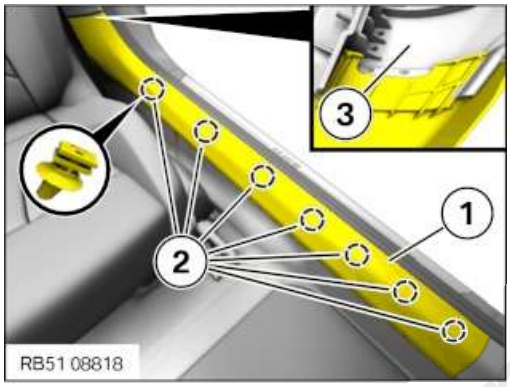
16 – Installing the inner door sill cover strip



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

17 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

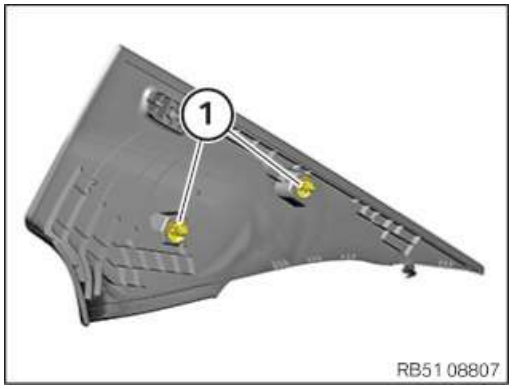
RISK OF DAMAGE

Damage to the head airbag.

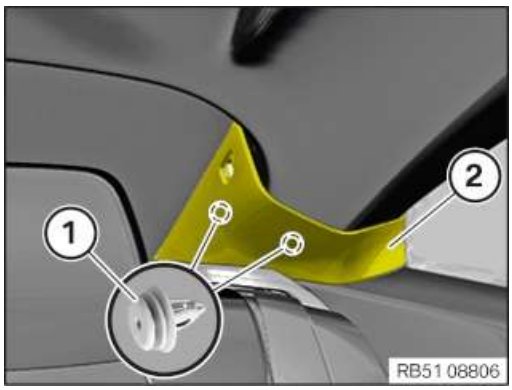
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

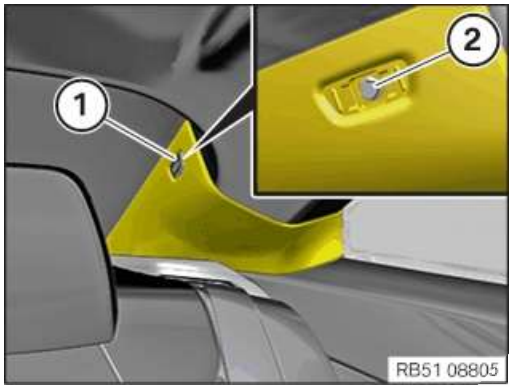
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- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

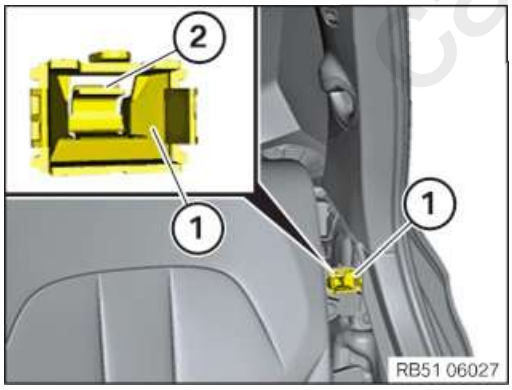
C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

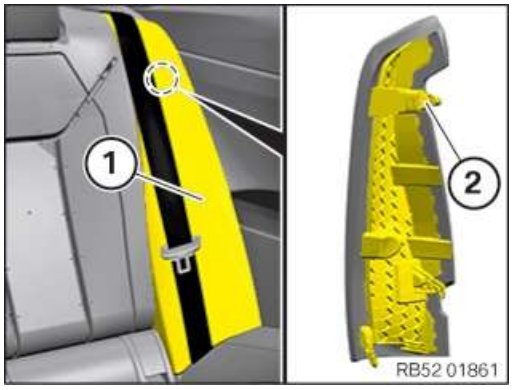
18 – Installing backrest side section

▸ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

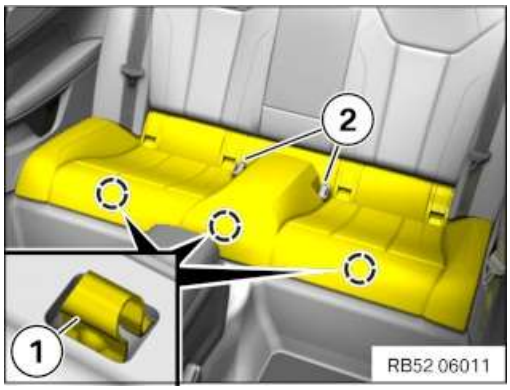
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

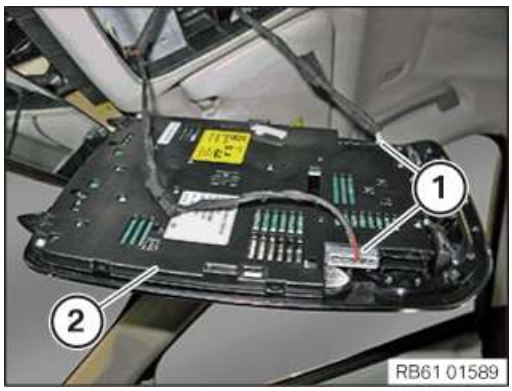
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19 – Installing the rear seat bench

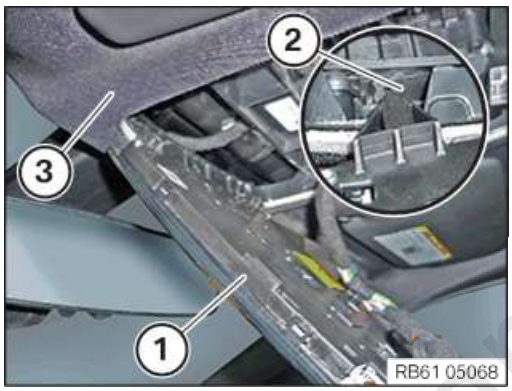


- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

20 – Installing roof function centre (FZD)



- Connect connectors (1) and lock.
- Clip in the cable for the roof function centre (FZD) (2) in the cable clip.



- Insert the roof function centre (FZD) (1) as shown at a steep angle in the two guides (2) on the headlining (3).
- Make sure the headlining is not deformed during this operation.



- Clip the roof function centre (FZD) (1) upwards into the clamps (2).



- Slide the special tool 2 298 505 in the direction of arrow between the FZD frame and the headlining along the dotted line to adjust the headlining correctly.

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- Tighten the screws (1).

Roof function centre (FZD)

	Tightening torque	1.2 Nm

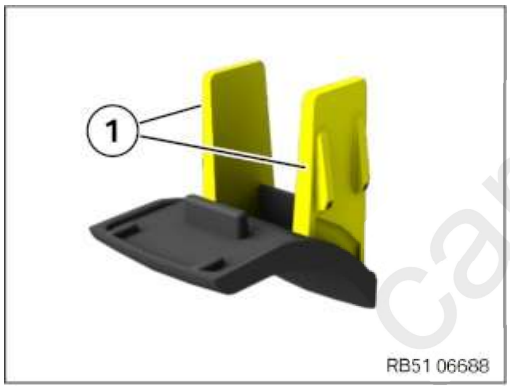


- Clip in the cover (1).

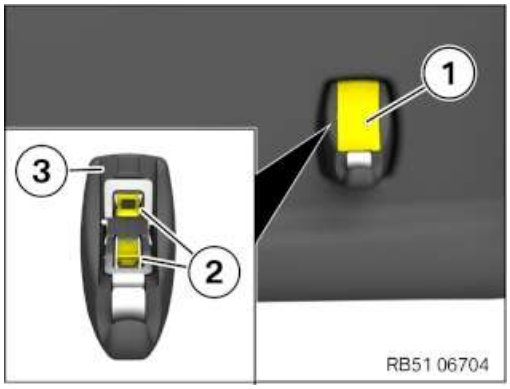
21 – Install the sun visor and the counter support

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

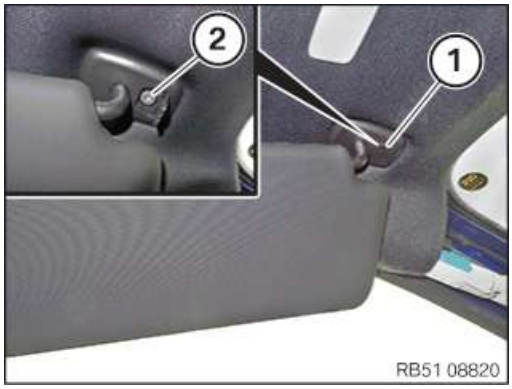


- Check the guides (1) on the cover of the end support for damage, renew if necessary.



- Clip in the counter support (3) to the headlining.
- Make sure the clamps (2) are engaged correctly.
- Clip in the cover (1).

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- Connect and lock corresponding connectors.
- Install the sun visors.
- Tighten down screw (2).

Sun visor to body

Screw		Tightening torque	3.3 Nm

- Close the cover (1).



- Hook the sun visors (1) to the end support (2).

22 – Installing the A-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

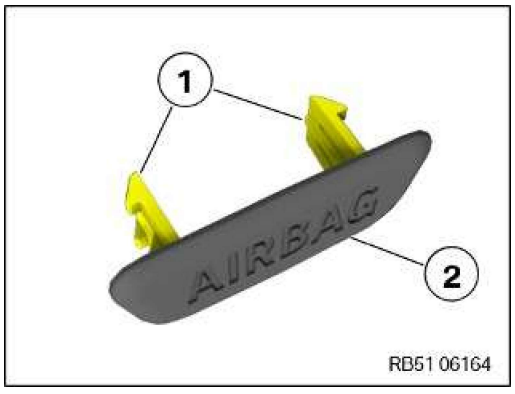
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



Check

- Check retaining lugs (1) of cover (2) for damage.

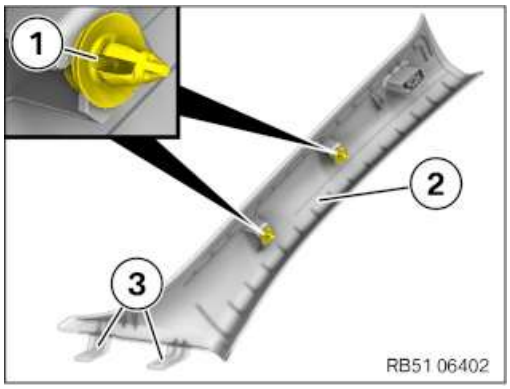
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Result

» Retaining lug is damaged.

Measure

- Renew the cover.



Check

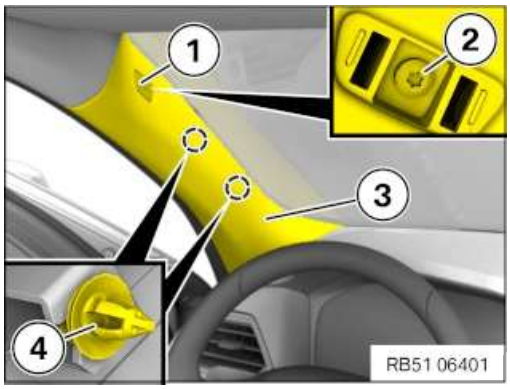
- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.



- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

- Clip in the cover (1).

Additional Information

Overview of Tightening Torques

End fitting to body — Used in step 15

M10		Tightening torque	42 Nm

C-pillar trim panel to body — Used in step 17

Screw		Tightening torque	2,6 Nm

Roof function centre (FZD) — Used in step 20

		Tightening torque	1.2 Nm

Sun visor to body — Used in step 21

Screw		Tightening torque	3.3 Nm

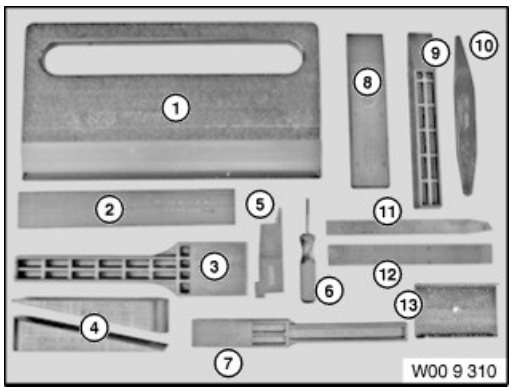
A-pillar trim panel to body — Used in step 22

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

Overview of Special Tools

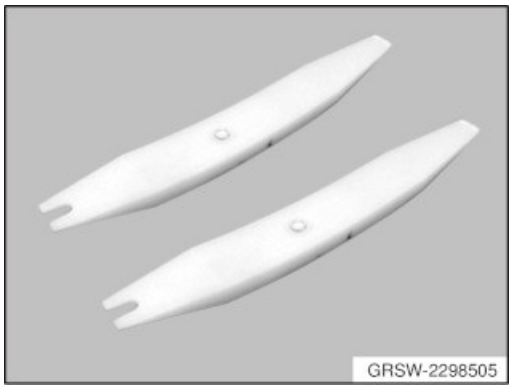
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0 493 752 (00 9 329) Case



Common	Used in step 17
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 298 505 Wedge



Common	Used in step 20
Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	518

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	1518
72 00 ... Safety regulations for handling components with gas generators	1

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
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61 20 900 Disconnecting and connecting battery earth lead	518
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61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	518
61 20 900 Disconnecting and connecting battery earth lead

51 44 911 Releasing and securing the headlining on the right

RISK OF DAMAGE

Fold the headlining.

If the headlining is folded, it may have to be replaced.

- Carry out tasks with a second person to assist.
- Support the headlining at the front and back.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Remove the A-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

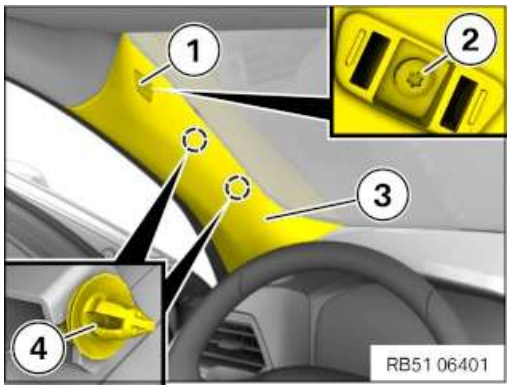
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

2 – Remove the sun visor and the counter support

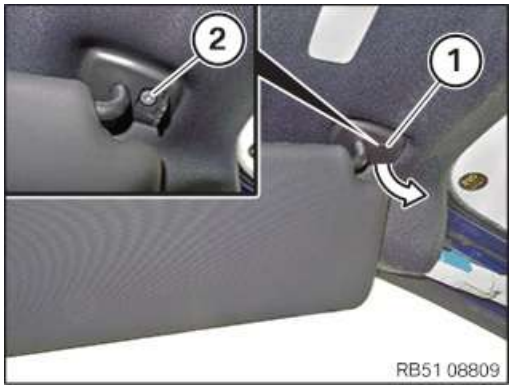
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NOTICE

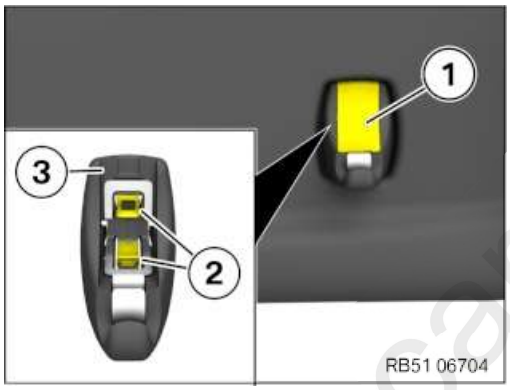
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Detach sun visors (1) from end support (2) and swivel to the side.



- Fold open cover (1).
- Loosen screw (2).
- Remove sun visors and unlock and disconnect the associated plug connection.



- Unclip cover (1) using a suitable tool.
- Push the clamps (2) together and pull the counter support (3) out of the headlining.

3 – Removing the roof function centre (FZD)



- Unclip the cover (1).

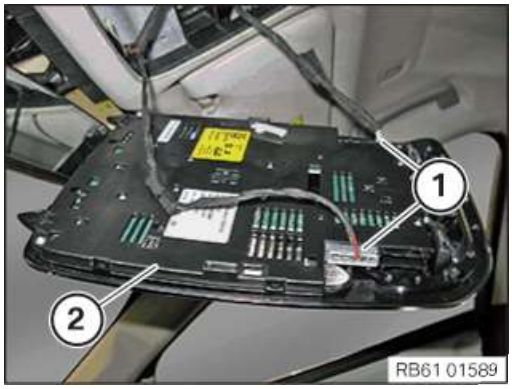
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- Loosen screws (1).

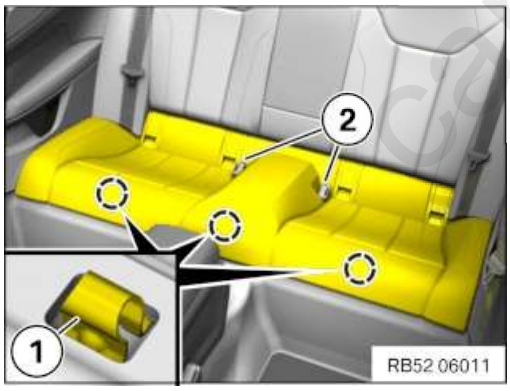


- Unclip the roof function centre (FZD) (1) from the clamps (2).
- Thread the roof function centre (FZD) (1) out of the guides (3).



- Unlock and disconnect plug connections (1).
- Unclip the cable clip from roof function centre (FZD) (2) and remove the roof function centre (FZD) (2).

4 – Remove rear seat bench

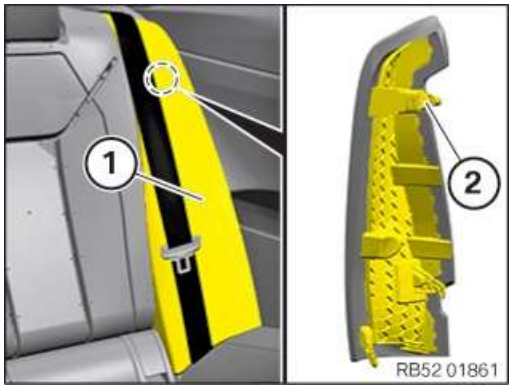


- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

5 – Remove armrest side section

▸ **Remove armrest side section**

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- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

6 – Remove C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

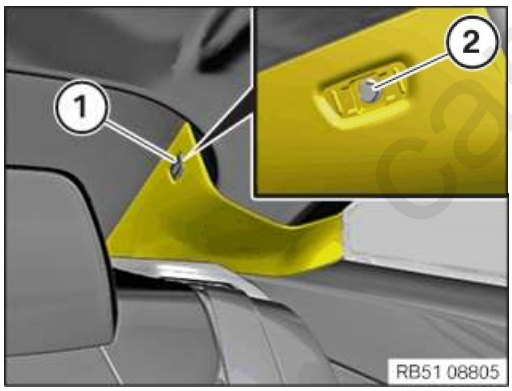
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

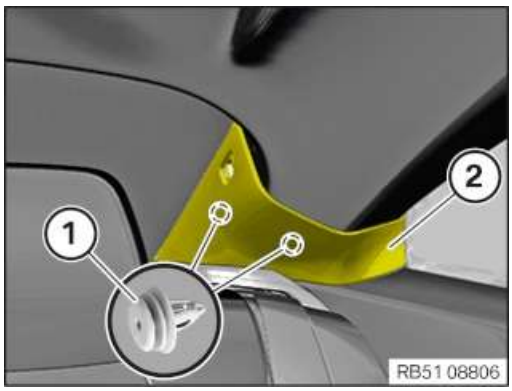
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

7 – Removing the inner door sill cover strip

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RISK OF DAMAGE

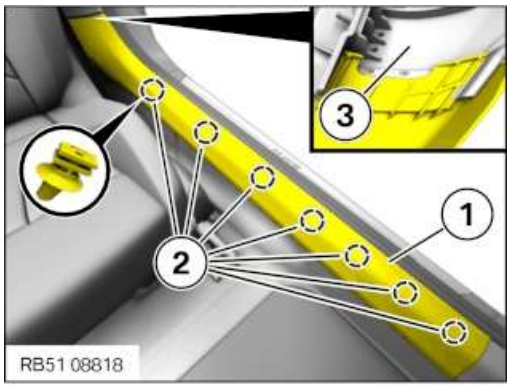
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

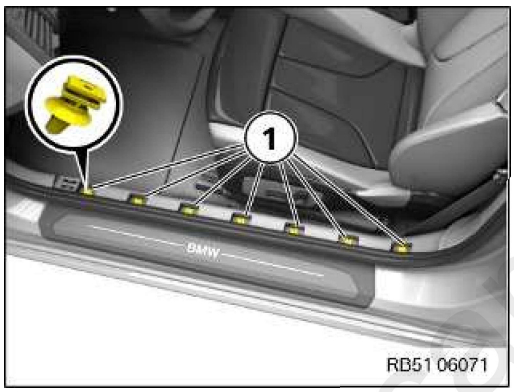
- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

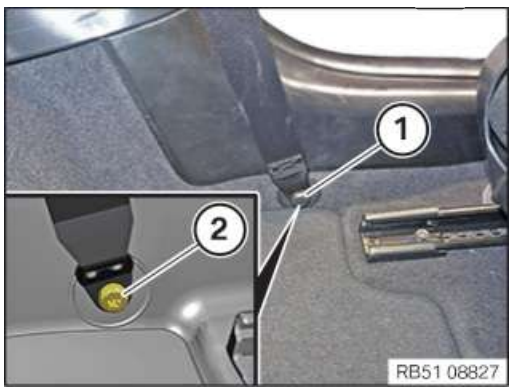


- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .



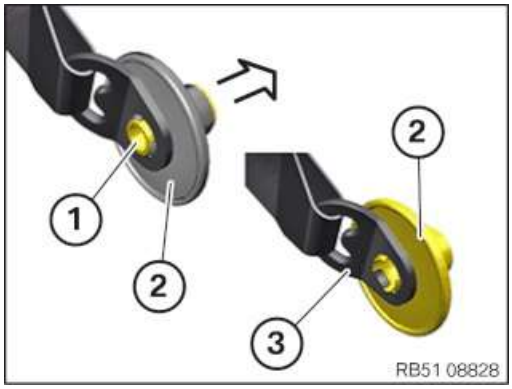
- If necessary, remove clips (1) and connect them to the door sill cover strip.

8 – Remove rear side trim panel

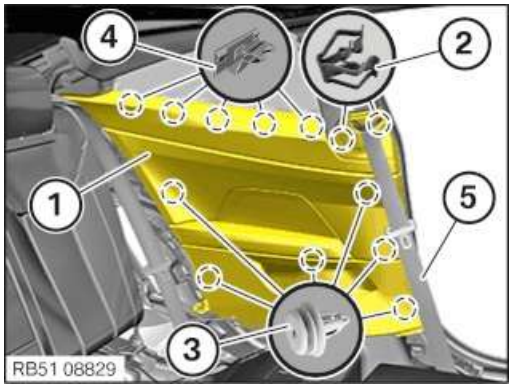


- Unclip the cover cap (1).
- Release the screw (2).

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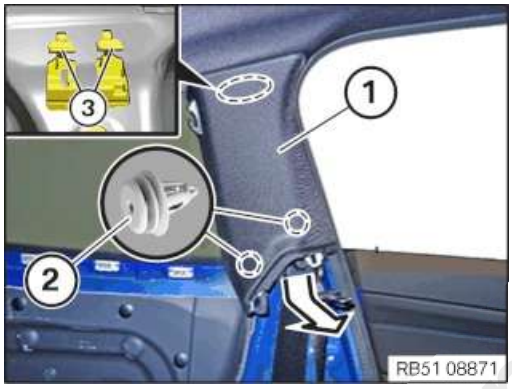


- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



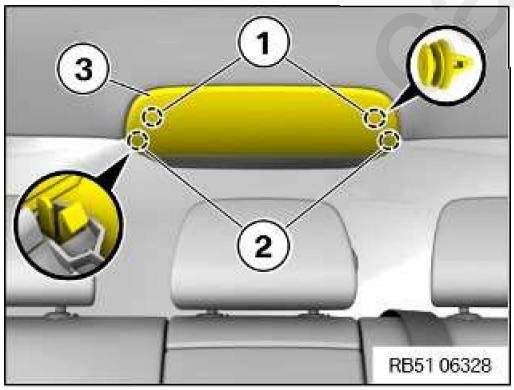
- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

9 – Remove the B-pillar trim panel



- Unclip the B-pillar trim panel (1) at the clips (2).
- Remove the B-pillar trim panel (1) from the lip of the edge protection and the guides (3) in the direction of the arrow.

10 – Removing the trim of the additional brake light



- Loosen the clips (1).
- Release the latch mechanisms (2) and remove the trim of the additional brake light (3).

MAIN WORK

11 – Lower the headlining on the left or right

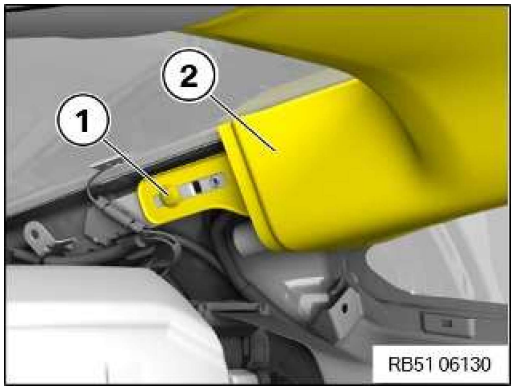
Prerequisite

The front seats have been fully adjusted towards the bottom.

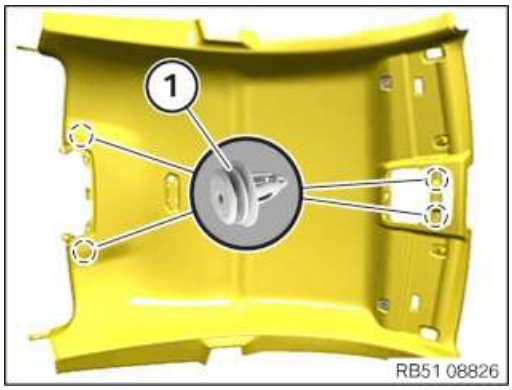
The front seat backrests have been fully adjusted towards the rear.

The rear seat backrest is folded down toward the front.

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- Release the expanding rivets (1) on the headlining (2).



- Unclip the headlining at the clips (1) downwards.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Guide out the headlining at the respective edge protection.
- Lower the headlining and place it onto the head restraints as shown.

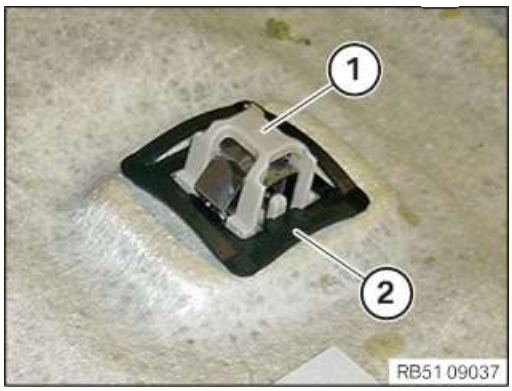
12 – Install the headlining (lowered)

Prerequisite

The front seats have been fully adjusted towards the bottom.

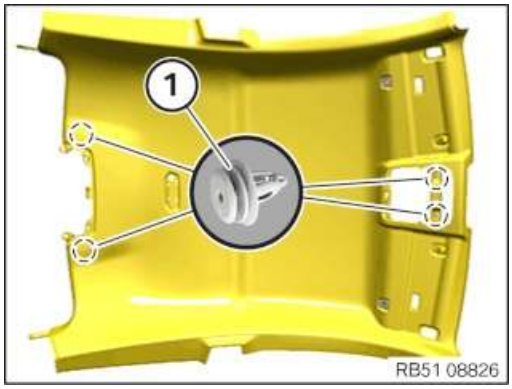
The front seat backrests have been fully adjusted towards the rear.

The rear seat backrest is folded down toward the front.



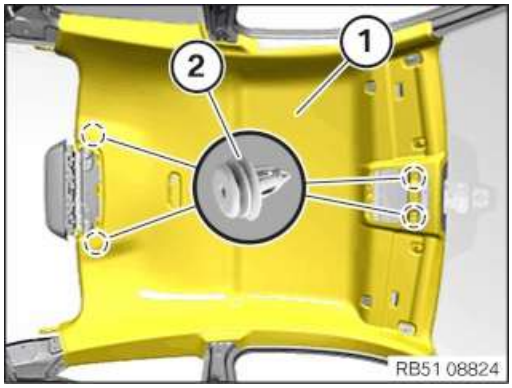
- Install the end support of the sun visors (1) in the headlining and mount it with clamps (2).

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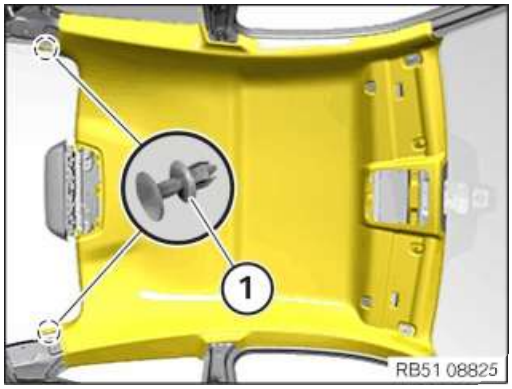


- Check the clips (1) on the headlining for damage.

  Defective or missing clips (1) must be renewed.



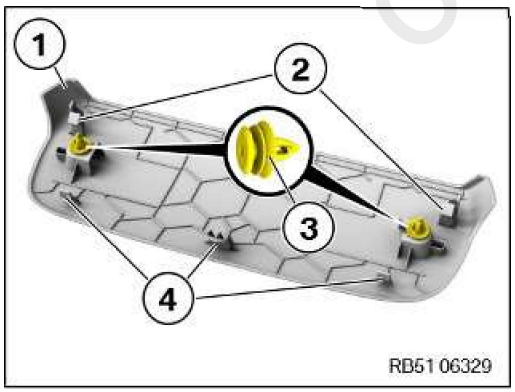
- Insert the headlining (1) with the help of an auxiliary person onto the respective edge protection.
- Clip in headlining (1) on the clips (2).



- Secure expanding rivet (1).

POSTPROCESSES

13 – Installing trim for additional brake light



Check

- Check the clips (3) for damage and renew if necessary.
- Check latch mechanisms (2) and guides (4) for damage.

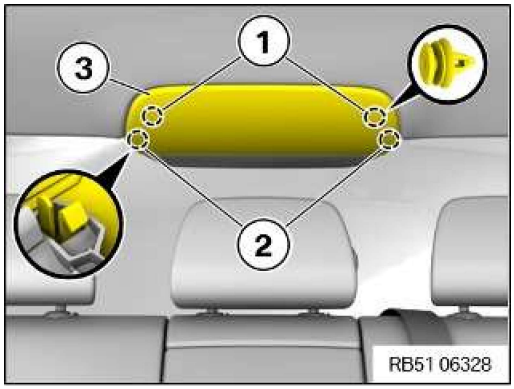
Result

» The latch mechanism or the guide is damaged.

Measure

- Renew the trim for the additional brake light.

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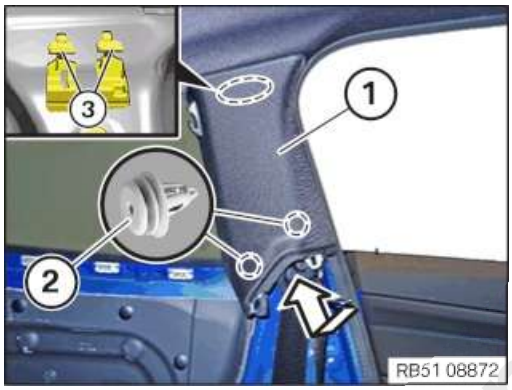


- Position trim for additional brake light (1) from the bottom and clip it in with latch mechanisms (2).
- Clip in clips (1).

14 – Install the B-pillar trim panel



- Check clips (1) for damage and renew if necessary.

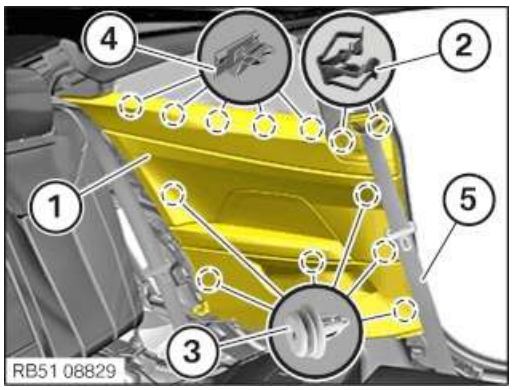


- Insert B-pillar trim panel (1) in direction of arrow into the guides (3) and under the lip of edge protection.
- Clip in the B-pillar trim panel (1) at the clips (2).

15 – Install rear side trim panel

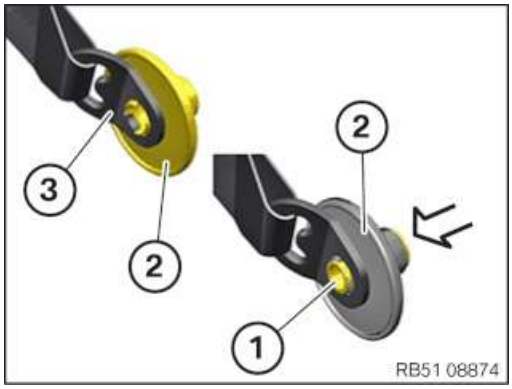


- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.

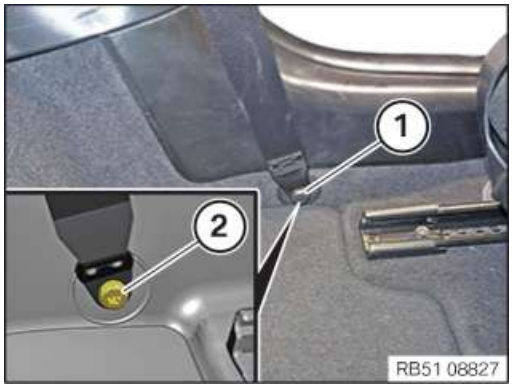


- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).

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- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



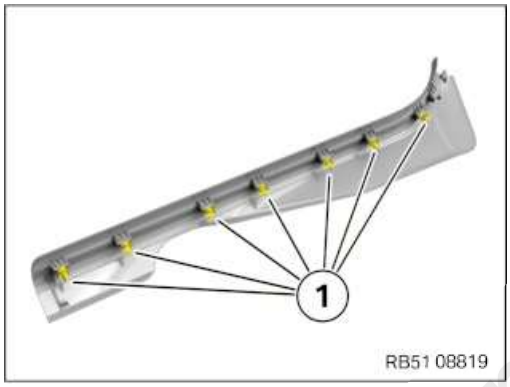
- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

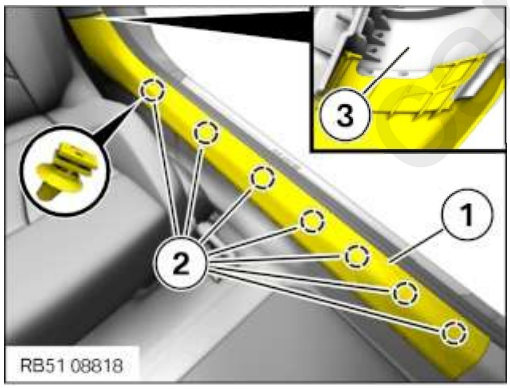
16 – Installing the inner door sill cover strip



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

17 – Installing C-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

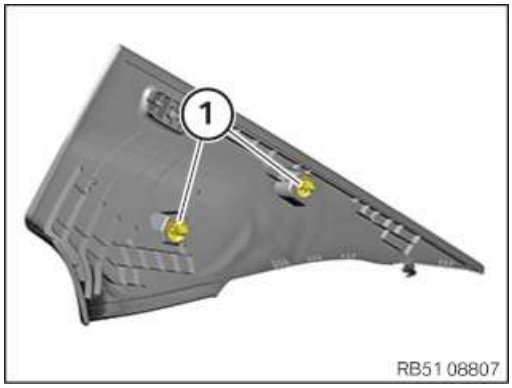
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RISK OF DAMAGE

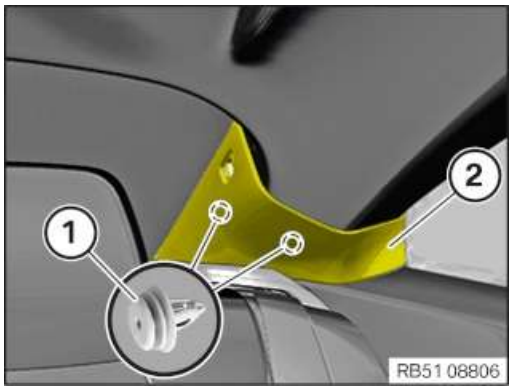
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

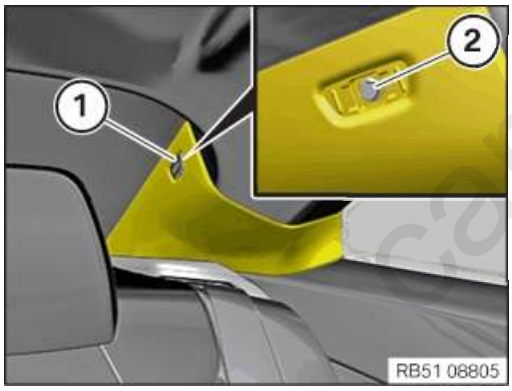
- Do not use sharp-edged tools when removing the trim panel.



- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

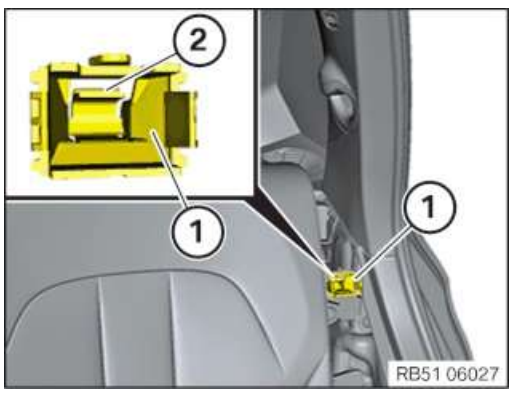
C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

18 – Installing backrest side section

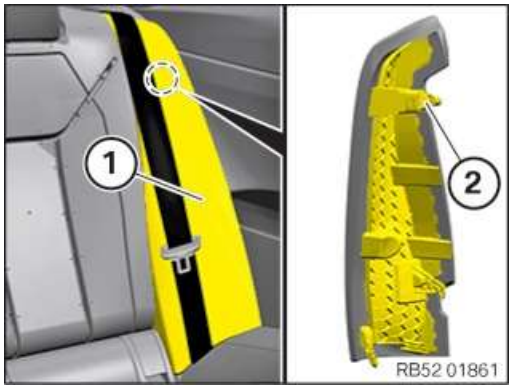
▸ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

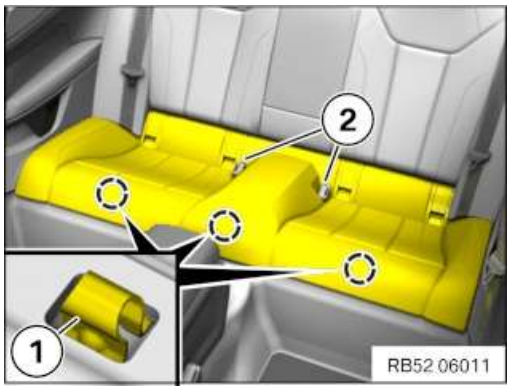
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.

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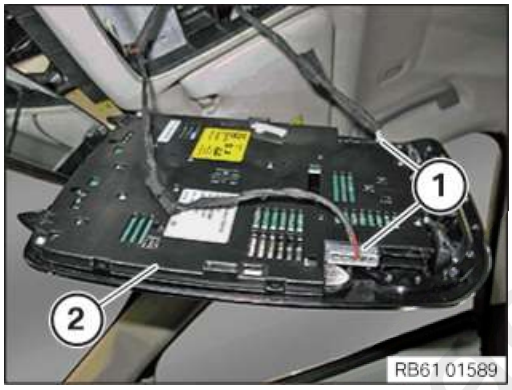
- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

19 – Installing the rear seat bench

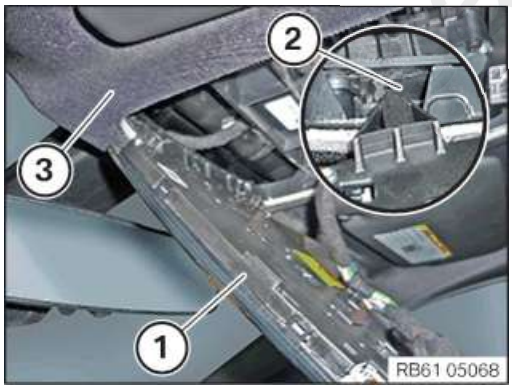


- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

20 – Installing roof function centre (FZD)



- Connect connectors (1) and lock.
- Clip in the cable for the roof function centre (FZD) (2) in the cable clip.



- Insert the roof function centre (FZD) (1) as shown at a steep angle in the two guides (2) on the headlining (3).
- Make sure the headlining is not deformed during this operation.



- Clip the roof function centre (FZD) (1) upwards into the clamps (2).

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- Slide the special tool 2 298 505 in the direction of arrow between the FZD frame and the headlining along the dotted line to adjust the headlining correctly.



- Tighten the screws (1).

Roof function centre (FZD)

	Tightening torque	1.2 Nm

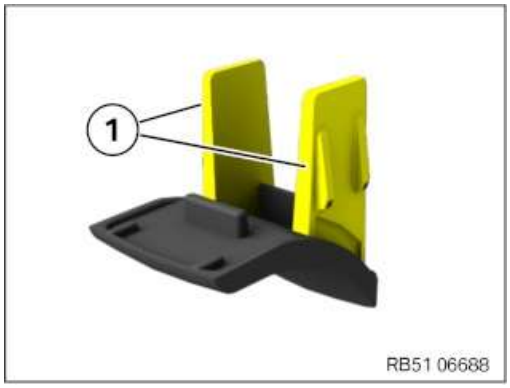


- Clip in the cover (1).

21 – Install the sun visor and the counter support

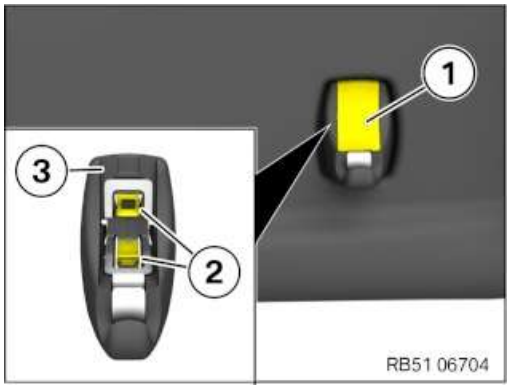
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

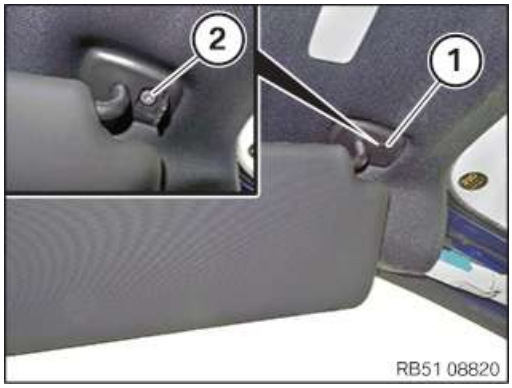


- Check the guides (1) on the cover of the end support for damage, renew if necessary.

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- Clip in the counter support (3) to the headlining.
- Make sure the clamps (2) are engaged correctly.
- Clip in the cover (1).



- Connect and lock corresponding connectors.
- Install the sun visors.
- Tighten down screw (2).

Sun visor to body

Screw		Tightening torque	3.3 Nm

- Close the cover (1).



- Hook the sun visors (1) to the end support (2).

22 – Installing the A-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

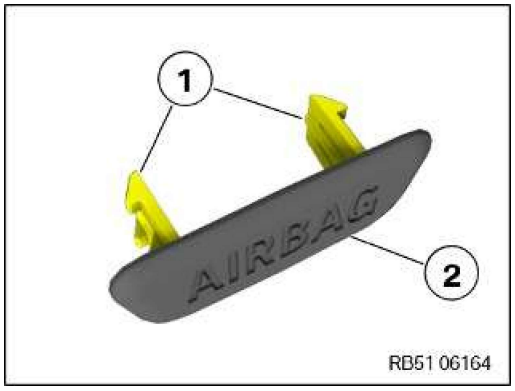
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

Check

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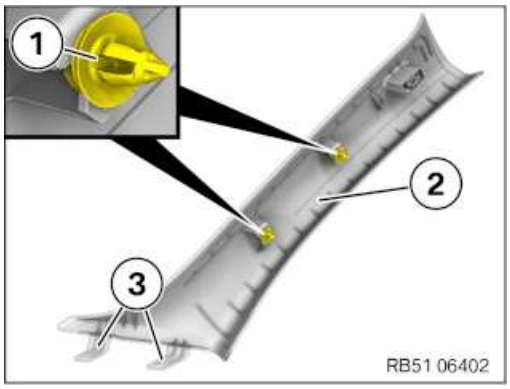
- Check retaining lugs (1) of cover (2) for damage.

Result

» Retaining lug is damaged.

Measure

- Renew the cover.



Check

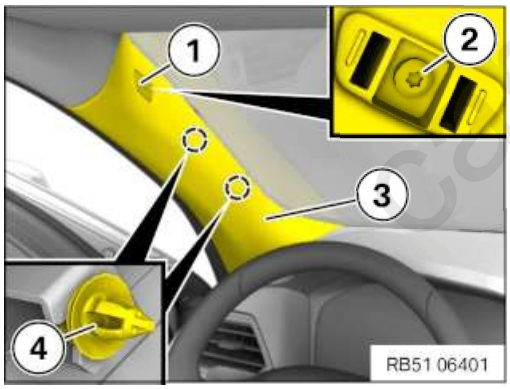
- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.



- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

- Clip in the cover (1).

Additional Information

Overview of Tightening Torques

End fitting to body — Used in step 15

M10		Tightening torque	42 Nm

C-pillar trim panel to body — Used in step 17

Screw		Tightening torque	2,6 Nm

Roof function centre (FZD) — Used in step 20

		Tightening torque	1.2 Nm

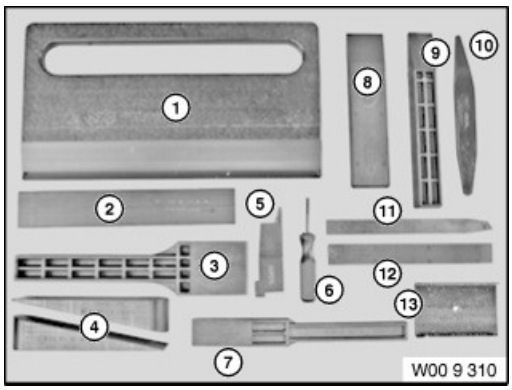
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Sun visor to body			Used in step 21
Screw		Tightening torque	3.3 Nm

A-pillar trim panel to body			Used in step 22
Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

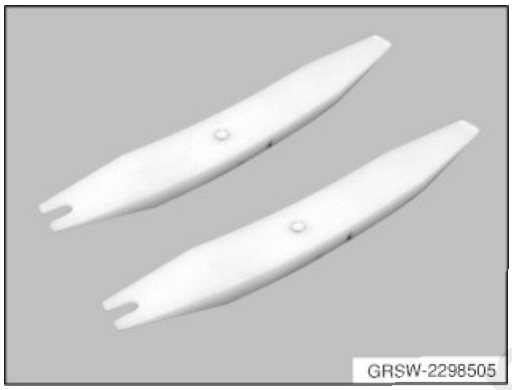
Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 17
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 298 505 Wedge



Common	Used in step 20
Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	518

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	1518
72 00 ... Safety regulations for handling components with gas generators	1

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
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61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518
61 20 900 Disconnecting and connecting battery earth lead	518

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51 44 011 Removing and installing/replacing headlining

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

RISK OF DAMAGE



Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)

TECHNICAL INFORMATION

Perform window removal using the "spider".

For additional information see: 51 31 ... Window glass removal using "spider"

TECHNICAL INFORMATION

The following procedure forms the basis for these repair instructions and must be observed without fail.

For more information see: 51 31 ... General procedure for disassembly/installation of bonded window glass

PRELIMINARY WORK

1 – Remove left and right A-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

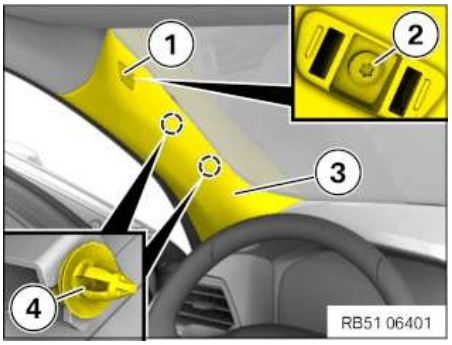
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RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

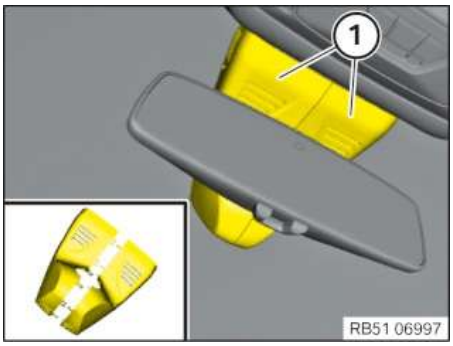
- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

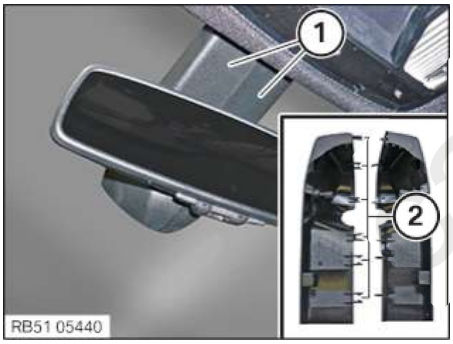
2 – Removing the covers for the interior mirror

- **Version A:**



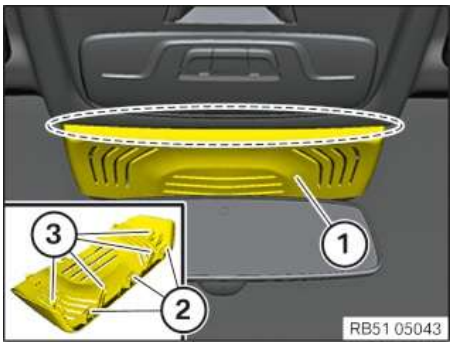
- Release cover (1) in the middle with a suitable plastic wedge from the latch mechanisms and remove.

- **Version B:**



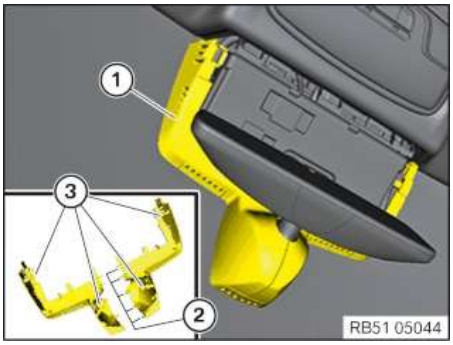
- Release the cover (1) from the latch mechanisms (2) with a suitable plastic wedge and remove sideways.

- **Version C:**



- Detach cover (1) from the clamps (2) in the marked area using a suitable plastic wedge and pull down a certain distance.
- Release cover (1) at the retaining lugs (3) and remove from the guides to the rear.

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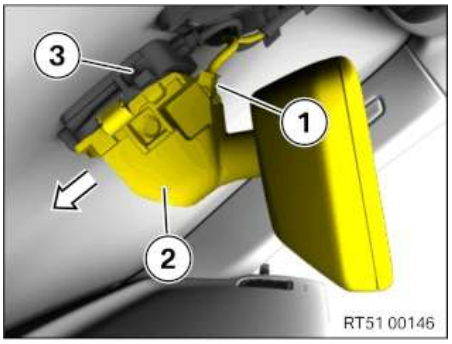
- Release cover (1) from the latch mechanisms (2) and (3) and remove sideways.
- Remove cover (1) from mirror base (2).

- **Version D:**



- Release covers (1) and (2) using a suitable plastic wedge at the separation point (3) and remove from the side.

3 – Remove inside mirror



TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.

- Unlock plug connection (1) and disconnect.

RISK OF DAMAGE

Damage to the component.

Excessive force may damage the component.

- Handle component carefully.

- Jerk and pull off the interior mirror (2) in the direction of the arrow from the mirror base (3).

4 – Remove KAFAS camera

▸ **Remove KAFAS camera (Mid variant)**

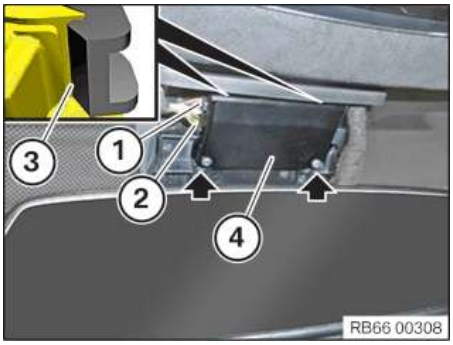
RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

Damage to the retaining hooks of the KAFAS camera holder.

- Unlock the retaining hook with a suitable tool **carefully** .

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- Unlock plug connection (1) and disconnect.
- Unlock plug connection (2) and disconnect.
- Unlock the retaining lugs (3).
- Thread out KAFAS camera (4) at the guides (arrows) and remove.

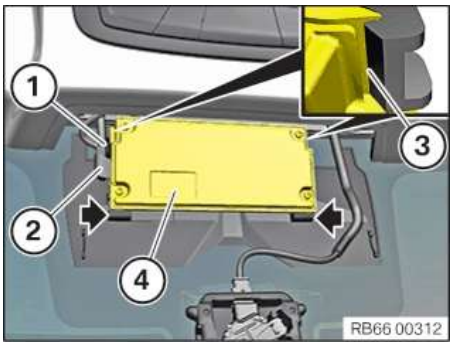
▸ **Remove KAFAS camera (high version)**

RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

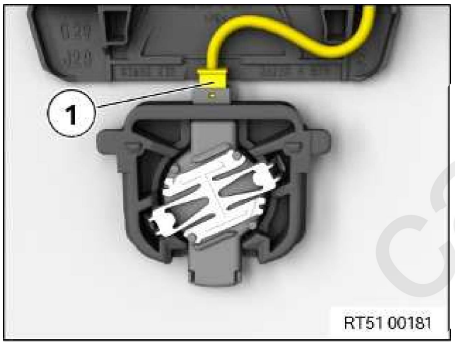
Damage to the retaining hooks of the KAFAS camera holder.

- Unlock the retaining hook with a suitable tool **carefully** .



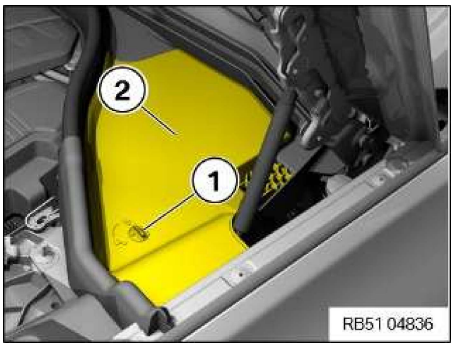
- Unlock plug connection (1) and disconnect.
- Unlock plug connection (2) and disconnect.
- Unlock the retaining lugs (3).
- Thread out KAFAS camera (4) at the guides (arrows) and remove.

5 – Disconnect rain-light-solar-condensation sensor



- Unlock plug connection (1) and disconnect.

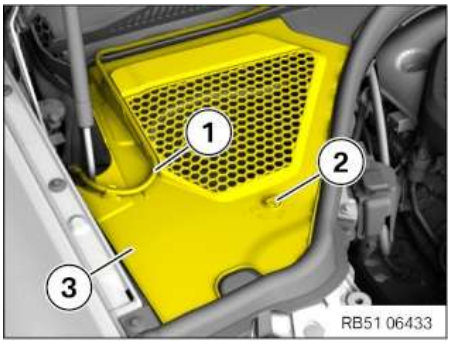
6 – Remove the cover of the engine compartment at the rear left



- Loosen the lock (1).
- Remove the cover (2) of the rear left engine compartment.

7 – Remove the cover of the rear right engine compartment

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- Release washer fluid hose (1) from the guides.
- Loosen the lock (2).
- Remove the cover (3) of the rear right engine compartment.

8 – Removing the wiper arm on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

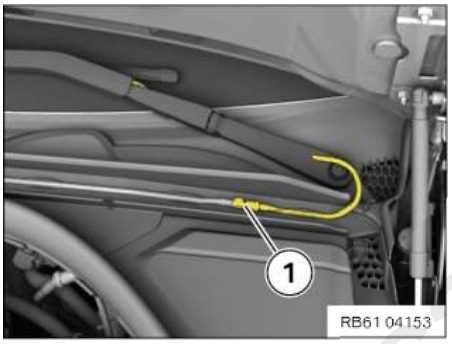
▶ **Remove the wiper arm**

RISK OF DAMAGE

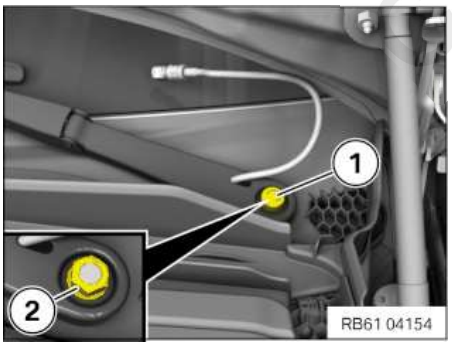
Damage to wiper console.

While removing the wiper arms without using special tool, the wiper console can break.

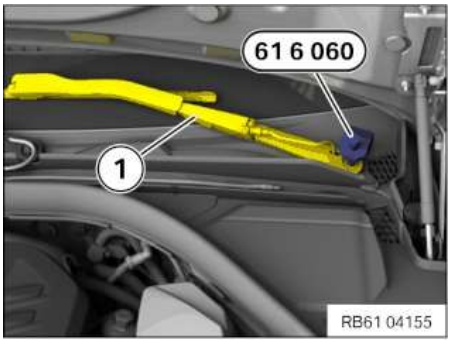
- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.



- Disconnect the washer fluid hose (1) at the separation point and feed out from the cowl panel guide.



- Remove the protective cap (1).
- Loosen nut (2).



- Pull off the wiper arm (1) using special tool .

9 – Remove the gutter strip on the windscreen on the left and right

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NOTICE

Description is for left component only. Procedure on the right side is identical.

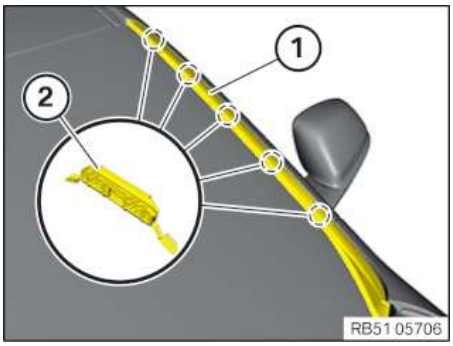
▸ **Remove the gutter strip on the windscreen**

RISK OF DAMAGE

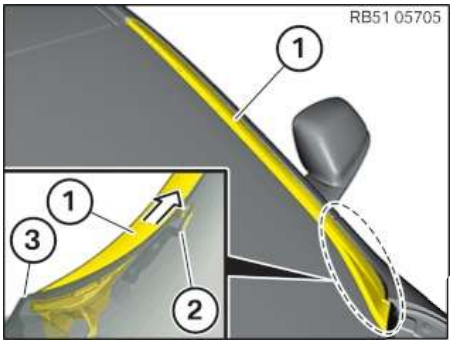
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

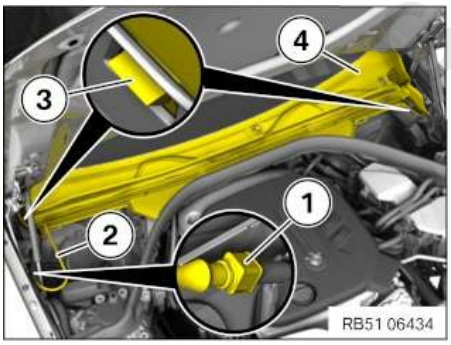


- Unclip gutter strip on the windscreen(1) from the clamps(2) starting at the roof and working upwards.

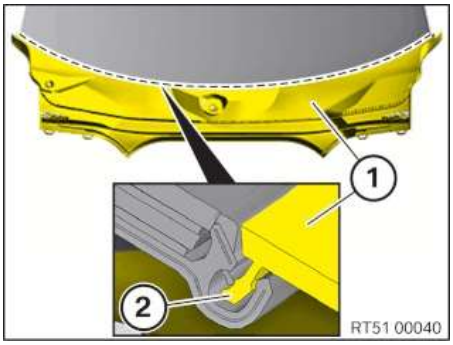


- Pull out gutter strip on the windscreen (1) out of guide (2) in direction of arrow and carefully guide out at the side panel (3).

10 – Remove cowl panel cover



- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).



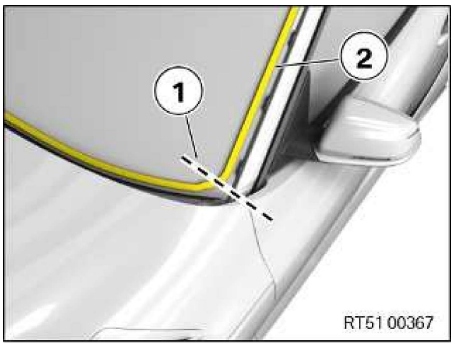
- Pull the cowl panel cover (1) upward out of the latch mechanism (2) beginning on the side.

11 – Removing the windscreen

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TECHNICAL INFORMATION

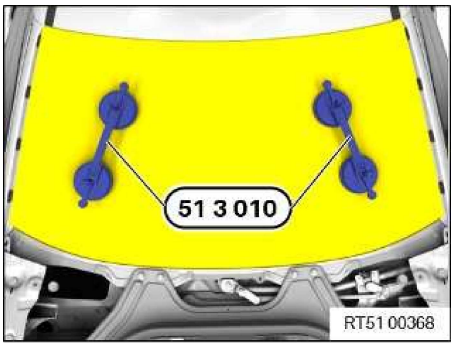
Perform window removal using the "spider".
For additional information see: 51 31 ... Window glass removal using "spider"



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Tape off body in area of piercing point with fabric adhesive tape.
- Push the thread along the line (1) through the adhesive bead (2) from the inside.
- Cut out the windscreen with the spider.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Remove windscreen with the special tool .

12 – Removing the sun visors and the end support on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

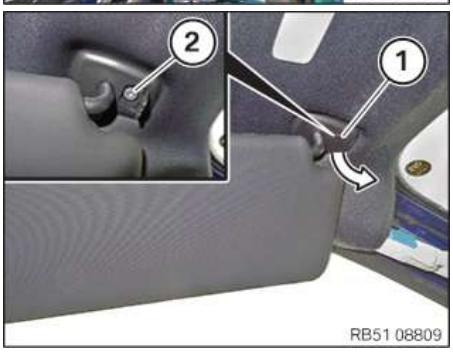
▸ **Remove the sun visor and the counter support**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

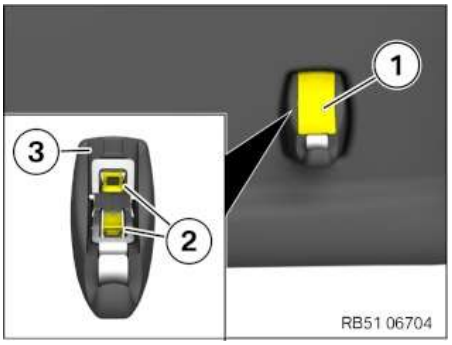


- Detach sun visors (1) from end support (2) and swivel to the side.



- Fold open cover (1).
- Loosen screw (2).
- Remove sun visors and unlock and disconnect the associated plug connection.

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- Unclip cover (1) using a suitable tool.
- Push the clamps (2) together and pull the counter support (3) out of the headlining.

13 – Removing the roof function centre (FZD)



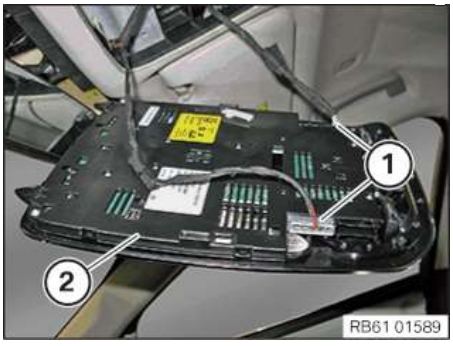
- Unclip the cover (1).



- Loosen screws (1).



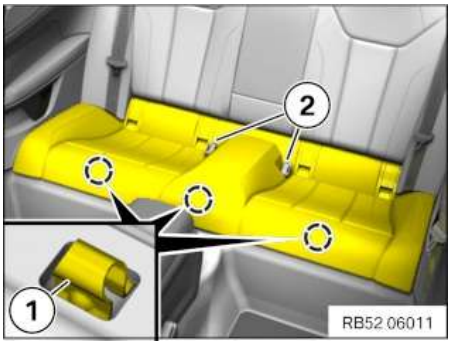
- Unclip the roof function centre (FZD) (1) from the clamps (2).
- Thread the roof function centre (FZD) (1) out of the guides (3).



- Unlock and disconnect plug connections (1).
- Unclip the cable clip from roof function centre (FZD) (2) and remove the roof function centre (FZD) (2).

14 – Remove rear seat bench

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- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

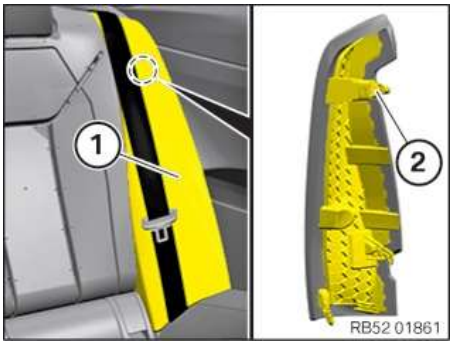
15 – Remove backrest side section on left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

16 – Removing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

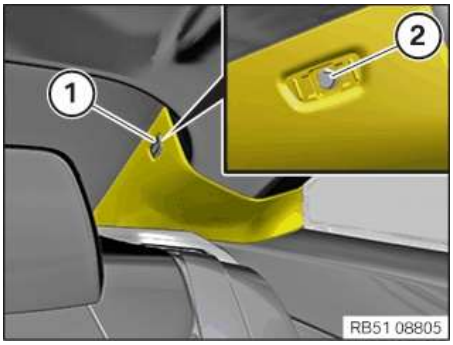
RISK OF DAMAGE

Damage to the head airbag.

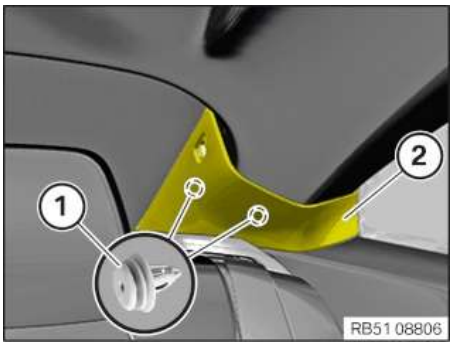
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

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- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

17 – Removing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the inner door sill cover strip**

RISK OF DAMAGE

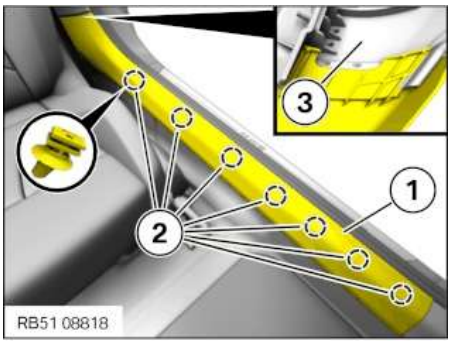
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

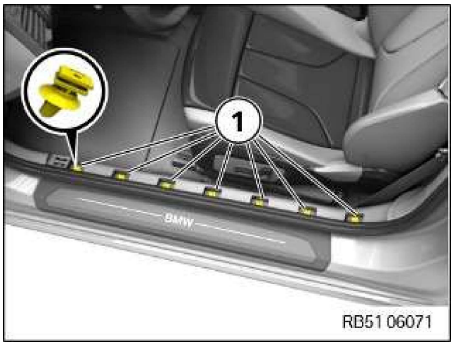
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

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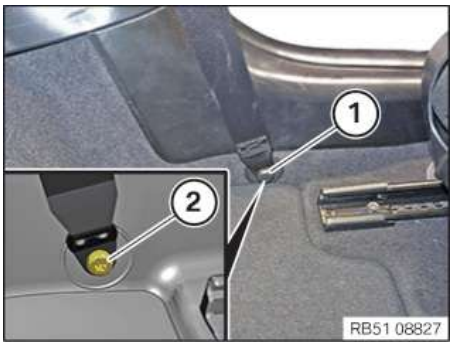
- If necessary, remove clips (1) and connect them to the door sill cover strip.

18 – Remove side trim panel, rear left and right

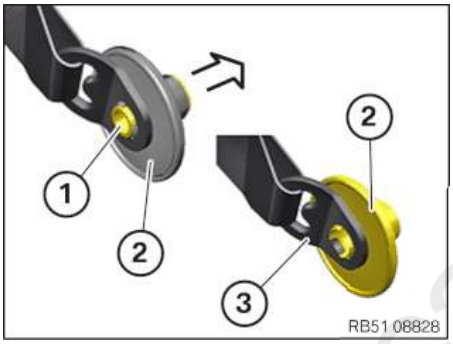
NOTICE

Description is for left component only. Procedure on the right side is identical.

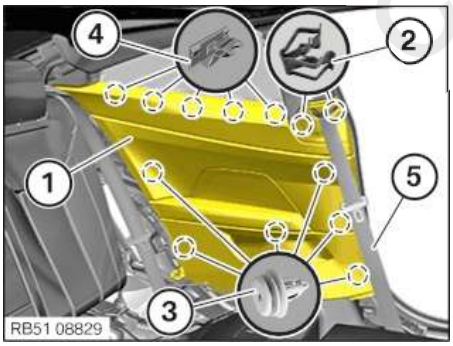
▸ **Remove rear side trim panel**



- Unclip the cover cap (1).
- Release the screw (2).



- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

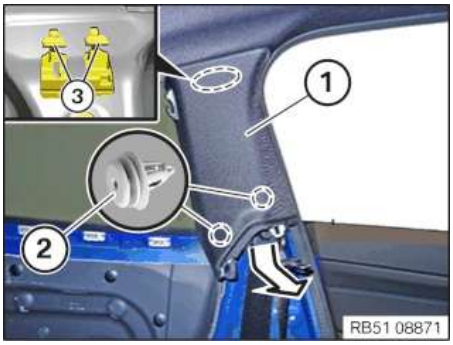
19 – Removing left and right B-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

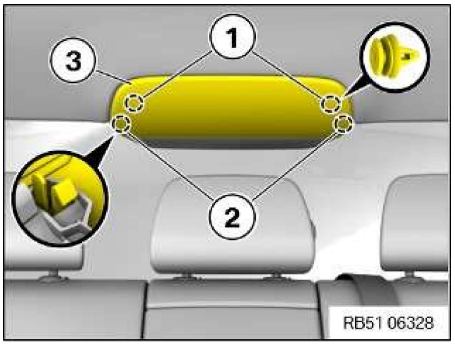
▸ **Remove the B-pillar trim panel**

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- Unclip the B-pillar trim panel (1) at the clips (2).
- Remove the B-pillar trim panel (1) from the lip of the edge protection and the guides (3) in the direction of the arrow.

20 – Removing the trim of the additional brake light



- Loosen the clips (1).
- Release the latch mechanisms (2) and remove the trim of the additional brake light (3).

MAIN WORK

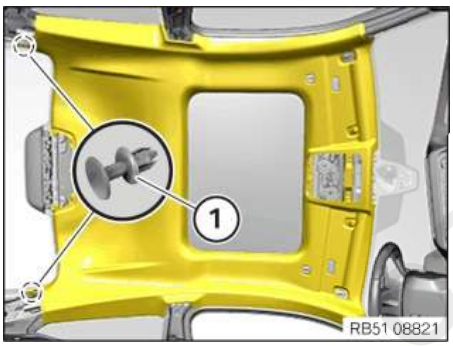
21 – Removing the headlining with slide/tilt sunroof

Prerequisite

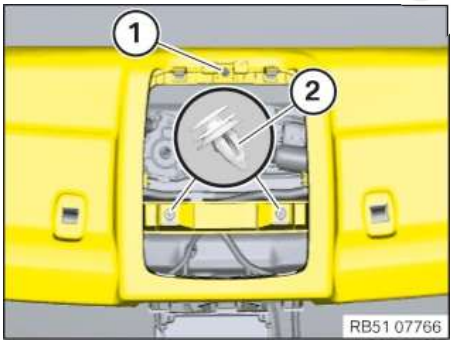
The front seats have been fully adjusted towards the bottom.

The front seat backrests have been fully adjusted towards the rear.

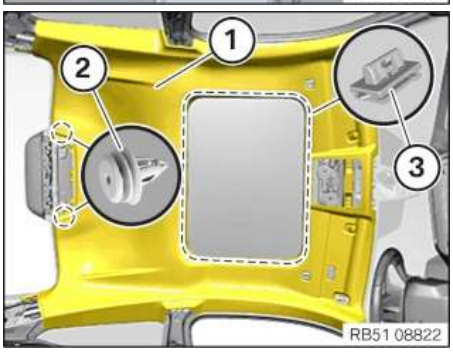
The rear seat backrest is folded down toward the front.



- Loosen the expanding rivet (1).



- Loosen screw (1).
- Unclip the headlining on the clips (2) downwards.



- Unclip headlining (1) downwards from clips (2).
- Carefully unclip headlining (1) from the slide/tilt sunroof unit and clamps and the clamps (3) in the area of the dotted line.
- Lift the headlining (1) with the help of an auxiliary person through the aperture of the windscreen.

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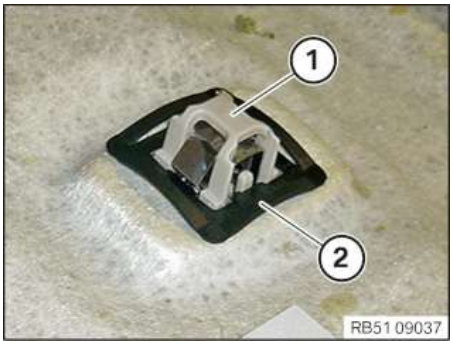
22 – Installing the headlining with slide/tilt sunroof

Prerequisite

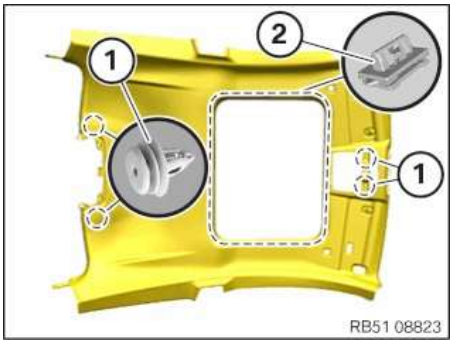
The front seats have been fully adjusted towards the bottom.

The front seat backrests have been fully adjusted towards the rear.

The rear seat backrest is folded down toward the front.



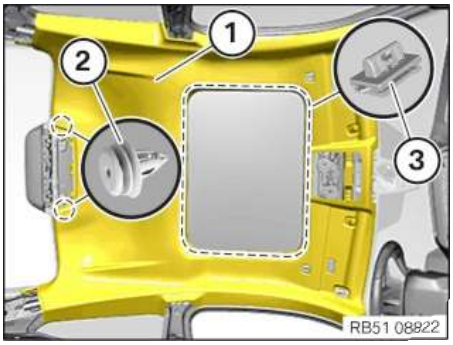
- Install the end support of the sun visors (1) in the headlining and mount it with clamps (2).



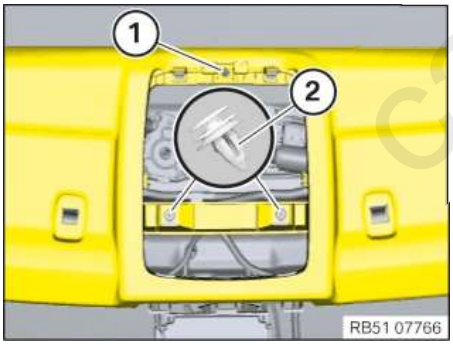
- Check the clips (1) on the headlining for damage.

  Defective or missing clips (1) must be renewed.
- Check the clamps (2) along the dotted line for damage.

  Defective or missing clamps (2) need to be renewed.



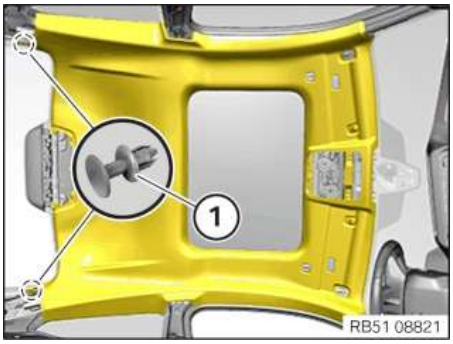
- Lift the headlining (1) with the help of an auxiliary person through the aperture of the windscreen into the vehicle.
- Insert the headlining (1) with the help of an auxiliary person onto the respective edge protection.
- Clip in headlining (1) on the clips (2).
- Clip the headlining (1) in the area of the dotted line at the slide/tilt sunroof unit and the clamps (3).



- Clip headlining to the clips (2).
- Tighten down screw (1).

Headlining to frame

Oval-head screw		Tightening torque	1,5 Nm

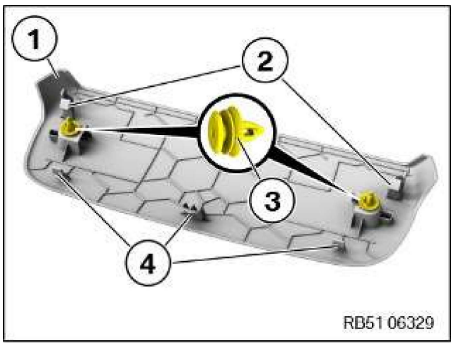


- Secure expanding rivet (1).

POSTPROCESSES

23 – Installing trim for additional brake light

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Check

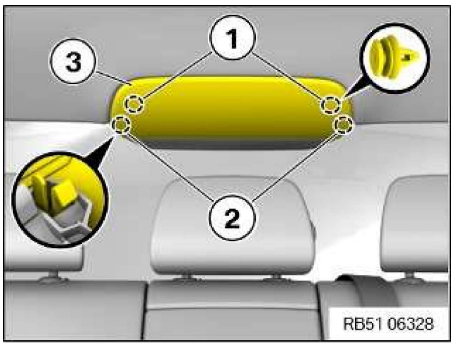
- Check the clips (3) for damage and renew if necessary.
- Check latch mechanisms (2) and guides (4) for damage.

Result

» The latch mechanism or the guide is damaged.

Measure

- Renew the trim for the additional brake light.



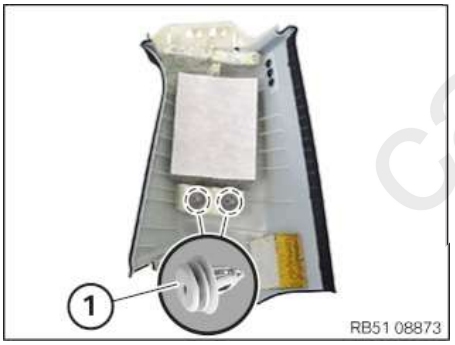
- Position trim for additional brake light (1) from the bottom and clip it in with latch mechanisms (2).
- Clip in clips (1).

24 – Installing the left and right B-pillar trim panel

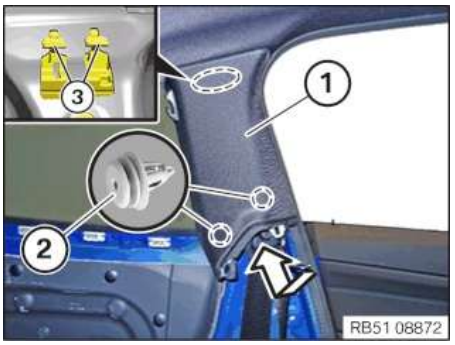
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install the B-pillar trim panel**



- Check clips (1) for damage and renew if necessary.



- Insert B-pillar trim panel (1) in direction of arrow into the guides (3) and under the lip of edge protection.
- Clip in the B-pillar trim panel (1) at the clips (2).

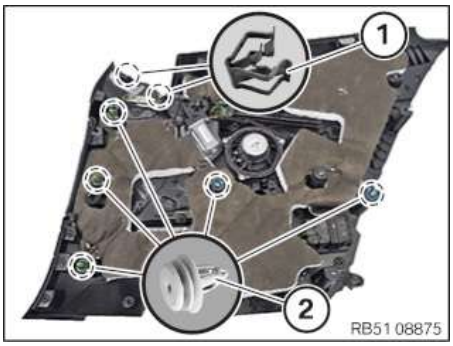
25 – Install side trim panel, rear left and right

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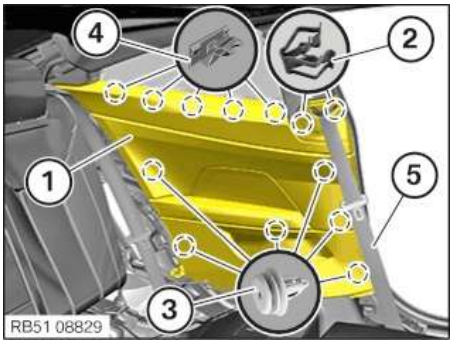
NOTICE

Description is for left component only. Procedure on the right side is identical.

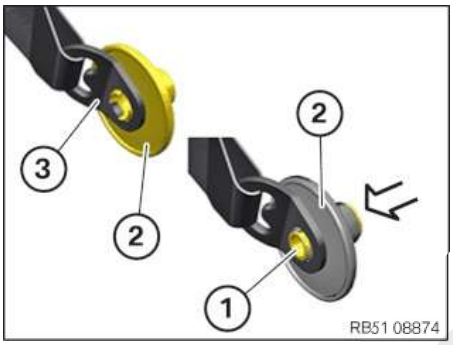
▸ **Install rear side trim panel**



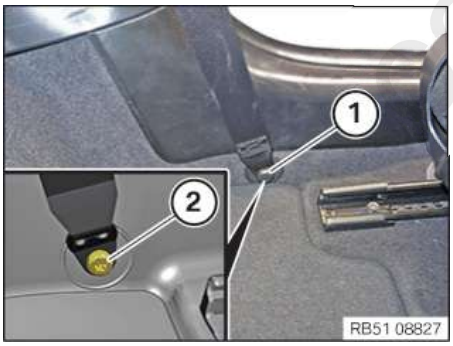
- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.



- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).



- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

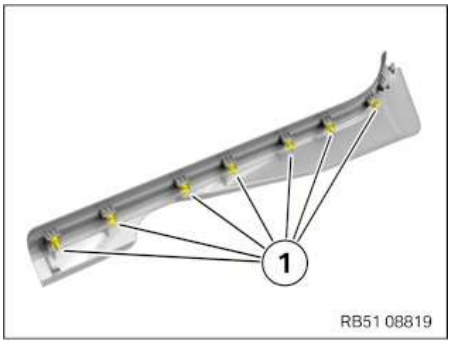
26 – Installing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the inner door sill cover strip**

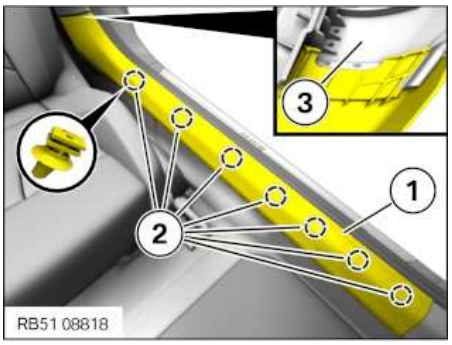
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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

27 – Installing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

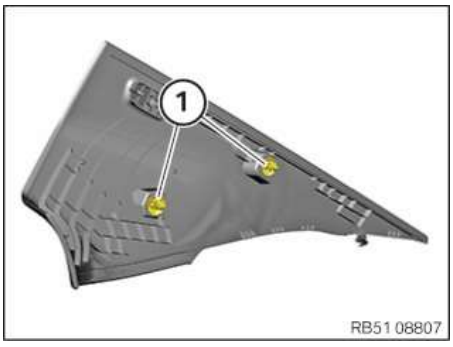
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

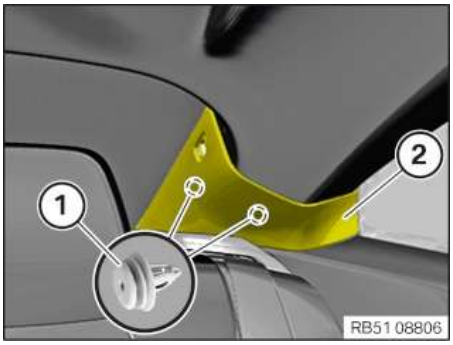
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

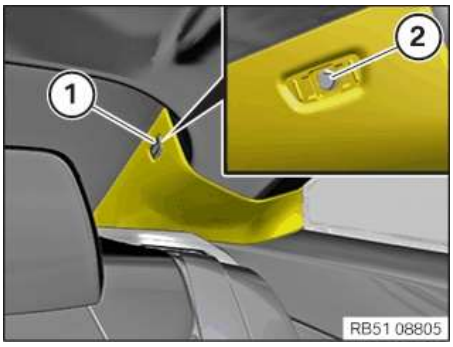


- Check clips (1) for damage and, if necessary, renew them.

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- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

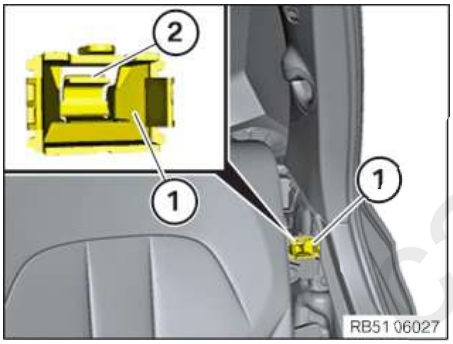
28 – Install the backrest side section on the left and right

NOTICE

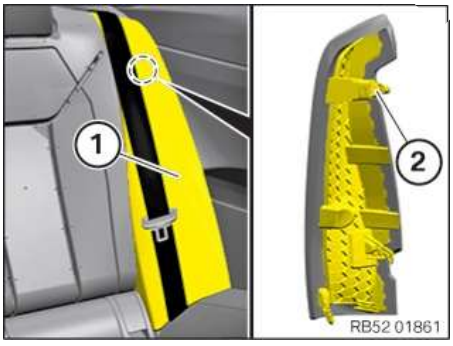
Description is for left component only. Procedure on the right side is identical.

▶ **Installing backrest side section**

▷ **Installing backrest side section**



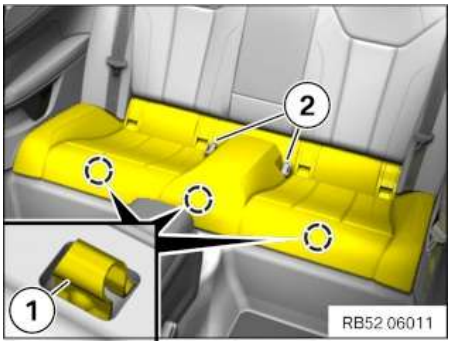
- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

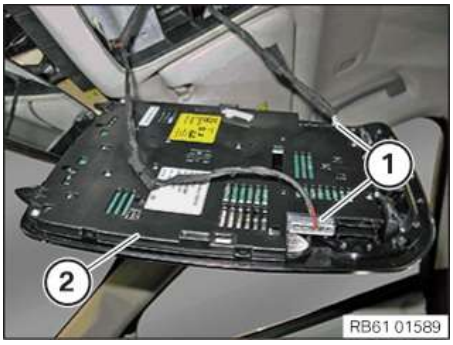
◁

29 – Installing the rear seat bench

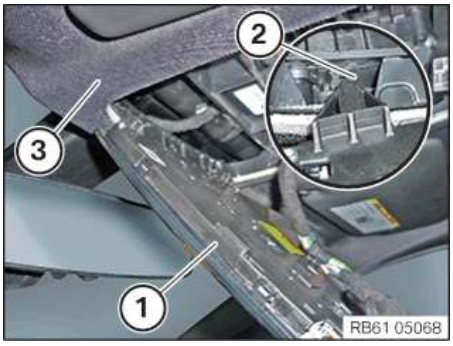


- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

30 – Installing roof function centre (FZD)



- Connect connectors (1) and lock.
- Clip in the cable for the roof function centre (FZD) (2) in the cable clip.



- Insert the roof function centre (FZD) (1) as shown at a steep angle in the two guides (2) on the headlining (3).
- Make sure the headlining is not deformed during this operation.



- Clip the roof function centre (FZD) (1) upwards into the clamps (2).



- Slide the special tool 2 298 505 in the direction of arrow between the FZD frame and the headlining along the dotted line to adjust the headlining correctly.

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- Tighten the screws (1).

Roof function centre (FZD)

	Tightening torque	1.2 Nm



- Clip in the cover (1).

31 – Installing the sun visors and the end support on the left and right

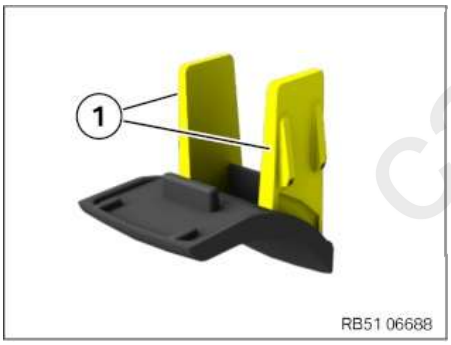
NOTICE

Description is for left component only. Procedure on the right side is identical.

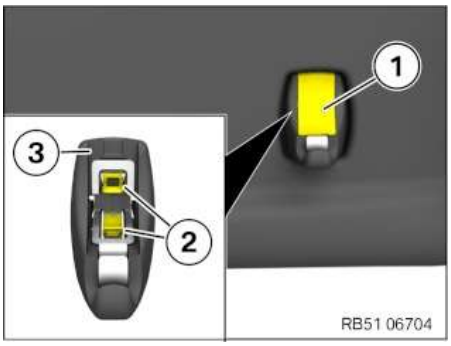
▸ **Install the sun visor and the counter support**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

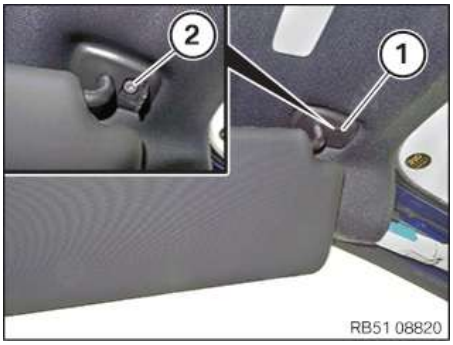


- Check the guides (1) on the cover of the end support for damage, renew if necessary.



- Clip in the counter support (3) to the headlining.
- Make sure the clamps (2) are engaged correctly.
- Clip in the cover (1).

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- Connect and lock corresponding connectors.
- Install the sun visors.
- Tighten down screw (2).

Sun visor to body

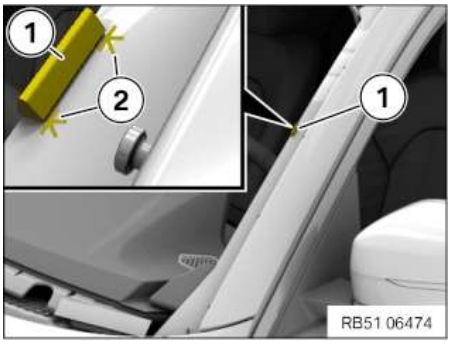
Screw		Tightening torque	3.3 Nm

- Close the cover (1).



- Hook the sun visors (1) to the end support (2).

32 – Replace the spacer



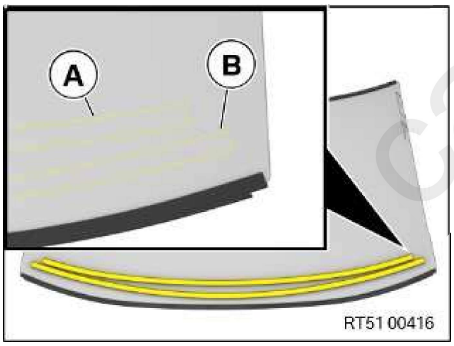
NOTICE

Description is for left component only. Procedure on the right side is identical.

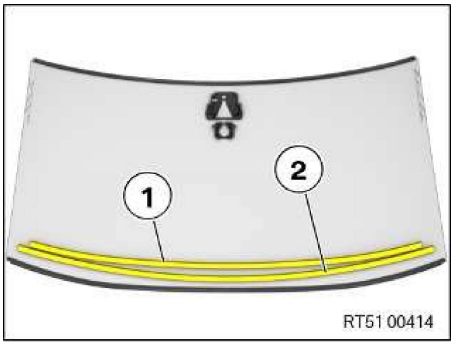
- Remove adhesive residues from the body when installing the windscreen and clean the adhesive area.
- Completely remove the existing spacer (1).
- Bond the spacer (1) in the centre on the embossed marks (2) on the body side.

Parts: Spacer

33 – Replacement: prepare the windscreen



- Observe marks (A) and (B) for the expanding foam tape on the windscreen.

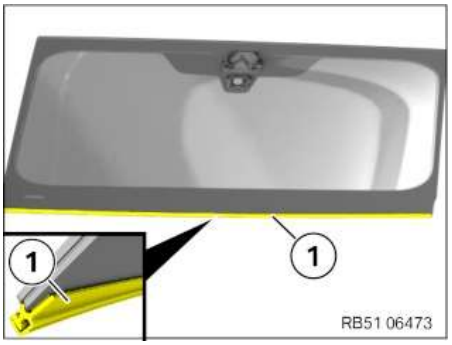


- Attach expanding foam tapes (1) and (2) along the marks on the edge of windscreen.

Parts: Expanding foam tape

Check

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- Check the guide (1) for the cowl panel cover for damage.

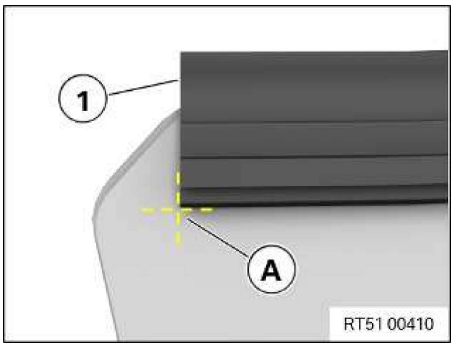
Result

» Guide for cowl panel cover is damaged.

Measure

- Renew windscreen.

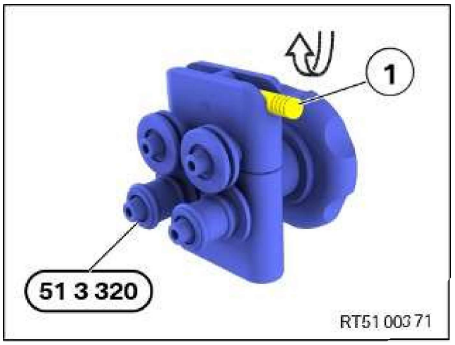
34 – Installing the windscreen rubber frame



NOTICE

Perform the operations on the left and right side.

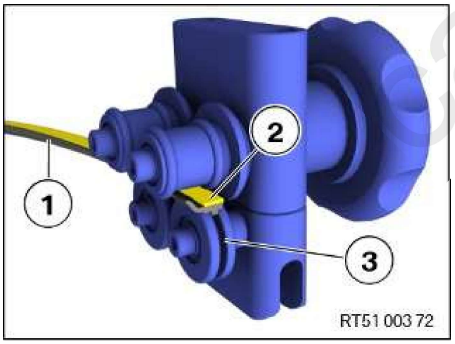
- Observe marks (A) for the windscreen rubber frame (1).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

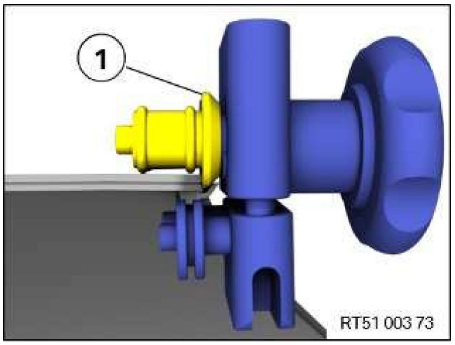
- Reposition lever (1) in direction of arrow and open it using the special tool .



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Pull off protective film (2) in stages from adhesive tape.
- Insert the cover (1) into the guides (3).

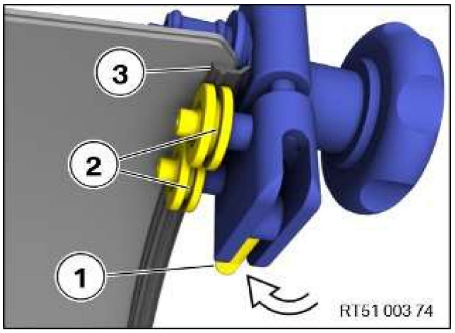


NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Place the special tool with the pressure rollers (1) up against the window edge.
- Align the cover with the outer edge of the windscreen.
- Fit the cover and visually check for perfect fit.

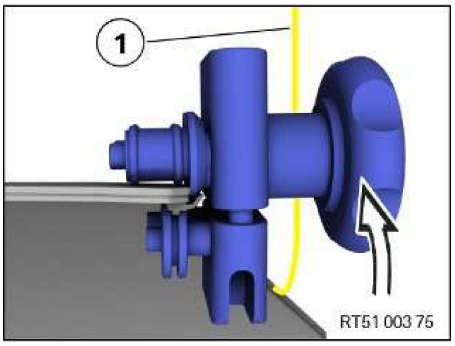
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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Reposition the lever (1) in direction of arrow to close the special tool.
- Ensure the correct positioning of the cover (3) in the guide pulleys (2).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Continue to pull off protective film (1) in stages from adhesive tape.
- Pull the special tool in the direction of arrow with the handwheel over the entire upper edge of the window glass.

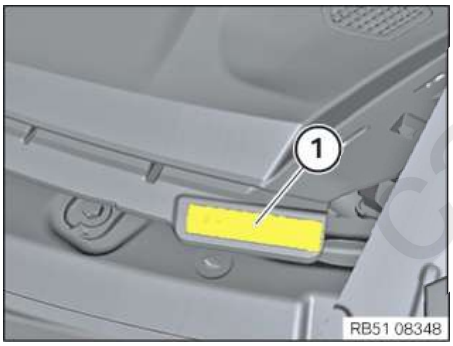
35 – Checking the sign

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.



Check

- Check sign (1) for damage.

Result

» Sign (1) is damaged.

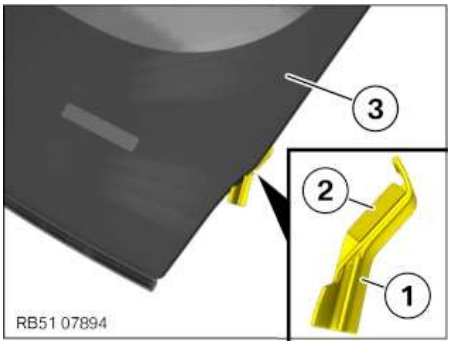
Measure

- Renew sign (1).

36 – Installing the windscreen.

▸ **Installing the water guide element on the left and right**

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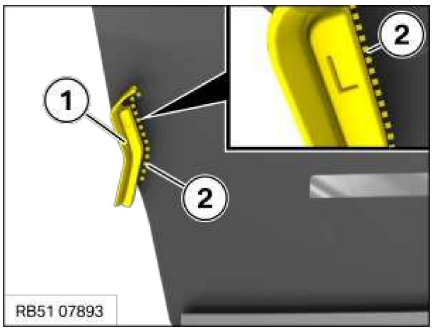


- Check the water guide element (1) on the left and right for damage and renew if necessary.
  Do not mix up the left and right water guide element.
- Clean the bonding surface with cleaning agent.

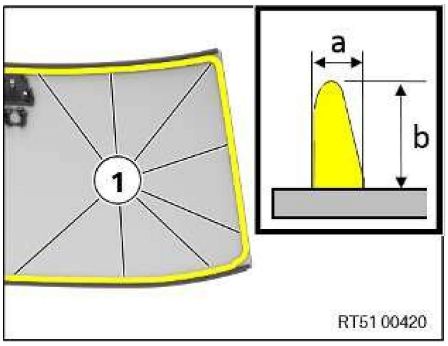
Expendable materials

Cleaning agent R2	500 ml	83190417324

- Remove liner (2) from the water guide element (1) and position on the windscreen (3).



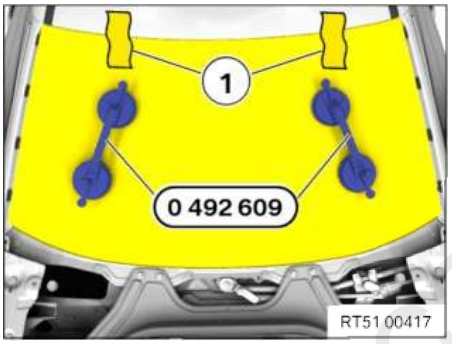
- Position water guide element (1) at the mark (2) and press it down.



NOTICE

Perform the operations on the left and right side.

- Prepare the glue cartridge with the standard nozzle C.
- Apply adhesive bead within the marks (1) on the windscreen.

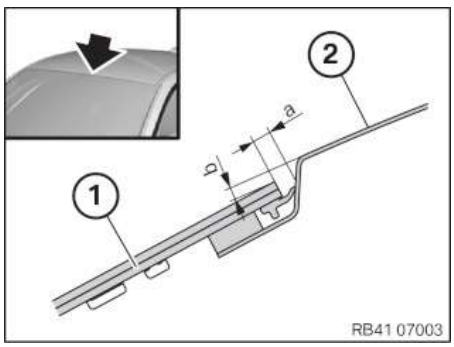


- Carefully insert the windscreen using special tool between the bonnet and the cowl panel.
- Position the windscreen at the top.
- Evenly align the windscreen on the left and right.
- Insert and press on the windscreen at the bottom.
- Press the windscreen towards the top until the rubber frame of the windscreen is evenly in contact with the roof.
- Secure the windscreen in this installation position using the two yellow plastic adhesive tapes (1).

Gap dimension windscreen to roof outer skin

1 windscreen; 2 roof outer skin

a	4,3 (3,1 - 5.5) mm
b	3,6 (2.3 - 4,9) mm



37 – Installing cowl panel cover

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RISK OF DAMAGE

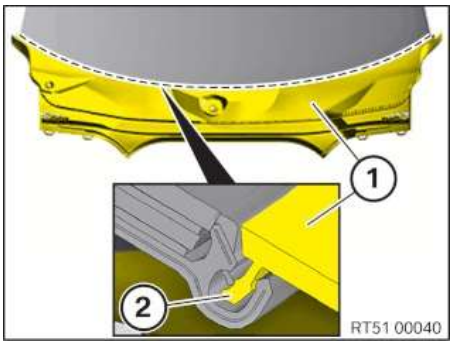
Damage caused by water ingress into the vehicle.

Water ingress into the vehicle may result in damage to components, malfunctions and corrosion.

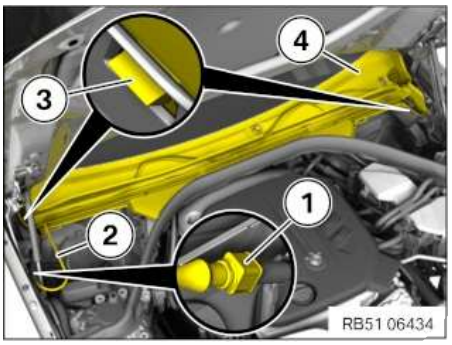
- Ensure correct installation of the components.
- Only use undamaged components.

TECHNICAL INFORMATION

Before installing the cowl panel cover it is **mandatory** to check that the 48 V line is routed correctly and fitted tightly.
An incorrectly laid or attached 48 V line can be damaged by the wiper kinematics.



- Push the cowl panel cover (1) into the latch mechanism (2) beginning on the side.



- Clip cowl panel cover (4)in by means of the latch mechanisms (3).
- Position windscreen wash hose (2) and connect windscreen wash hose (1)quick lock.

38 – Install the gutter strip on the windscreen on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install the gutter strip on the windscreen**

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

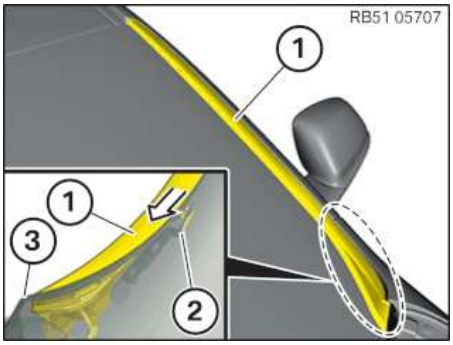
Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

TECHNICAL INFORMATION

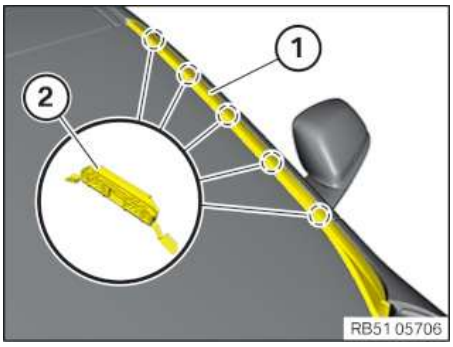
Latch mechanisms, guides and mounting elements must not be damaged or missing.

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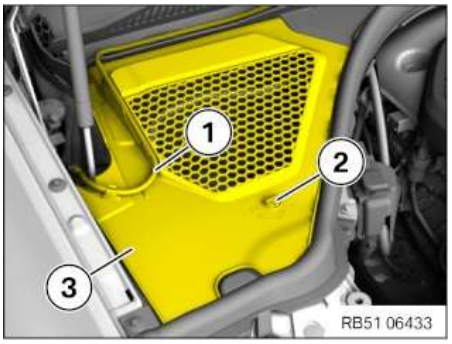
- Renew gutter strip on the windscreen (1) and paint if necessary.

  Parts: Gutter strip
- Carefully feed in the windscreen gutter strip (1) at the side panel (3) and simultaneously feed into the guide (2) in direction of arrow.



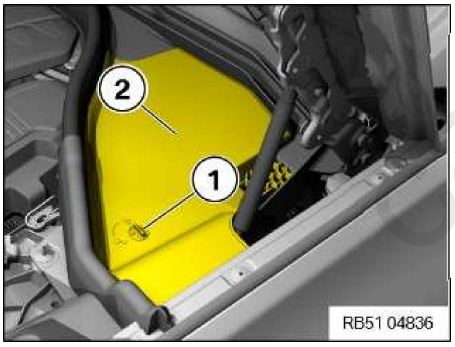
- Clip in the windscreen gutter strip (1) starting at bottom at the clamps (2).

39 – Install the rear right engine compartment cover



- Position the cover of the engine compartment on the rear right (3).
- Close lock (2).
- Insert washer fluid hose (1) into the guides.

40 – Install the cover of the engine compartment on the rear left



- Position the engine compartment cover at the rear left (2) .
- Close lock (1).

41 – Install left and right wiper arm

NOTICE

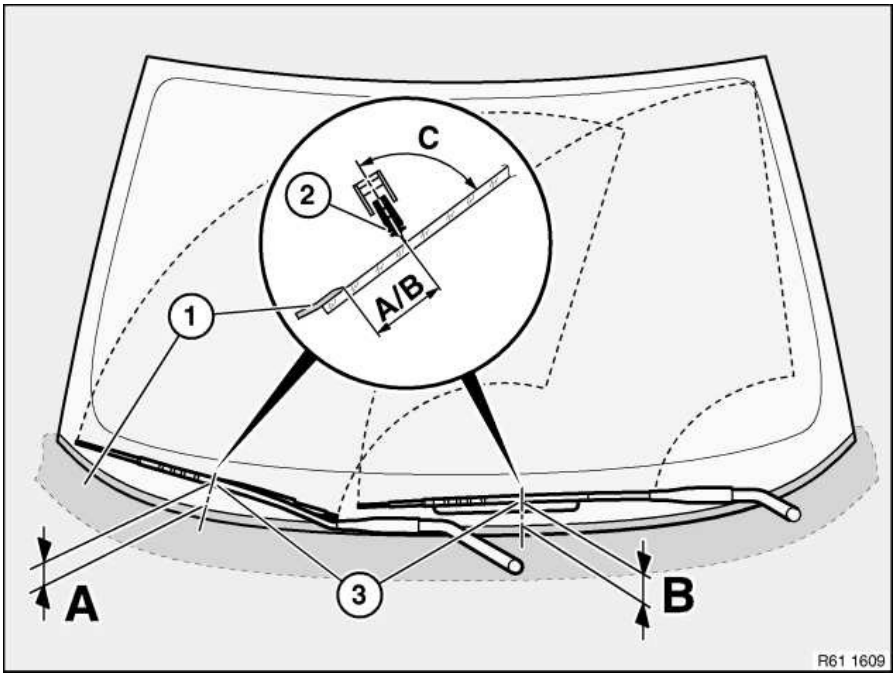
Description is for left component only. Procedure on the right side is identical.

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

The wiper system must be in zero position.
After installing the cowl panel cover and before fitting the wiper arm:
Activate the wiper system once to ensure that it has the correct installation position.

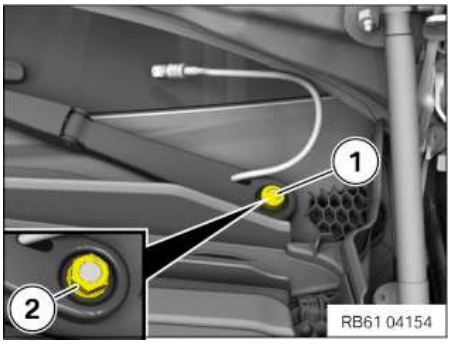
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- Connect the wiper arm (3).
- Correctly position the wiper arm (2) in relation to the window edge (1).

Distance from window pane edge to wiper blade

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

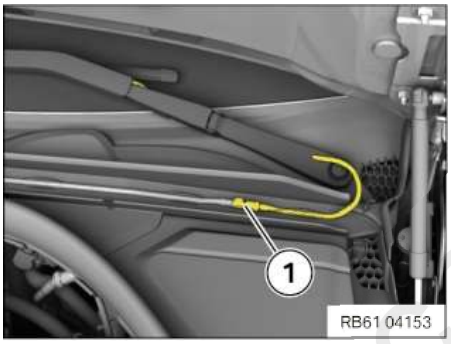


- Tighten nut (2).

Windscreen wiper arm

Combination hexagon nut		Tightening torque	35 Nm

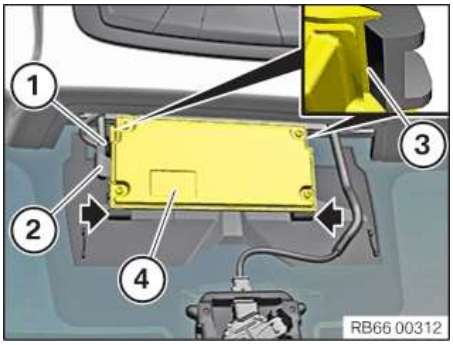
- Connect the protective cap (1).



- Feed washer fluid hose (1) into the cowl panel guide and connect at the separation point.

42 – Install KAFAS camera

▸ **Install KAFAS camera (high version)**



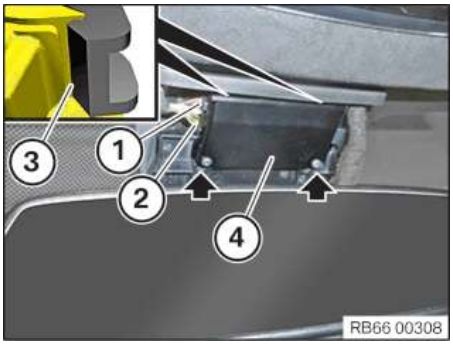
TECHNICAL INFORMATION

Latch mechanisms, guides and mounting elements must not be damaged or missing.

- Feed in the KAFAS camera (4) in the guides (arrows) and engage it in the retaining lugs (3).
- Make sure that the KAFAS camera (4) is engaged correctly at the retaining lugs (3).
- Connect connectors (2) and lock.
- Connect connectors (1) and lock.

▸ **Install KAFAS camera (Mid variant)**

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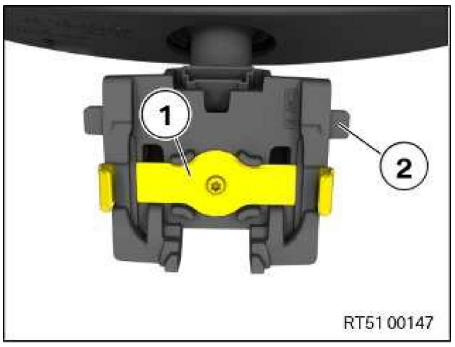


TECHNICAL INFORMATION

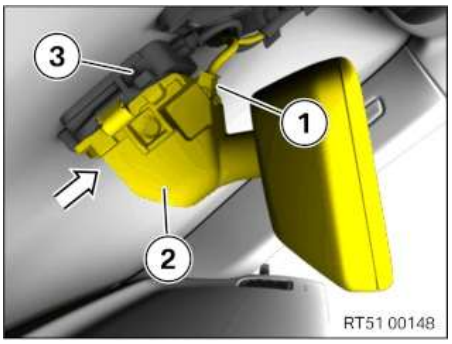
Latch mechanisms, guides and mounting elements must not be damaged or missing.

- Feed in KAFAS camera (4) on the guides (arrows) and engage the retaining lugs (3).
- Make sure that the KAFAS camera (4) engages correctly in the retaining lugs (3).
- Connect connectors (2) and lock.
- Connect connectors (1) and lock.

43 – Install interior mirror



- Check the clamp (1) on both sides of the mirror base (2) for damage and renew as needed.



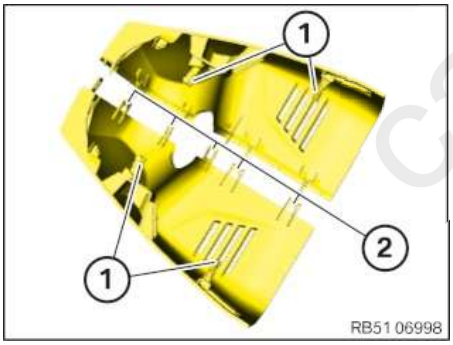
TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.

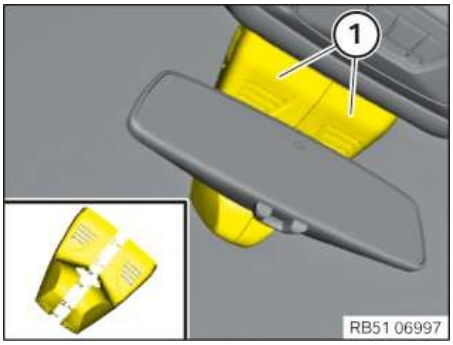
- Position the interior mirror (2) at the mirror base and slide it on in direction of the arrow.
- Check the correct installation position of the interior mirror (2) at the mirror base (3).
- Connect connectors (1) and lock.

44 – Installing the covers for the interior mirror

- **Version A:**

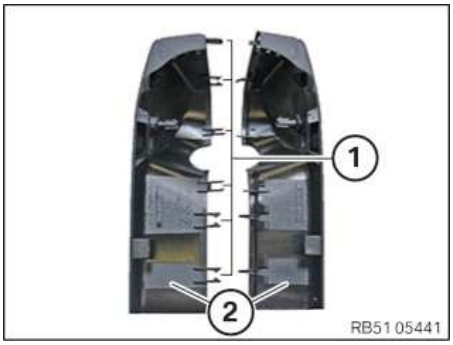


- Check latch mechanisms (1) and (2).
- If the latch mechanisms (1) or (2) are faulty, renew the covers.



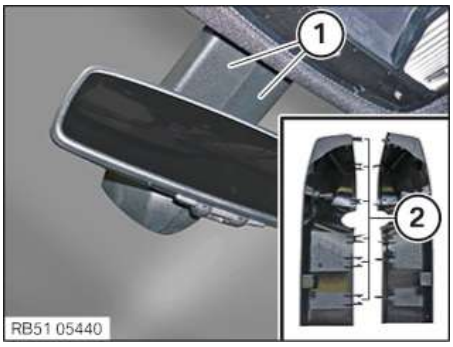
- Feed cover (1) in and lock.
- **Version B:**

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- Check the latch mechanisms (1) on the two covers (2) for damage, renew the covers (2) if necessary.

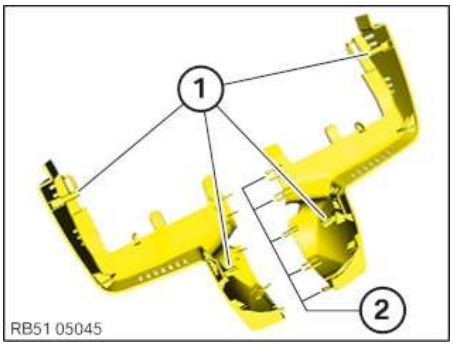
  The covers (2) must not be damaged or missing.



- Position the covers (1) correctly on the mirror and engage with the latch mechanisms (2).

- **Version C:**

Check



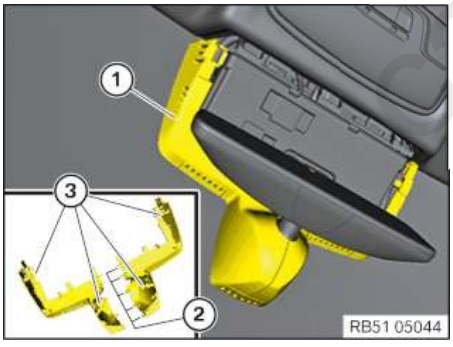
- Check the latch mechanisms (1) and (2) of the covers for damage.

Result

» The latch mechanism is damaged.

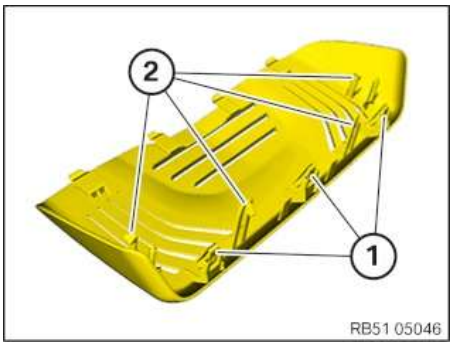
Measure

- Renew the cover.



- Guide in cover (1) on left and right and engage using latch mechanisms (2) and (3).

Check



- Check clamps (1) for damage; renew if necessary.
- Check latch mechanisms (2) for damage.

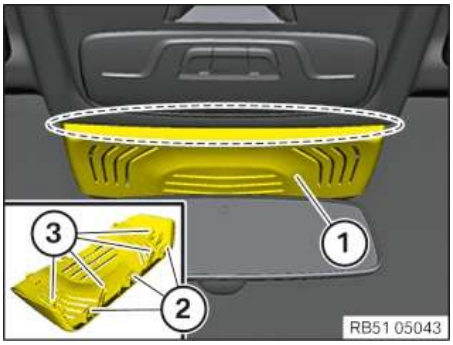
Result

» The latch mechanism is damaged.

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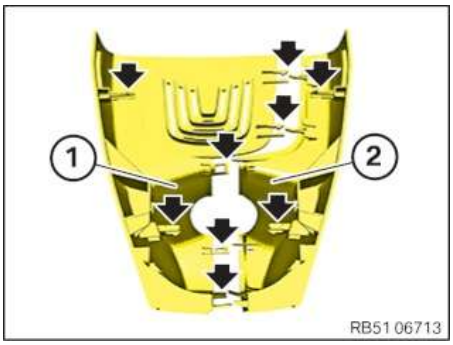
Measure

- Renew the cover.



- Guide cover (1) into front guides and engage using retaining lugs (3) and clamps (2).

- **Version D:**



- Check the latch mechanisms (arrows) on covers (1) and (2) for damage and, if necessary, renew covers (1) and (2).



- Position covers (1) and (2) correctly on the mirror and engage at the separation point (3).

45 – Install the A-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

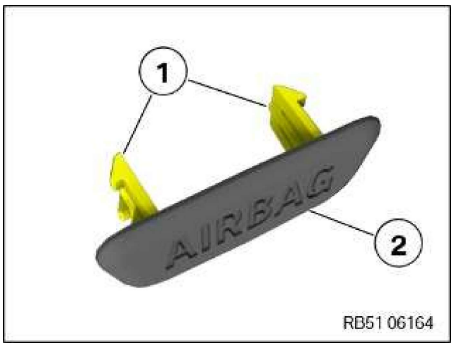
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RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



Check

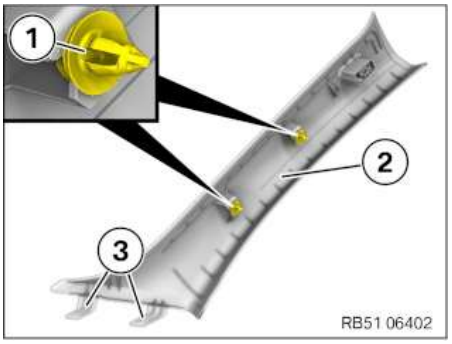
- Check retaining lugs (1) of cover (2) for damage.

Result

» Retaining lug is damaged.

Measure

- Renew the cover.



Check

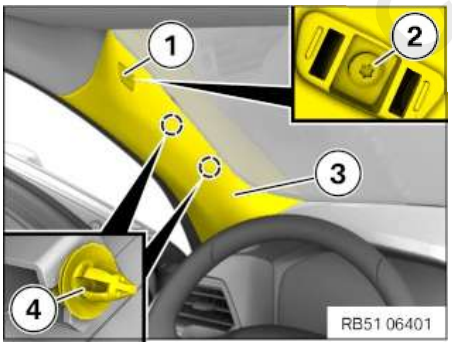
- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.



- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

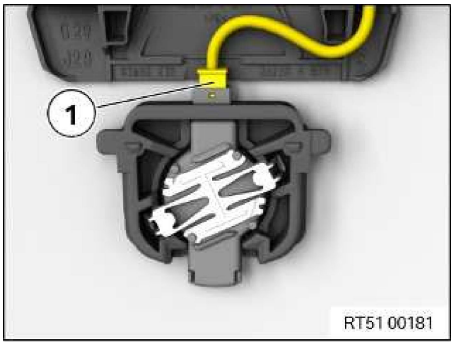
A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

- Clip in the cover (1).

46 – Installing the rain-light-solar-condensation sensor partially

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- Connect connectors (1) and lock.

47 – Calibrate KAFAS camera

TECHNICAL INFORMATION

The calibration process of the KAFAS camera is not complete until the vehicle drives in traffic. Tell the customer that some assistance systems are temporarily unavailable after vehicle pick-up.

- Perform camera calibration using diagnosis system.

  Under Service Functions menu:

  - Driver assistance
  - Camera-based driver assistance systems
  - Calibration of camera-based driver support systems

Additional Information

Overview of Tightening Torques

Headlining to frame			Used in step 22
Oval-head screw		Tightening torque	1,5 Nm

End fitting to body			Used in step 25
M10		Tightening torque	42 Nm

C-pillar trim panel to body			Used in step 27
Screw		Tightening torque	2,6 Nm

Roof function centre (FZD)			Used in step 30
		Tightening torque	1.2 Nm

Sun visor to body			Used in step 31
Screw		Tightening torque	3.3 Nm

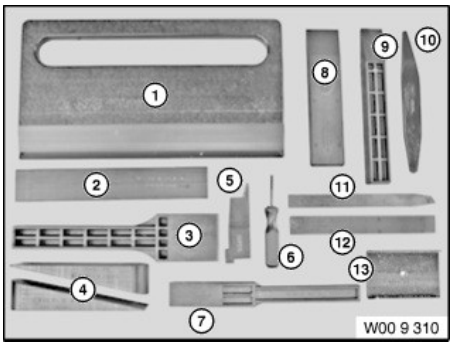
Windscreen wiper arm			Used in step 41
Combination hexagon nut		Tightening torque	35 Nm

A-pillar trim panel to body			Used in step 45
Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

Overview of Special Tools

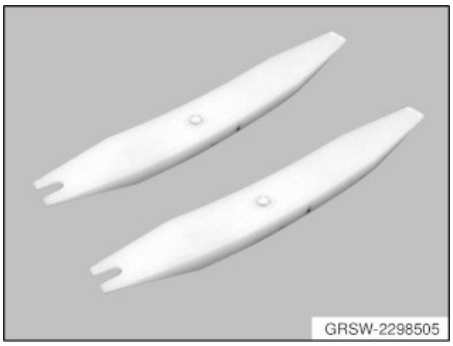
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0 493 752 (00 9 329) Case



Common	Used in step 117
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 298 505 Wedge



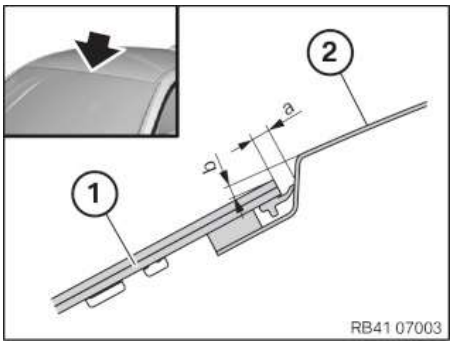
Common	Used in step 30
Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

Overview Technical Data

Gap dimension windscreen to roof outer skin — Used in step 36

1 windscreen; 2 roof outer skin

a	4,3 (3,1 - 5.5) mm
b	3,6 (2.3 - 4,9) mm



Distance from window pane edge to wiper blade — Used in step 41

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

Links

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Repair instructions (PRE)	Used in step
Notes on 48-V battery	1528

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	11528
72 00 ... Safety regulations for handling components with gas generators	1
51 31 ... General procedure for the disassembly and installation of bonded window glass	11
51 31 ... Materials for bonding window	11

Repair instructions	Used in step
61 35 ... Notes on ESD protection (Electro Static Discharge)	
61 35 ... Notes on ESD protection (Electro Static Discharge)	
51 31 ... Removing windows with a "Spider"	11
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1528
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1528
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
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61 20 900 Disconnecting and connecting battery earth lead	1528
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
61 20 900 Disconnecting and connecting battery earth lead	1528

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51 44 001 Removing and installing/replacing headlining

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

RISK OF DAMAGE



Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)

TECHNICAL INFORMATION

Perform window removal using the "spider".

For additional information see: 51 31 ... Window glass removal using "spider"

TECHNICAL INFORMATION

The following procedure forms the basis for these repair instructions and must be observed without fail.

For more information see: 51 31 ... General procedure for disassembly/installation of bonded window glass

PRELIMINARY WORK

1 – Remove left and right A-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

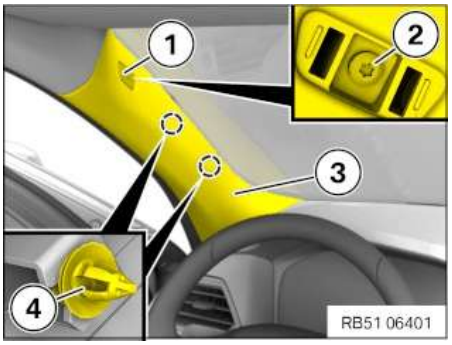
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RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

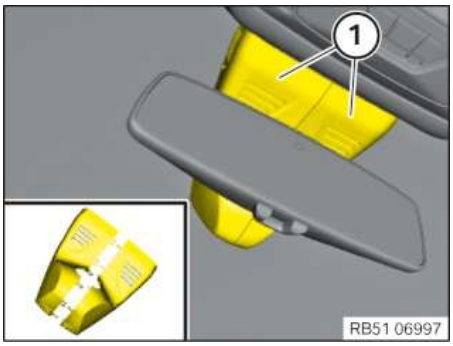
- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

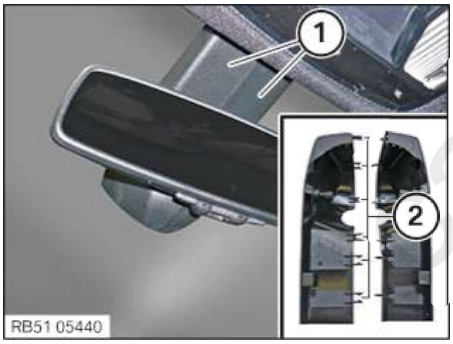
2 – Removing the covers for the interior mirror

- **Version A:**



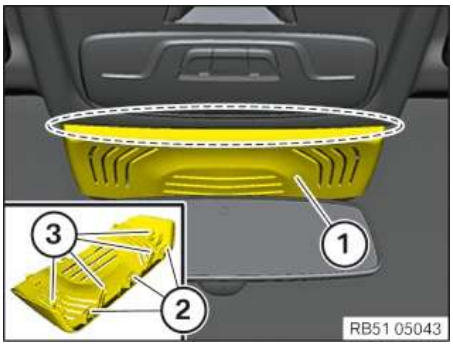
- Release cover (1) in the middle with a suitable plastic wedge from the latch mechanisms and remove.

- **Version B:**



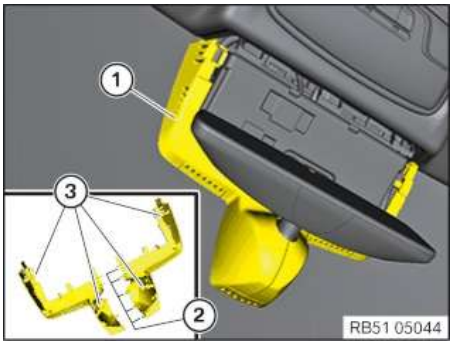
- Release the cover (1) from the latch mechanisms (2) with a suitable plastic wedge and remove sideways.

- **Version C:**



- Detach cover (1) from the clamps (2) in the marked area using a suitable plastic wedge and pull down a certain distance.
- Release cover (1) at the retaining lugs (3) and remove from the guides to the rear.

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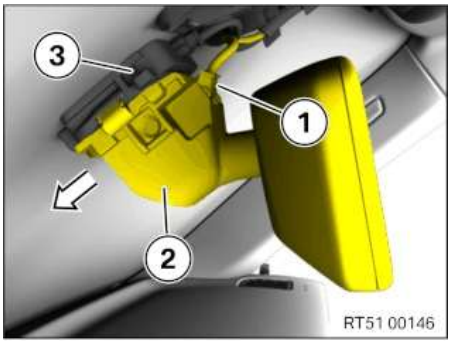
- Release cover (1) from the latch mechanisms (2) and (3) and remove sideways.
- Remove cover (1) from mirror base (2).

- **Version D:**



- Release covers (1) and (2) using a suitable plastic wedge at the separation point (3) and remove from the side.

3 – Remove inside mirror



TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.

- Unlock plug connection (1) and disconnect.

RISK OF DAMAGE

Damage to the component.

Excessive force may damage the component.

- Handle component carefully.

- Jerk and pull off the interior mirror (2) in the direction of the arrow from the mirror base (3).

4 – Remove KAFAS camera

▸ **Remove KAFAS camera (Mid variant)**

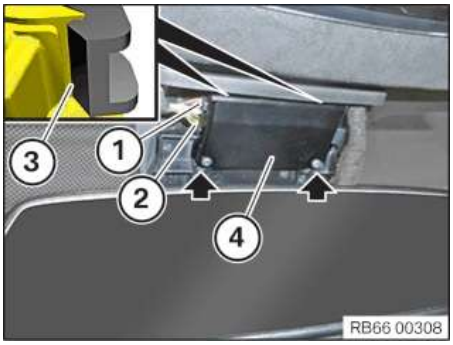
RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

Damage to the retaining hooks of the KAFAS camera holder.

- Unlock the retaining hook with a suitable tool **carefully** .

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- Unlock plug connection (1) and disconnect.
- Unlock plug connection (2) and disconnect.
- Unlock the retaining lugs (3).
- Thread out KAFAS camera (4) at the guides (arrows) and remove.

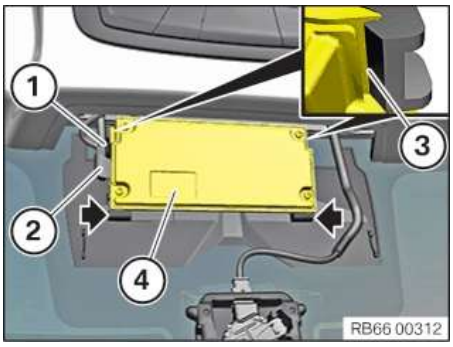
▸ **Remove KAFAS camera (high version)**

RISK OF DAMAGE

Improper unlocking of the KAFAS camera.

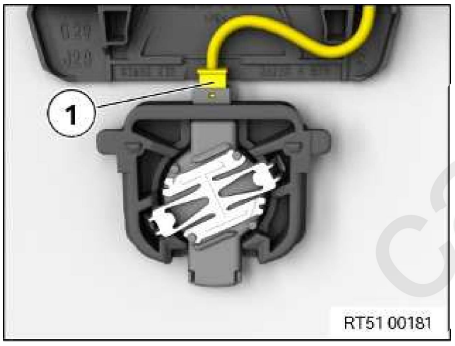
Damage to the retaining hooks of the KAFAS camera holder.

- Unlock the retaining hook with a suitable tool **carefully** .



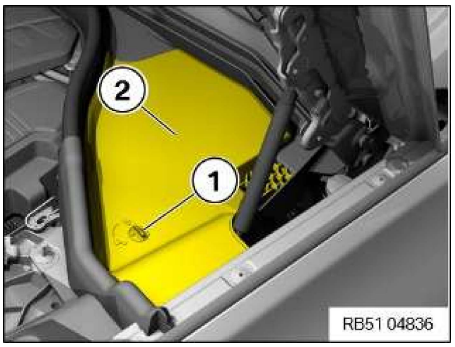
- Unlock plug connection (1) and disconnect.
- Unlock plug connection (2) and disconnect.
- Unlock the retaining lugs (3).
- Thread out KAFAS camera (4) at the guides (arrows) and remove.

5 – Disconnect rain-light-solar-condensation sensor



- Unlock plug connection (1) and disconnect.

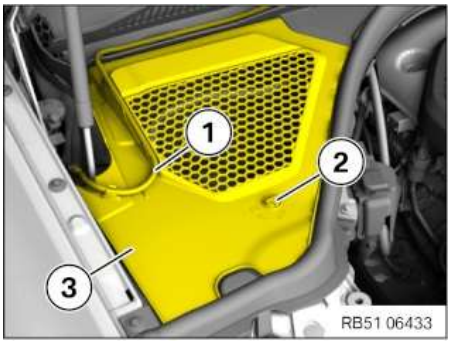
6 – Remove the cover of the engine compartment at the rear left



- Loosen the lock (1).
- Remove the cover (2) of the rear left engine compartment.

7 – Remove the cover of the rear right engine compartment

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- Release washer fluid hose (1) from the guides.
- Loosen the lock (2).
- Remove the cover (3) of the rear right engine compartment.

8 – Removing the wiper arm on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

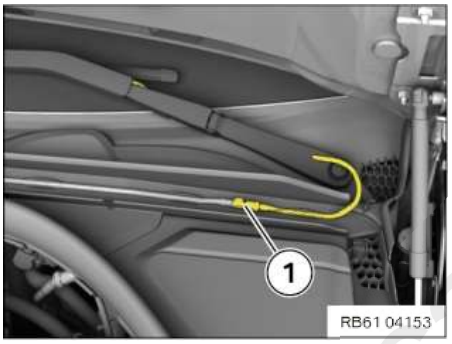
▶ **Remove the wiper arm**

RISK OF DAMAGE

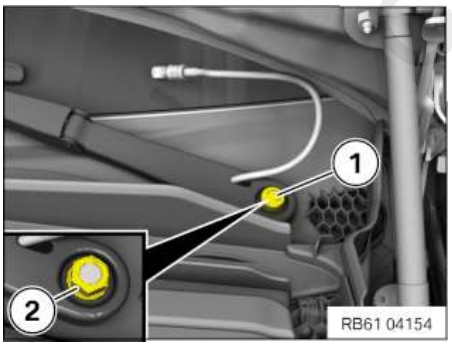
Damage to wiper console.

While removing the wiper arms without using special tool, the wiper console can break.

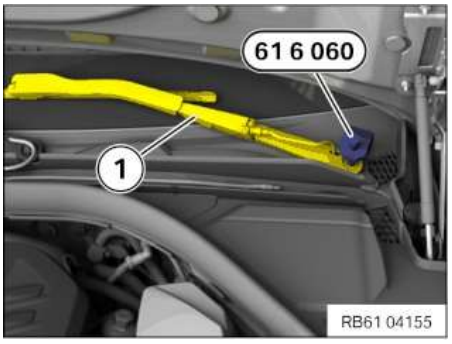
- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.



- Disconnect the washer fluid hose (1) at the separation point and feed out from the cowl panel guide.



- Remove the protective cap (1).
- Loosen nut (2).



- Pull off the wiper arm (1) using special tool .

9 – Remove the gutter strip on the windscreen on the left and right

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NOTICE

Description is for left component only. Procedure on the right side is identical.

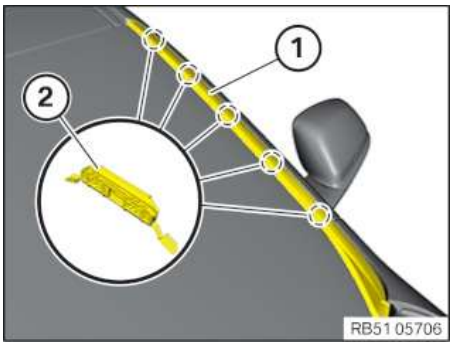
▸ **Remove the gutter strip on the windscreen**

RISK OF DAMAGE

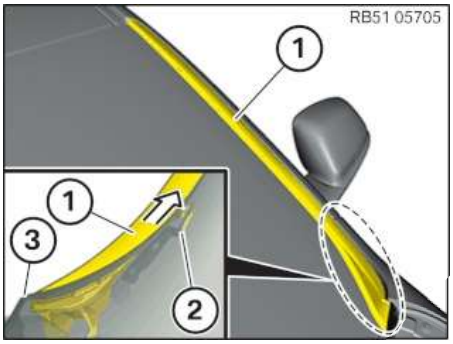
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

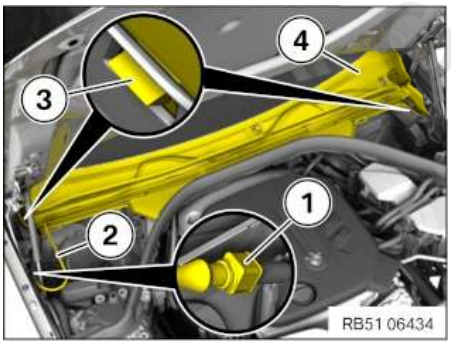


- Unclip gutter strip on the windscreen(1) from the clamps(2) starting at the roof and working upwards.

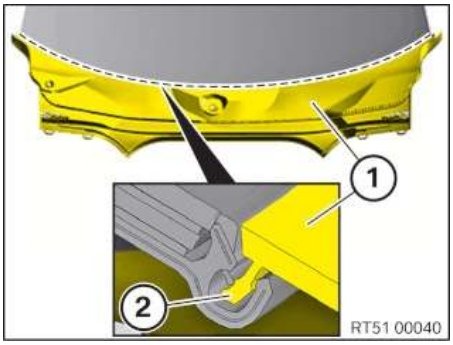


- Pull out gutter strip on the windscreen (1) out of guide (2) in direction of arrow and carefully guide out at the side panel (3).

10 – Remove cowl panel cover



- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).



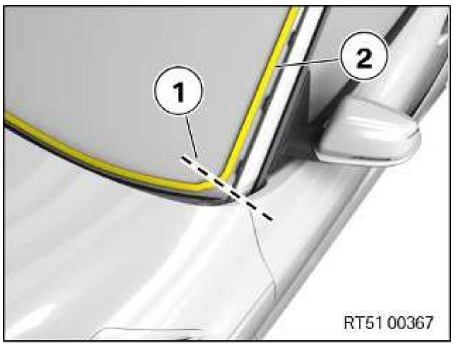
- Pull the cowl panel cover (1) upward out of the latch mechanism (2) beginning on the side.

11 – Removing the windscreen

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TECHNICAL INFORMATION

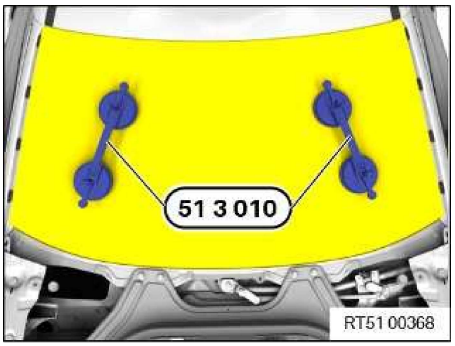
Perform window removal using the "spider".
For additional information see: 51 31 ... Window glass removal using "spider"



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Tape off body in area of piercing point with fabric adhesive tape.
- Push the thread along the line (1) through the adhesive bead (2) from the inside.
- Cut out the windscreen with the spider.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Remove windscreen with the special tool .

12 – Removing the sun visors and the end support on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

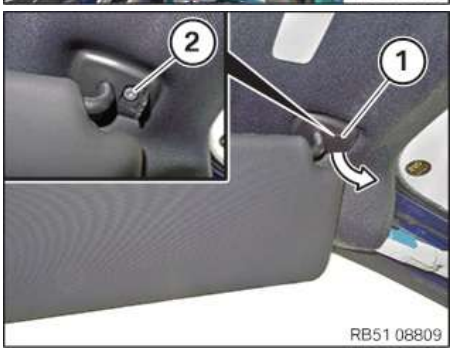
▸ **Remove the sun visor and the counter support**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

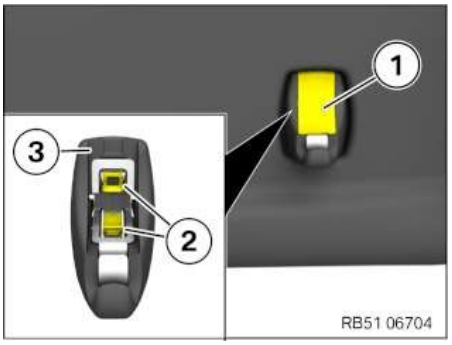


- Detach sun visors (1) from end support (2) and swivel to the side.



- Fold open cover (1).
- Loosen screw (2).
- Remove sun visors and unlock and disconnect the associated plug connection.

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- Unclip cover (1) using a suitable tool.
- Push the clamps (2) together and pull the counter support (3) out of the headlining.

13 – Removing the roof function centre (FZD)



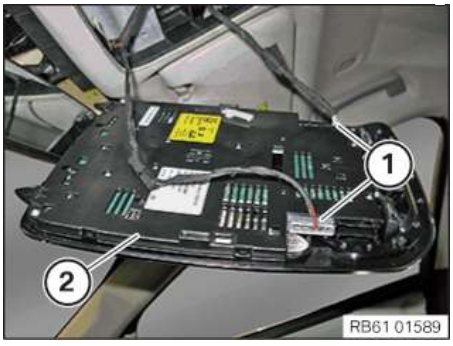
- Unclip the cover (1).



- Loosen screws (1).



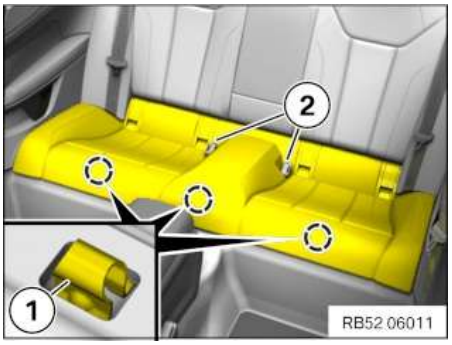
- Unclip the roof function centre (FZD) (1) from the clamps (2).
- Thread the roof function centre (FZD) (1) out of the guides (3).



- Unlock and disconnect plug connections (1).
- Unclip the cable clip from roof function centre (FZD) (2) and remove the roof function centre (FZD) (2).

14 – Remove rear seat bench

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- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

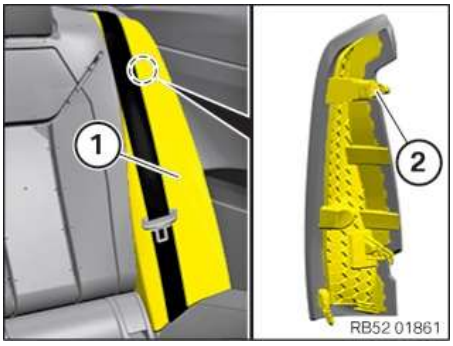
15 – Remove backrest side section on left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

16 – Removing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

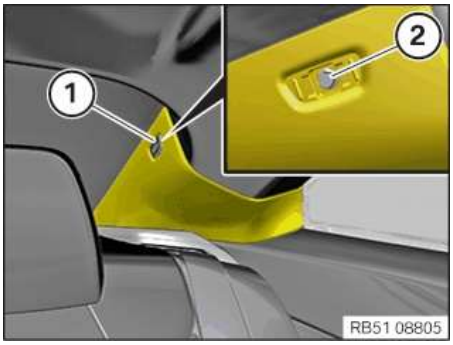
RISK OF DAMAGE

Damage to the head airbag.

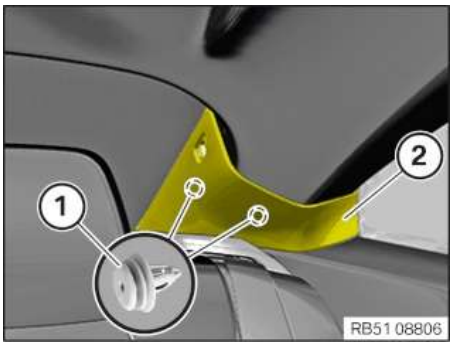
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

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- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

17 – Removing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the inner door sill cover strip**

RISK OF DAMAGE

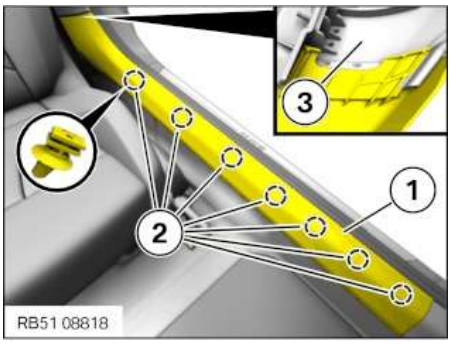
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

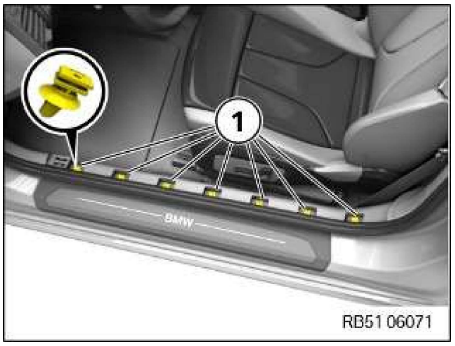
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

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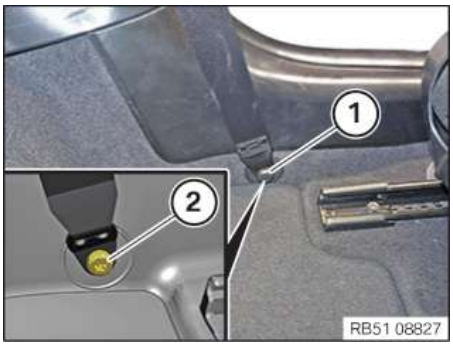
- If necessary, remove clips (1) and connect them to the door sill cover strip.

18 – Remove side trim panel, rear left and right

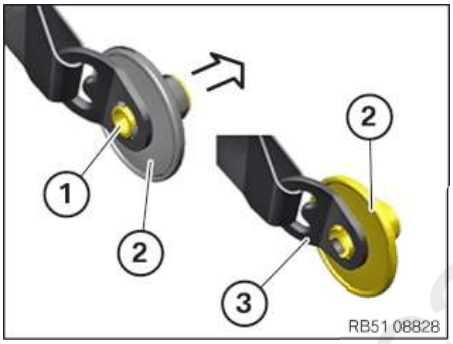
NOTICE

Description is for left component only. Procedure on the right side is identical.

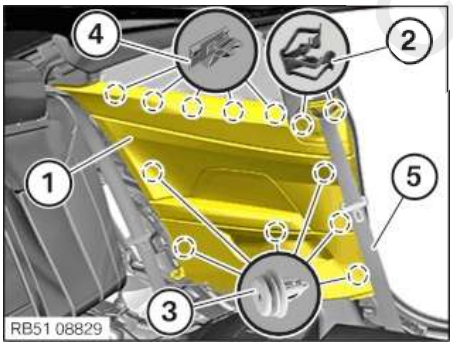
▸ **Remove rear side trim panel**



- Unclip the cover cap (1).
- Release the screw (2).



- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

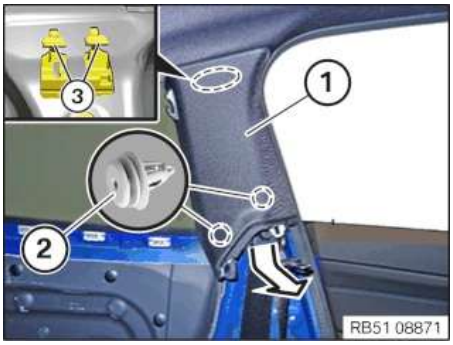
19 – Removing left and right B-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

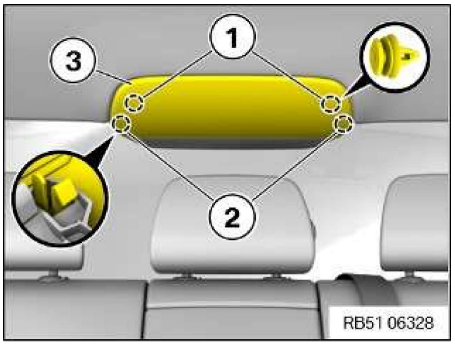
▸ **Remove the B-pillar trim panel**

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- Unclip the B-pillar trim panel (1) at the clips (2).
- Remove the B-pillar trim panel (1) from the lip of the edge protection and the guides (3) in the direction of the arrow.

20 – Removing the trim of the additional brake light



- Loosen the clips (1).
- Release the latch mechanisms (2) and remove the trim of the additional brake light (3).

MAIN WORK

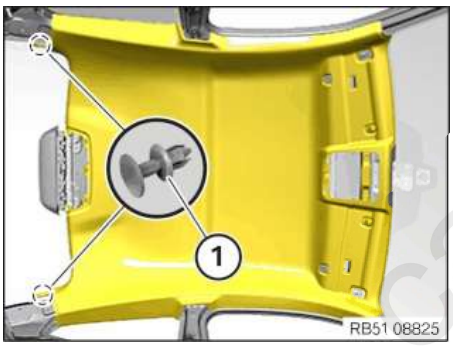
21 – Remove headlining

Prerequisite

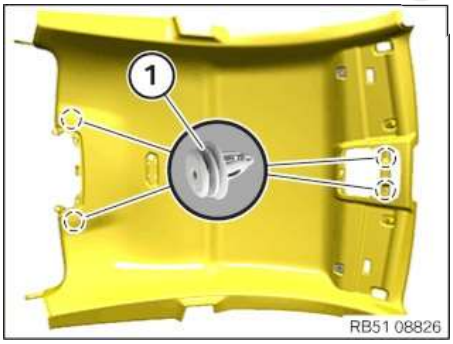
The front seats have been fully adjusted towards the bottom.

The front seat backrests have been fully adjusted towards the rear.

The rear seat backrest is folded down toward the front.



- Loosen the expanding rivet (1).



- Unclip the headlining at the clips (1) downwards.
- Lift the headlining through the aperture of the windscreen with the help of an auxiliary person.

22 – Fit the roof lining

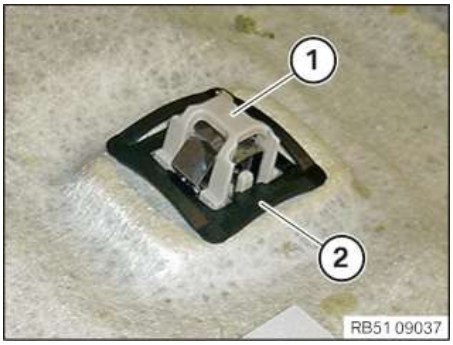
Prerequisite

The front seats have been fully adjusted towards the bottom.

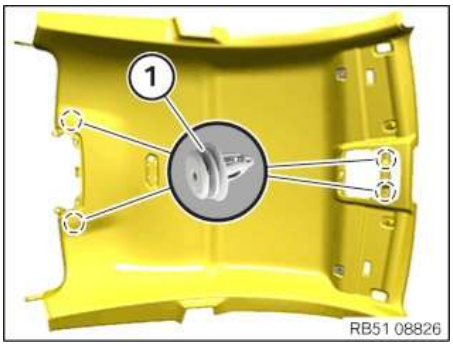
The front seat backrests have been fully adjusted towards the rear.

The rear seat backrest is folded down toward the front.

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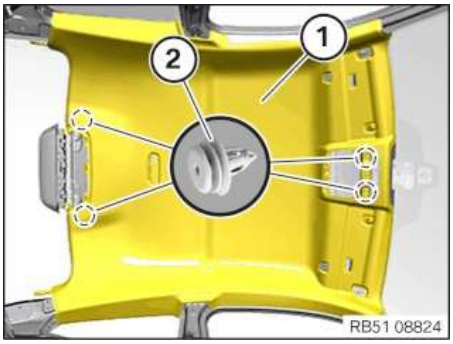


- Install the end support of the sun visors (1) in the headlining and mount it with clamps (2).

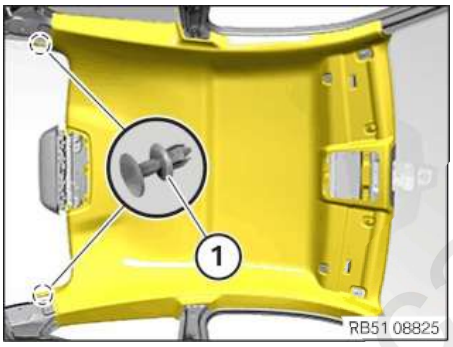


- Check the clips (1) on the headlining for damage.

  Defective or missing clips (1) must be renewed.



- Lift the headlining (1) with the help of an auxiliary person through the aperture of the windscreen into the vehicle.
- Insert the headlining (1) with the help of an auxiliary person onto the respective edge protection.
- Clip in headlining (1) on the clips (2).

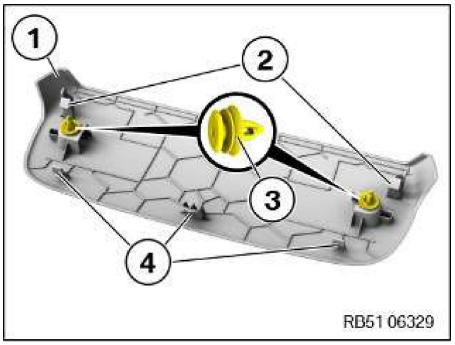


- Secure expanding rivet (1).

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POSTPROCESSES

23 – Installing trim for additional brake light



Check

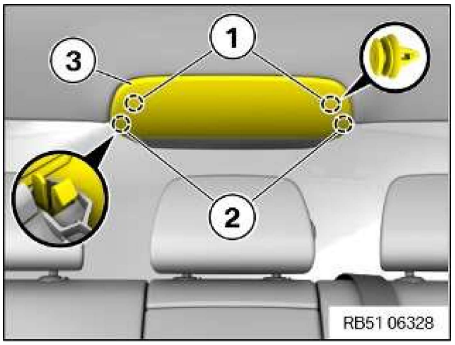
- Check the clips (3) for damage and renew if necessary.
- Check latch mechanisms (2) and guides (4) for damage.

Result

» The latch mechanism or the guide is damaged.

Measure

- Renew the trim for the additional brake light.



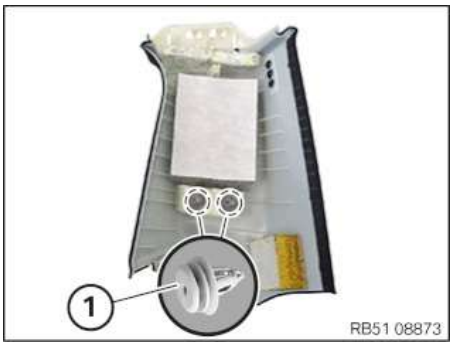
- Position trim for additional brake light (1) from the bottom and clip it in with latch mechanisms (2).
- Clip in clips (1).

24 – Installing the left and right B-pillar trim panel

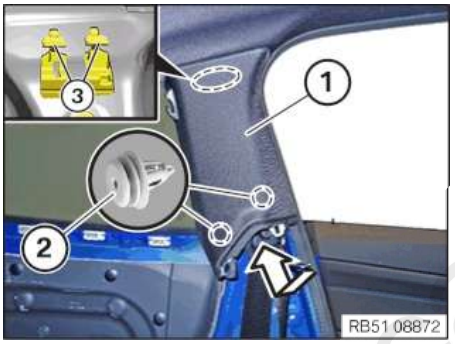
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install the B-pillar trim panel**



- Check clips (1) for damage and renew if necessary.



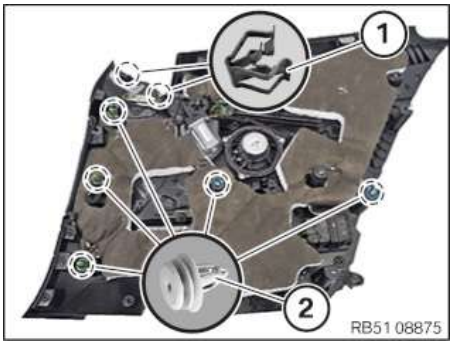
- Insert B-pillar trim panel (1) in direction of arrow into the guides (3) and under the lip of edge protection.
- Clip in the B-pillar trim panel (1) at the clips (2).

25 – Install side trim panel, rear left and right

NOTICE

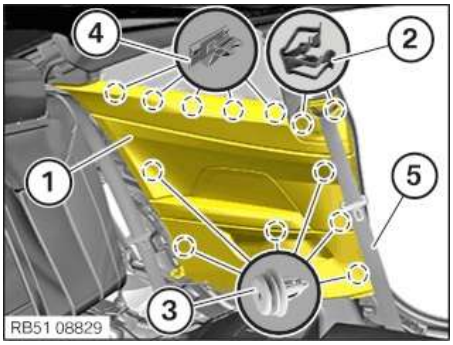
Description is for left component only. Procedure on the right side is identical.

▸ **Install rear side trim panel**

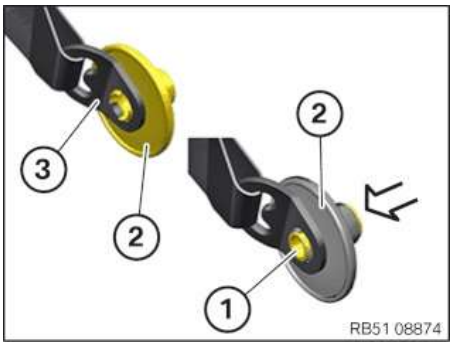


- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.

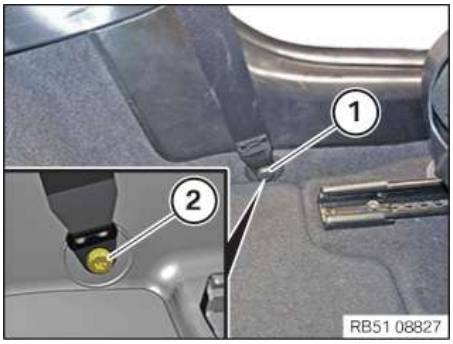
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- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).



- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

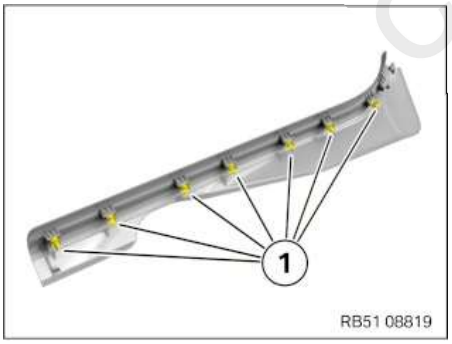
- Clip in cover cap (1).

26 – Installing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

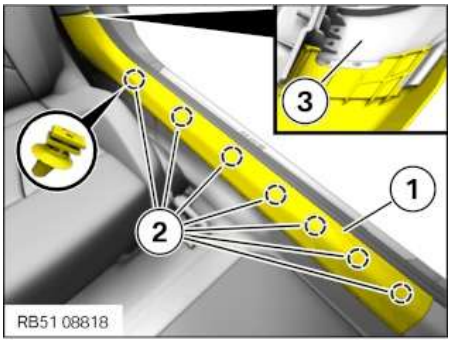
▸ **Installing the inner door sill cover strip**



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

27 – Installing the C-pillar trim panel on the left and right

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NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

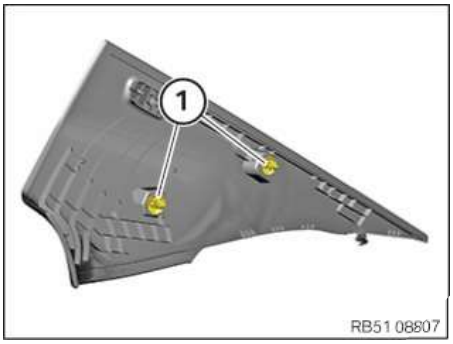
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

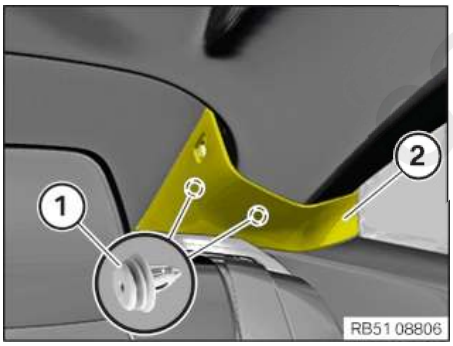
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

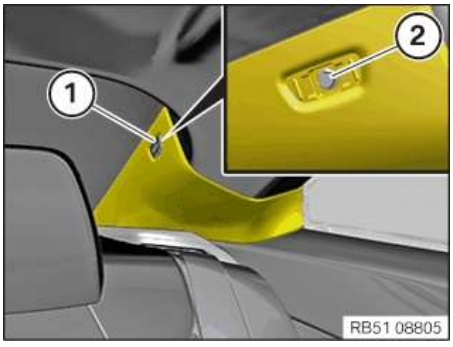
- Do not use sharp-edged tools when removing the trim panel.



- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

28 – Install the backrest side section on the left and right

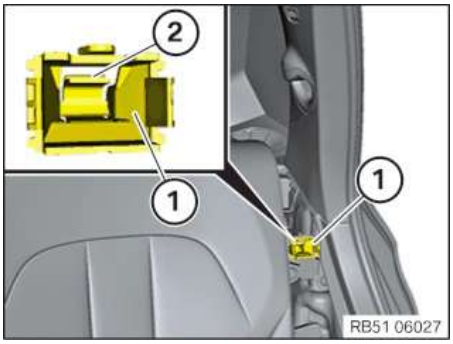
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NOTICE

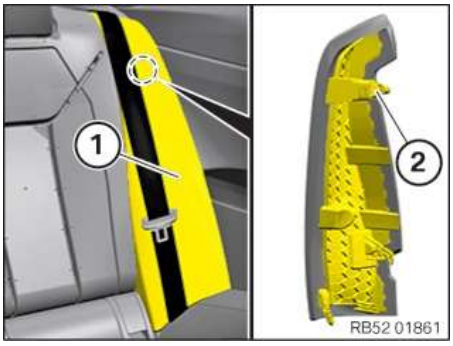
Description is for left component only. Procedure on the right side is identical.

▶ **Installing backrest side section**

▷ **Installing backrest side section**



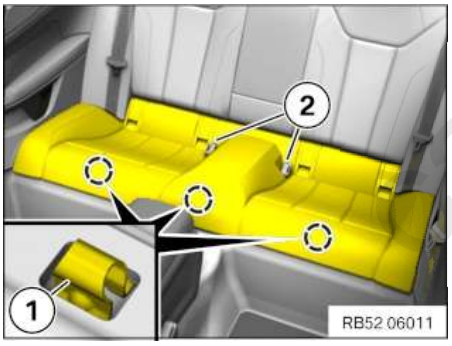
- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

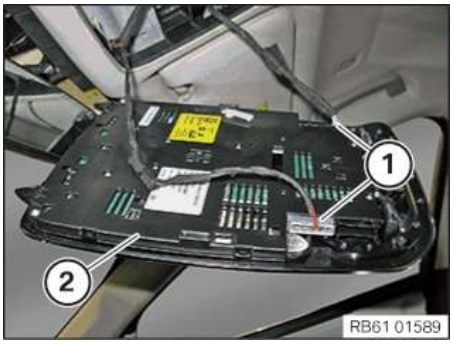
◁

29 – Installing the rear seat bench



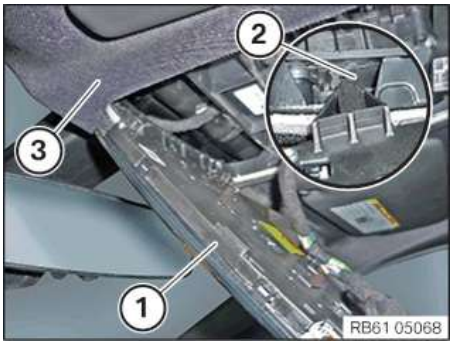
- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

30 – Installing roof function centre (FZD)



- Connect connectors (1) and lock.
- Clip in the cable for the roof function centre (FZD) (2) in the cable clip.

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- Insert the roof function centre (FZD) (1) as shown at a steep angle in the two guides (2) on the headlining (3).
- Make sure the headlining is not deformed during this operation.



- Clip the roof function centre (FZD) (1) upwards into the clamps (2).



- Slide the special tool 2 298 505 in the direction of arrow between the FZD frame and the headlining along the dotted line to adjust the headlining correctly.



- Tighten the screws (1).

Roof function centre (FZD)

	Tightening torque	1.2 Nm



- Clip in the cover (1).

31 – Installing the sun visors and the end support on the left and right

NOTICE

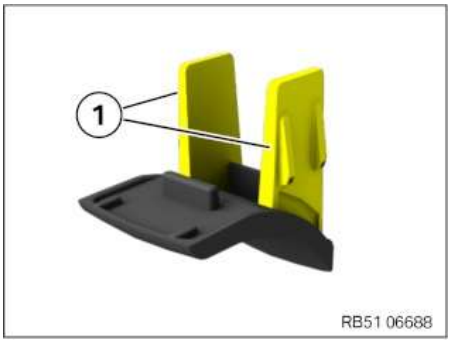
Description is for left component only. Procedure on the right side is identical.

▸ **Install the sun visor and the counter support**

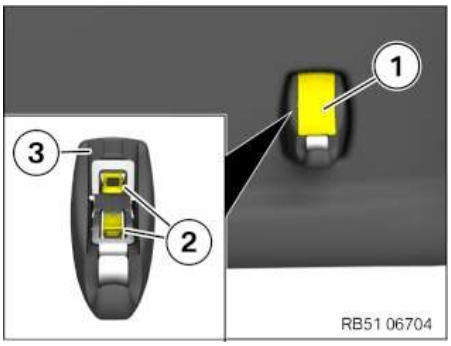
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NOTICE

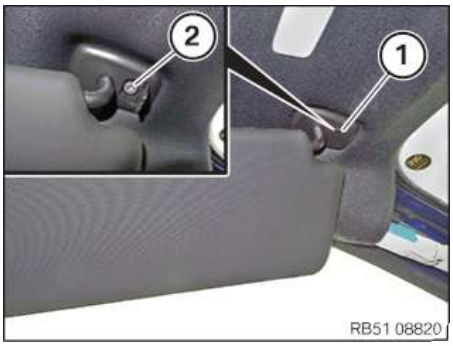
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check the guides (1) on the cover of the end support for damage, renew if necessary.



- Clip in the counter support (3) to the headlining.
- Make sure the clamps (2) are engaged correctly.
- Clip in the cover (1).



- Connect and lock corresponding connectors.
- Install the sun visors.
- Tighten down screw (2).

Sun visor to body

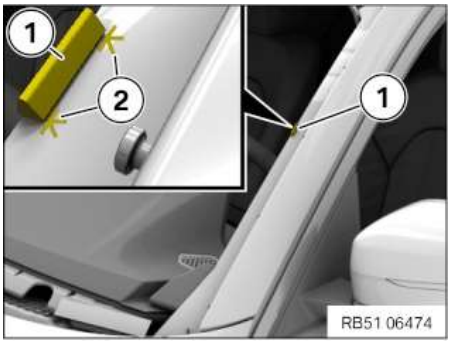
Screw		Tightening torque	3.3 Nm

- Close the cover (1).



- Hook the sun visors (1) to the end support (2).

32 – Replace the spacer



NOTICE

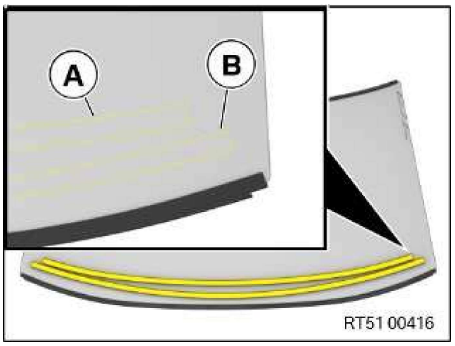
Description is for left component only. Procedure on the right side is identical.

- Remove adhesive residues from the body when installing the windscreen and clean the adhesive area.
- Completely remove the existing spacer (1).
- Bond the spacer (1) in the centre on the embossed marks (2) on the body side.

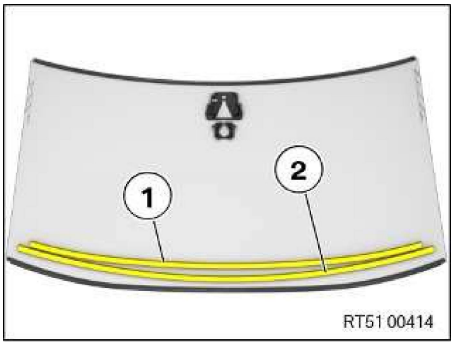
  Parts: Spacer

33 – Replacement: prepare the windscreen

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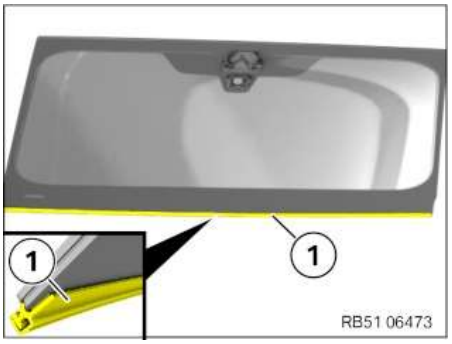


- Observe marks (A) and (B) for the expanding foam tape on the windscreen.



- Attach expanding foam tapes (1) and (2) along the marks on the edge of windscreen.

  Parts: Expanding foam tape



Check

- Check the guide (1) for the cowl panel cover for damage.

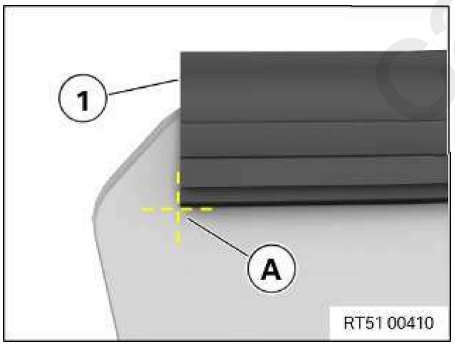
Result

» Guide for cowl panel cover is damaged.

Measure

- Renew windscreen.

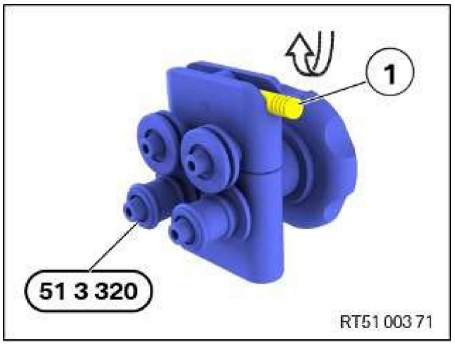
34 – Installing the windscreen rubber frame



NOTICE

Perform the operations on the left and right side.

- Observe marks (A) for the windscreen rubber frame (1).

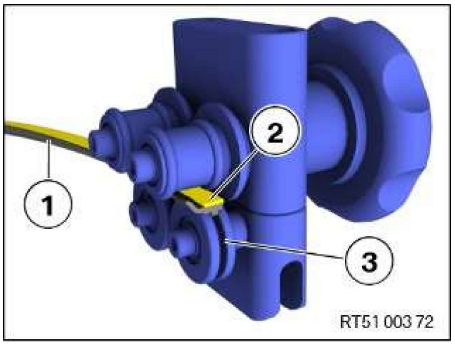


NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Reposition lever (1) in direction of arrow and open it using the special tool .

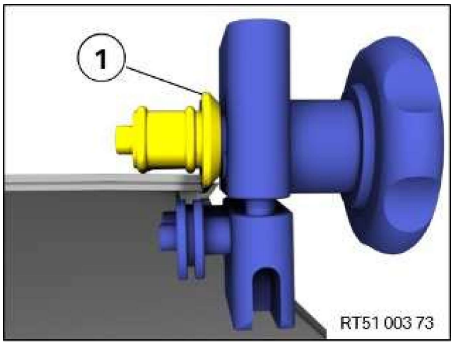
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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

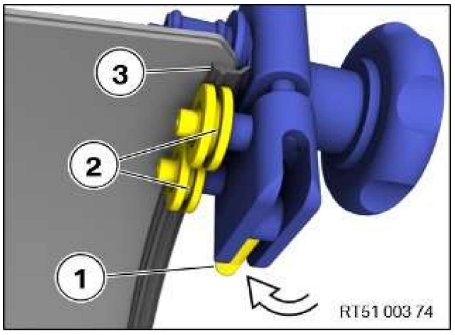
- Pull off protective film (2) in stages from adhesive tape.
- Insert the cover (1) into the guides (3).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

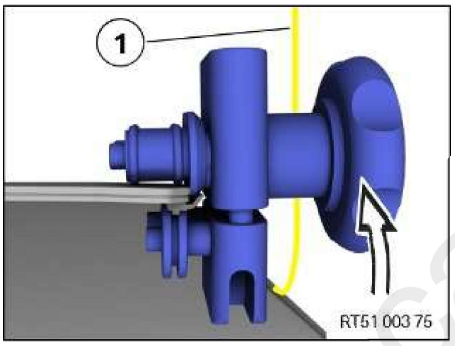
- Place the special tool with the pressure rollers (1) up against the window edge.
- Align the cover with the outer edge of the windscreen.
- Fit the cover and visually check for perfect fit.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Reposition the lever (1) in direction of arrow to close the special tool.
- Ensure the correct positioning of the cover (3) in the guide pulleys (2).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Continue to pull off protective film (1) in stages from adhesive tape.
- Pull the special tool in the direction of arrow with the handwheel over the entire upper edge of the window glass.

35 – Checking the sign

NOTICE

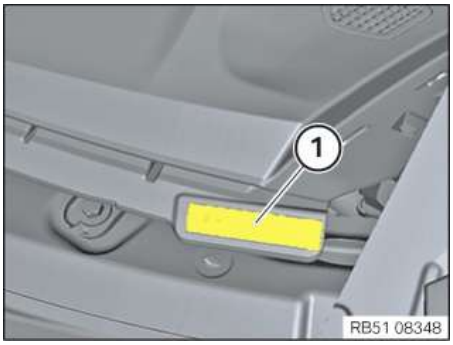
Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

Check

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- Check sign (1) for damage.

Result

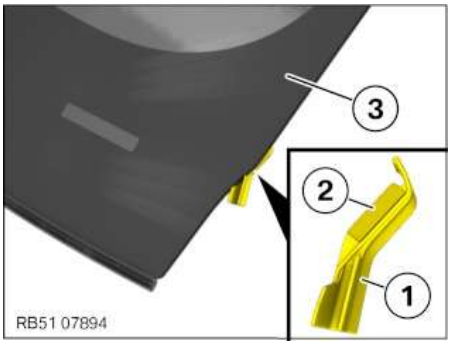
» Sign (1) is damaged.

Measure

- Renew sign (1).

36 – Installing the windscreen.

▸ **Installing the water guide element on the left and right**



- Check the water guide element (1) on the left and right for damage and renew if necessary.

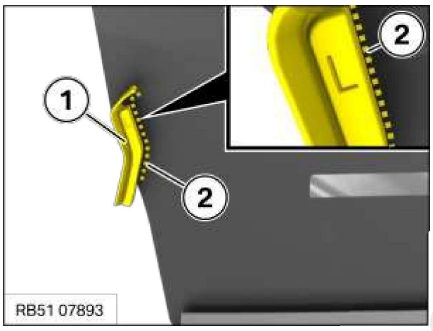
  Do not mix up the left and right water guide element.

- Clean the bonding surface with cleaning agent.

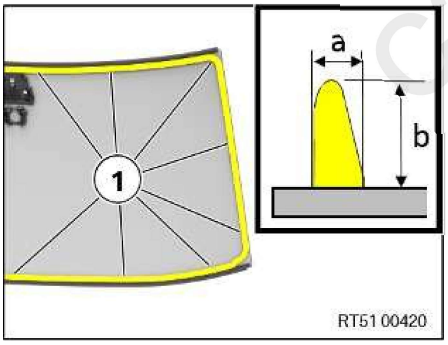
Expendable materials

Cleaning agent R2	500 ml	83190417324

- Remove liner (2) from the water guide element (1) and position on the windscreen (3).



- Position water guide element (1) at the mark (2) and press it down.

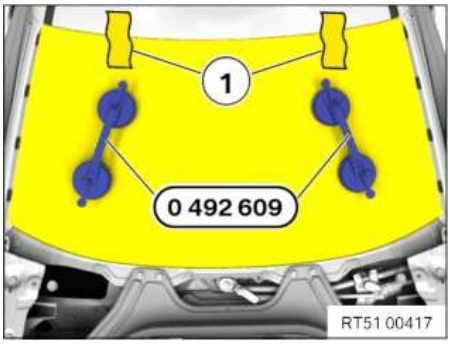


NOTICE

Perform the operations on the left and right side.

- Prepare the glue cartridge with the standard nozzle C.
- Apply adhesive bead within the marks (1) on the windscreen.

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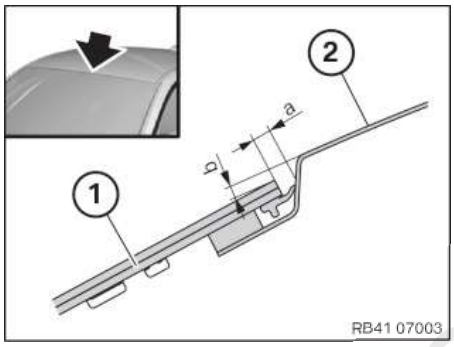


- Carefully insert the windscreen using special tool between the bonnet and the cowl panel.
- Position the windscreen at the top.
- Evenly align the windscreen on the left and right.
- Insert and press on the windscreen at the bottom.
- Press the windscreen towards the top until the rubber frame of the windscreen is evenly in contact with the roof.
- Secure the windscreen in this installation position using the two yellow plastic adhesive tapes (1).

Gap dimension windscreen to roof outer skin

1 windscreen; 2 roof outer skin

a	4,3 (3,1 - 5.5) mm
b	3,6 (2.3 - 4,9) mm



37 – Installing cowl panel cover

RISK OF DAMAGE

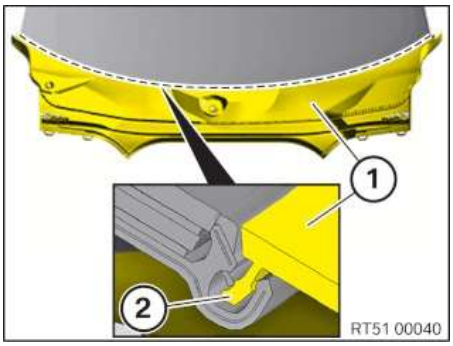
Damage caused by water ingress into the vehicle.

Water ingress into the vehicle may result in damage to components, malfunctions and corrosion.

- Ensure correct installation of the components.
- Only use undamaged components.

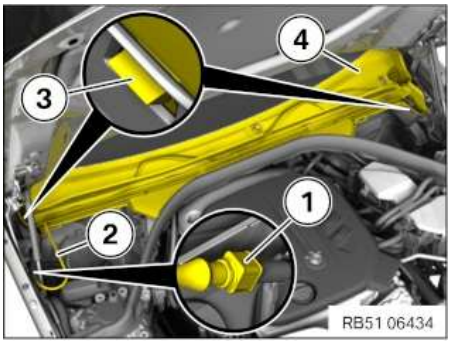
TECHNICAL INFORMATION

Before installing the cowl panel cover it is **mandatory** to check that the 48 V line is routed correctly and fitted tightly.
An incorrectly laid or attached 48 V line can be damaged by the wiper kinematics.



- Push the cowl panel cover (1) into the latch mechanism (2) beginning on the side.

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- Clip cowl panel cover (4)in by means of the latch mechanisms (3).
- Position windscreen wash hose (2) and connect windscreen wash hose (1)quick lock.

38 – Install the gutter strip on the windscreen on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install the gutter strip on the windscreen**

RISK OF DAMAGE

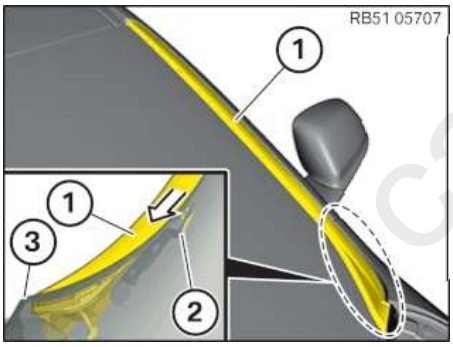
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

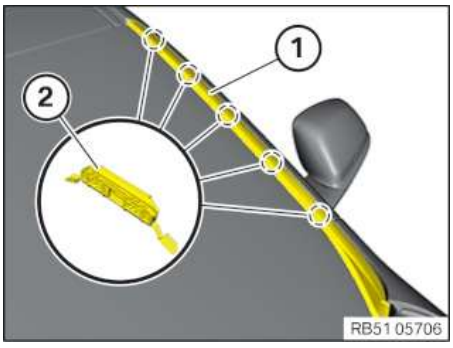
TECHNICAL INFORMATION

Latch mechanisms, guides and mounting elements must not be damaged or missing.



- Renew gutter strip on the windscreen (1) and paint if necessary.

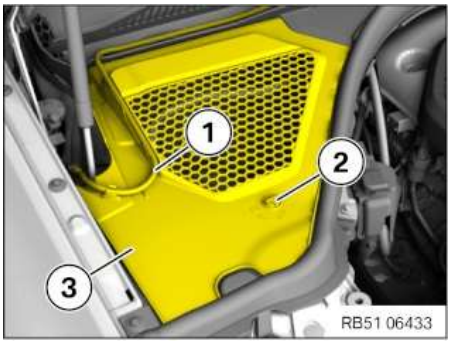
  Parts: Gutter strip
- Carefully feed in the windscreen gutter strip (1) at the side panel (3) and simultaneously feed into the guide (2) in direction of arrow.



- Clip in the windscreen gutter strip (1) starting at bottom at the clamps (2).

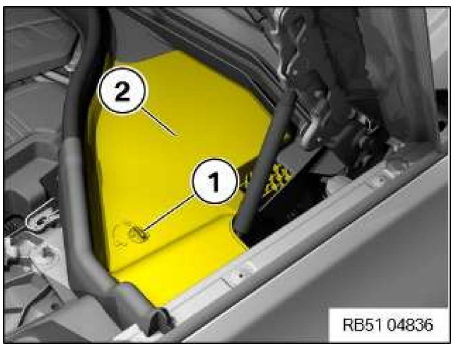
39 – Install the rear right engine compartment cover

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- Position the cover of the engine compartment on the rear right (3).
- Close lock (2).
- Insert washer fluid hose (1) into the guides.

40 – Install the cover of the engine compartment on the rear left



- Position the engine compartment cover at the rear left (2) .
- Close lock (1).

41 – Install left and right wiper arm

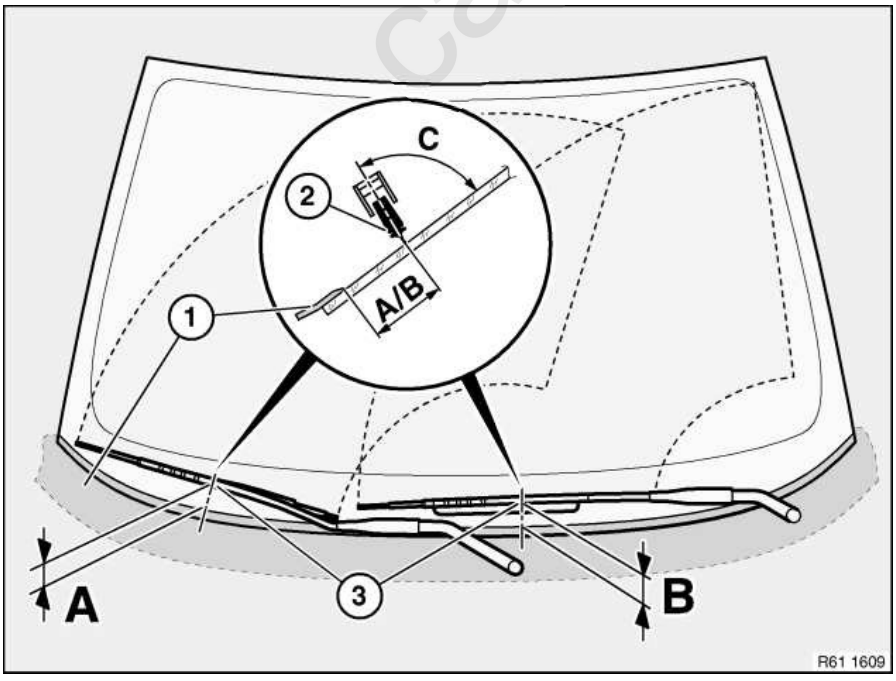
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

The wiper system must be in zero position.
After installing the cowl panel cover and before fitting the wiper arm:
Activate the wiper system once to ensure that it has the correct installation position.

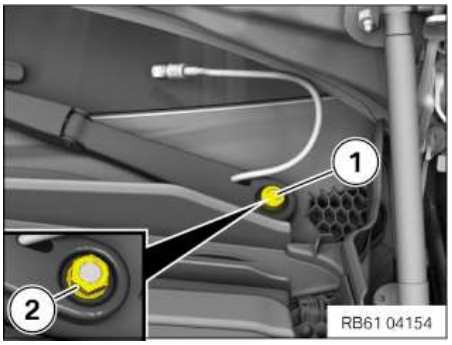


- Connect the wiper arm (3).
- Correctly position the wiper arm (2) in relation to the window edge (1).

Distance from window pane edge to wiper blade

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

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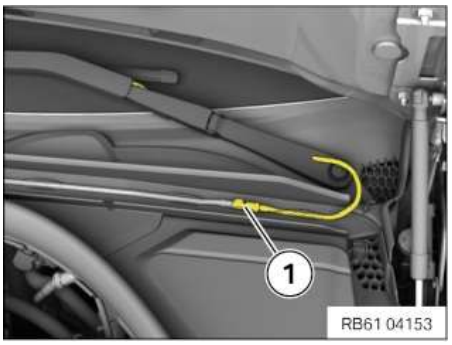


- Tighten nut (2).

Windscreen wiper arm

Combination hexagon nut		Tightening torque	35 Nm

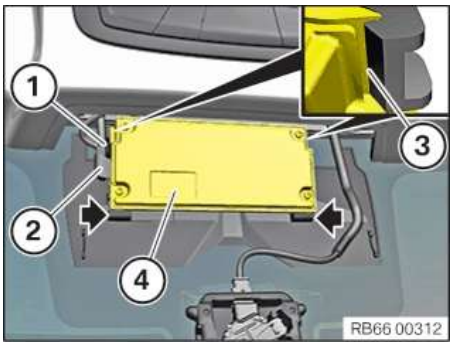
- Connect the protective cap (1).



- Feed washer fluid hose (1) into the cowl panel guide and connect at the separation point.

42 – Install KAFAS camera

▸ **Install KAFAS camera (high version)**

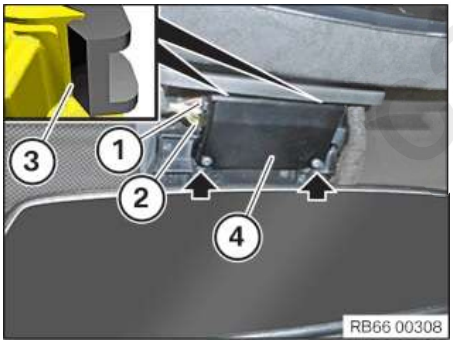


TECHNICAL INFORMATION

Latch mechanisms, guides and mounting elements must not be damaged or missing.

- Feed in the KAFAS camera (4) in the guides (arrows) and engage it in the retaining lugs (3).
- Make sure that the KAFAS camera (4) is engaged correctly at the retaining lugs (3).
- Connect connectors (2) and lock.
- Connect connectors (1) and lock.

▸ **Install KAFAS camera (Mid variant)**

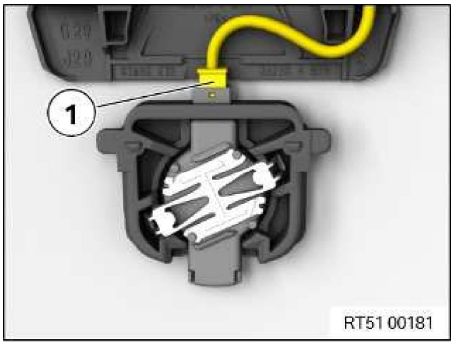


TECHNICAL INFORMATION

Latch mechanisms, guides and mounting elements must not be damaged or missing.

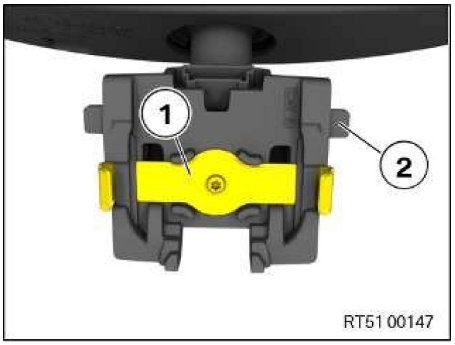
- Feed in KAFAS camera (4) on the guides (arrows) and engage the retaining lugs (3).
- Make sure that the KAFAS camera (4) engages correctly in the retaining lugs (3).
- Connect connectors (2) and lock.
- Connect connectors (1) and lock.

43 – Installing the rain-light-solar-condensation sensor partially

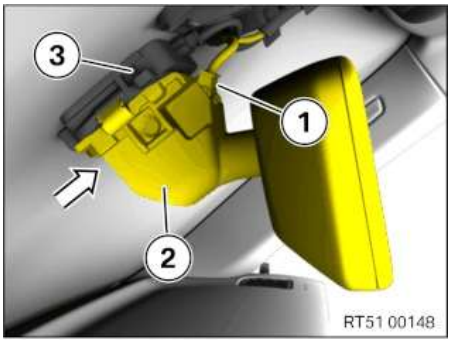


- Connect connectors (1) and lock.

44 – Install interior mirror



- Check the clamp (1) on both sides of the mirror base (2) for damage and renew as needed.



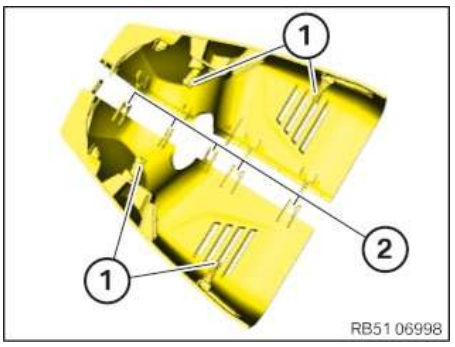
TECHNICAL INFORMATION

Carry out the work at temperatures between 18 °C and 23 °C only.

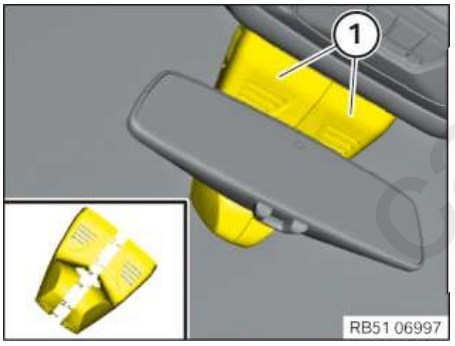
- Position the interior mirror (2) at the mirror base and slide it on in direction of the arrow.
- Check the correct installation position of the interior mirror (2) at the mirror base (3).
- Connect connectors (1) and lock.

45 – Installing the covers for the interior mirror

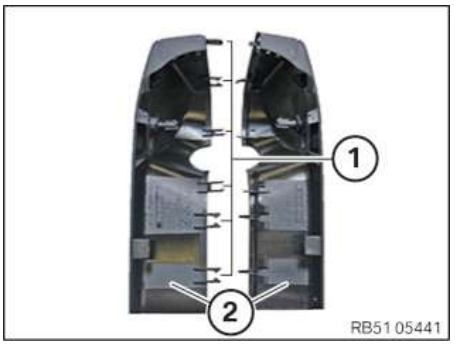
- **Version A:**



- Check latch mechanisms (1) and (2).
- If the latch mechanisms (1) or (2) are faulty, renew the covers.



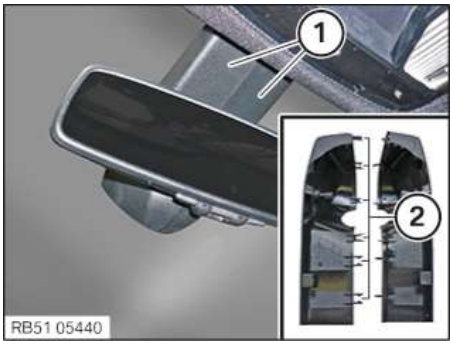
- Feed cover (1) in and lock.
- **Version B:**



- Check the latch mechanisms (1) on the two covers (2) for damage, renew the covers (2) if necessary.

  The covers (2) must not be damaged or missing.

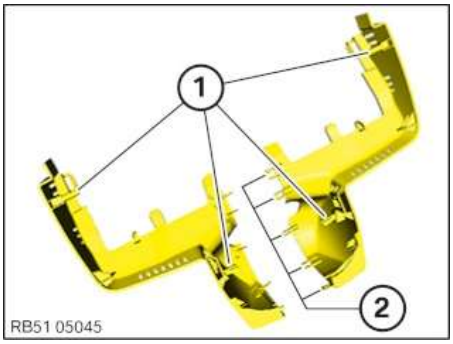
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- Position the covers (1) correctly on the mirror and engage with the latch mechanisms (2).

- **Version C:**

Check



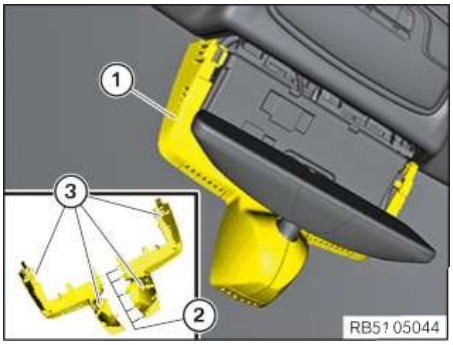
- Check the latch mechanisms (1) and (2) of the covers for damage.

Result

» The latch mechanism is damaged.

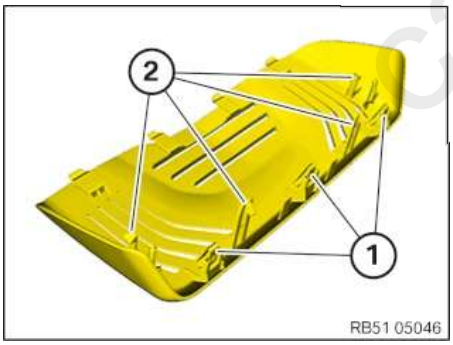
Measure

- Renew the cover.



- Guide in cover (1) on left and right and engage using latch mechanisms (2) and (3).

Check



- Check clamps (1) for damage; renew if necessary.
- Check latch mechanisms (2) for damage.

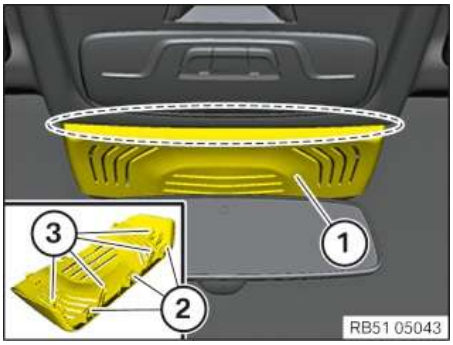
Result

» The latch mechanism is damaged.

Measure

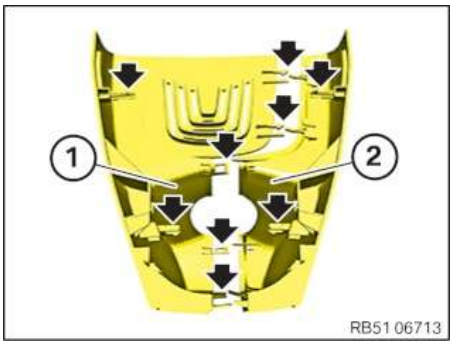
- Renew the cover.

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- Guide cover (1) into front guides and engage using retaining lugs (3) and clamps (2).

- **Version D:**



- Check the latch mechanisms (arrows) on covers (1) and (2) for damage and, if necessary, renew covers (1) and (2).



- Position covers (1) and (2) correctly on the mirror and engage at the separation point (3).

46 – Install the A-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ Installing the A-pillar trim panel

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

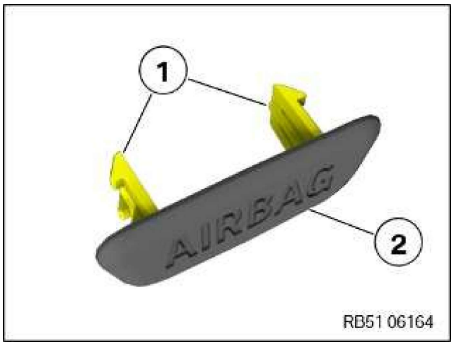
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

Check

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- Check retaining lugs (1) of cover (2) for damage.

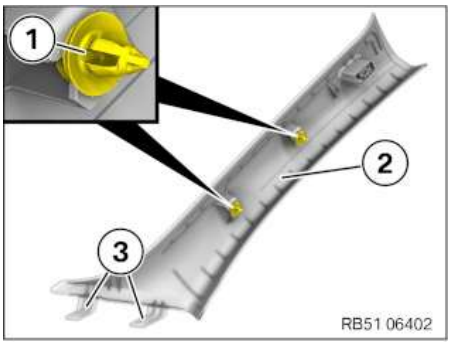
Result

» Retaining lug is damaged.

Measure

- Renew the cover.

Check



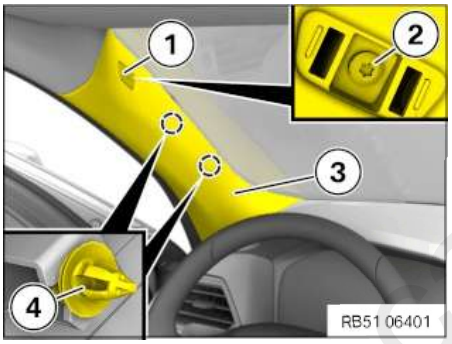
- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.



- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

- Clip in the cover (1).

47 – Calibrate KAFAS camera



TECHNICAL INFORMATION

The calibration process of the KAFAS camera is not complete until the vehicle drives in traffic. Tell the customer that some assistance systems are temporarily unavailable after vehicle pick-up.

- Perform camera calibration using diagnosis system.

  Under Service Functions menu:

  - Driver assistance
  - Camera-based driver assistance systems
  - Calibration of camera-based driver support systems

Additional Information

Overview of Tightening Torques

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End fitting to body — Used in step 25

M10		Tightening torque	42 Nm

C-pillar trim panel to body — Used in step 27

Screw		Tightening torque	2,6 Nm

Roof function centre (FZD) — Used in step 30

		Tightening torque	1.2 Nm

Sun visor to body — Used in step 31

Screw		Tightening torque	3.3 Nm

Windscreen wiper arm — Used in step 41

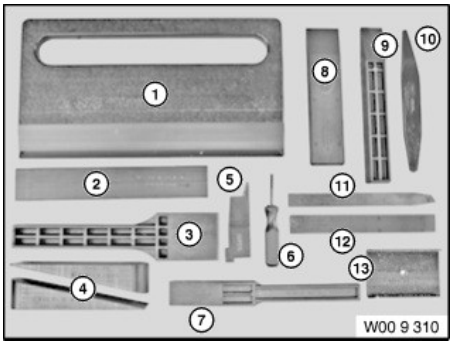
Combination hexagon nut		Tightening torque	35 Nm

A-pillar trim panel to body — Used in step 46

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

Overview of Special Tools

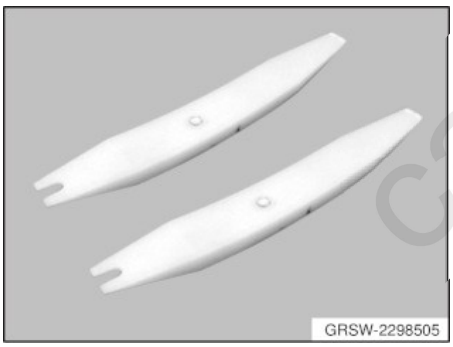
0 493 752 (00 9 329) Case



Common — Used in step 117

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 298 505 Wedge



Common — Used in step 30

Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

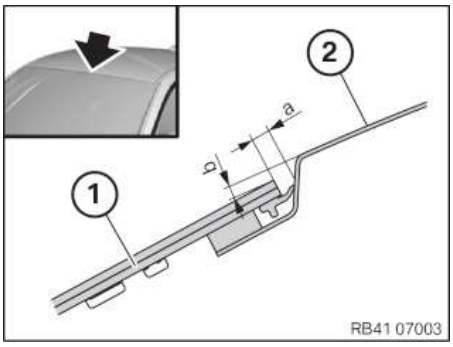
Overview Technical Data

Gap dimension windscreen to roof outer skin — Used in step 36

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1 windscreen; 2 roof outer skin

a	4,3 (3,1 - 5.5) mm
b	3,6 (2.3 - 4,9) mm



Distance from window pane edge to wiper blade	Used in step 41
Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

Links

Repair instructions (PRE)	**Used in step**
Notes on 48-V battery	1528

General repair instructions	**Used in step**
72 00 ... Safety regulations for handling components with gas generators	11528
72 00 ... Safety regulations for handling components with gas generators	1
51 31 ... General procedure for the disassembly and installation of bonded window glass	11
51 31 ... Materials for bonding window	11

Repair instructions	**Used in step**
61 35 ... Notes on ESD protection (Electro Static Discharge)	
61 35 ... Notes on ESD protection (Electro Static Discharge)	
51 31 ... Removing windows with a "Spider"	11
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1528
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1528

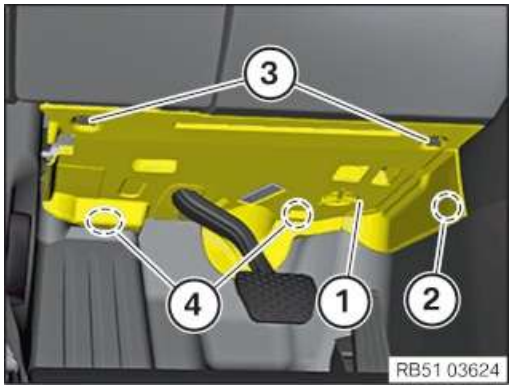
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61 20 900 Disconnecting and connecting battery earth lead	1528
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1528
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1528
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
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61 20 900 Disconnecting and connecting battery earth lead	1528
61 20 900 Disconnecting and connecting battery earth lead	1528
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1528
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61 20 900 Disconnecting and connecting battery earth lead	1528

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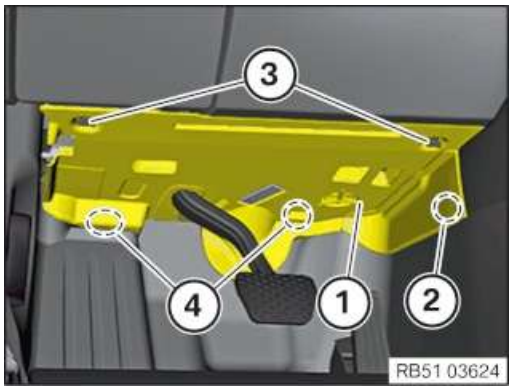
51 45 184 Remove and install tailgate trim

1 – Removing the trim panel for pedal mechanism



- Unclip the trim panel for the pedal mechanism (1) towards the inside in this area (2).
- Turn the locks (3) by 90°.
- Detach the trim panel for the pedal mechanism (1) inwards out of the guides (4).
- Unlock associated plug connection and disconnect.

2 – Installing the trim panel for the pedal mechanism



- Connect associated connector.
- Attach the trim panel for the pedal mechanism (1) in the guides (4) and fold it up.
- Clip the trim panel for the pedal mechanism (1) into the centre console in this area (2).

TECHNICAL INFORMATION

It is **imperative** that the screws caps of the trim panel be correctly locked. This is the only way to ensure that the trim panel does not come loose and potentially tilt into the pedal area.

- Insert screw caps (3) correctly and turn by 90° to lock.

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51 45 370 Removing and installing decorative strip on left dashboard

RISK OF DAMAGE

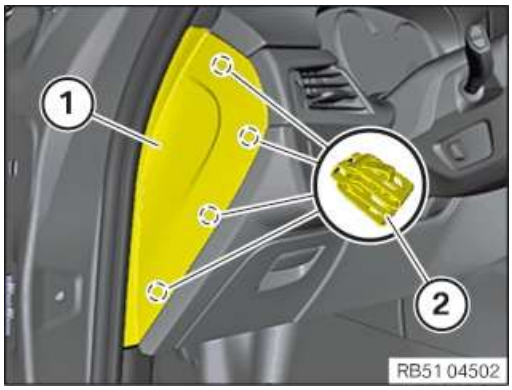
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

PRELIMINARY WORK

1 – Remove the side panel on the left instrument panel

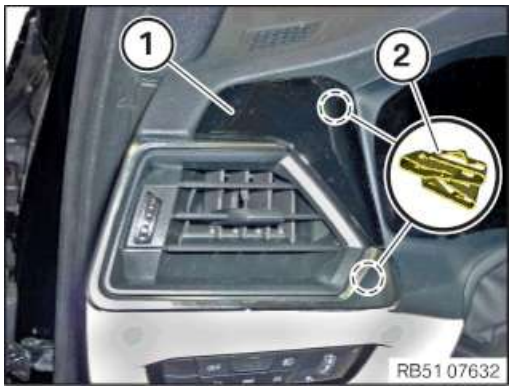


- Unclip and remove the side panel (1) towards the outside from the clamps (2).

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MAIN WORK

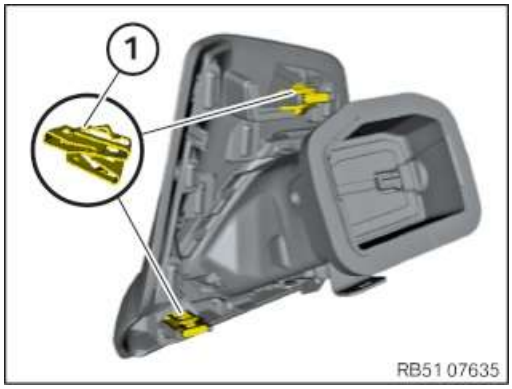
2 – Remove the finisher on the instrument panel on the left



- Unclip decorative strip (1) to the rear out of the clamps (2).
- Unlock associated plug connection and disconnect.

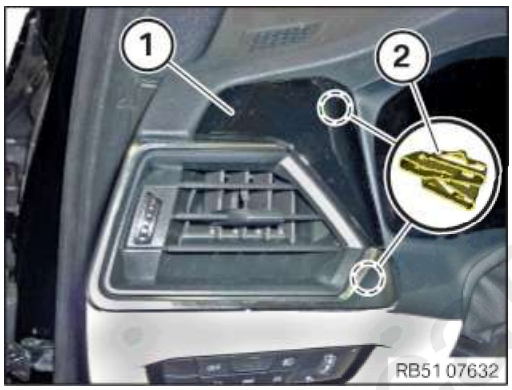
  Remove the decorative strip (1).

3 – Install the finisher on the instrument panel on the left



- Check the clamps (1) for damage and that they are present.

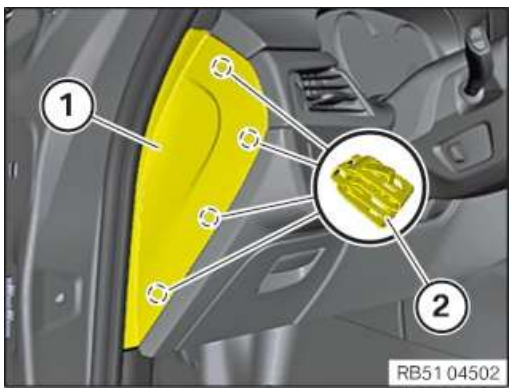
  Damaged or missing clamps (1) must be renewed.



- Install the decorative strip (1).
- Connect and lock the associated connectors.
- Clip decorative strip (1) into clamps (2).

POSTPROCESSES

4 – Install the side panel on left instrument panel



- Feed in the side panel (1) and clip it in at the clamps (2).

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51 45 380 Removing and installing decorative strip on right dashboard

RISK OF DAMAGE

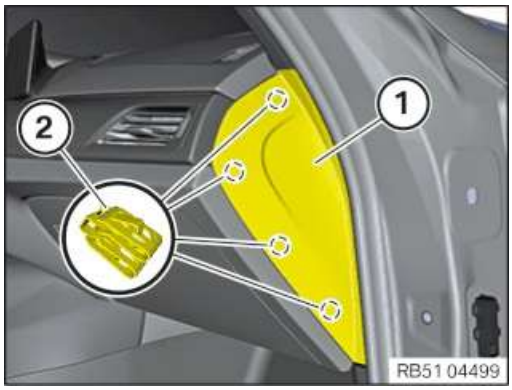
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

PRELIMINARY WORK

1 – Remove the side panel on the right instrument panel

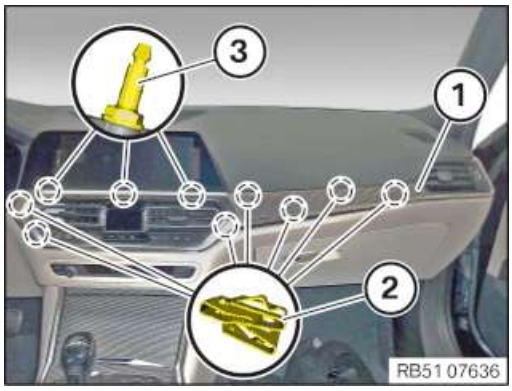


- Unclip and remove the side panel (1) towards the outside from the clamps (2).
- If necessary, unlock associated plug connection and disconnect.

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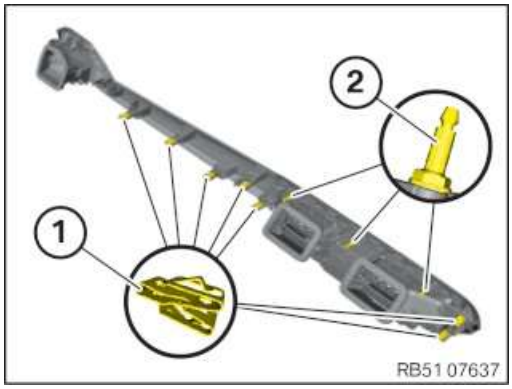
MAIN WORK

2 – Remove the finisher on the right instrument panel



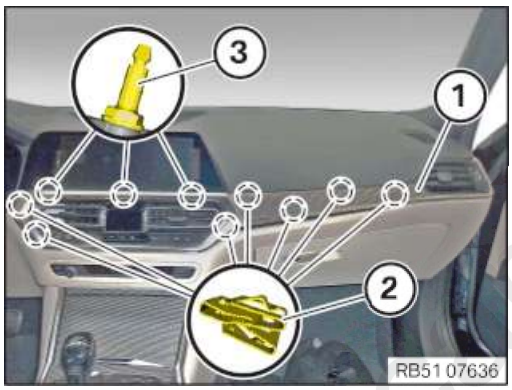
- Unclip the decorative strip (1) towards rear at the clamps (2) and the pins (3).
- Unlock associated plug connection and disconnect.
- Remove the decorative strip (1).

3 – Install the finisher on the right instrument panel



- Checks clamps (1) for damage.

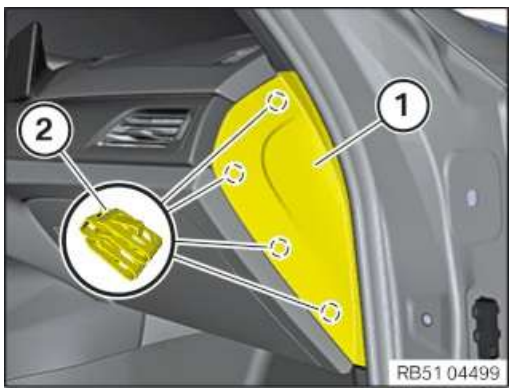
  Defective or missing clamps (1) need to be renewed.
- Check the pins (2) and the accompanying clamps at the instrument panel trim for damage, renew if necessary.



- Install the decorative strip (1).
- Connect and lock corresponding connectors.
- Correctly position the decorative strip (1) and at the clamps (2) and clip in the pins (3).

POSTPROCESSES

4 – Install the side panel on instrument panel on the right



- If required, connect the associated connector.
- Feed in the side panel (1) and clip it in at the clamps (2).

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51 45 030 Removing and installing instrument panel trim

PRELIMINARY WORK

1 – Adjust the steering column position

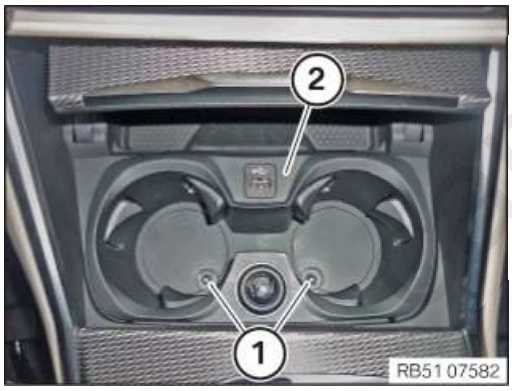


- Adjust the length of the steering column to the maximum length in the direction of arrow (1).
- Move the steering column to the lowest steering column position in the direction of arrow (2).

2 – Remove cupholder

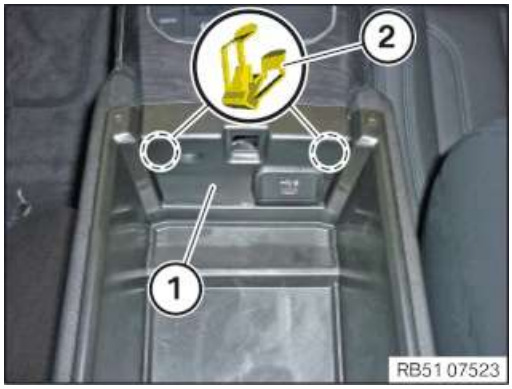


- Remove the insert (1).

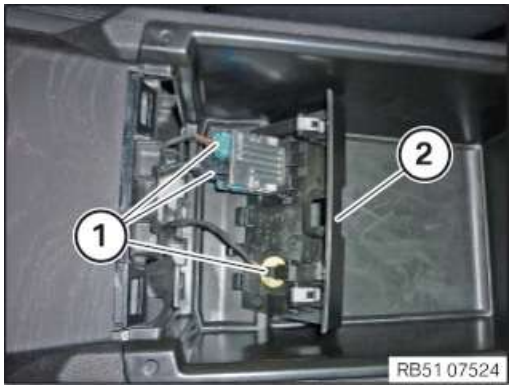


- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

3 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

4 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



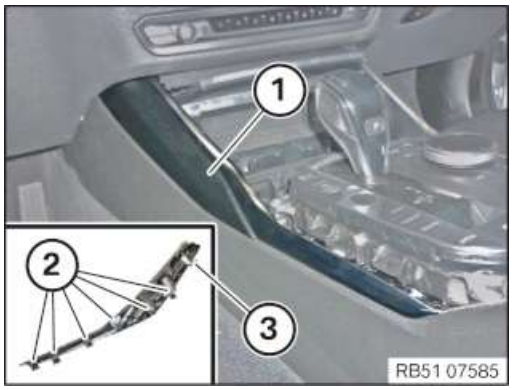
- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

5 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

NOTICE

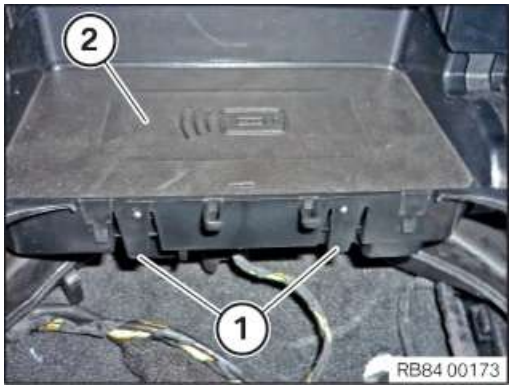
Description is for left component only. Procedure on the right side is identical.



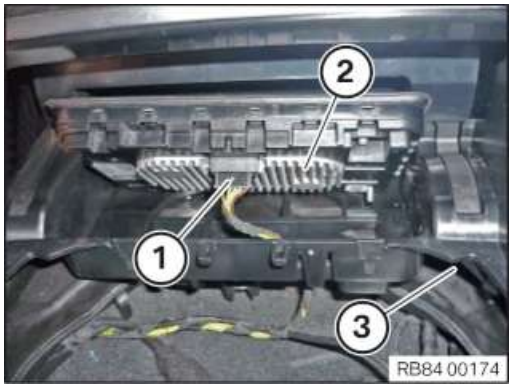
- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

6 – Removing the wireless charging station

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- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

7 – Remove the operating facility in the centre console

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

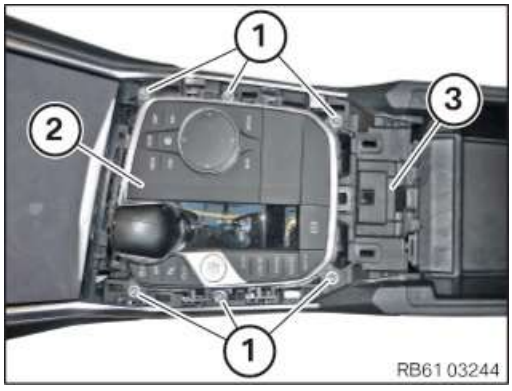
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**

- See additional information.

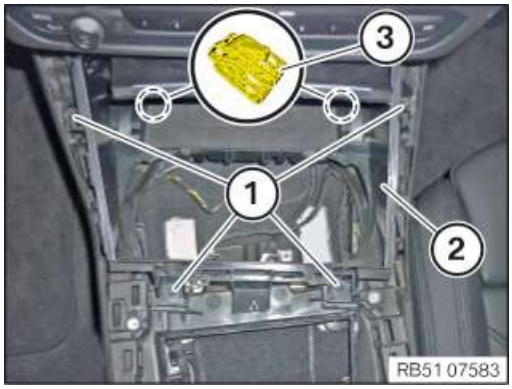




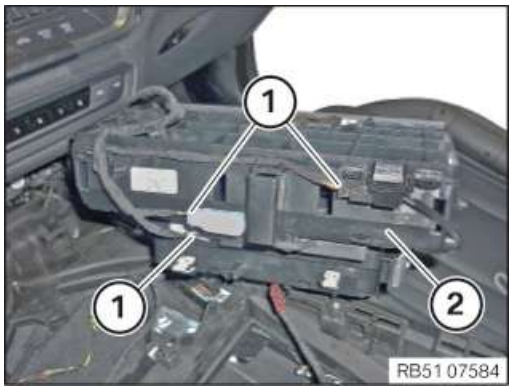
- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

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8 – Removing the storage compartment in the front centre console



- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).



- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

9 – Removing the rear centre console trim

RISK OF DAMAGE

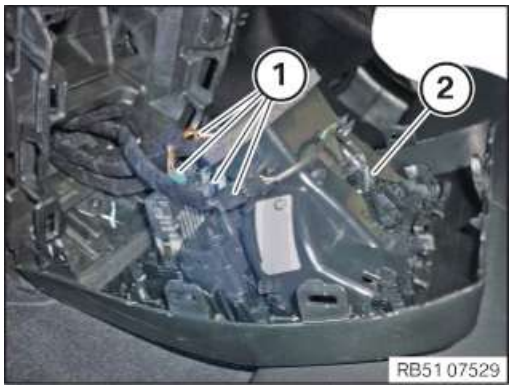
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.



- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

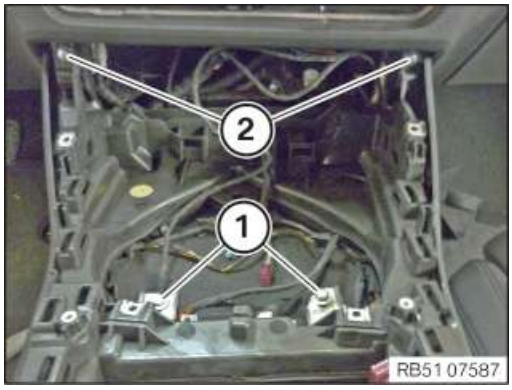
10 – Removing the centre console

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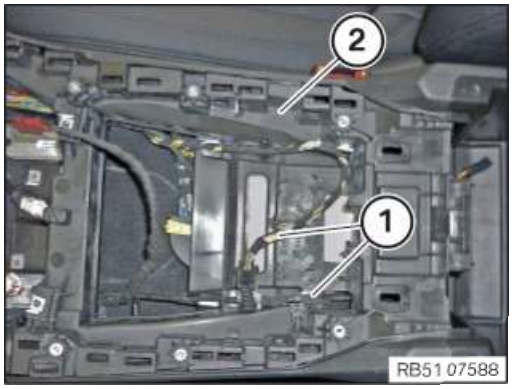
10 – Removing the centre console



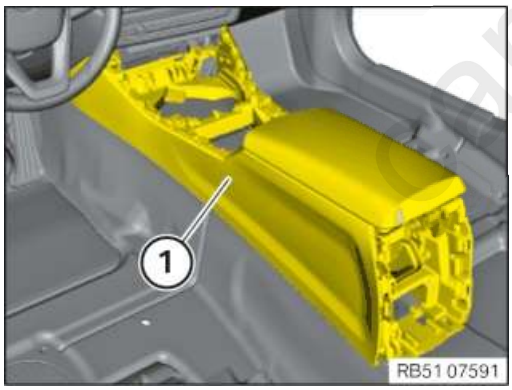
- Loosen screws (1).



- Loosen screws (1) and (2).



- Release the wiring harness (1) from the centre console (2).

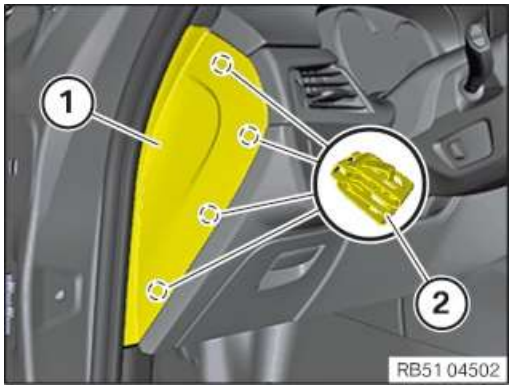


NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Carefully raise rear centre console (1).
- Feed out wiring harness from the centre console (1) and unlock and disconnect existing plug connections, if required.
- Feed out and remove the centre console (1) on the instrument panel .

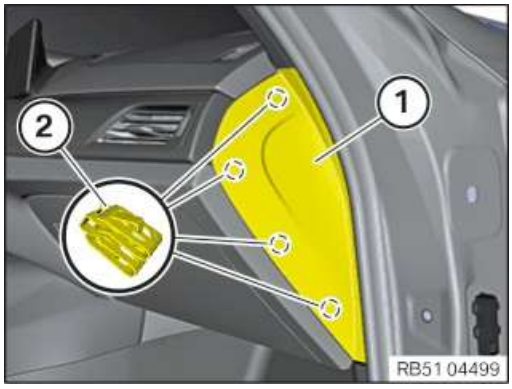
11 – Remove the side panel on the left instrument panel



- Unclip and remove the side panel (1) towards the outside from the clamps (2).

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12 – Remove the side panel on the right instrument panel



- Unclip and remove the side panel (1) towards the outside from the clamps (2).
- If necessary, unlock associated plug connection and disconnect.

13 – Remove left and right A-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

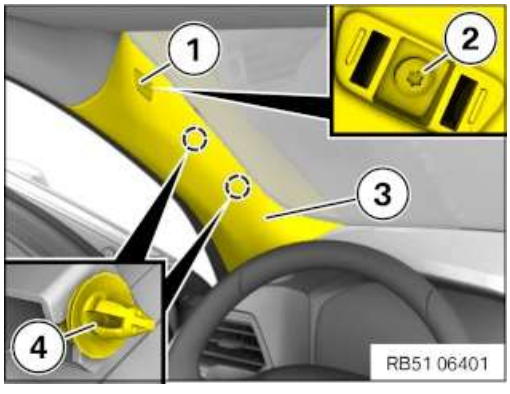
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

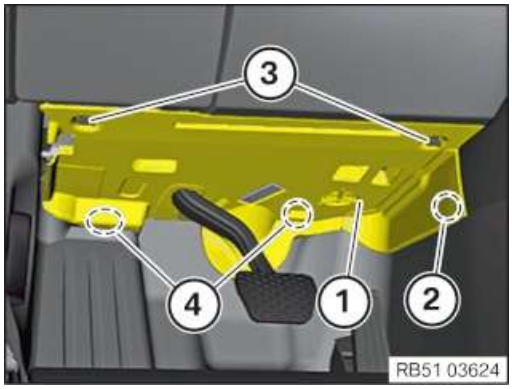
- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

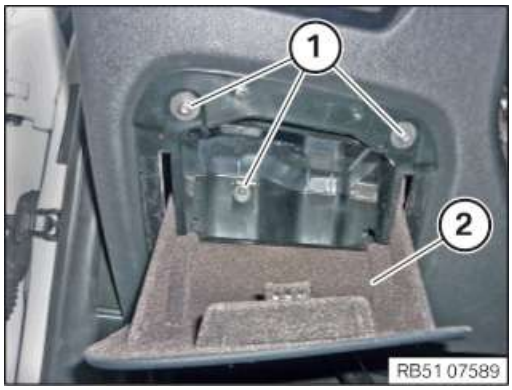
14 – Removing the trim panel for pedal mechanism

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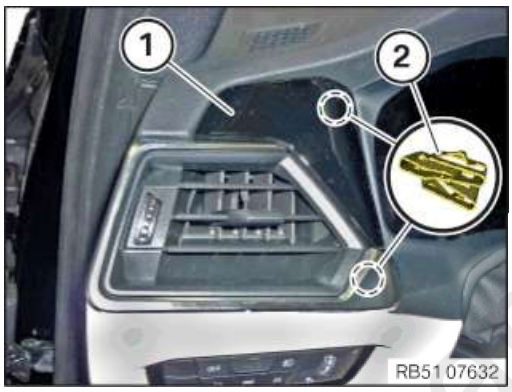
- Unclip the trim panel for the pedal mechanism (1) towards the inside in this area (2).
- Turn the locks (3) by 90°.
- Detach the trim panel for the pedal mechanism (1) inwards out of the guides (4).
- Unlock associated plug connection and disconnect.

15 – Removing the left fold-down compartment



- Loosen screws (1).
- Remove the fold-down compartment (2) toward the bottom.

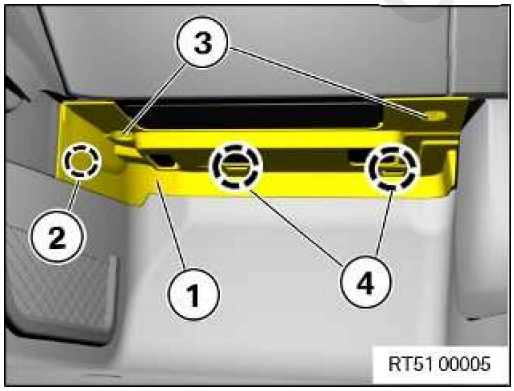
16 – Remove the finisher on the instrument panel on the left



- Unclip decorative strip (1) to the rear out of the clamps (2).
- Unlock associated plug connection and disconnect.

  Remove the decorative strip (1).

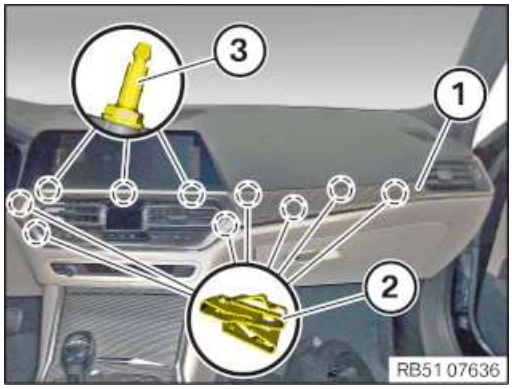
17 – Remove the right footwell trim



- Turn the locks (3) by 90°.
- Feed the footwell trim (1) out of the guide (2).
- Detach the footwell trim (1) inward out of the guides (4).
- Unlock associated plug connection and disconnect.

18 – Remove the finisher on the right instrument panel

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- Unclip the decorative strip (1) towards rear at the clamps (2) and the pins (3).
- Unlock associated plug connection and disconnect.
- Remove the decorative strip (1).

19 – Remove Central Information Display (CID)

RISK OF DAMAGE

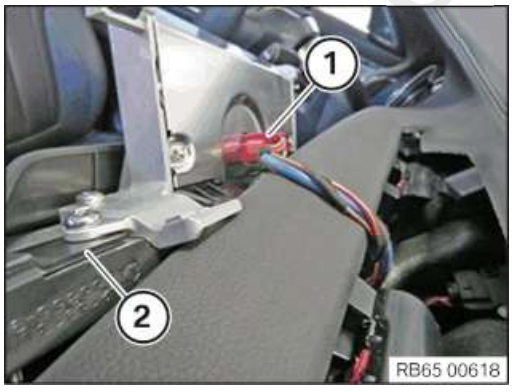
Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)



- Loosen screws (1).
- Pull out central information display (CID) (2) slightly off the instrument panel.



- Unlock plug connection (1) and disconnect.
- Remove the central information display (CID) (2).

20 – Removing the airbag unit

WARNING

Airbag unit.

Danger! Life-threatening injuries!

- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

RISK OF DAMAGE

Damage to the steering wheel.

Incorrect handling of the tool may damage the steering wheel.

- Ensure the tool is positioned correctly (angle and inclination).
- When unlocking, do not use "levering" action. Instead, press in the Torx screwdriver toward the centre of steering wheel only.

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▸ **Removing the airbag unit for sports steering wheel**



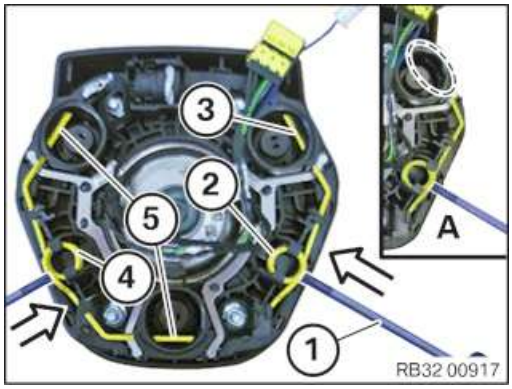
- Insert Torx screwdriver T25 (1) diagonally upwards in the hidden opening (2) on the rear side of the steering wheel until a spring resistance is felt.



NOTICE

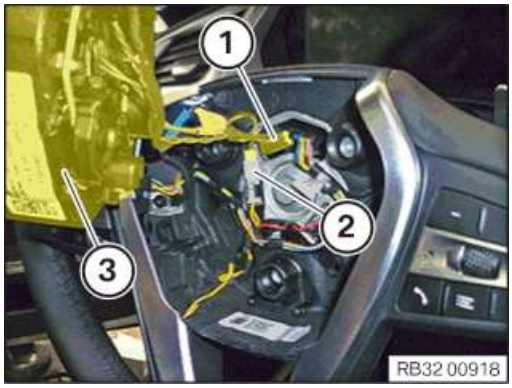
To provide a better overview: Diagram with airbag unit removed.

- To unlock the airbag unit, press Torx screwdriver T25 (1) diagonally upwards in the direction of the arrow to the centre of the steering wheel.



- Press the airbag unit over a large area of the steering wheel.
- Use Torx screwdriver T25 (1) to press wire spring clip (2) in the direction of the arrow towards the centre of the steering wheel and release lock (3).

  (A): Wire spring clip (2) is unlocked.
- Press wire spring clip (4) with Torx screwdriver T25 (1) in the direction of the arrow towards the centre of the steering wheel and release locks (5).
- Carefully raise the airbag unit.



- Unlock and disconnect the plug connections (1) and (2).
- Remove airbag unit (3).

▸ Removing the airbag unit for M Sport steering wheel



NOTICE

Perform the operations on the left and right side.

- Locate the mark (1) for unlocking the airbag unit on the steering wheel by touching it.



NOTICE

Perform the operations on the left and right side.

- Cut the mark (1) carefully with a knife (2) to an approx. length of 4 mm .

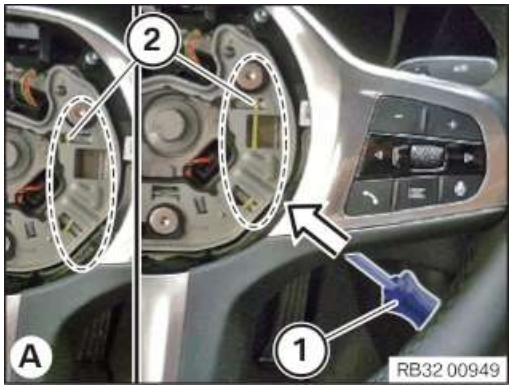


TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

- In case of vehicles with shift paddles (2) made of carbon-fibre-reinforced plastic, use a Torx socket T15 (1) for unlocking the airbag unit.

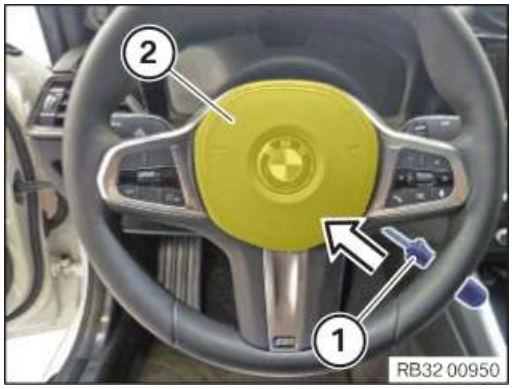
...diagn.com



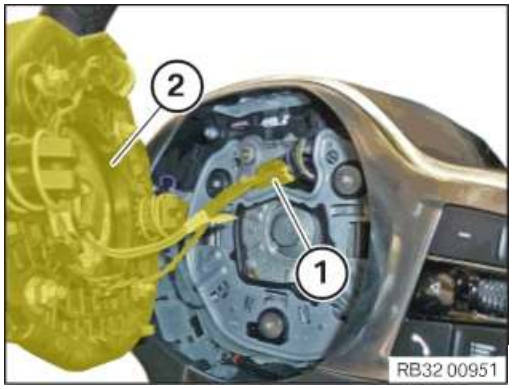
NOTICE

To provide a better overview: Diagram with airbag unit removed.

- Insert the Torx socket T15 (1) diagonally upwards until a resilient resistance is felt.
- Press in Torx socket T15(1) straight in the direction of arrow towards the centre of the steering wheel in order to unlock the wire spring clip (2) or to unlock the airbag unit (A).



- Press in Torx screwdriver T15 (1) straight in direction of arrow towards the centre of the steering wheel and lift the airbag unit (2) on the unlocked side.
- Repeat procedure on left side and carefully release airbag unit (2) from the steering wheel.



- Unlock and disconnect the plug connection (1) and remove the airbag unit (2).

21 – Removing airbag unit (M Sport 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

RISK OF DAMAGE

Damage to the steering wheel.

Incorrect handling of the tool may damage the steering wheel.

- Ensure the tool is positioned correctly (angle and inclination).
- When unlocking, do not use "levering" action. Instead, press in the Torx screwdriver toward the centre of steering wheel only.

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NOTICE

Perform the operations on the left and right side.

- Locate the mark (1) for unlocking the airbag unit on the steering wheel by touching it.



NOTICE

Perform the operations on the left and right side.

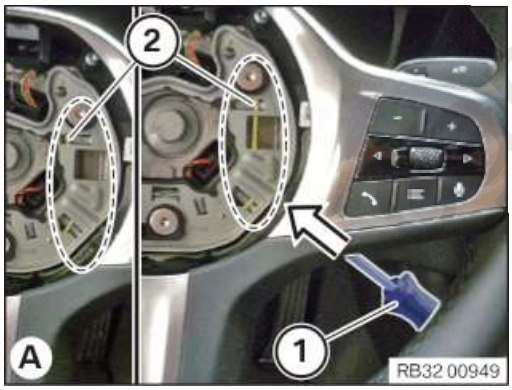
- Cut the mark (1) carefully with a knife (2) to an approx. length of 4 mm .



TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

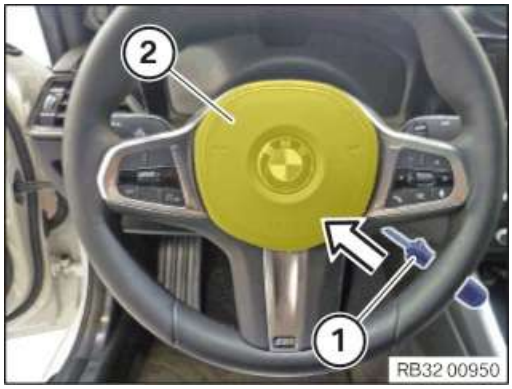
- In case of vehicles with shift paddles (2) made of carbon-fibre-reinforced plastic, use a Torx socket T15 (1) for unlocking the airbag unit.



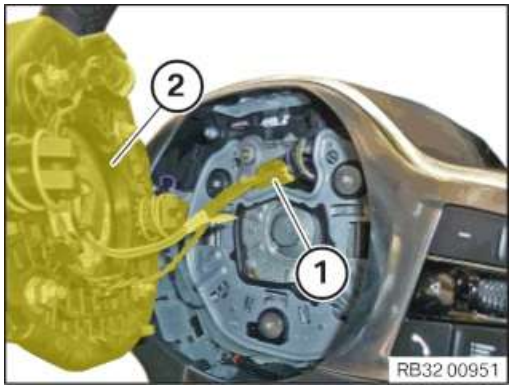
NOTICE

To provide a better overview: Diagram with airbag unit removed.

- Insert the Torx socket T15 (1) diagonally upwards until a resilient resistance is felt.
- Press in Torx socket T15(1) straight in the direction of arrow towards the centre of the steering wheel in order to unlock the wire spring clip (2) or to unlock the airbag unit (A).



- Press in the wire spring clip with Torx socket T15 (1) in the direction of arrow and lift the airbag unit (2) on the unlocked side.
- Repeat procedure on left side and carefully release airbag unit (2) from the steering wheel.



- Unlock plug connection (1) and disconnect.
- Remove the airbag unit (2).

22 – Remove sports steering wheel



- Move the steering wheel and wheels to the straight-ahead position.
- Unlock plug connection (1) and disconnect.
- If installed: Unlock plug connection (2) and disconnect.
- Release the screw (3) and pull off and remove the steering wheel.

23 – Removing the steering wheel/M Sport steering wheel

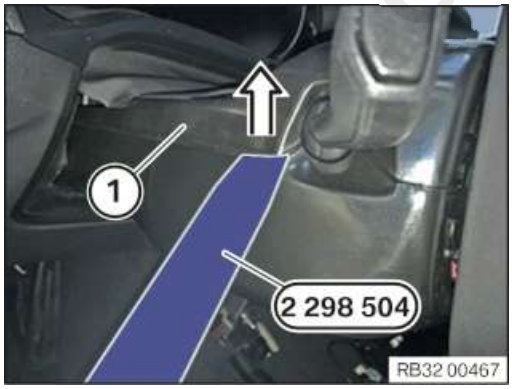


TECHNICAL INFORMATION

When releasing the screw, have an auxiliary person brace the steering wheel in order to reduce torque on the steering column!

- Move the steering wheel and wheels to the straight-ahead position.
- Loosen screw (1).
- Pull down the steering wheel and remove.

24 – Removing steering column shroud upper section

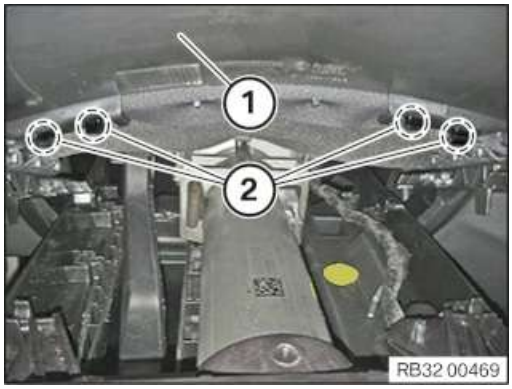


NOTICE

Perform the operations on the left and right side.

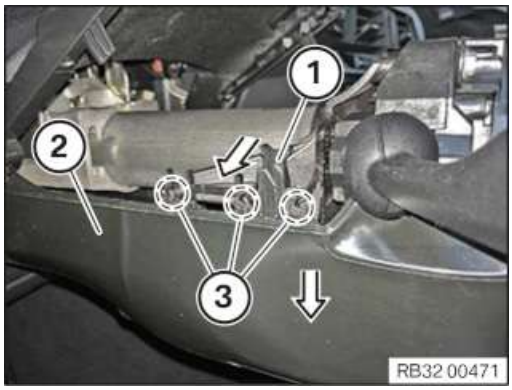
- Unlock the steering column shroud upper section (1) with the special tool 2 298 504 and fold up.

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- Unclip the steering column shroud upper section (1) from the brackets (2).
- Remove the steering column shroud upper section (1).

25 – Removing steering column shroud lower section



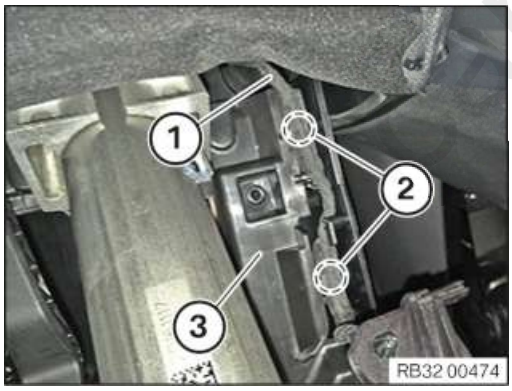
NOTICE

Perform the operations on the left and right side.

- Push the retaining lug (1) to the outside in the direction of the arrow and unclip the steering column shroud lower section (2) from the holders (3) in the direction of the arrow to the bottom at the same time.

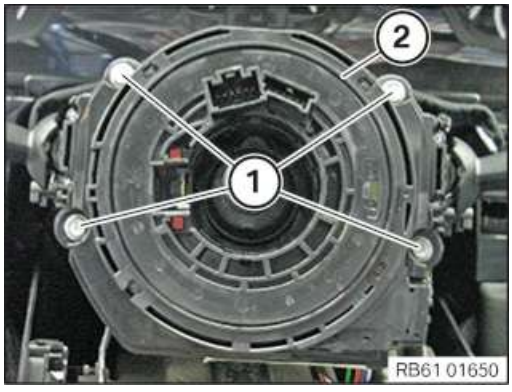


- Fold the steering column shroud lower section down.
- Unlock and disconnect connector (1).



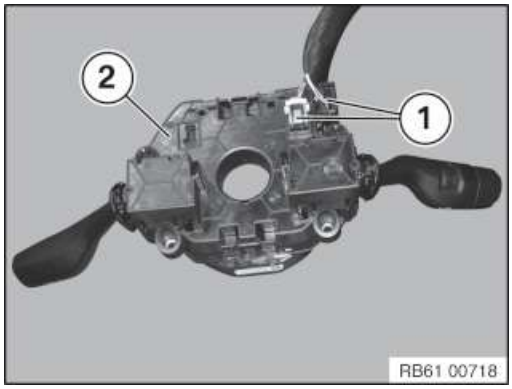
- Detach the cable (1) from the brackets (2).
- Remove the steering column shroud lower section (3).

26 – 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 plug connections (1) on the SZL (2).

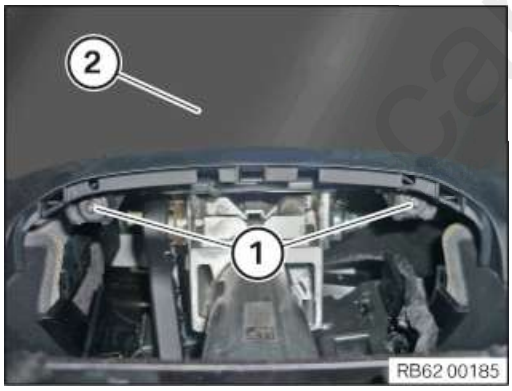
27 – Removing the instrument cluster (KOMBI)



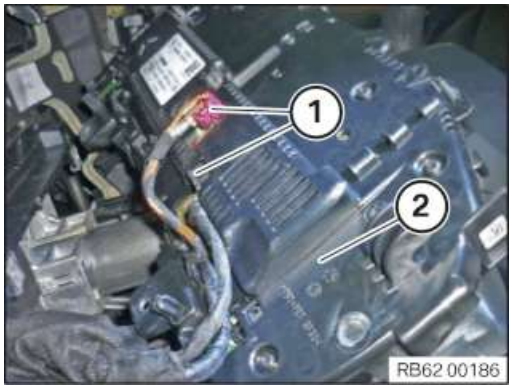
- Loosen screw (1).



- Loosen screw (1).



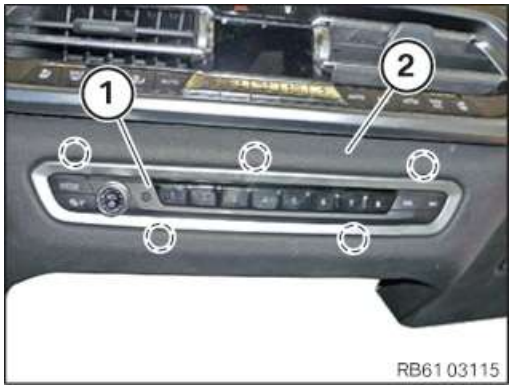
- Loosen screws (1).
- Feed out instrument cluster (KOMBI) (2).



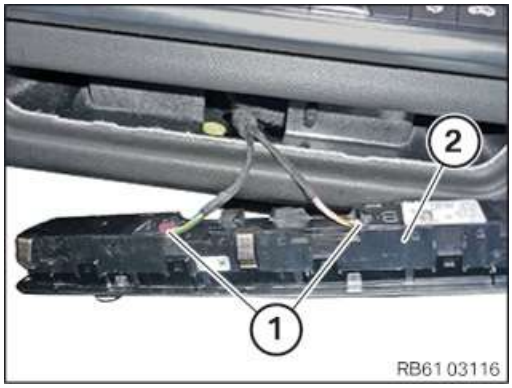
- Unlock and disconnect plug connections (1) from instrument cluster (KOMBI) (2).
- Remove the instrument cluster (KOMBI) (2).

28 – Remove the audio operating unit

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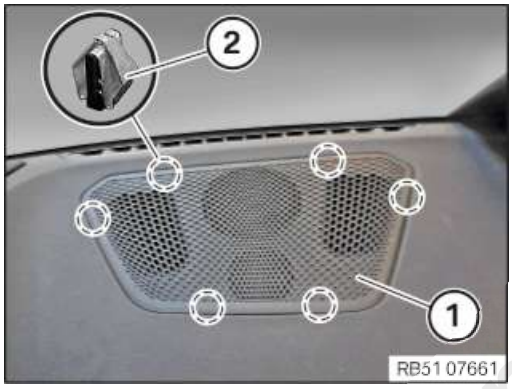


- Unclip the audio operating unit (1) from the instrument panel (2) at the points marked using special tool 0 496 571 (00 9 327).



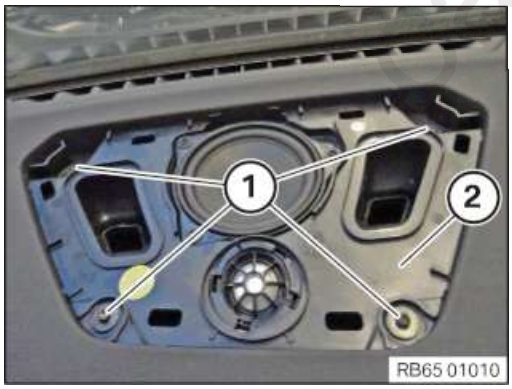
- Disconnect plug connections (1) and remove the audio operating unit (2).

29 – Remove the speaker trim at the instrument panel

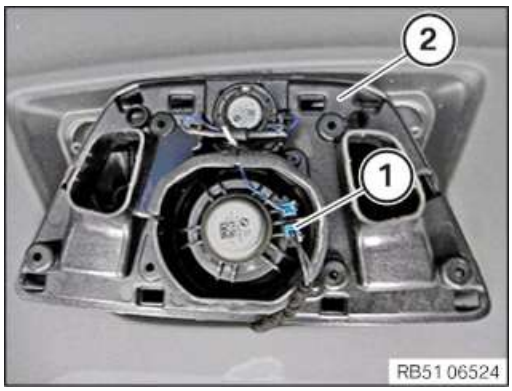


- Lever out the speaker trim (1) with the special tool 0 496 569 (00 9 325) from the clamps (2) toward the top and remove.

30 – Remove the speaker holder at the instrument panel



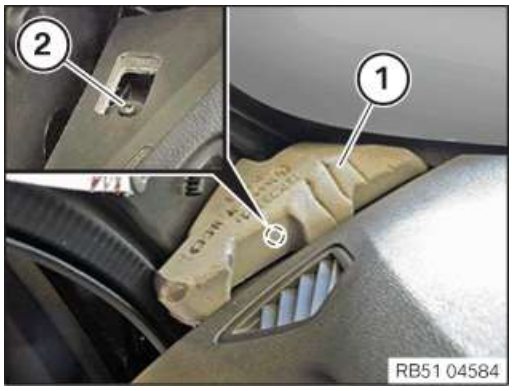
- Loosen screws (1).
- Pull out speaker holder (2) slightly with the loudspeakers and tilt it to the side.



- Unlock plug connection (1) and disconnect.
- Remove the speaker holder (2).

erdiagn.com

31 – Remove the instrument panel trim panel



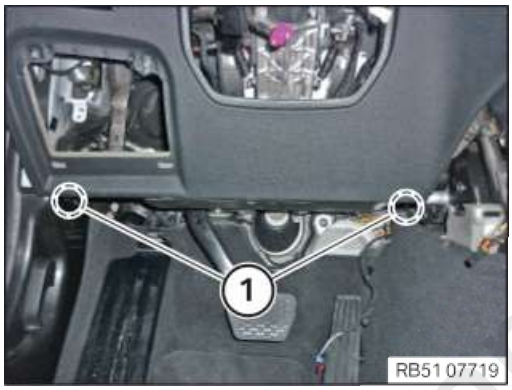
NOTICE

Perform the operations on the left and right side.

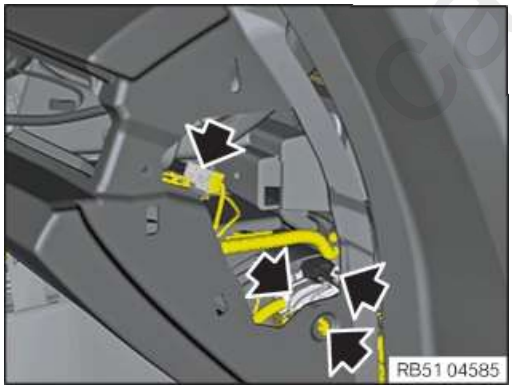
- Remove the sound insulation (1).
- Loosen screw (2).



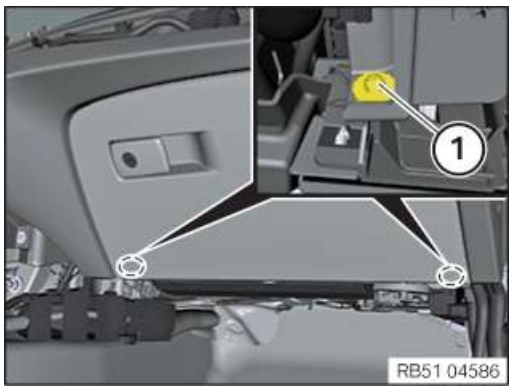
- Loosen screws (1).



- Loosen screws (1).

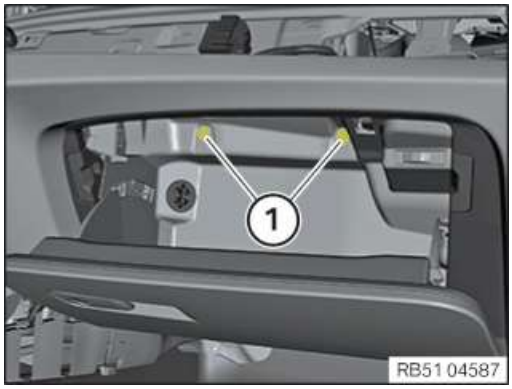


- Release all plug connections and cable clips (arrows) behind the glove box.

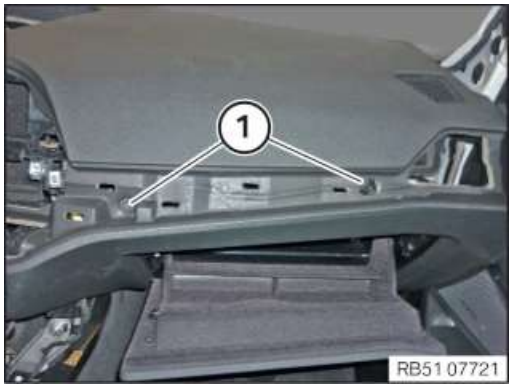


- Release the screws (1) on the lower side of the glove box.

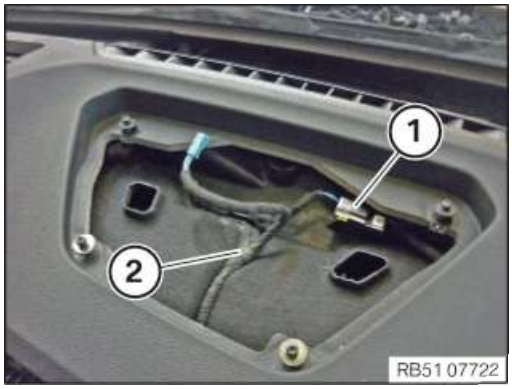
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- Open glovebox.
- Loosen screws (1).



- Loosen screws (1).



- Unlock plug connection (1) and disconnect.
- Release the wiring harness (2) on the holders.



- Unlock the plug connection (1) on the light operating unit and disconnect it.



- Loosen screws (1).

TECHNICAL INFORMATION

Conduct the following operation with the assistance of a second person.

- Pull the instrument panel trim back slightly.

  If necessary, unlock and disconnect additional plug connections.
- Remove the instrument panel trim from the vehicle.

32 – Install the trim panel for the instrument panel

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TECHNICAL INFORMATION

Conduct the following operation with the assistance of a second person.

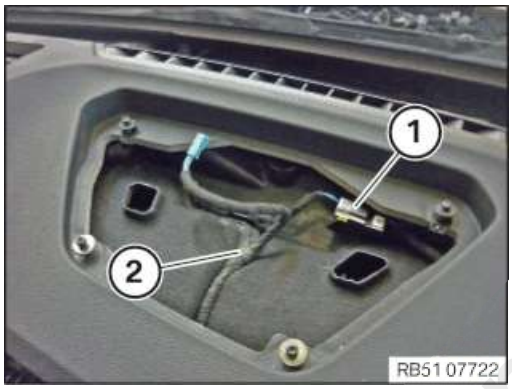
- Insert the instrument panel trim in the vehicle and position it at the support.
- Insert the associated wiring harnesses and connect the connectors.
- Tighten the screws (1).

Dashboard to support

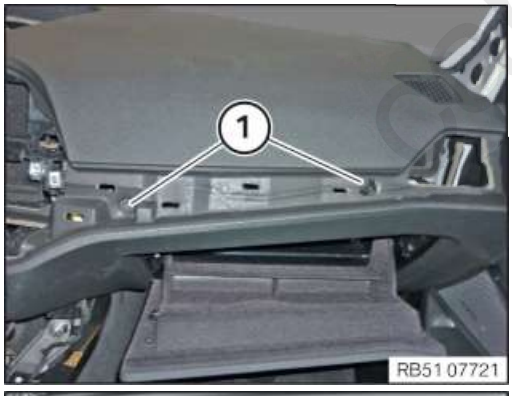
Screw		Tightening torque	2,4 Nm



- Connect connector (1) to the light operating unit and lock.



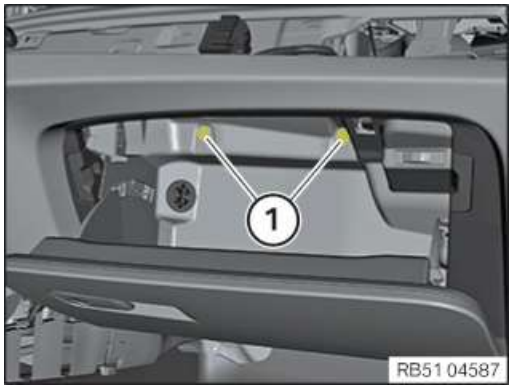
- Secure the wiring harness (2) on the holders.
- Connect connectors (1) and lock.



- Tighten the screws (1).

Dashboard to support

Screw		Tightening torque	2,4 Nm

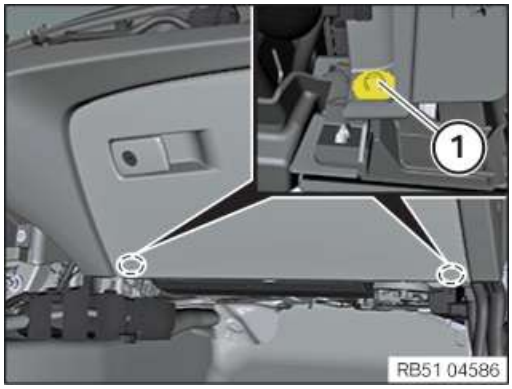


- Open glovebox.
- Tighten the screws (1).

Dashboard to support

Screw		Tightening torque	2,4 Nm

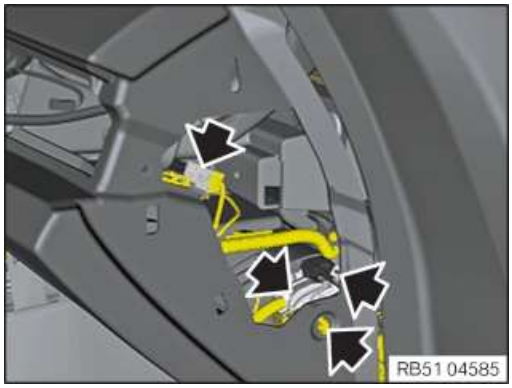
cardiagn.com



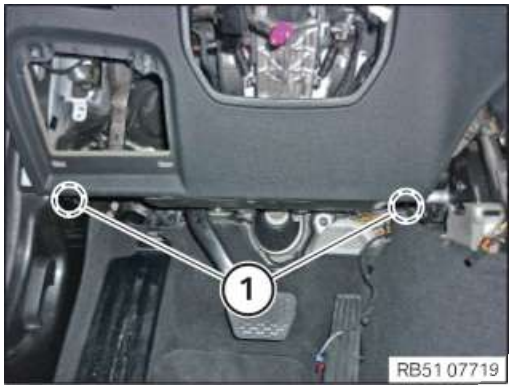
- Tighten the screws (1) on the lower side of the glove box button.

Dashboard to support

Screw		Tightening torque	2,4 Nm



- Connect all plug connections and cable clips (arrows) behind the glove box.



- Tighten the screws (1).

Dashboard to support

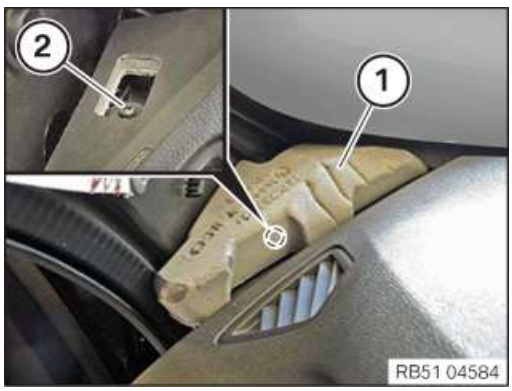
Screw		Tightening torque	2,4 Nm



- Tighten the screws (1).

Dashboard to support

Screw		Tightening torque	2,4 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (2).

Dashboard to support

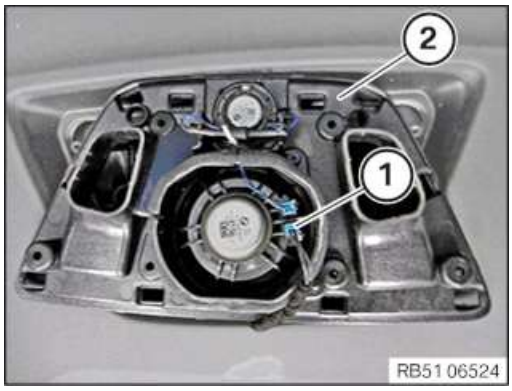
Screw		Tightening torque	2,4 Nm

- Use sound insulation (1).

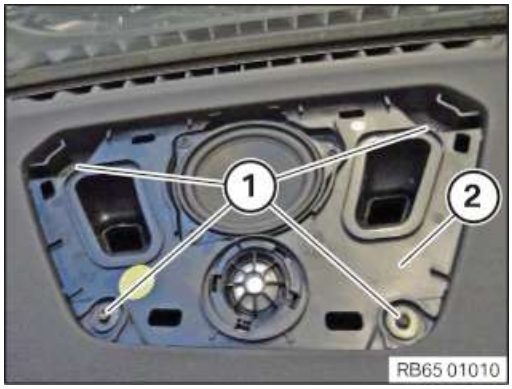
POSTPROCESSES

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33 – Install the speaker holder at the instrument panel



- Position the speaker holder (2).
- Connect connector (1).

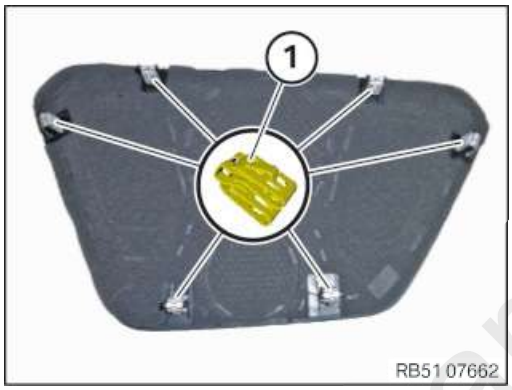


- Install the speaker holder (2).
- Tighten the screws (1).

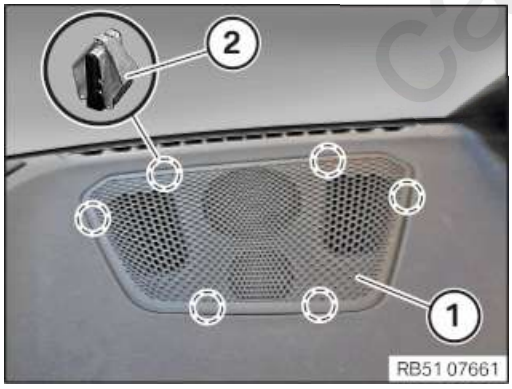
Speaker to support / support to instrument panel / support to body

Screw		Tightening torque	1,8 Nm

34 – Install the speaker trim at the instrument panel



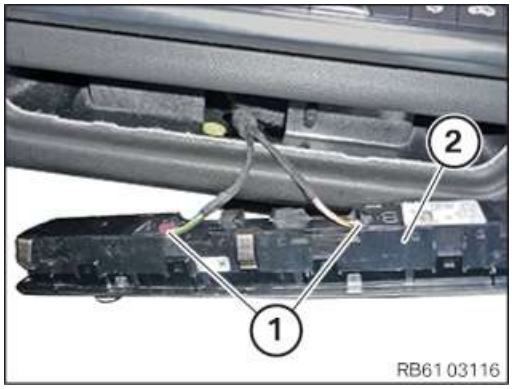
- Check clamps (1) for damage.
- Replace broken or missing clamps (1).



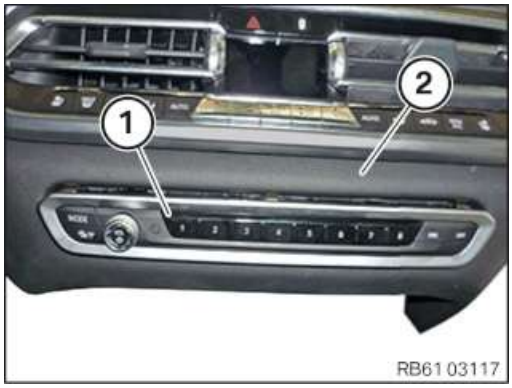
- Position the speaker trim (1) correctly and engage it at the clamps (2).

35 – Install the audio operating unit

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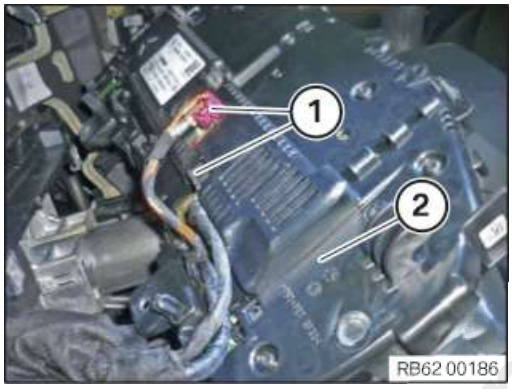


- Connect the connector (1) to the audio operating unit (2).

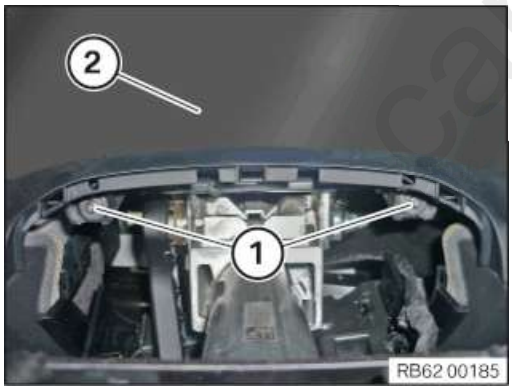


- Correctly position the audio operating unit (1) and install in the instrument panel(2).

36 – Installing the instrument cluster (KOMBI)



- Connect and lock connector (1) to the instrument cluster (KOMBI) (2).



- Feed in and position the instrument cluster (KOMBI) (2).
- Tighten the screws (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm



- Tighten down screw (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm

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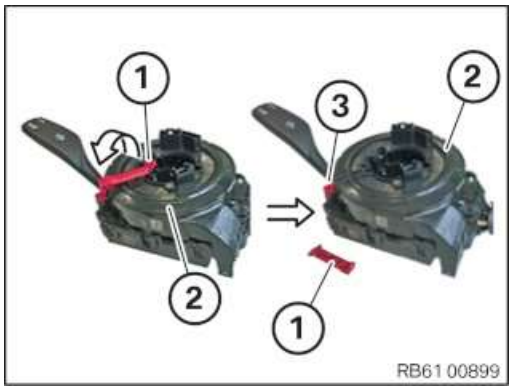


- Tighten down screw (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm

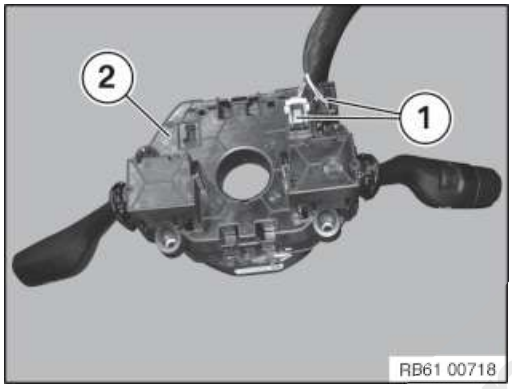
37 – Installing the steering column switch cluster (SZL)



- **Replacement:**

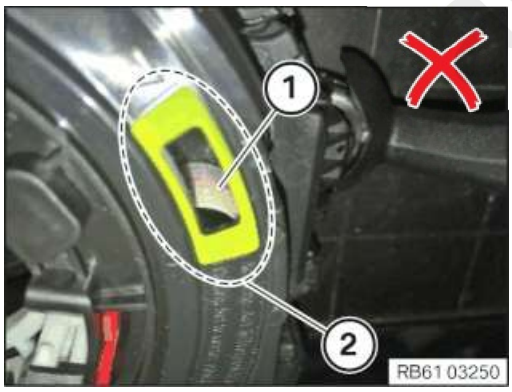
  Break off the transportation retainer (1) on the steering column switch cluster (SZL) (2) in direction of arrow.

  The broken off piece (3) of 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



- **Version A:**

  Check whether the correct marking (1) is seen in inspection glass (2).

Result

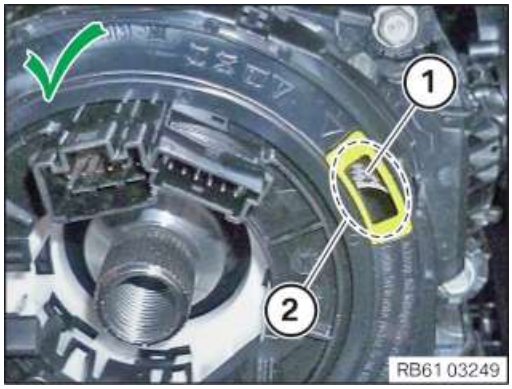
» Ensure that no incorrect marking (1) is seen in inspection glass (2).

Measure

- Turn the coil spring cassette until the right mark (1) becomes visible in the inspection glass (2).

Check

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- **Version A:**

  Check whether the correct marking (1) is seen in inspection glass (2).

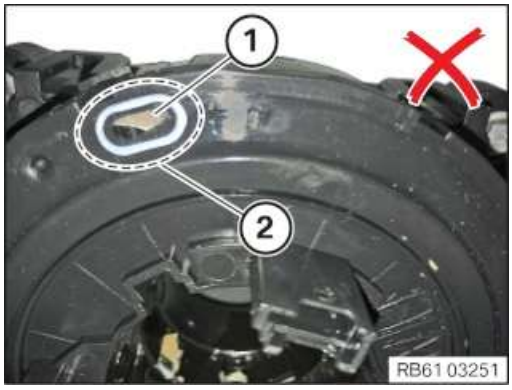
Result

» Correct marking (1) is seen in inspection glass (2).

Measure

- Continue with the next step.

Check



- **Version B:**

  Check whether the correct marking (1) is seen in inspection glass (2).

Result

» Ensure that no incorrect marking (1) is seen in inspection glass (2).

Measure

- Turn the coil spring cassette until the right mark (1) becomes visible in the inspection glass (2).

Check



- **Version B:**

  Check if the correct mark (1) can be seen in the inspection glass (2).

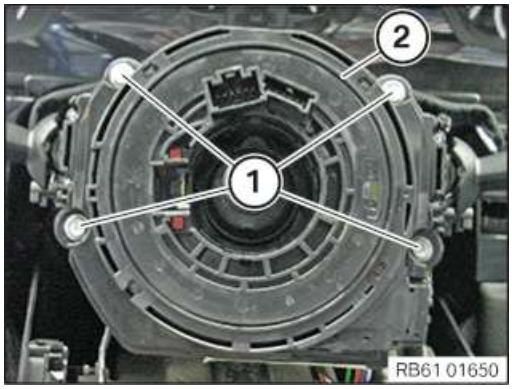
Result

» Correct marking (1) is seen in inspection glass (2).

Measure

- Continue with the next work step.

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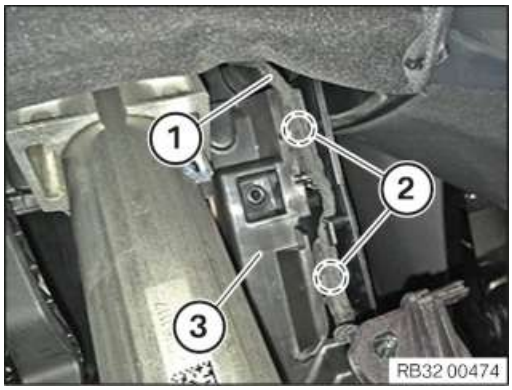


- Position the steering column switch cluster (SZL) (2).
- Tighten the screws (1).

Steering column switch cluster (SZL) on the steering column

Screw TS5x20		Tightening torque	3 Nm

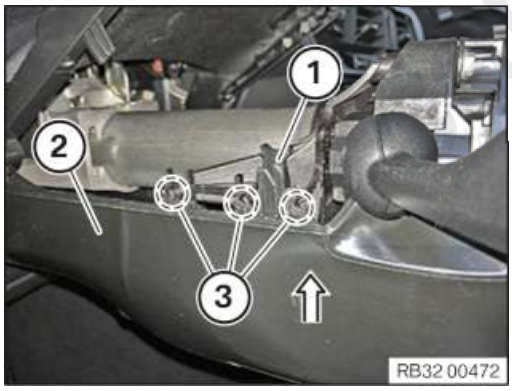
38 – Install steering column shroud lower section



- Position the steering column shroud lower section (3).
- Secure the line (1) on the brackets (2).



- Connect the connector (1).

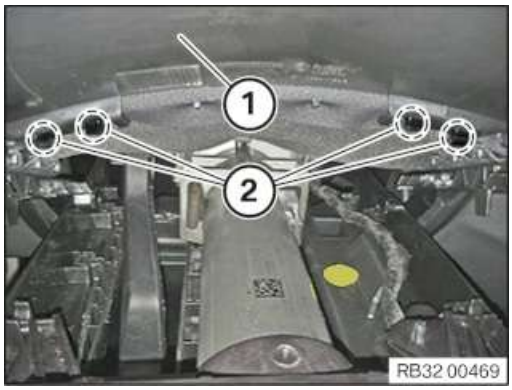


NOTICE

Perform the operations on the left and right side.

- Align the steering column shroud lower section (2) to the steering column using the retaining lug (1).
- Push the steering column shroud lower section (2) up in the direction of the arrow until the brackets (3) engage.

39 – Fit steering column shroud upper section



- Clip in the steering column shroud upper section (1) at the brackets (2).

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NOTICE

Perform the operations on the left and right side.

- Clip in the steering column shroud upper section (1)into the guide (2).



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.

40 – Installing the steering wheel/M Sport steering wheel

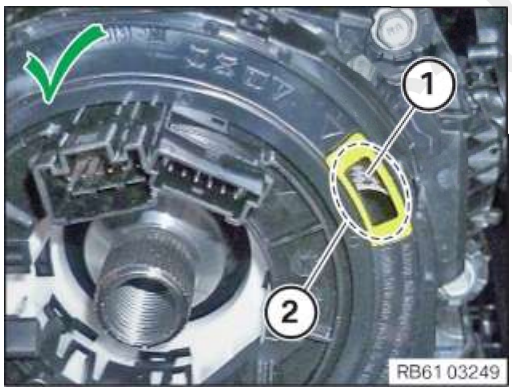
▸ **Check the neutral position of the clock spring**

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▹ **Version A: Checking the visibility of the marking on the coil spring**

Check



- Check the visibility of the marking (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).

◃

▹ **Version B: Checking the visibility of the marking on the coil spring**

Check



- Check the visibility of the marking (1) on the coil spring in the inspection glass (2) .

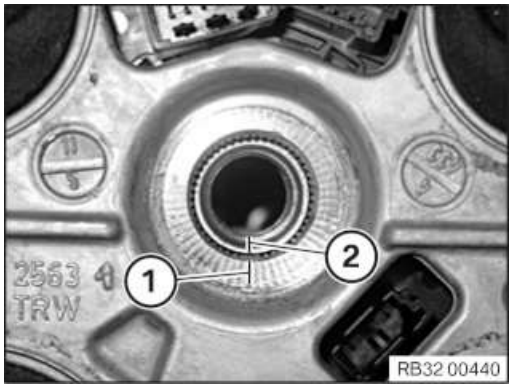
Result

» 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).

◁



- Align mark (1) on steering wheel to mark (2) on steering column.
- Position the steering wheel.

Check



- A micro-encapsulated screw (1) may be fitted.

  Check the screw connection.

Result

» Screw (1) is micro-encapsulated.

Measure

- Clean thread in the steering column.

  Renew the screw (1).

  Parts: Screw

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41 – Installing the sports steering wheel

- Tighten down screw (1).

Steering wheel to steering column

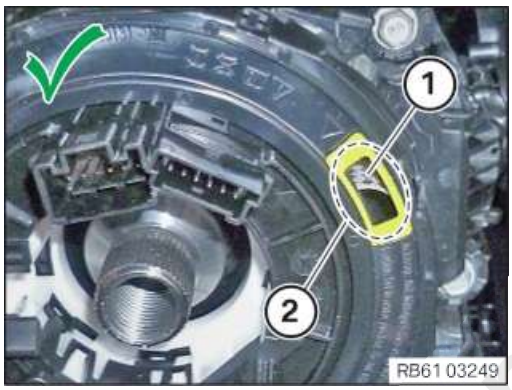
M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

▸ **Check the neutral position of the clock spring**

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▹ **Version A: Checking the visibility of the marking on the coil spring**



Check

- Check the visibility of the marking (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).

◃

▹ **Version B: Checking the visibility of the marking on the coil spring**



Check

- Check the visibility of the marking (1) on the coil spring in the inspection glass (2) .

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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



- Check if a microencapsulated screw (3) is installed.

Result

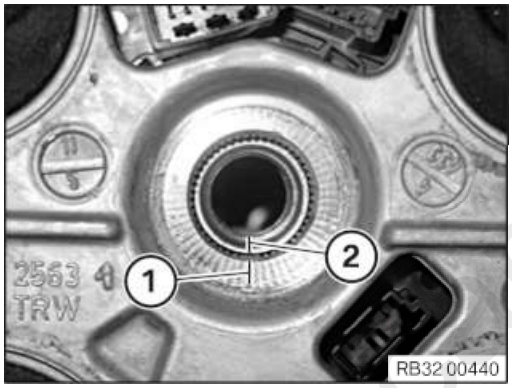
» Screw (3) is micro-encapsulated.

Measure

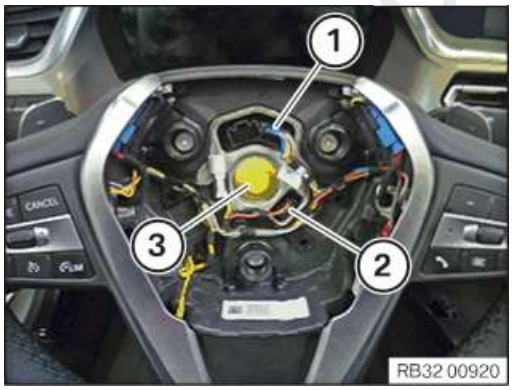
- Clean thread in the steering column.

  Renew the screw (3).

  Parts: Screw



- Align mark (1) on steering wheel to mark (2) on steering column.
- Connect steering wheel.



- Connect connectors (1) and lock.
- If installed: Connect connectors (2) and lock.
- Tighten screw (3) .

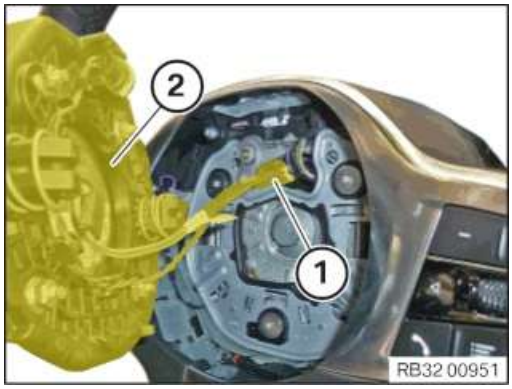
Steering wheel to steering column

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

42 – Installing the airbag unit (M Sport steering wheel)

TECHNICAL INFORMATION

After replacing the airbag unit (M sport steering wheel) or after a possible conversion of standard steering wheel and airbag unit to M-sports steering wheel, a software update or a programming/encoding via ISTA must be performed!



- Connect and lock the connector (1) of the airbag unit (2).



- Press the airbag unit further (1) with even pressure in the direction of the arrow into the steering wheel.

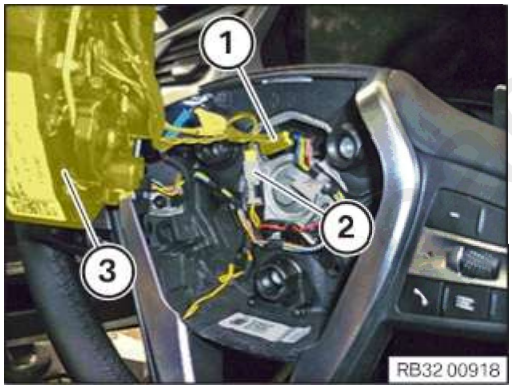
  The airbag unit (1) must engage audibly and perceptibly.

43 – Installing the airbag unit

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▸ **Installing the airbag unit for the sports steering wheel**



- Position airbag unit (3).
- Connect connectors (1) and (2) lock.



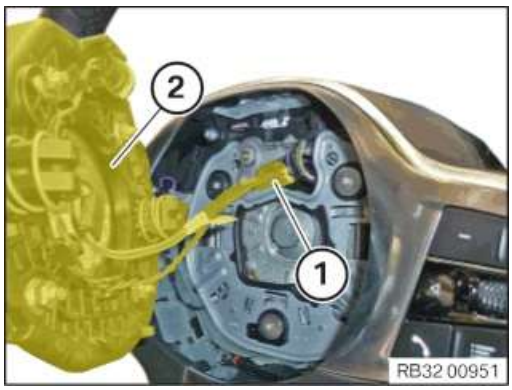
- Press the airbag unit (1) with even pressure in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

▸ **Installing the airbag unit for M Sport steering wheel**

TECHNICAL INFORMATION

After replacing the airbag unit (M sport steering wheel) or after a possible conversion of standard steering wheel and airbag unit to M-sports steering wheel, a software update or a programming/encoding via ISTA must be performed!



- Connect and lock the connector (1) of the airbag unit (2).



- Press the airbag unit further (1) with even pressure in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

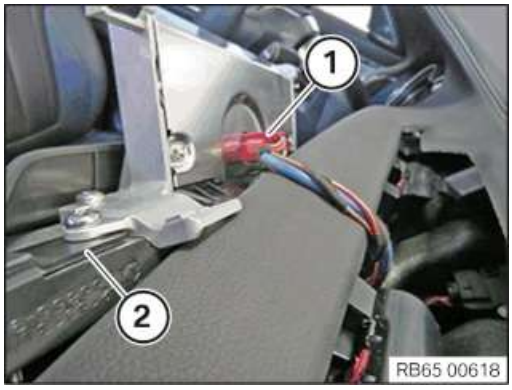
44 – Install the central information display (CID)

RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)



- Position Central Information Display (CID) (2).
- Connect plug connection (1) and lock.

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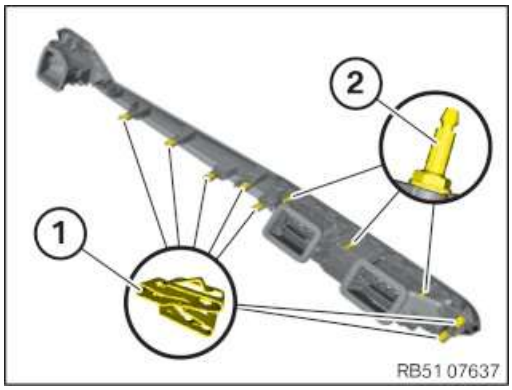


- Insert the central information display (CID) (2) in the instrument panel and position correctly.
- Tighten the screws (1).

Central information display to instrument panel

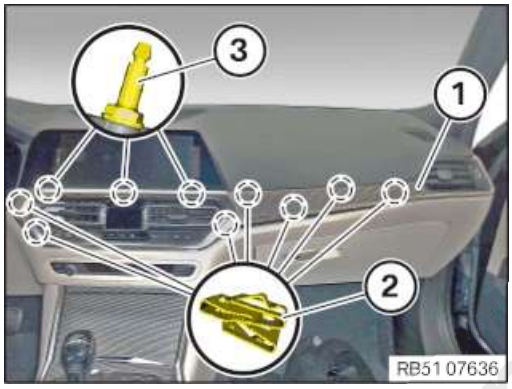
Screw		Tightening torque	2,4 Nm

45 – Install the finisher on the right instrument panel



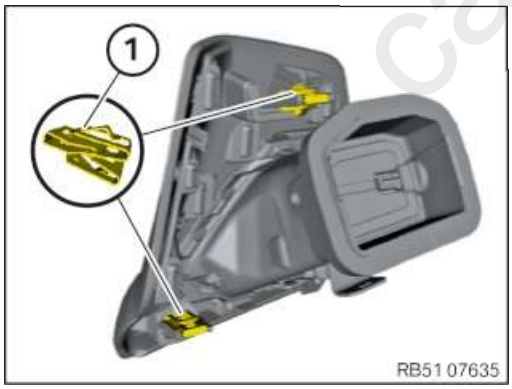
- Checks clamps (1) for damage.

  Defective or missing clamps (1) need to be renewed.
- Check the pins (2) and the accompanying clamps at the instrument panel trim for damage, renew if necessary.



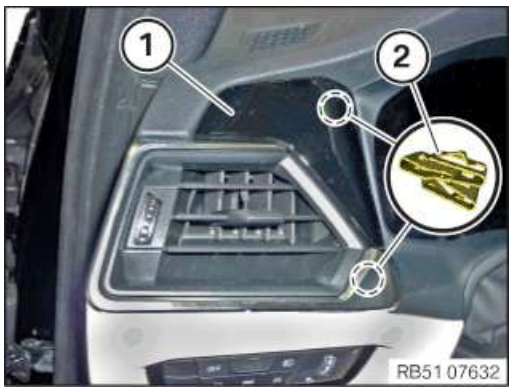
- Install the decorative strip (1).
- Connect and lock corresponding connectors.
- Correctly position the decorative strip (1) and at the clamps (2) and clip in the pins (3).

46 – Install the finisher on the instrument panel on the left



- Check the clamps (1) for damage and that they are present.

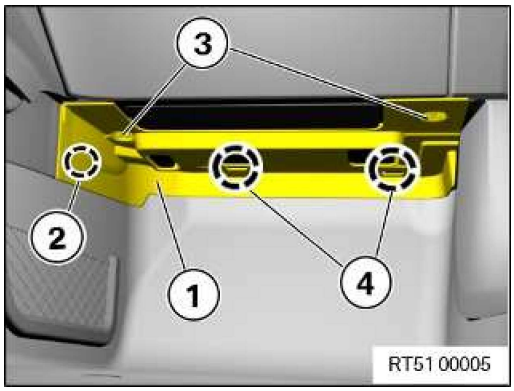
  Damaged or missing clamps (1) must be renewed.



- Install the decorative strip (1).
- Connect and lock the associated connectors.
- Clip decorative strip (1) into clamps (2).

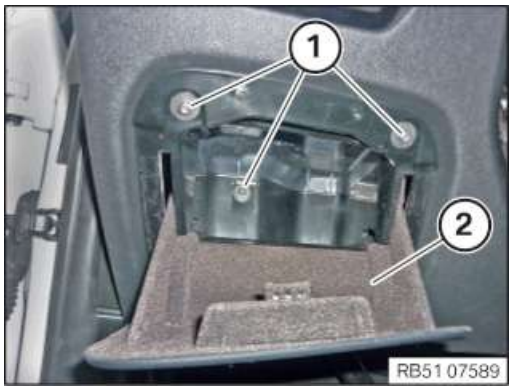
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47 – Install the right footwell trim panel



- Connect associated connector.
- Attach the footwell trim (1) to the guides (4) and fold up.
- Guide the footwell trim (1) into the guide (2) of the centre console.
- Position the locks (3) correctly and turn by 90°.

48 – Installing the left fold-down compartment

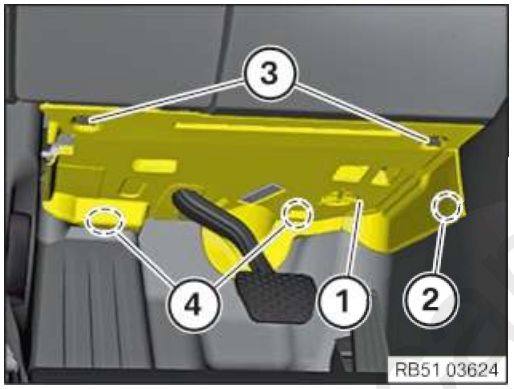


- Install the fold-down compartment (2).
- Tighten the screws (1).

Fold-down compartment to instrument panel

Oval-head screw		Tightening torque	1,8 Nm

49 – Installing the trim panel for the pedal mechanism



- Connect associated connector.
- Attach the trim panel for the pedal mechanism (1) in the guides (4) and fold it up.
- Clip the trim panel for the pedal mechanism (1) into the centre console in this area (2).

TECHNICAL INFORMATION

It is **imperative** that the screws caps of the trim panel be correctly locked. This is the only way to ensure that the trim panel does not come loose and potentially tilt into the pedal area.

- Insert screw caps (3) correctly and turn by 90° to lock.

50 – Install the A-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

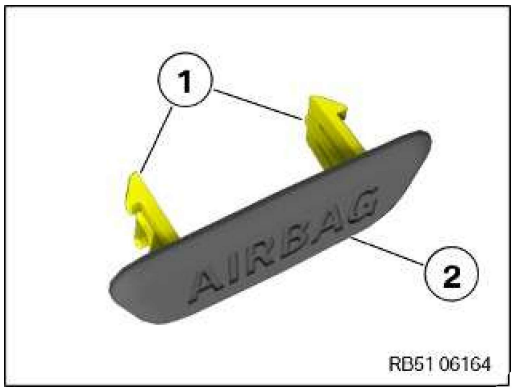
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



Check

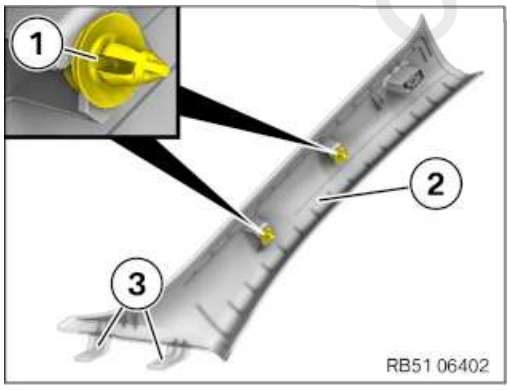
- Check retaining lugs (1) of cover (2) for damage.

Result

» Retaining lug is damaged.

Measure

- Renew the cover.



Check

- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

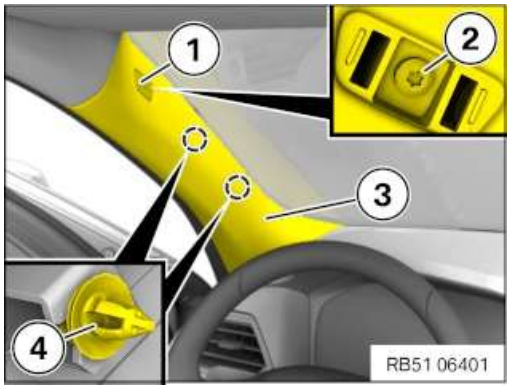
Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.

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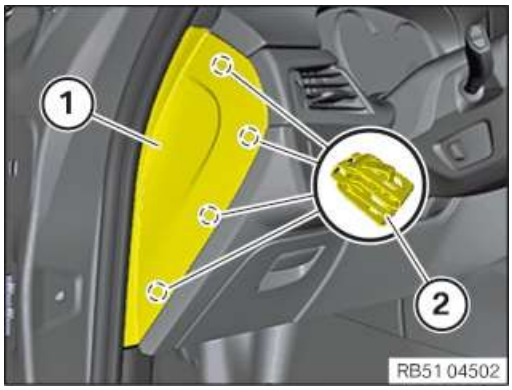
- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

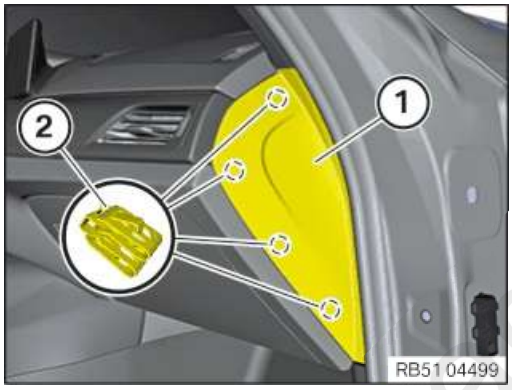
- Clip in the cover (1).

51 – Install the side panel on left instrument panel



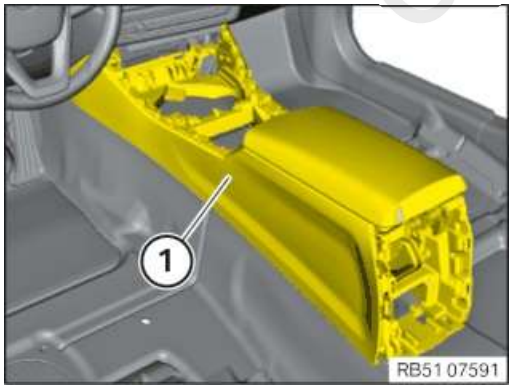
- Feed in the side panel (1) and clip it in at the clamps (2).

52 – Install the side panel on instrument panel on the right



- If required, connect the associated connector.
- Feed in the side panel (1) and clip it in at the clamps (2).

53 – Installing the centre console

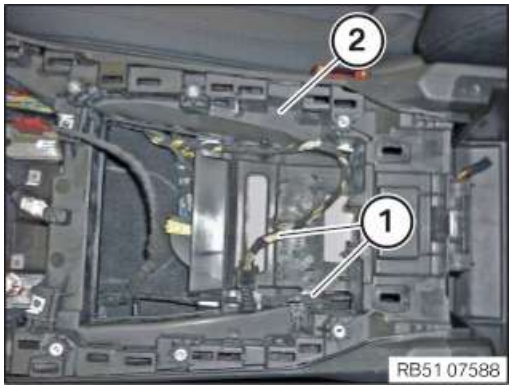


NOTICE

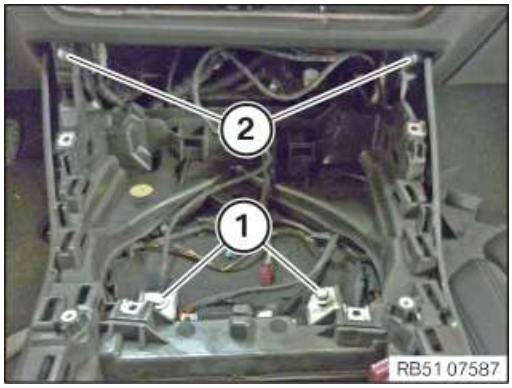
To provide a better overview: Schematic diagram with partially hidden components.

- Install centre console (1) and thereby feed in the wiring harness.
- Feed in the centre console (1) to the instrument panel and position correctly.

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- Secure the wiring harness to the centre console (1) and connect and lock the existing plug connections.



- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

- Tighten the screws (2).

Centre console to instrument panel

Oval-head screw		Tightening torque	1,8 Nm

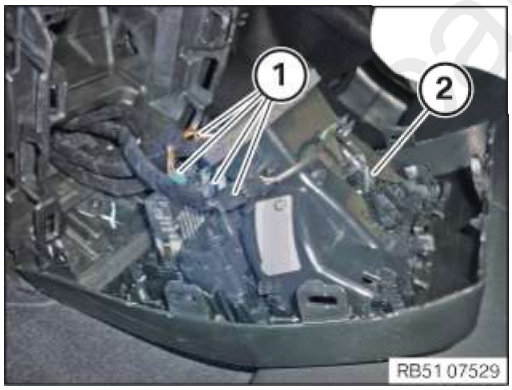


- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

54 – Installing the rear centre console trim



- Install the centre console trim (2).
- Connect connectors (1) and lock.

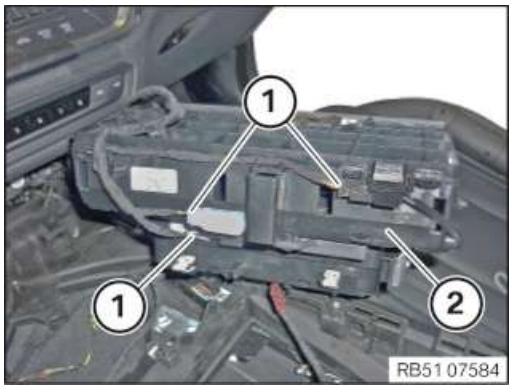


- Position centre console trim (1) and engage at the latch mechanisms at the side.

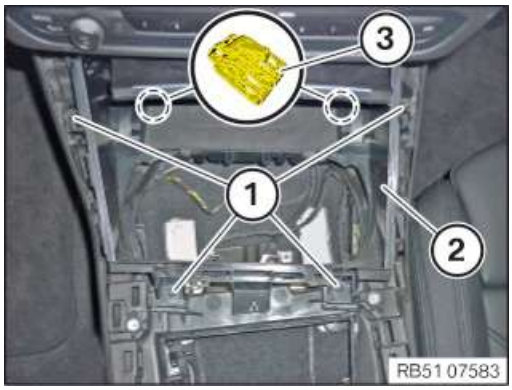
55 – Installing the storage compartment in the centre console in the front

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55 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).

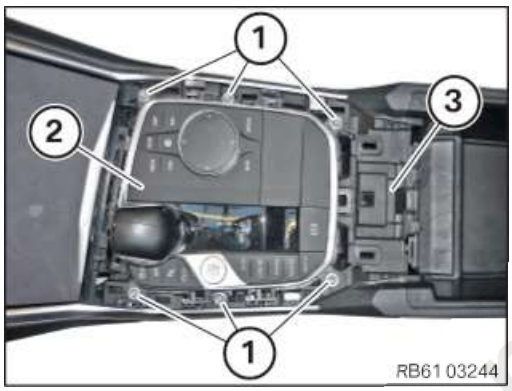


- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

56 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw	Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**



- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

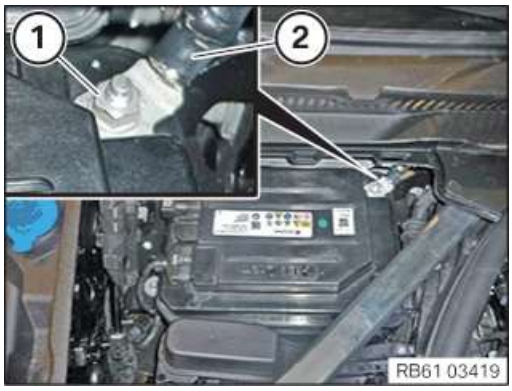
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



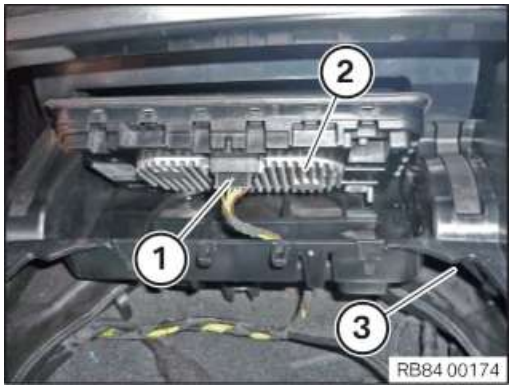
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



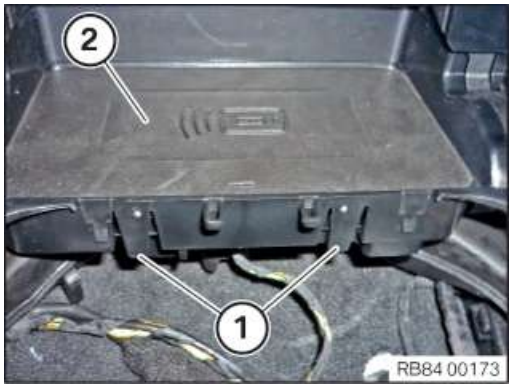
- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

57 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.

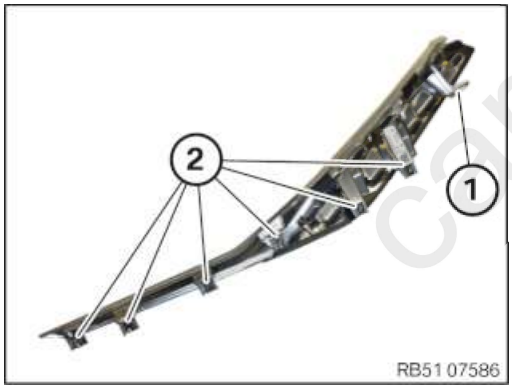
  The latch mechanisms (1) must engage correctly.

58 – Installing the decorative trim on the centre console on the left and right

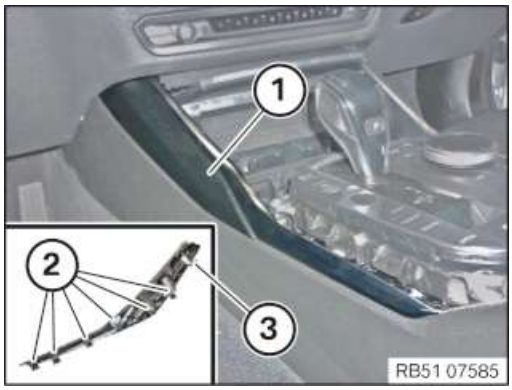
▸ **Installing the decorative trim on the centre console**

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

59 – Installing the centre console trim

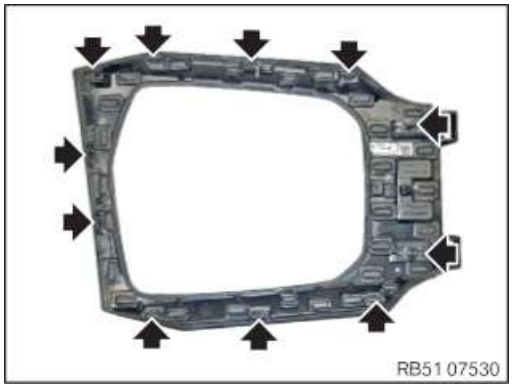
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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

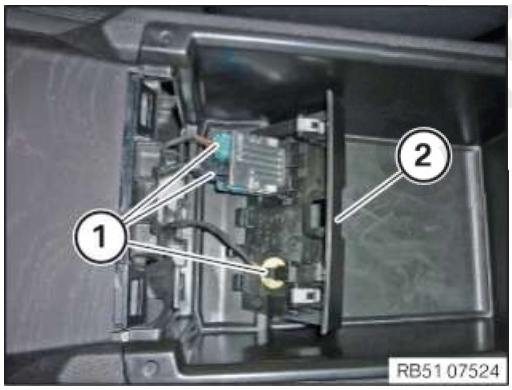


- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

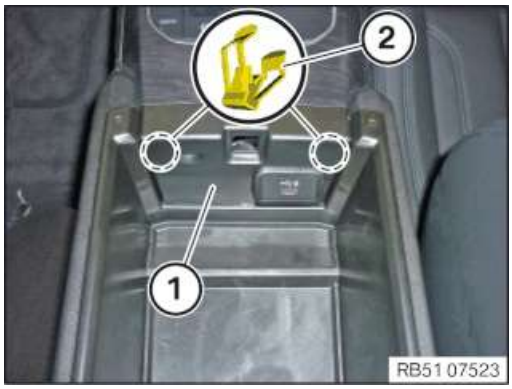


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

60 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

61 – Install the cup holder

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- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm



- Insert the insert (1).

Additional Information

Overview of Tightening Torques

Dashboard to support — Used in step 32

Screw		Tightening torque	2,4 Nm

Speaker to support / support to instrument panel / support to body — Used in step 33

Screw		Tightening torque	1,8 Nm

Instrument cluster (KOMBI) to support — Used in step 36

Screw		Tightening torque	1,8 Nm

Steering column switch cluster (SZL) on the steering column — Used in step 37

Screw TS5x20		Tightening torque	3 Nm

Steering wheel to steering column — Used in step 4041

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

Central information display to instrument panel — Used in step 44

Screw		Tightening torque	2,4 Nm

Fold-down compartment to instrument panel — Used in step 48

Oval-head screw		Tightening torque	1,8 Nm

A-pillar trim panel to body — Used in step 50

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

Centre console on tunnel — Used in step 53

M6x18 Hexagon screw		Tightening torque	4,6 Nm

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Centre console to instrument panel			Used in step 53
Oval-head screw		Tightening torque	1,8 Nm

Storage compartment in centre console			Used in step 55
Oval-head screw		Tightening torque	1,8 Nm

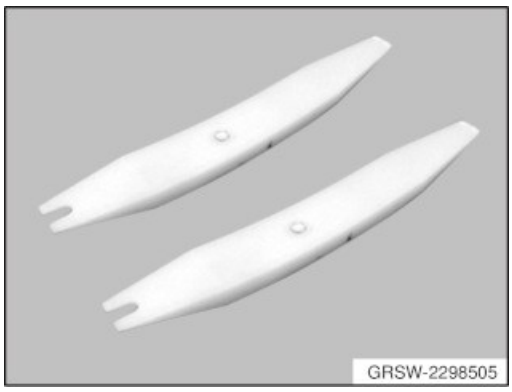
Gear selector switch to centre console trim			Used in step 56
Screw		Tightening torque	1,8 Nm

Negative battery cable to 48-V battery			Used in step 56
Nut M8		Tightening torque	19 Nm

Cup holder to centre console			Used in step 61
Oval-head screw		Tightening torque	1,8 Nm

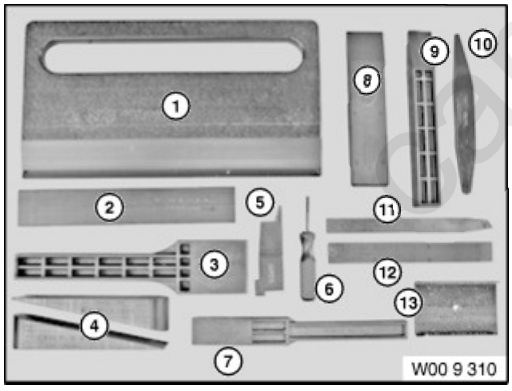
Overview of Special Tools

2 298 505 Wedge



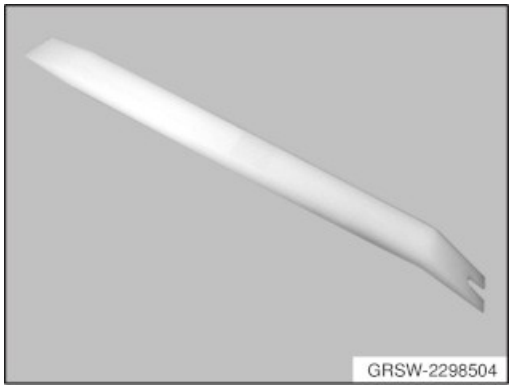
Common		Used in step 34
Usage	Set (delivery of 2 pieces)	
Included in the tool or work		
Storage location	C34	
Replaced by		
In connection with		
SI-Number	01 03 12 (792)	

0 493 752 (00 9 329) Case



Common		Used in step 13
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.	
Included in the tool or work	0 490 527	
Storage location	Individual	
Replaced by		
In connection with		
SI-Number	01 07 09 (530)	

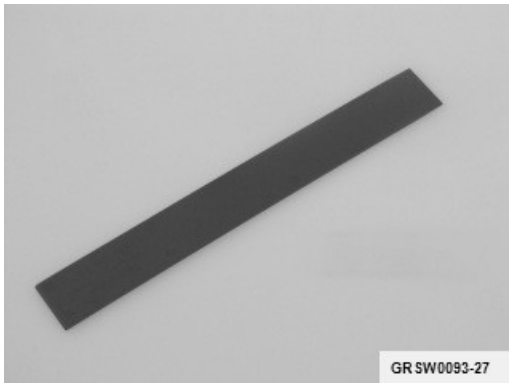
2 298 504 Wedge



Common		Used in step 24
Usage	Wedge with angled lug	
Included in the tool or work		
Storage location	C34	
Replaced by		
In connection with		
SI-Number	01 03 12 (792)	

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0 496 571 (00 9 327) Wedge



Common	Used in step 28
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 29
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 (PRE)	Used in step
Notes on 48-V battery	756

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	1320
72 00 ... Safety regulations for handling components with gas generators	13

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	756
61 20 900 Disconnecting and connecting battery earth lead	756
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61 20 900 Disconnecting and connecting battery earth lead	756

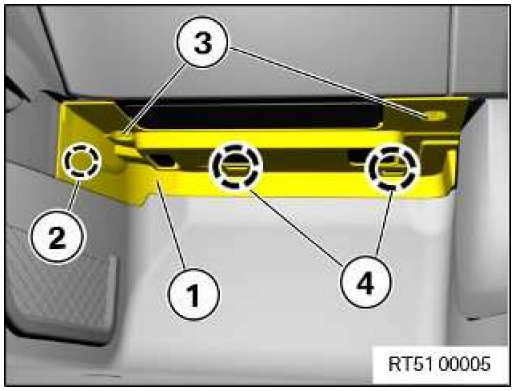
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61 20 900 Disconnecting and connecting battery earth lead	756
61 20 900 Disconnecting and connecting battery earth lead	756
61 20 900 Disconnecting and connecting battery earth lead	756
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61 20 900 Disconnecting and connecting battery earth lead	756
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	756
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	756
61 20 900 Disconnecting and connecting battery earth lead	756
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	756
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	756
61 20 900 Disconnecting and connecting battery earth lead	756
61 20 900 Disconnecting and connecting battery earth lead	756
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61 20 900 Disconnecting and connecting battery earth lead	756
61 20 900 Disconnecting and connecting battery earth lead	756
61 20 900 Disconnecting and connecting battery earth lead	756
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	756
61 20 900 Disconnecting and connecting battery earth lead	756
61 20 900 Disconnecting and connecting battery earth lead	756
61 20 900 Disconnecting and connecting battery earth lead	756
61 35 ... Notes on ESD protection (Electro Static Discharge)	1944
61 35 ... Notes on ESD protection (Electro Static Discharge)	1944

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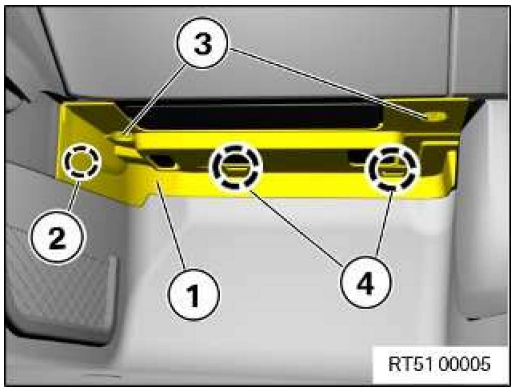
51 45 195 Removing and installing instrument trim panel trim at bottom right

1 – Remove the right footwell trim



- Turn the locks (3) by 90°.
- Feed the footwell trim (1) out of the guide (2).
- Detach the footwell trim (1) inward out of the guides (4).
- Unlock associated plug connection and disconnect.

2 – Install the right footwell trim panel



- Connect associated connector.
- Attach the footwell trim (1) to the guides (4) and fold up.
- Guide the footwell trim (1) into the guide (2) of the centre console.
- Position the locks (3) correctly and turn by 90°.

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51 45 075 Removing and installing support for dashboard

Prerequisite

- Air conditioning has been drawn off.

  Refrigerant line to the expansion valve is released.

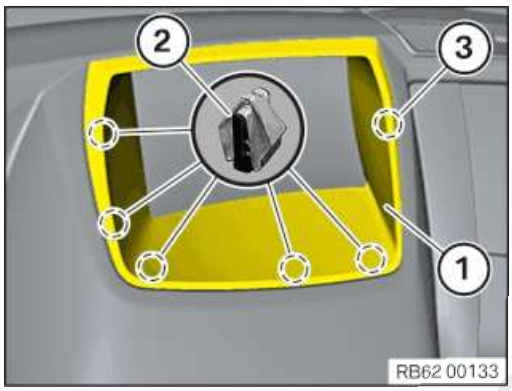
PRELIMINARY WORK

1 – Adjust the steering column position



- Adjust the length of the steering column to the maximum length in the direction of arrow (1).
- Move the steering column to the lowest steering column position in the direction of arrow (2).

2 – Removing trim for the Head-Up Display

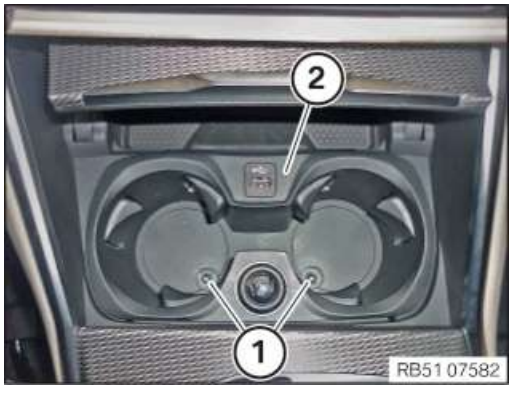


- Unclip trim (1) for the Head-Up Display upwards from clamps (2) and latch mechanism (3).

3 – Remove cupholder



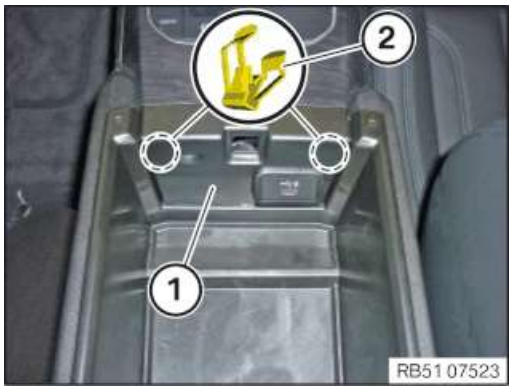
- Remove the insert (1).



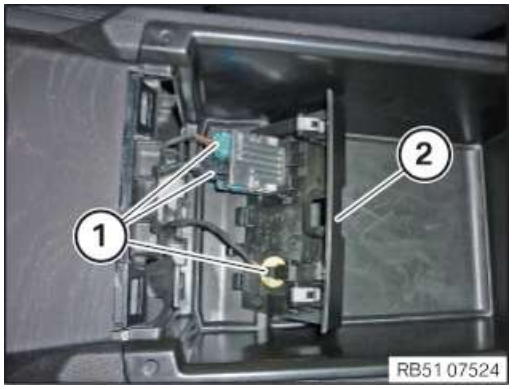
- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

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4 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

5 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

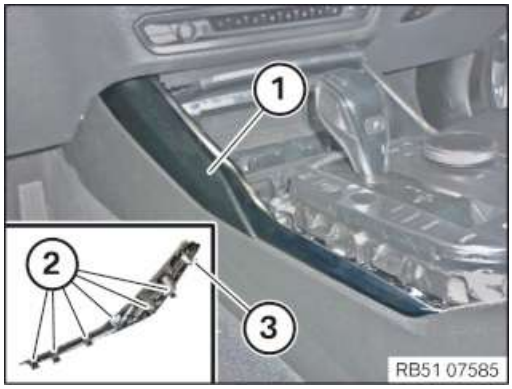
6 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

NOTICE

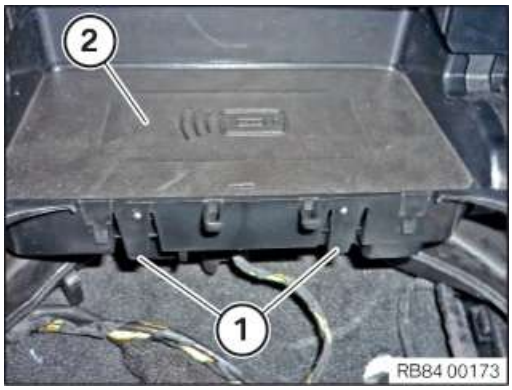
Description is for left component only. Procedure on the right side is identical.

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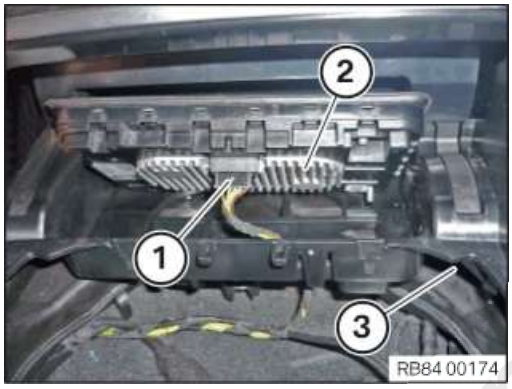


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

7 – Removing the wireless charging station



- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

8 – Remove the operating facility in the centre console

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▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

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Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

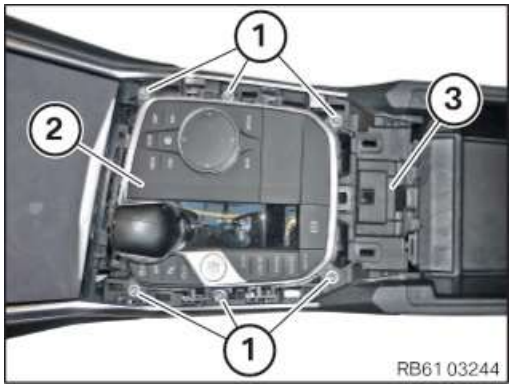
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**

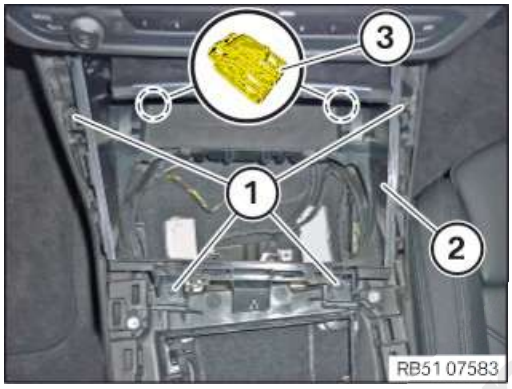


- See additional information.

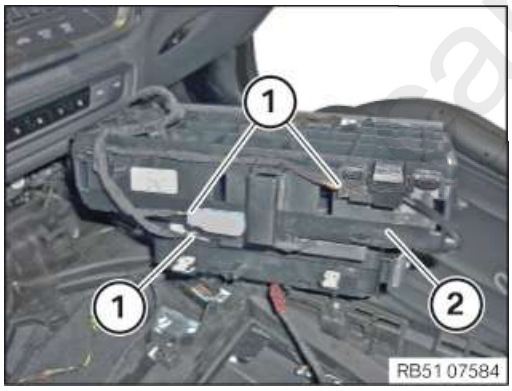


- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

9 – Removing the storage compartment in the front centre console



- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).



- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

10 – Removing the rear centre console trim

RISK OF DAMAGE

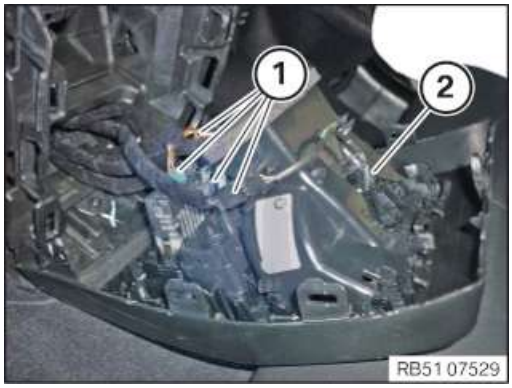
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.

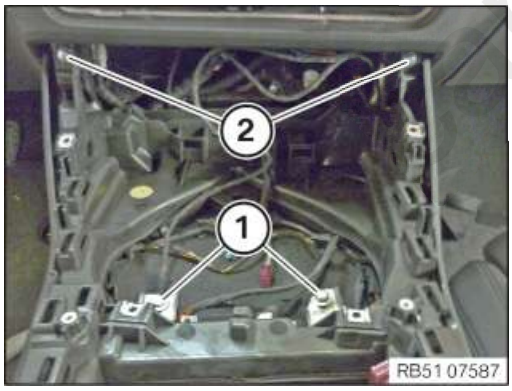


- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

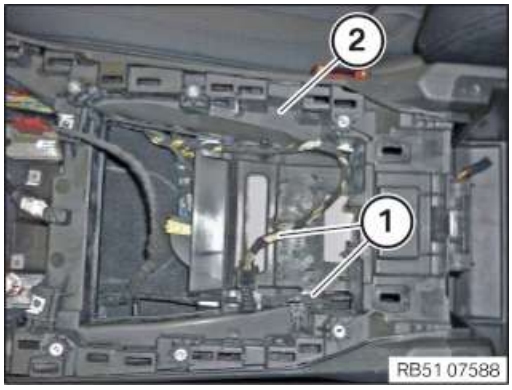
11 – Removing the centre console



- Loosen screws (1).

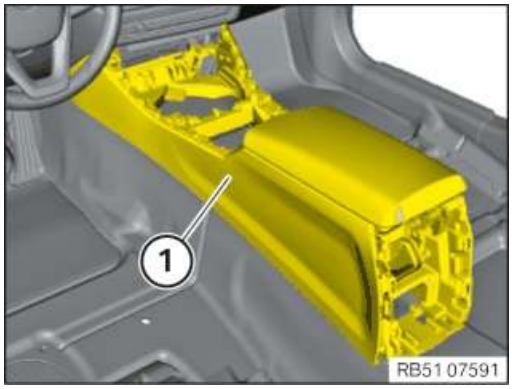


- Loosen screws (1) and (2).



- Release the wiring harness (1) from the centre console (2).

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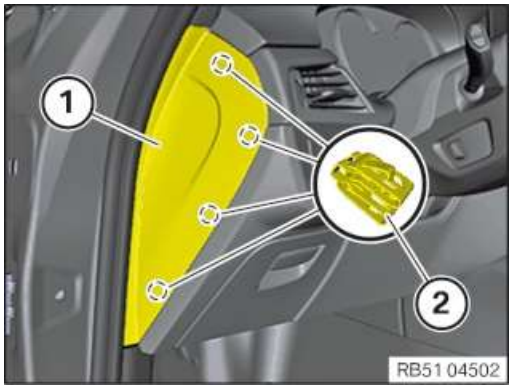


NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

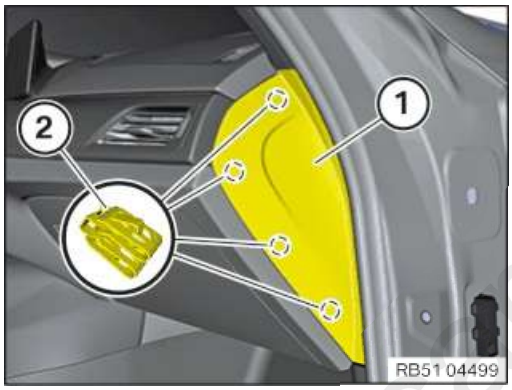
- Carefully raise rear centre console (1).
- Feed out wiring harness from the centre console (1) and unlock and disconnect existing plug connections, if required.
- Feed out and remove the centre console (1) on the instrument panel .

12 – Remove the side panel on the left instrument panel



- Unclip and remove the side panel (1) towards the outside from the clamps (2).

13 – Remove the side panel on the right instrument panel



- Unclip and remove the side panel (1) towards the outside from the clamps (2).
- If necessary, unlock associated plug connection and disconnect.

14 – Remove left and right A-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

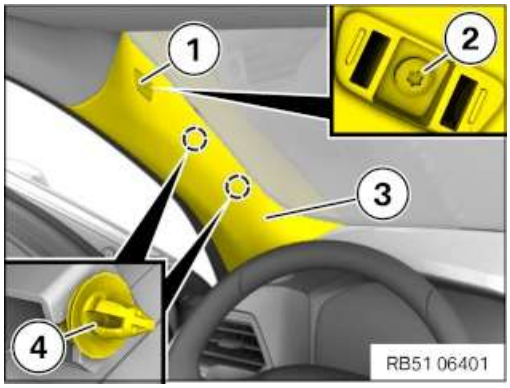
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RISK OF DAMAGE

Damage to the head airbag.

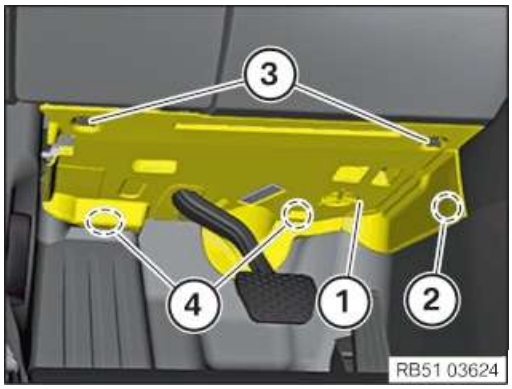
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



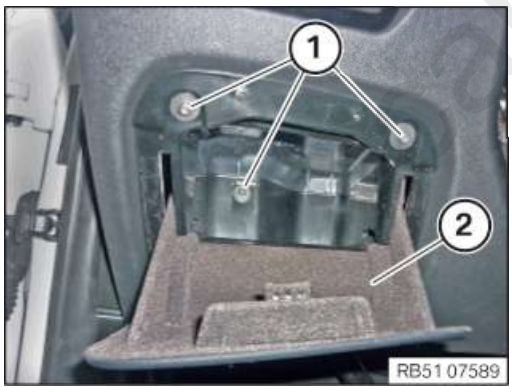
- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

15 – Removing the trim panel for pedal mechanism



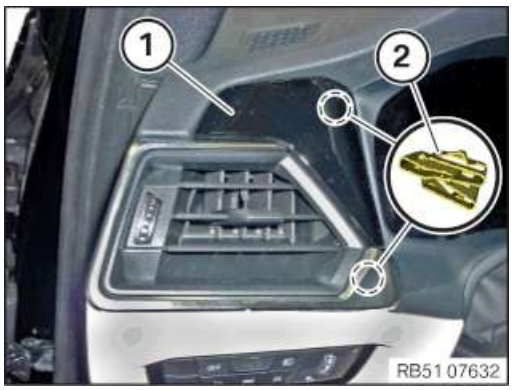
- Unclip the trim panel for the pedal mechanism (1) towards the inside in this area (2).
- Turn the locks (3) by 90°.
- Detach the trim panel for the pedal mechanism (1) inwards out of the guides (4).
- Unlock associated plug connection and disconnect.

16 – Removing the left fold-down compartment



- Loosen screws (1).
- Remove the fold-down compartment (2) toward the bottom.

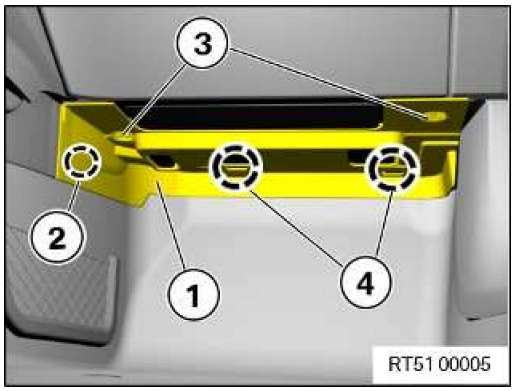
17 – Remove the finisher on the instrument panel on the left



- Unclip decorative strip (1) to the rear out of the clamps (2).
- Unlock associated plug connection and disconnect.

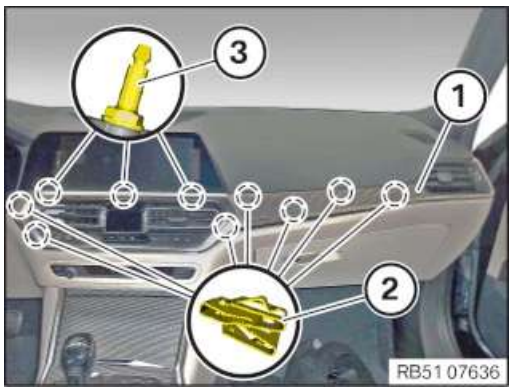
  Remove the decorative strip (1).

18 – Remove the right footwell trim



- Turn the locks (3) by 90°.
- Feed the footwell trim (1) out of the guide (2).
- Detach the footwell trim (1) inward out of the guides (4).
- Unlock associated plug connection and disconnect.

19 – Remove the finisher on the right instrument panel



- Unclip the decorative strip (1) towards rear at the clamps (2) and the pins (3).
- Unlock associated plug connection and disconnect.
- Remove the decorative strip (1).

20 – Remove Central Information Display (CID)

RISK OF DAMAGE

Electrostatic discharge.

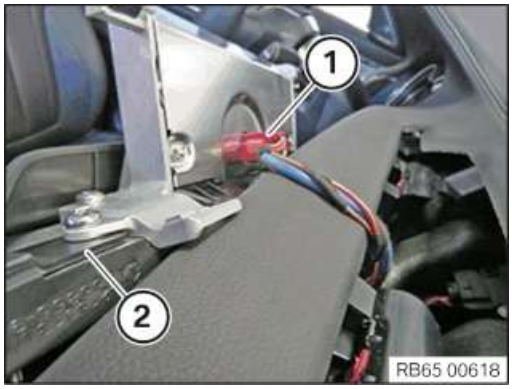
Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)



- Loosen screws (1).
- Pull out central information display (CID) (2) slightly off the instrument panel.

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- Unlock plug connection (1) and disconnect.
- Remove the central information display (CID) (2).

21 – Removing the airbag unit

WARNING

Airbag unit.

Danger! Life-threatening injuries!

- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

RISK OF DAMAGE

Damage to the steering wheel.

Incorrect handling of the tool may damage the steering wheel.

- Ensure the tool is positioned correctly (angle and inclination).
- When unlocking, do not use "levering" action. Instead, press in the Torx screwdriver toward the centre of steering wheel only.

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▸ **Removing the airbag unit for sports steering wheel**



- Insert Torx screwdriver T25 (1) diagonally upwards in the hidden opening (2) on the rear side of the steering wheel until a spring resistance is felt.

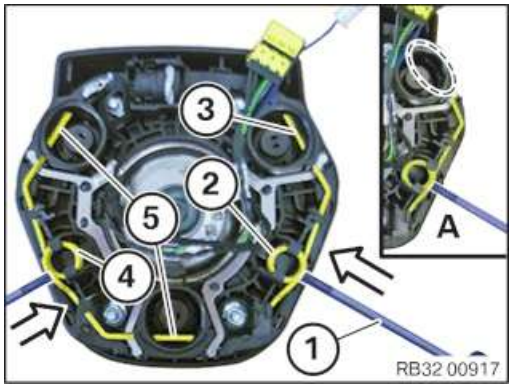
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NOTICE

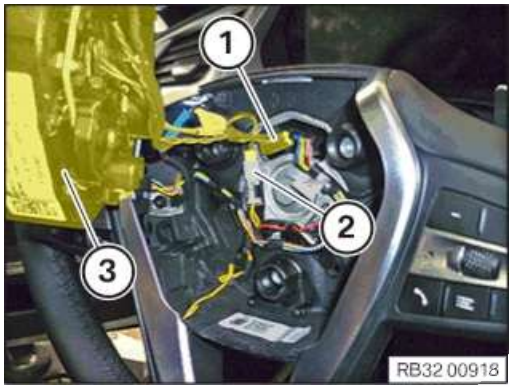
To provide a better overview: Diagram with airbag unit removed.

- To unlock the airbag unit, press Torx screwdriver T25 (1) diagonally upwards in the direction of the arrow to the centre of the steering wheel.



- Press the airbag unit over a large area of the steering wheel.
- Use Torx screwdriver T25 (1) to press wire spring clip (2) in the direction of the arrow towards the centre of the steering wheel and release lock (3).

  (A): Wire spring clip (2) is unlocked.
- Press wire spring clip (4) with Torx screwdriver T25 (1) in the direction of the arrow towards the centre of the steering wheel and release locks (5).
- Carefully raise the airbag unit.



- Unlock and disconnect the plug connections (1) and (2).
- Remove airbag unit (3).

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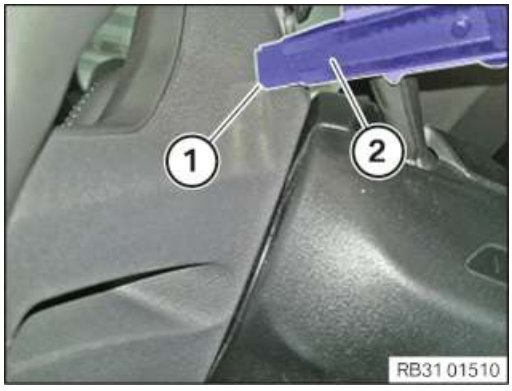
▸ Removing the airbag unit for M Sport steering wheel



NOTICE

Perform the operations on the left and right side.

- Locate the mark (1) for unlocking the airbag unit on the steering wheel by touching it.



NOTICE

Perform the operations on the left and right side.

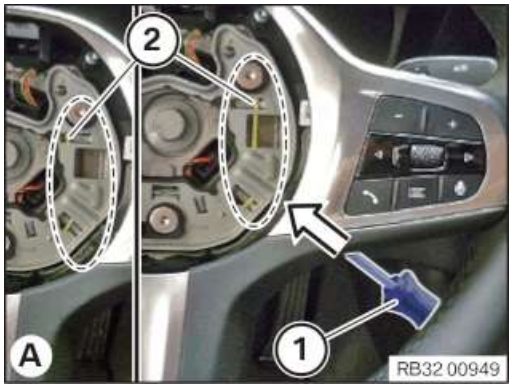
- Cut the mark (1) carefully with a knife (2) to an approx. length of 4 mm .



TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

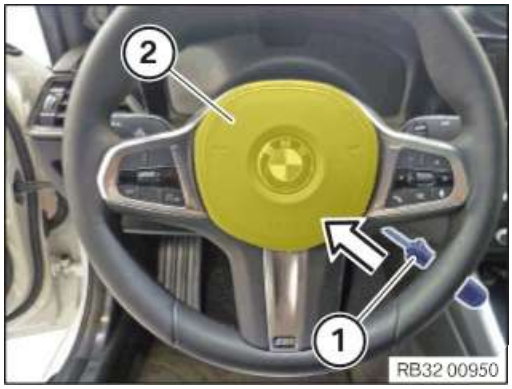
- In case of vehicles with shift paddles (2) made of carbon-fibre-reinforced plastic, use a Torx socket T15 (1) for unlocking the airbag unit.



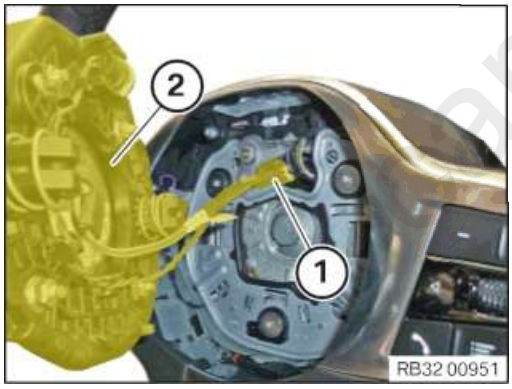
NOTICE

To provide a better overview: Diagram with airbag unit removed.

- Insert the Torx socket T15 (1) diagonally upwards until a resilient resistance is felt.
- Press in Torx socket T15(1) straight in the direction of arrow towards the centre of the steering wheel in order to unlock the wire spring clip (2) or to unlock the airbag unit (A).



- Press in Torx screwdriver T15 (1) straight in direction of arrow towards the centre of the steering wheel and lift the airbag unit (2) on the unlocked side.
- Repeat procedure on left side and carefully release airbag unit (2) from the steering wheel.



- Unlock and disconnect the plug connection (1) and remove the airbag unit (2).

22 – Removing airbag unit (M Sport 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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RISK OF DAMAGE

Damage to the steering wheel.

Incorrect handling of the tool may damage the steering wheel.

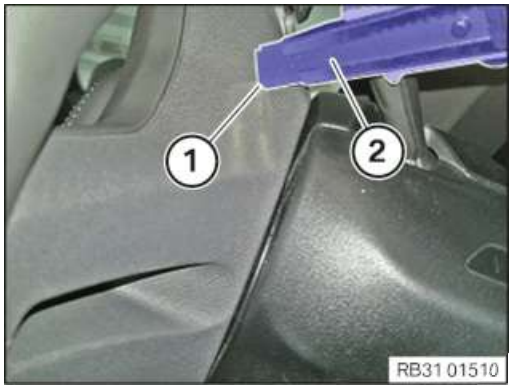
- Ensure the tool is positioned correctly (angle and inclination).
- When unlocking, do not use "levering" action. Instead, press in the Torx screwdriver toward the centre of steering wheel only.



NOTICE

Perform the operations on the left and right side.

- Locate the mark (1) for unlocking the airbag unit on the steering wheel by touching it.



NOTICE

Perform the operations on the left and right side.

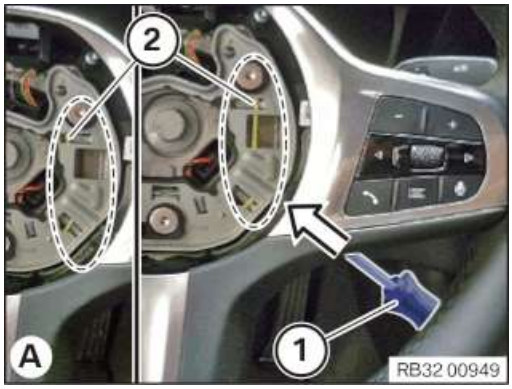
- Cut the mark (1) carefully with a knife (2) to an approx. length of 4 mm .



TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

- In case of vehicles with shift paddles (2) made of carbon-fibre-reinforced plastic, use a Torx socket T15 (1) for unlocking the airbag unit.

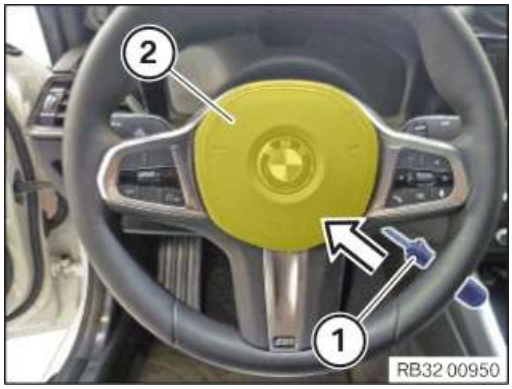


NOTICE

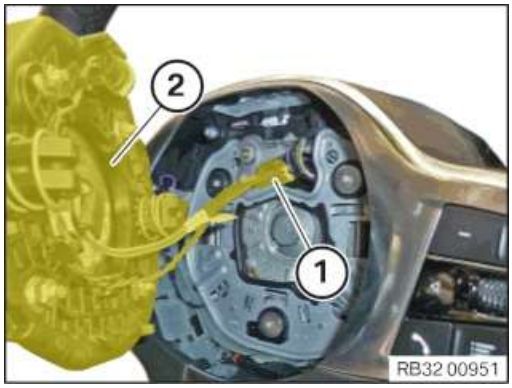
To provide a better overview: Diagram with airbag unit removed.

- Insert the Torx socket T15 (1) diagonally upwards until a resilient resistance is felt.
- Press in Torx socket T15(1) straight in the direction of arrow towards the centre of the steering wheel in order to unlock the wire spring clip (2) or to unlock the airbag unit (A).

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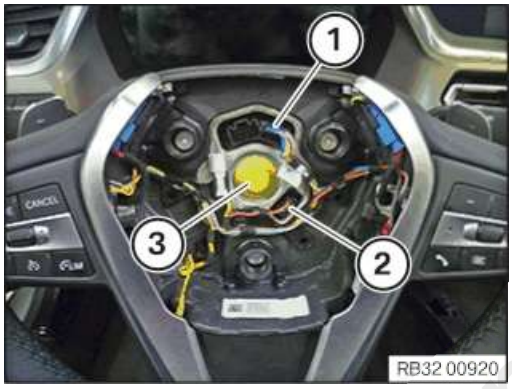


- Press in the wire spring clip with Torx socket T15 (1) in the direction of arrow and lift the airbag unit (2) on the unlocked side.
- Repeat procedure on left side and carefully release airbag unit (2) from the steering wheel.



- Unlock plug connection (1) and disconnect.
- Remove the airbag unit (2).

23 – Remove sports steering wheel



- Move the steering wheel and wheels to the straight-ahead position.
- Unlock plug connection (1) and disconnect.
- If installed: Unlock plug connection (2) and disconnect.
- Release the screw (3) and pull off and remove the steering wheel.

24 – Removing the steering wheel/M Sport steering wheel

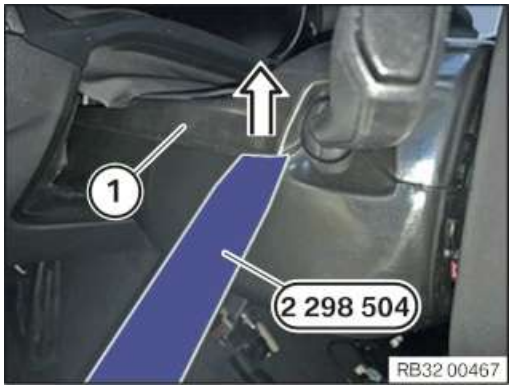


TECHNICAL INFORMATION

When releasing the screw, have an auxiliary person brace the steering wheel in order to reduce torque on the steering column!

- Move the steering wheel and wheels to the straight-ahead position.
- Loosen screw (1).
- Pull down the steering wheel and remove.

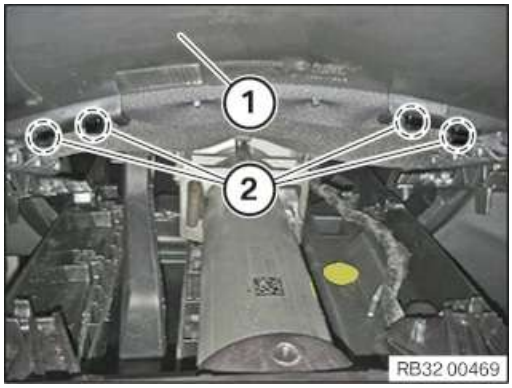
25 – Removing steering column shroud upper section



NOTICE

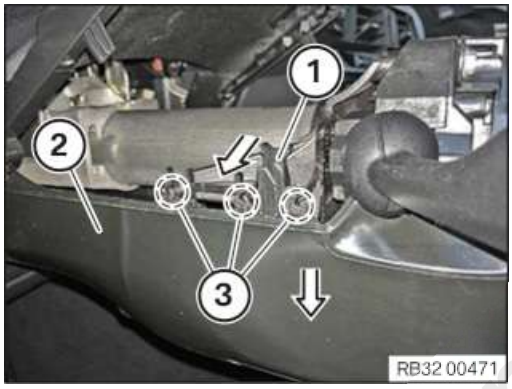
Perform the operations on the left and right side.

- Unlock the steering column shroud upper section (1) with the special tool 2 298 504 and fold up.



- Unclip the steering column shroud upper section (1) from the brackets (2).
- Remove the steering column shroud upper section (1).

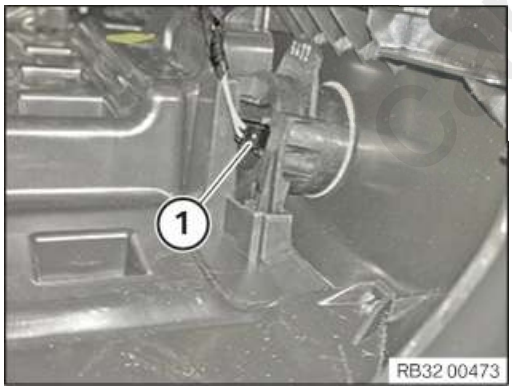
26 – Removing steering column shroud lower section



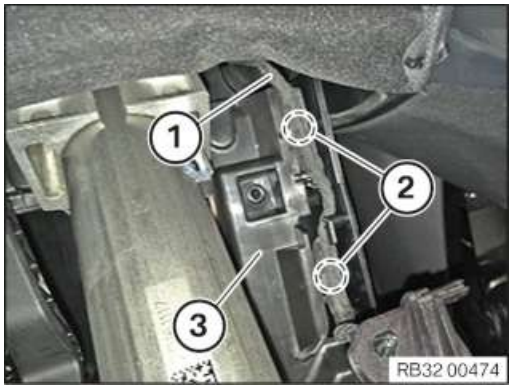
NOTICE

Perform the operations on the left and right side.

- Push the retaining lug (1) to the outside in the direction of the arrow and unclip the steering column shroud lower section (2) from the holders (3) in the direction of the arrow to the bottom at the same time.



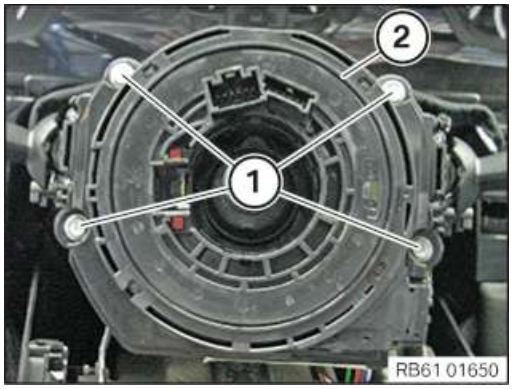
- Fold the steering column shroud lower section down.
- Unlock and disconnect connector (1).



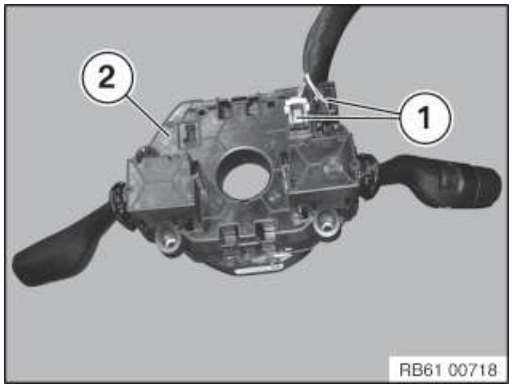
- Detach the cable (1) from the brackets (2).
- Remove the steering column shroud lower section (3).

27 – Removing the steering column switch cluster (SZL)

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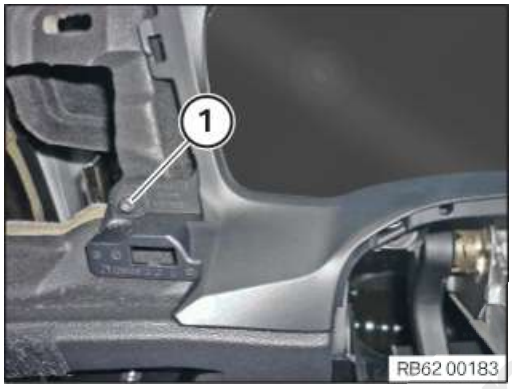


- Loosen screws (1).
- Remove the steering column switch cluster (SZL) (2).



- Unlock and disconnect plug connections (1) on the SZL (2).

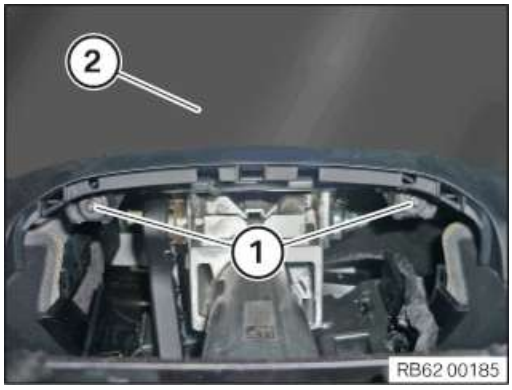
28 – Removing the instrument cluster (KOMBI)



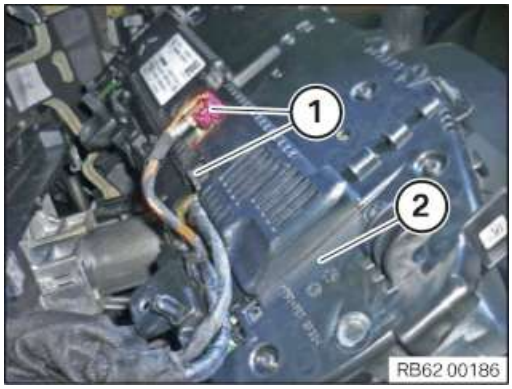
- Loosen screw (1).



- Loosen screw (1).

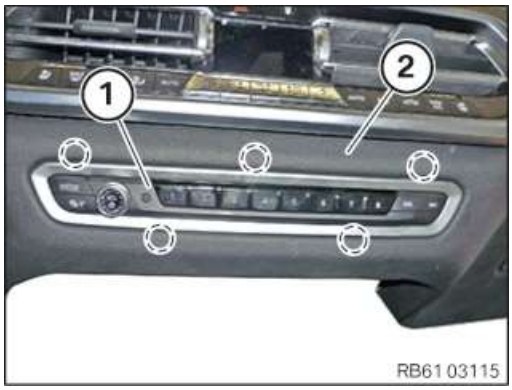


- Loosen screws (1).
- Feed out instrument cluster (KOMBI) (2).

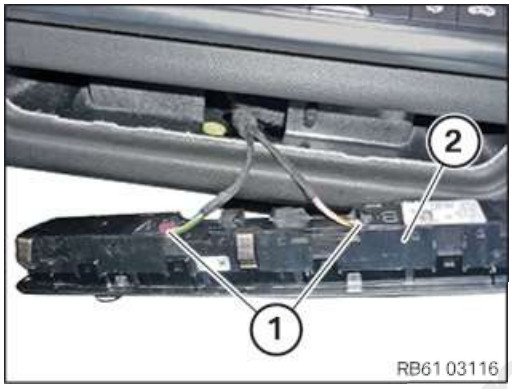


- Unlock and disconnect plug connections (1) from instrument cluster (KOMBI) (2).
- Remove the instrument cluster (KOMBI) (2).

29 – Remove the audio operating unit

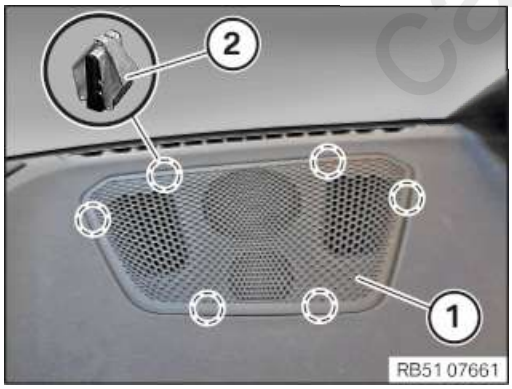


- Unclip the audio operating unit (1) from the instrument panel (2) at the points marked using special tool 0 496 571 (00 9 327).



- Disconnect plug connections (1) and remove the audio operating unit (2).

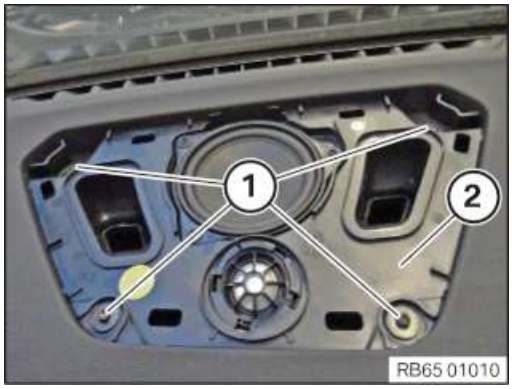
30 – Remove the speaker trim at the instrument panel



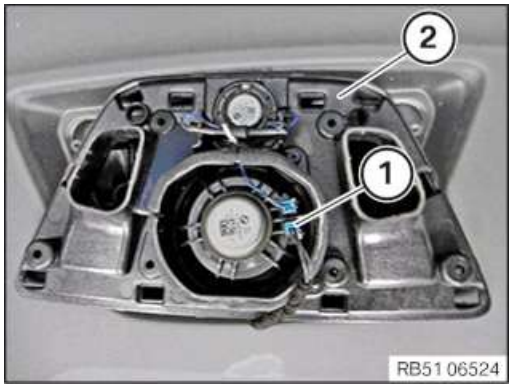
- Lever out the speaker trim (1) with the special tool 0 496 569 (00 9 325) from the clamps (2) toward the top and remove.

31 – Remove the speaker holder at the instrument panel

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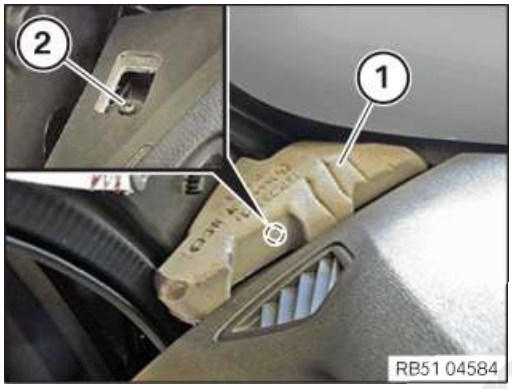


- Loosen screws (1).
- Pull out speaker holder (2) slightly with the loudspeakers and tilt it to the side.



- Unlock plug connection (1) and disconnect.
- Remove the speaker holder (2).

32 – Remove the instrument panel trim panel



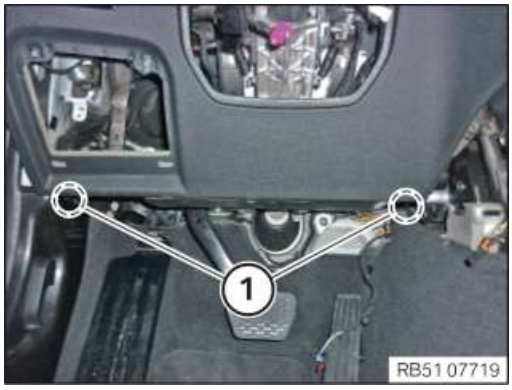
NOTICE

Perform the operations on the left and right side.

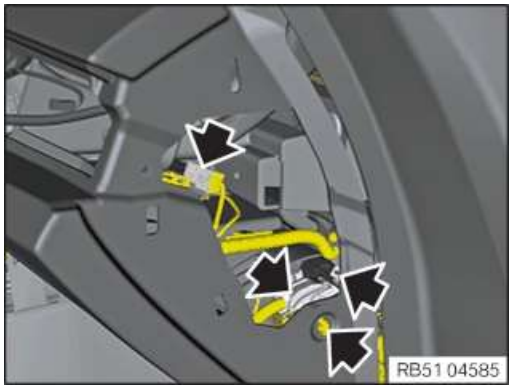
- Remove the sound insulation (1).
- Loosen screw (2).



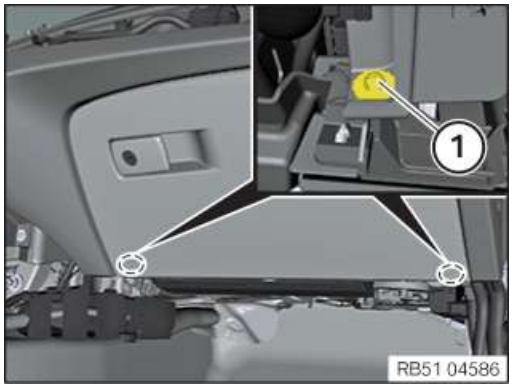
- Loosen screws (1).



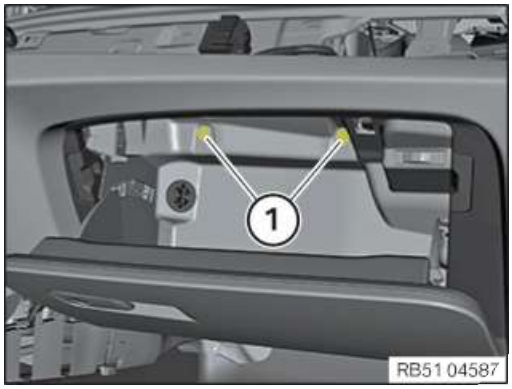
- Loosen screws (1).



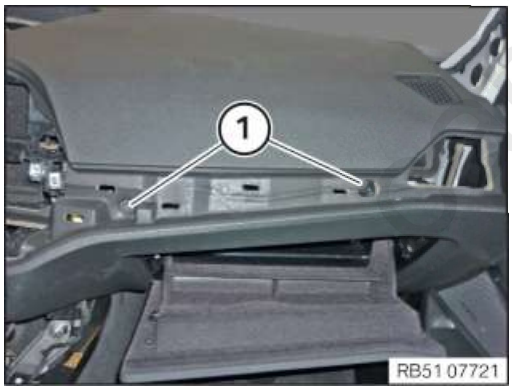
- Release all plug connections and cable clips (arrows) behind the glove box.



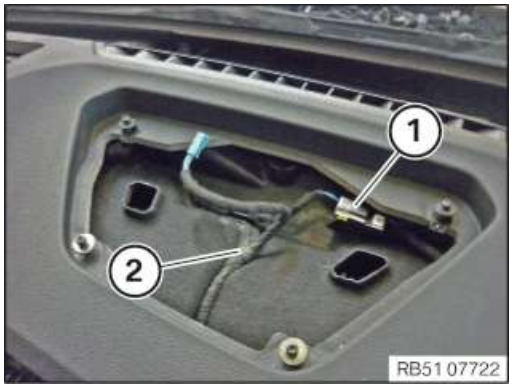
- Release the screws (1) on the lower side of the glove box.



- Open glovebox.
- Loosen screws (1).



- Loosen screws (1).



- Unlock plug connection (1) and disconnect.
- Release the wiring harness (2) on the holders.

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- Unlock the plug connection (1) on the light operating unit and disconnect it.



- Loosen screws (1).

TECHNICAL INFORMATION

Conduct the following operation with the assistance of a second person.

- Pull the instrument panel trim back slightly.

  If necessary, unlock and disconnect additional plug connections.
- Remove the instrument panel trim from the vehicle.

33 – Removing inner right door sill cover strip

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the inner door sill cover strip**

RISK OF DAMAGE

Bending of plastic parts.

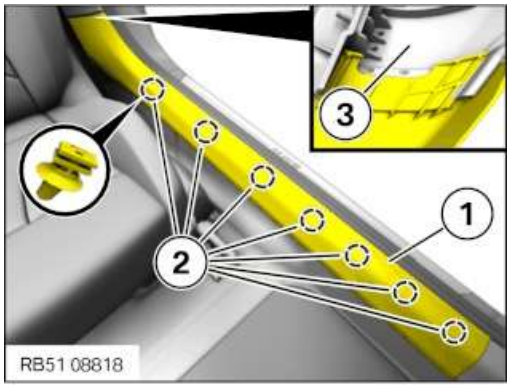
Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

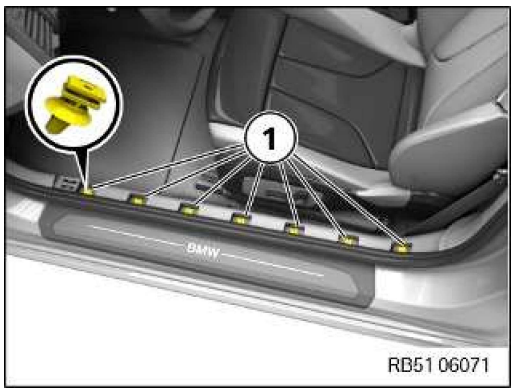
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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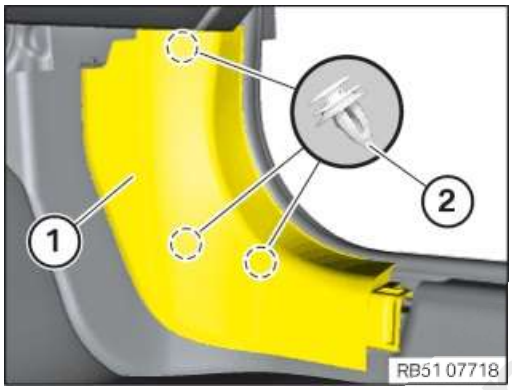


- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .



- If necessary, remove clips (1) and connect them to the door sill cover strip.

34 – Removing the side trim panel in the footwell at the right-hand A-pillar



- Loosen the side trim panel (1) at the clips (2) and remove it toward the inside.

35 – Removing knee airbag

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

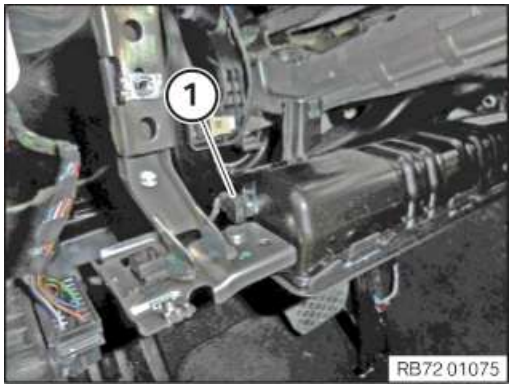
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WARNING

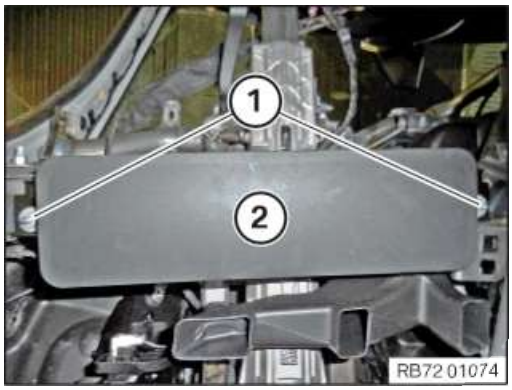
Pyrotechnic components.

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.

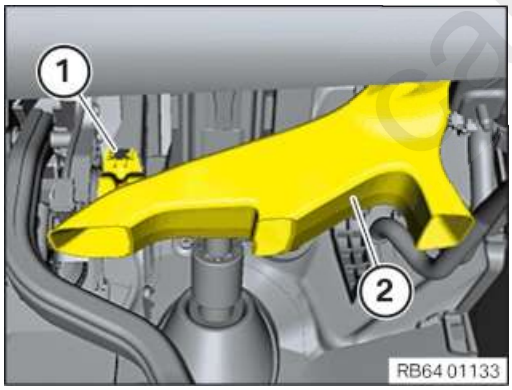


- Unlock plug connection (1) and disconnect.



- Loosen nuts (1).
- Remove knee airbag (2).

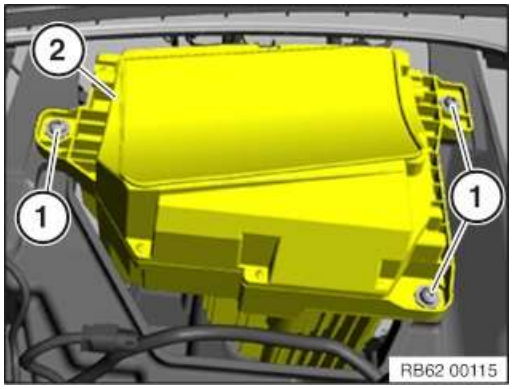
36 – Remove left air duct



- Unclip the air duct (2) from the air conditioning housing at an angle towards the bottom at the clamp (1).

37 – Removing the Head-Up Display

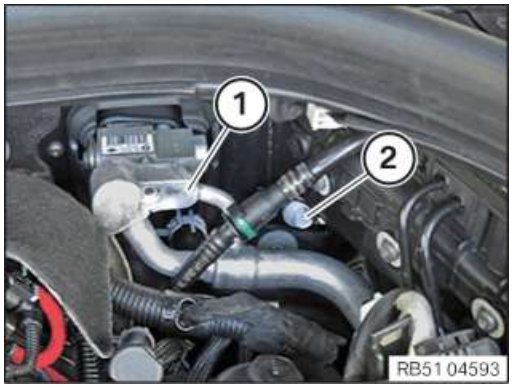
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- Loosen screws (1).
- Remove head-up display (2) from support.
- Unlock associated cable and disconnect.

MAIN WORK

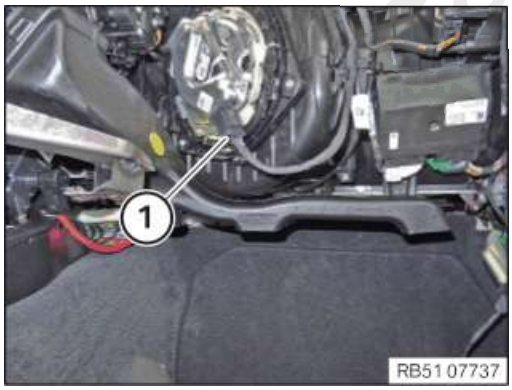
38 – Removing the support for the instrument panel



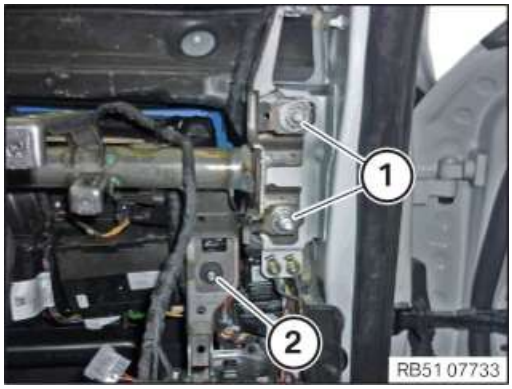
- Push the refrigerant line (1) slightly to one side and loosen the screw (2).



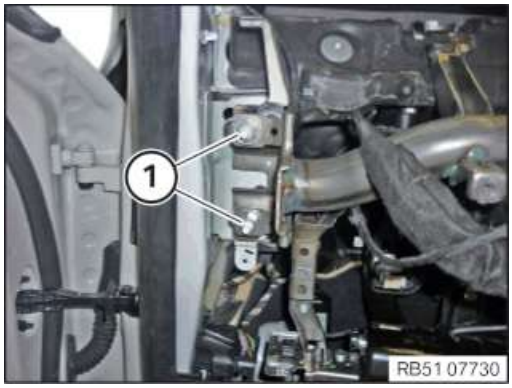
- Push the carpet in the area of the right B-pillar to the side.
- Unlock and disconnect plug connections (1).



- Unlock and disconnect the plug connection (1) on the blower motor.



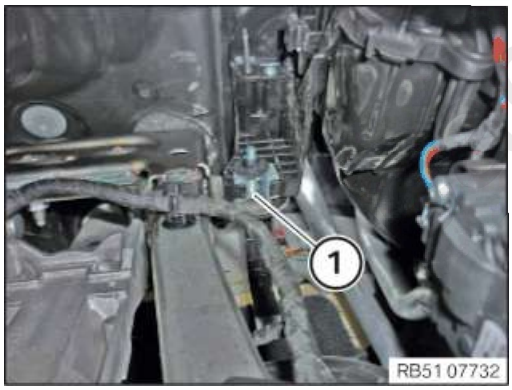
- Loosen nuts (1) and (2).



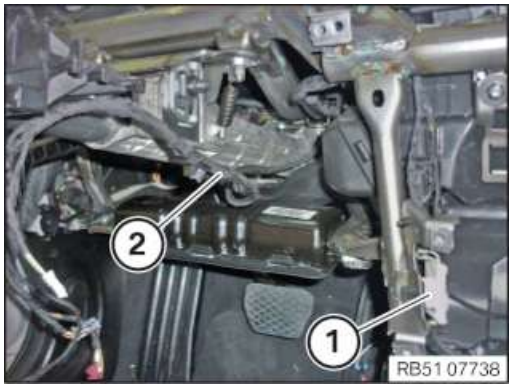
- Loosen nuts (1).



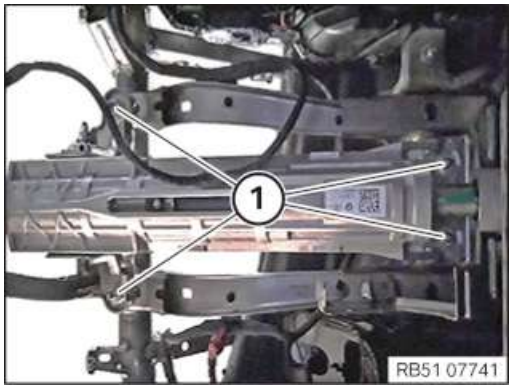
- Loosen screws (1).



- Slacken the nut (1) in the left footwell on the heating and air-conditioning unit.



- Release plug connection (1).
- Release the wiring harness (2) from the steering column.

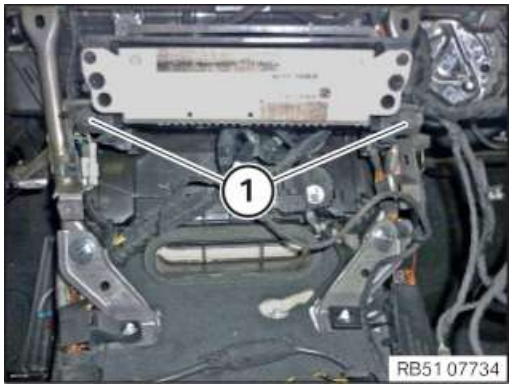


TECHNICAL INFORMATION

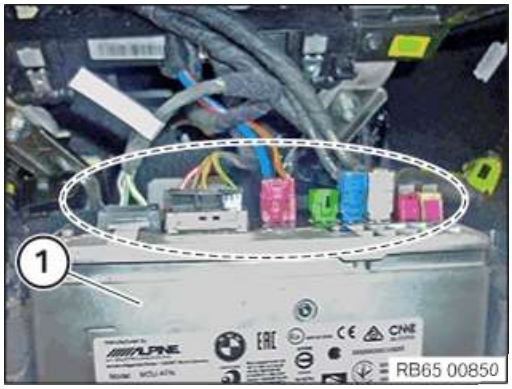
Secure component against falling.

- Release the nuts (1) at the steering column.
- Drop steering column (1) a little away and support it in the footwell.

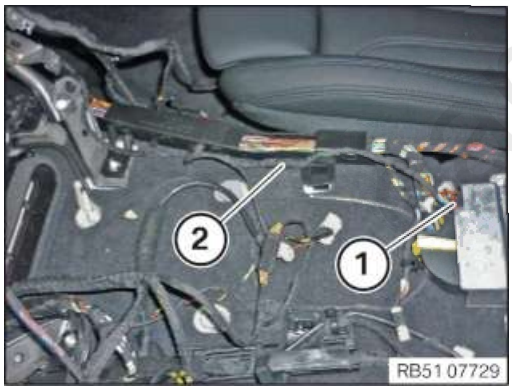
  Drop steering column not too far away and support it absolutely.



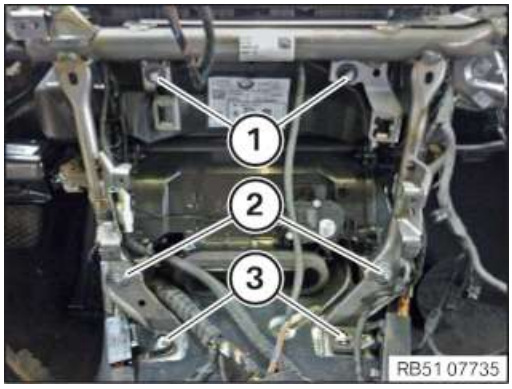
- Loosen screws (1).
- Feed out Head Unit High.



- Unlock and disconnect all connectors in the marked area.
- Remove headunit (1).



- Unlock and disconnect plug connection (1) from airbag control unit.
- Release the wiring harness (2) on the holders.



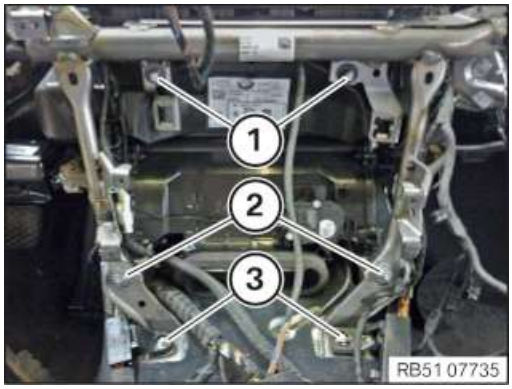
- Loosen nuts (1).
- Loosen nuts (2).
- Remove cable clip and release the nuts (3).

  Remove retaining bracket from left and right sides.
- Carefully feed out the support for the instrument panel to the rear.

  If necessary, unlock and disconnect additional plug connections.
- Carefully remove support for the instrument panel from the vehicle.

39 – Installing the support for instrument panel

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- Install the instrument panel support into the vehicle carefully.
- Insert the instrument panel support carefully.

  If necessary, connect and lock the additional connector.
- Tighten nuts (1).

Heating and air-conditioning unit on support

Nut M6		Tightening torque	4 Nm

- Mount retaining bracket on left and right.

  Tighten nuts (2).

Support for instrument panel

M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm

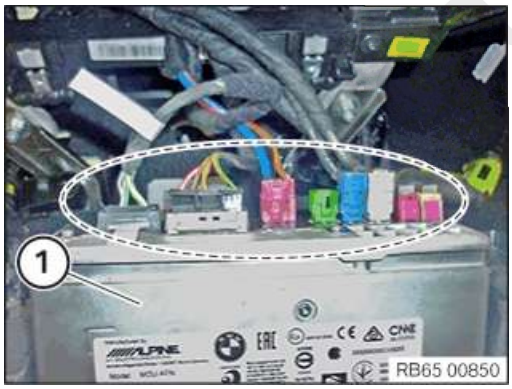
- Tighten nuts (3) and fit cable clip .

Support for instrument panel

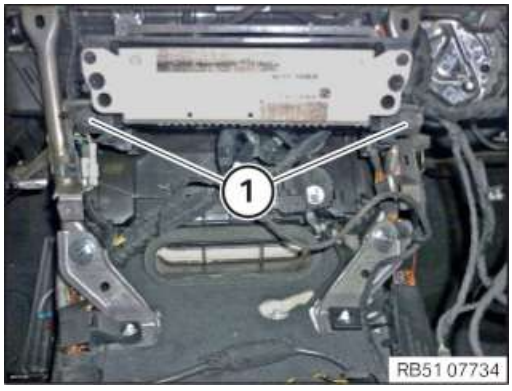
M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm



- Connect the connector (1) to the airbag control unit and lock it.
- Secure the wiring harness (2) on the holders.



- Position head unit (1).
- Connect and lock all connectors in the marked area.

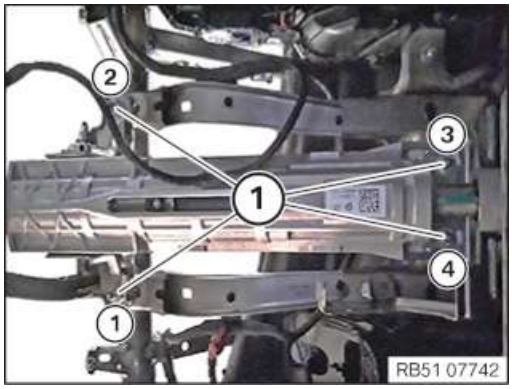


- Feed in the head unit.
- Tighten the screws (1).

Head unit to holder / holder to support

Screw		Tightening torque	1,8 Nm

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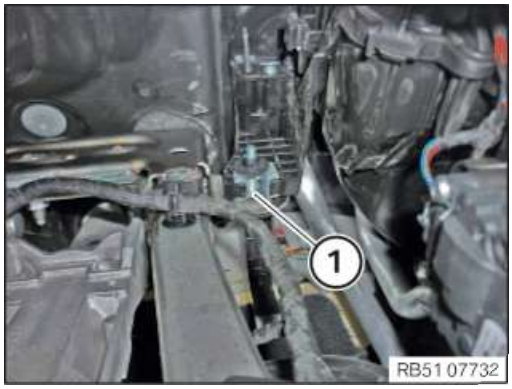
- Correctly position the steering column (2) and tighten the nuts (1) in the sequence (1), (2), (3) and (4).

Steering column to dashboard support

M8	Observe tightening sequence.	Tightening torque	21,4 Nm



- Connect connectors (1) and lock.
- Secure the vehicle wiring harness (2) to the steering column.



- Tighten nut (1) in the left foot well on the heating and air-conditioning unit.

Heating and air-conditioning unit on support

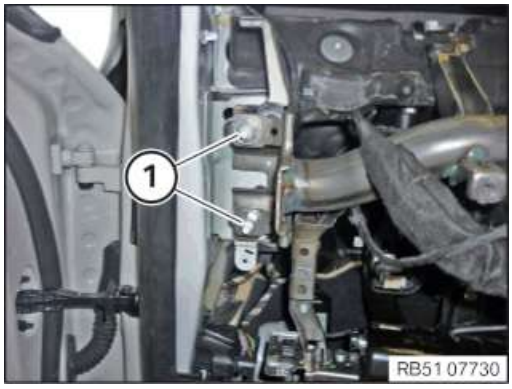
Nut M6		Tightening torque	4 Nm



- Tighten the screws (1).

Support for instrument panel

M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm

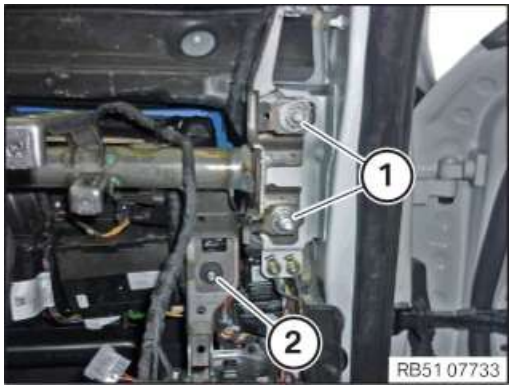


- Tighten nuts (1).

Support for instrument panel

M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm

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- Tighten nuts (1).

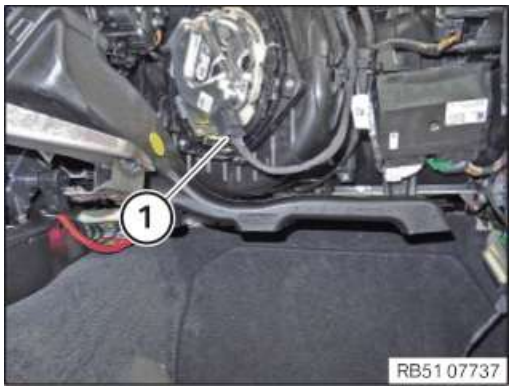
Support for instrument panel

M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm

- Tighten nut (2).

Heating and air-conditioning unit on support

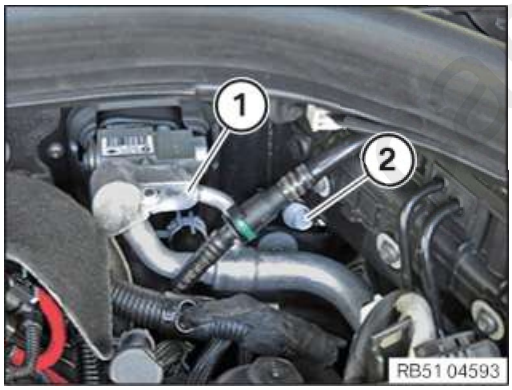
Nut M6		Tightening torque	4 Nm



- Connect the connector (1) to the blower motor and lock.



- Connect connectors (1) and lock.
- Correctly position the carpet in the area of B-pillar at the right.



- Push the refrigerant line (1) slightly to one side and tighten the screw (2).

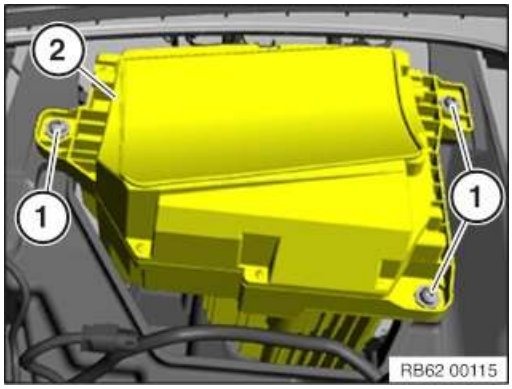
Support for instrument panel

M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm

POSTPROCESSES

40 – Installing the head-up display

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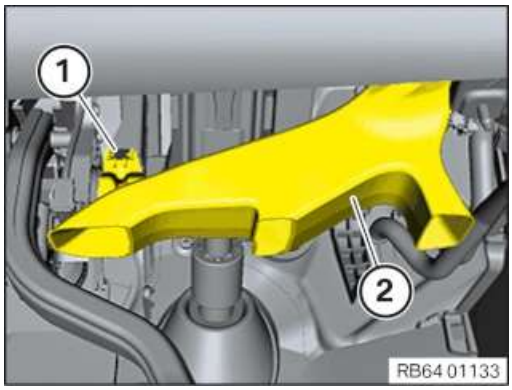


- Connect the associated connector to the Head-Up Display.
- Guide the Head-Up Display (2) into the support.
- Tighten the screws (1).

Head-Up Display to support

M6x25 screw		Tightening torque	13 Nm

41 – Installing the air duct, left



- Clip in the air duct (2) at the clamp (1) in the air conditioning housing at an angle towards the top.

42 – Installing knee airbag

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

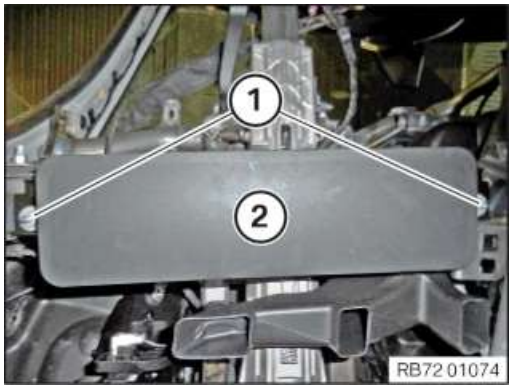
WARNING

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.

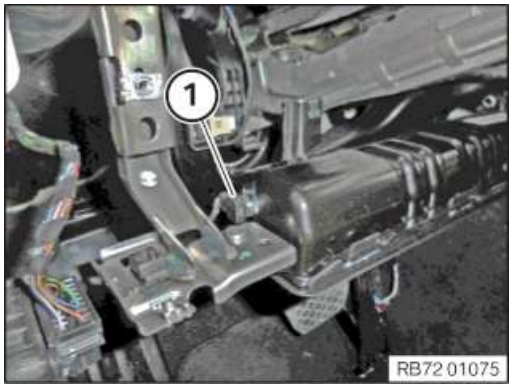
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- Position knee airbag (2) correctly.
- Tighten nuts (1).

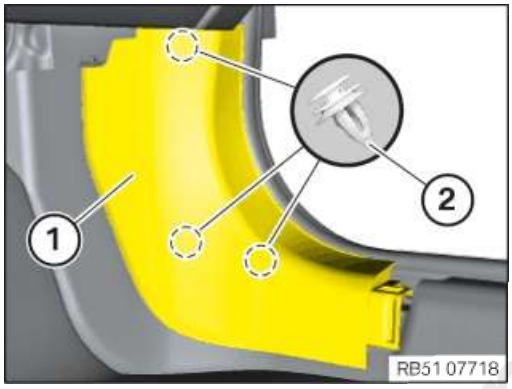
Knee airbag on support structure

Nut		Tlghtening torque	8 Nm



- Connect connectors (1) and lock.

43 – Installing side trim panel in footwell on right A-pillar



- Check the clips (2) for damage.

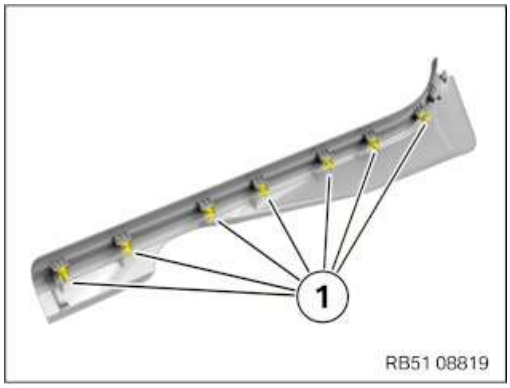
  Renew damaged or missing clips (2).
- Correctly position the side trim panel (1) and clip in to the clips (2).
- Make sure that the side trim panel (1) is correctly fitted against edge protection.

44 – Installing inner right door sill cover strip

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the inner door sill cover strip**

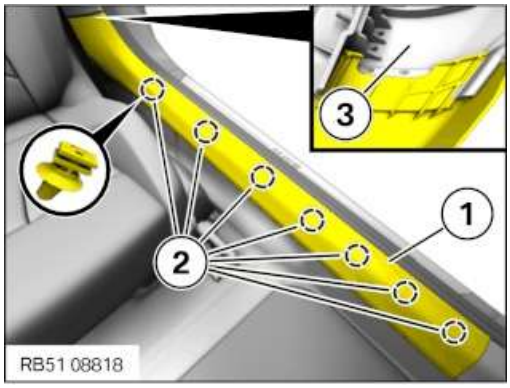


NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.

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- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

45 – Install the trim panel for the instrument panel



TECHNICAL INFORMATION

Conduct the following operation with the assistance of a second person.

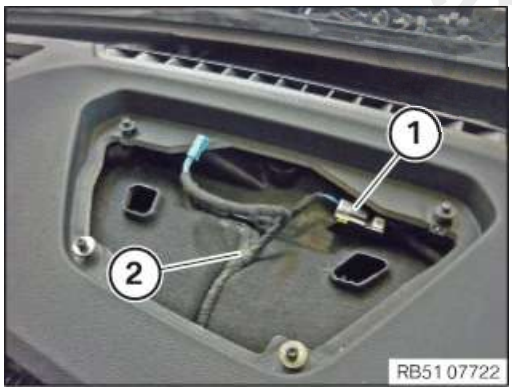
- Insert the instrument panel trim in the vehicle and position it at the support.
- Insert the associated wiring harnesses and connect the connectors.
- Tighten the screws (1).

Dashboard to support

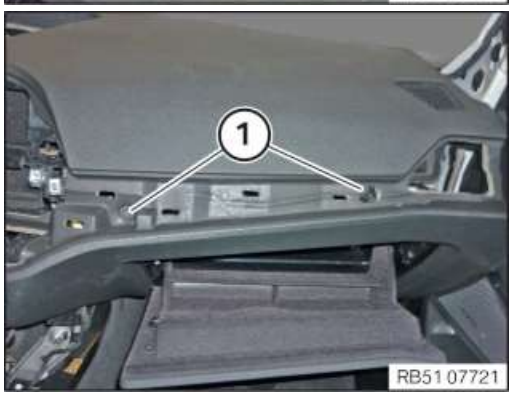
Screw		Tightening torque	2,4 Nm



- Connect connector (1) to the light operating unit and lock.



- Secure the wiring harness (2) on the holders.
- Connect connectors (1) and lock.

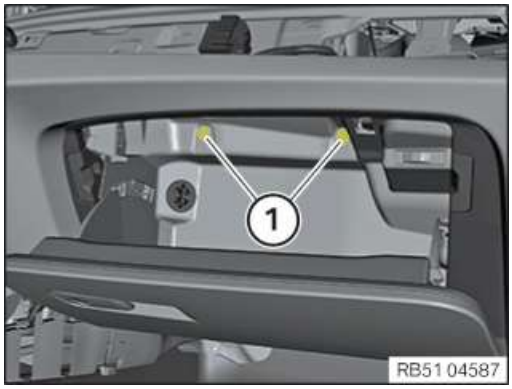


- Tighten the screws (1).

Dashboard to support

Screw		Tightening torque	2,4 Nm

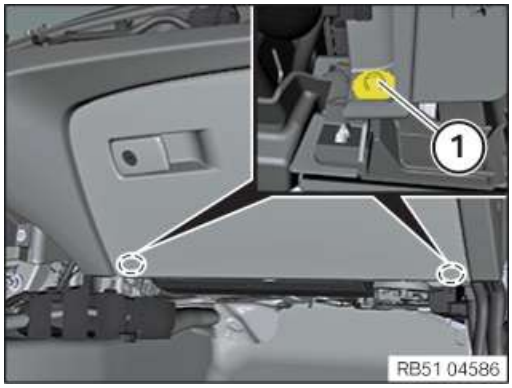
rdiagn.com



- Open glovebox.
- Tighten the screws (1).

Dashboard to support

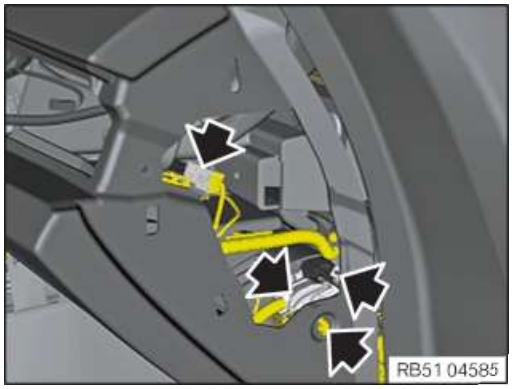
Screw		Tightening torque	2,4 Nm



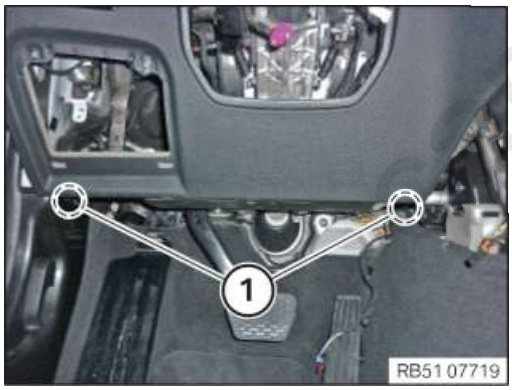
- Tighten the screws (1) on the lower side of the glove box button.

Dashboard to support

Screw		Tightening torque	2,4 Nm



- Connect all plug connections and cable clips (arrows) behind the glove box.



- Tighten the screws (1).

Dashboard to support

Screw		Tightening torque	2,4 Nm

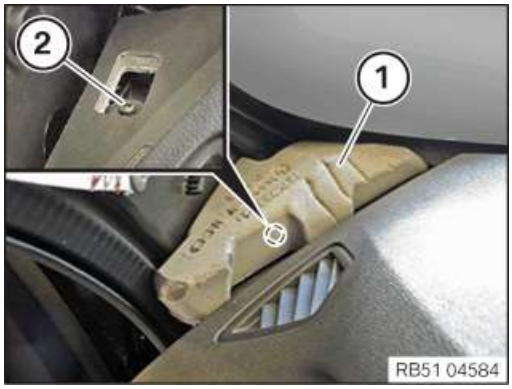


- Tighten the screws (1).

Dashboard to support

Screw		Tightening torque	2,4 Nm

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NOTICE

Perform the operations on the left and right side.

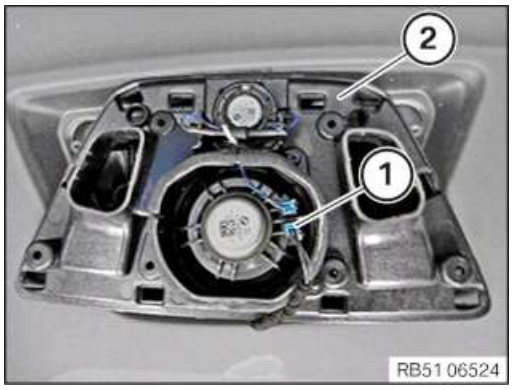
- Tighten down screw (2).

Dashboard to support

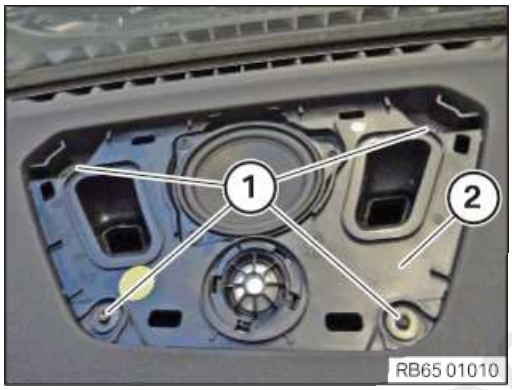
Screw		Tightening torque	2,4 Nm

- Use sound insulation (1).

46 – Install the speaker holder at the instrument panel



- Position the speaker holder (2).
- Connect connector (1).

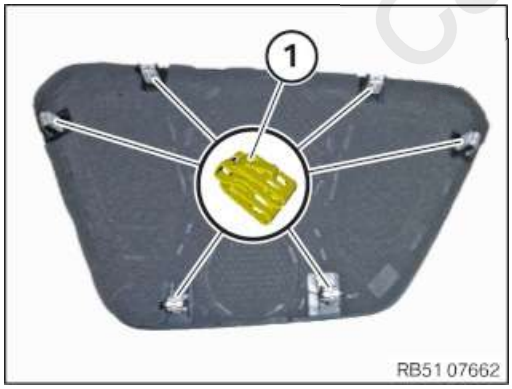


- Install the speaker holder (2).
- Tighten the screws (1).

Speaker to support / support to instrument panel / support to body

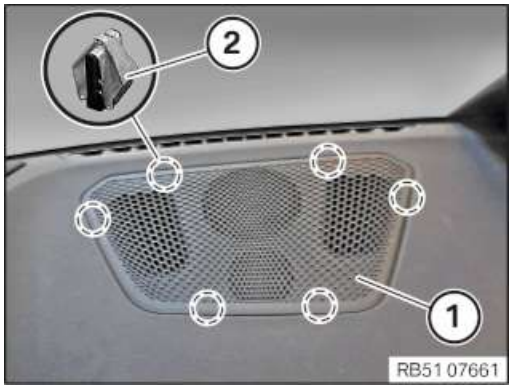
Screw	Tightening torque	1,8 Nm

47 – Install the speaker trim at the instrument panel



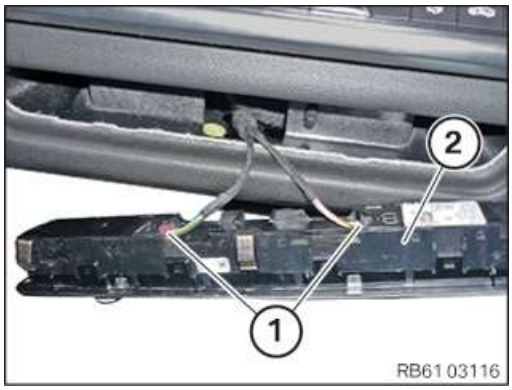
- Check clamps (1) for damage.
- Replace broken or missing clamps (1).

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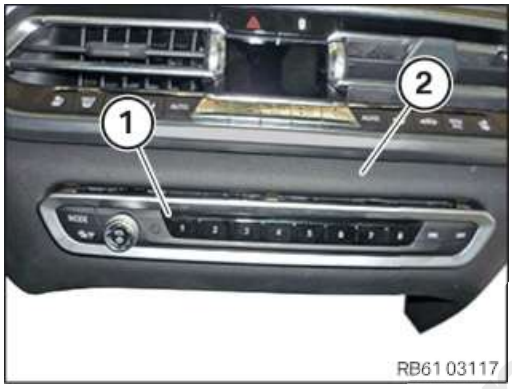


- Position the speaker trim (1) correctly and engage it at the clamps (2).

48 – Install the audio operating unit

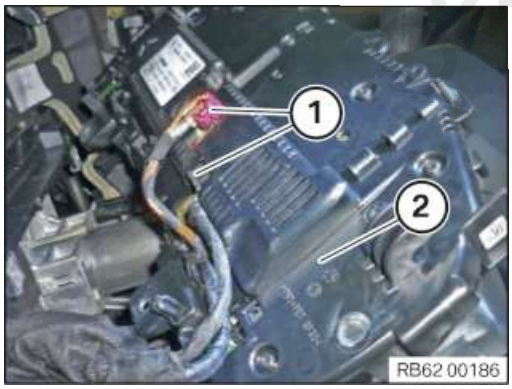


- Connect the connector (1) to the audio operating unit (2).

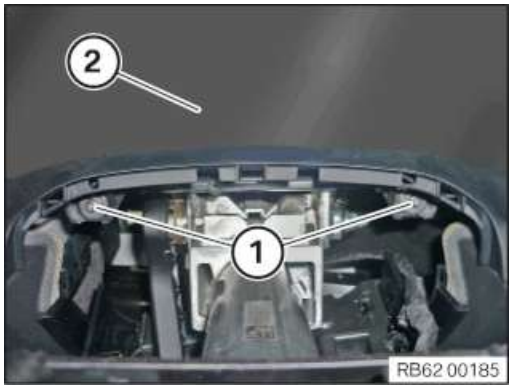


- Correctly position the audio operating unit (1) and install in the instrument panel(2).

49 – Installing the instrument cluster (KOMBI)



- Connect and lock connector (1) to the instrument cluster (KOMBI) (2).



- Feed in and position the instrument cluster (KOMBI) (2).
- Tighten the screws (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm

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- Tighten down screw (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm

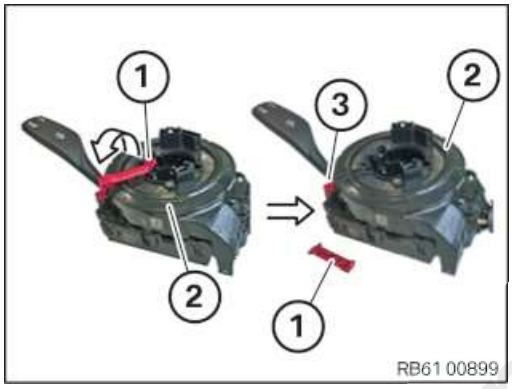


- Tighten down screw (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm

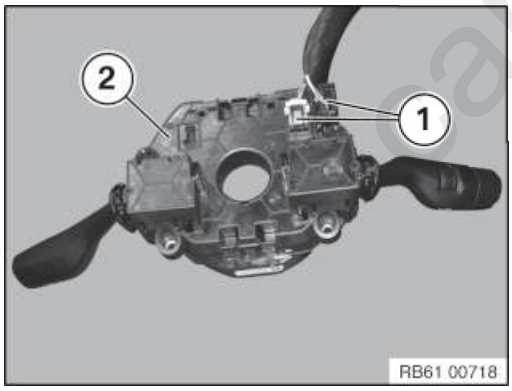
50 – Installing the steering column switch cluster (SZL)



- **Replacement:**

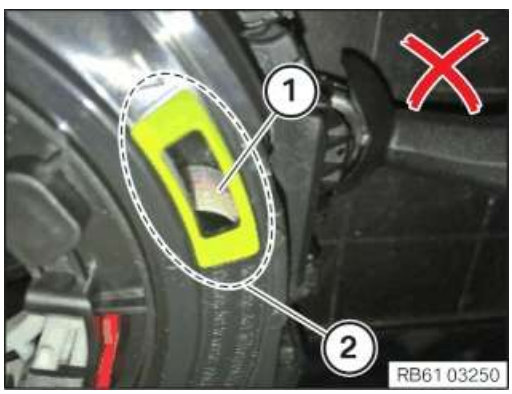
  Break off the transportation retainer (1) on the steering column switch cluster (SZL) (2) in direction of arrow.

  The broken off piece (3) of 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



- **Version A:**

  Check whether the correct marking (1) is seen in inspection glass (2).

Result

» Ensure that no incorrect marking (1) is seen in inspection glass (2).

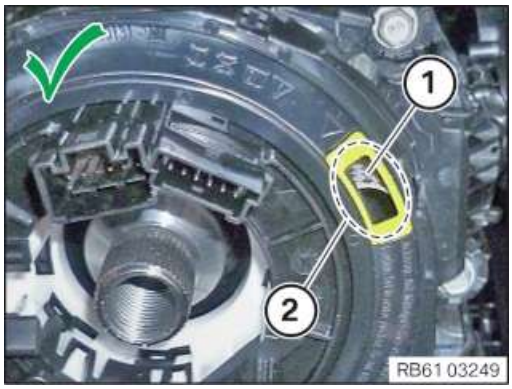
Measure

- Turn the coil spring cassette until the right mark (1) becomes visible in the inspection glass (2).

Check

- **Version A:**

  Check whether the correct marking (1) is seen in inspection glass (2).



Result

» Correct marking (1) is seen in inspection glass (2).

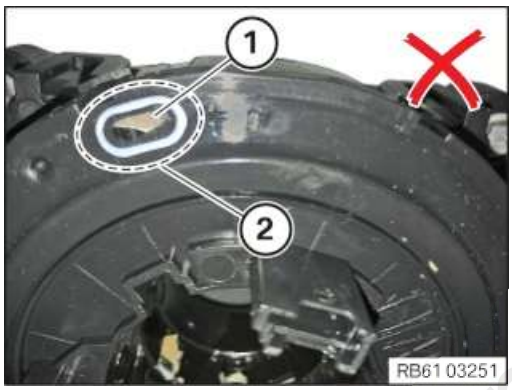
Measure

- Continue with the next step.

Check

- **Version B:**

  Check whether the correct marking (1) is seen in inspection glass (2).



Result

» Ensure that no incorrect marking (1) is seen in inspection glass (2).

Measure

- Turn the coil spring cassette until the right mark (1) becomes visible in the inspection glass (2).

Check

- **Version B:**

  Check if the correct mark (1) can be seen in the inspection glass (2).



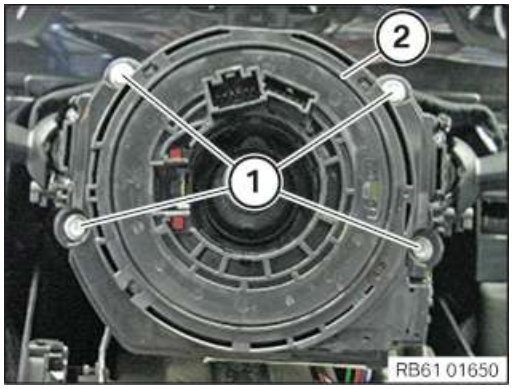
Result

» Correct marking (1) is seen in inspection glass (2).

Measure

- Continue with the next work step.

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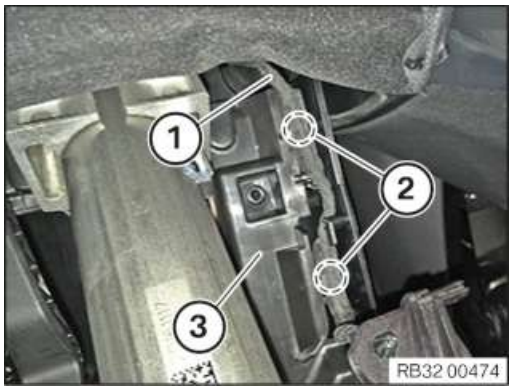


- Position the steering column switch cluster (SZL) (2).
- Tighten the screws (1).

Steering column switch cluster (SZL) on the steering column

Screw TS5x20		Tightening torque	3 Nm

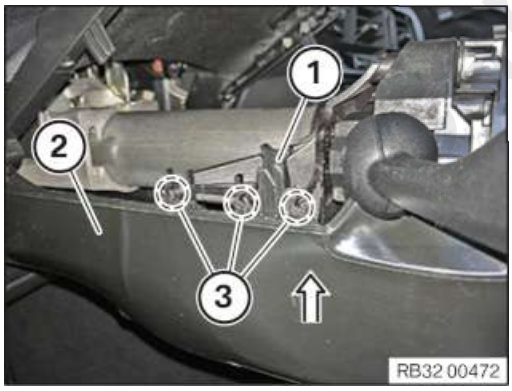
51 – Install steering column shroud lower section



- Position the steering column shroud lower section (3).
- Secure the line (1) on the brackets (2).



- Connect the connector (1).

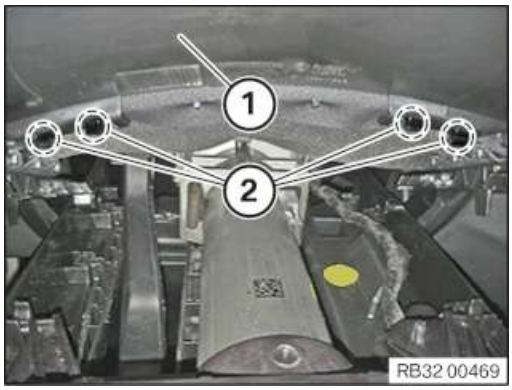


NOTICE

Perform the operations on the left and right side.

- Align the steering column shroud lower section (2) to the steering column using the retaining lug (1).
- Push the steering column shroud lower section (2) up in the direction of the arrow until the brackets (3) engage.

52 – Fit steering column shroud upper section



- Clip in the steering column shroud upper section (1) at the brackets (2).

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NOTICE

Perform the operations on the left and right side.

- Clip in the steering column shroud upper section (1)into the guide (2).



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.

53 – Installing the sports steering wheel

▸ **Check the neutral position of the clock spring**

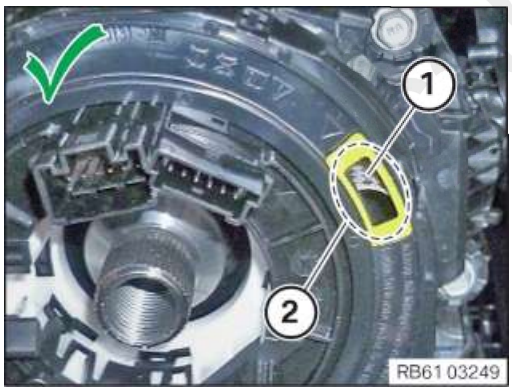
TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▹ **Version A: Checking the visibility of the marking on the coil spring**

Check

- Check the visibility of the marking (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).

◃

▹ **Version B: Checking the visibility of the marking on the coil spring**

Check



- Check the visibility of the marking (1) on the coil spring in the inspection glass (2) .

Result

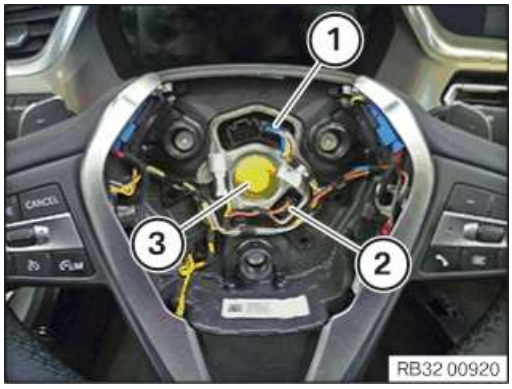
» The mark (1) on the coil spring is not visible.

Measure

- Turn the coil spring cassette until the mark (1) on the coil spring becomes visible in the inspection glass (2).

◁

Check



- Check if a microencapsulated screw (3) is installed.

Result

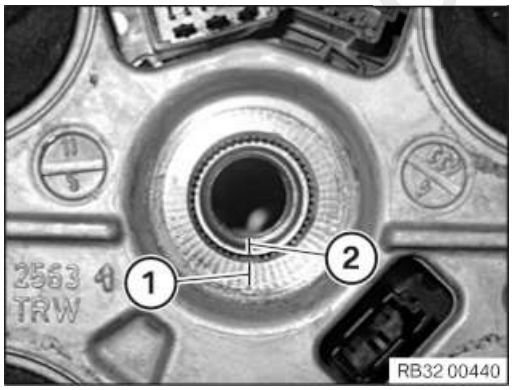
» Screw (3) is micro-encapsulated.

Measure

- Clean thread in the steering column.

  Renew the screw (3).

  Parts: Screw



- Align mark (1) on steering wheel to mark (2) on steering column.
- Connect steering wheel.

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- Connect connectors (1) and lock.
- If installed: Connect connectors (2) and lock.
- Tighten screw (3) .

Steering wheel to steering column

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

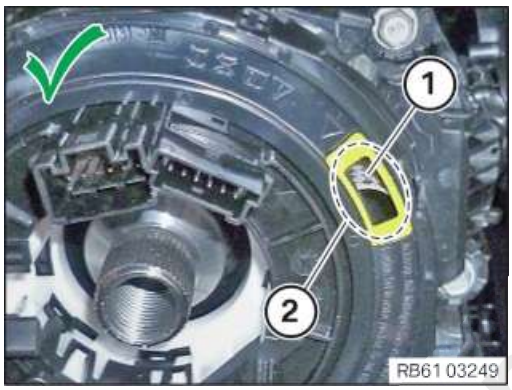
54 – Installing the steering wheel/M Sport steering wheel

▸ **Check the neutral position of the clock spring**

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▹ **Version A: Checking the visibility of the marking on the coil spring**



Check

- Check the visibility of the marking (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).

◃

▹ **Version B: Checking the visibility of the marking on the coil spring**



Check

- Check the visibility of the marking (1) on the coil spring in the inspection glass (2) .

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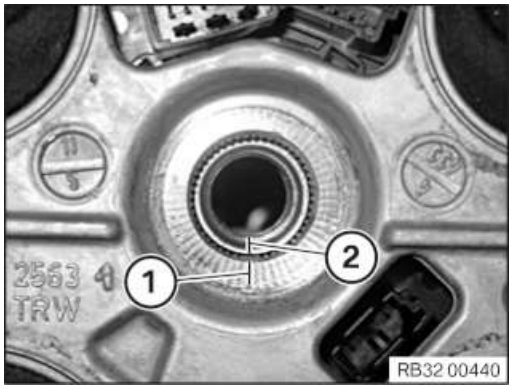
Result

» 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).

◁



- Align mark (1) on steering wheel to mark (2) on steering column.
- Position the steering wheel.

Check



- A micro-encapsulated screw (1) may be fitted.

  Check the screw connection.

Result

» Screw (1) is micro-encapsulated.

Measure

- Clean thread in the steering column.

  Renew the screw (1).

  Parts: Screw



- Tighten down screw (1).

Steering wheel to steering column

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

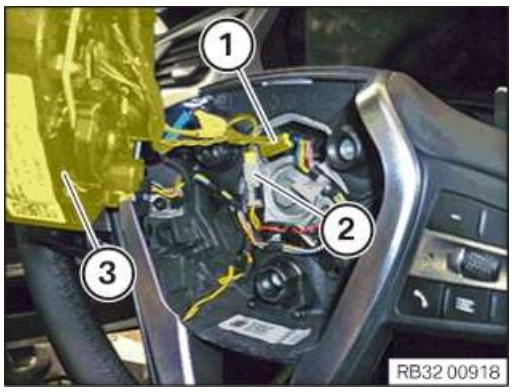
55 – Installing the airbag unit

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

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▸ **Installing the airbag unit for the sports steering wheel**



- Position airbag unit (3).
- Connect connectors (1) and (2) lock.



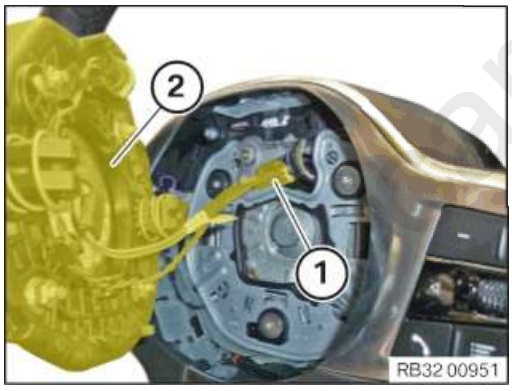
- Press the airbag unit (1) with even pressure in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

▸ **Installing the airbag unit for M Sport steering wheel**

TECHNICAL INFORMATION

After replacing the airbag unit (M sport steering wheel) or after a possible conversion of standard steering wheel and airbag unit to M-sports steering wheel, a software update or a programming/encoding via ISTA must be performed!



- Connect and lock the connector (1) of the airbag unit (2).



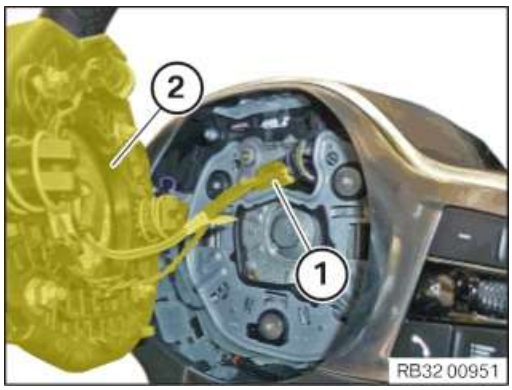
- Press the airbag unit further (1) with even pressure in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

56 – Installing the airbag unit (M Sport steering wheel)

TECHNICAL INFORMATION

After replacing the airbag unit (M sport steering wheel) or after a possible conversion of standard steering wheel and airbag unit to M-sports steering wheel, a software update or a programming/encoding via ISTA must be performed!



- Connect and lock the connector (1) of the airbag unit (2).



- Press the airbag unit further (1) with even pressure in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

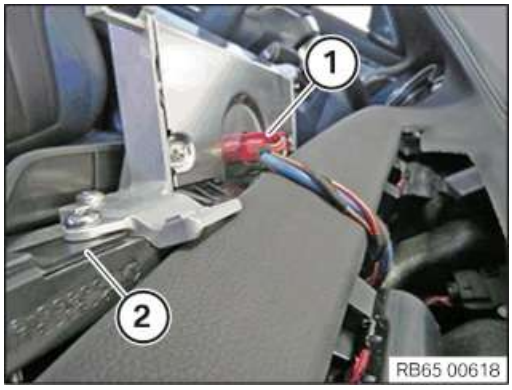
57 – Install the central information display (CID)

RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)



- Position Central Information Display (CID) (2).
- Connect plug connection (1) and lock.

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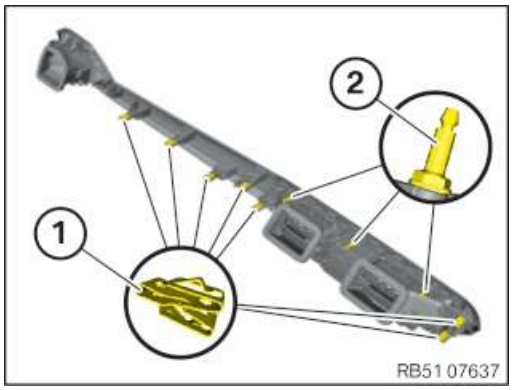


- Insert the central information display (CID) (2) in the instrument panel and position correctly.
- Tighten the screws (1).

Central information display to instrument panel

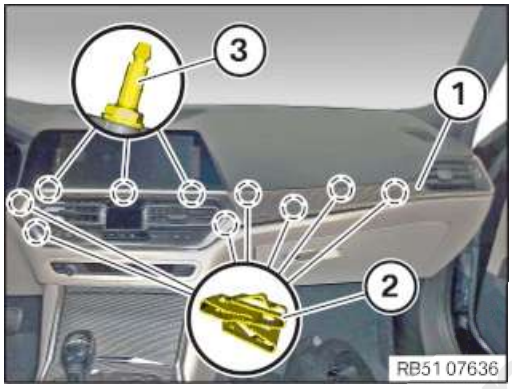
Screw		Tightening torque	2,4 Nm

58 – Install the finisher on the right instrument panel



- Checks clamps (1) for damage.

  Defective or missing clamps (1) need to be renewed.
- Check the pins (2) and the accompanying clamps at the instrument panel trim for damage, renew if necessary.



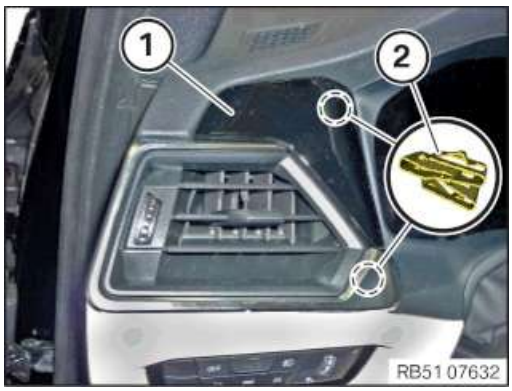
- Install the decorative strip (1).
- Connect and lock corresponding connectors.
- Correctly position the decorative strip (1) and at the clamps (2) and clip in the pins (3).

59 – Install the finisher on the instrument panel on the left



- Check the clamps (1) for damage and that they are present.

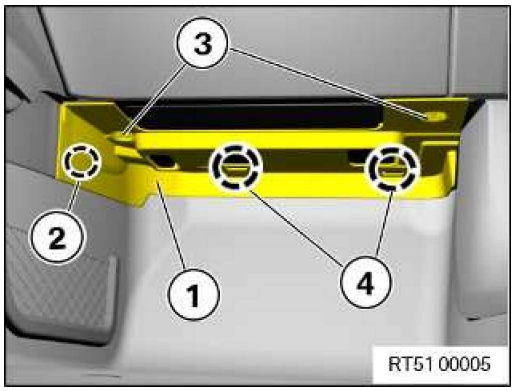
  Damaged or missing clamps (1) must be renewed.



- Install the decorative strip (1).
- Connect and lock the associated connectors.
- Clip decorative strip (1) into clamps (2).

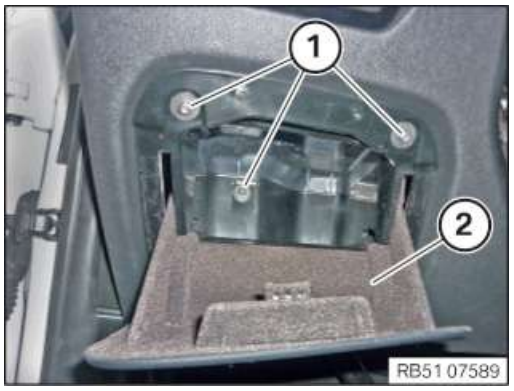
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60 – Install the right footwell trim panel



- Connect associated connector.
- Attach the footwell trim (1) to the guides (4) and fold up.
- Guide the footwell trim (1) into the guide (2) of the centre console.
- Position the locks (3) correctly and turn by 90°.

61 – Installing the left fold-down compartment

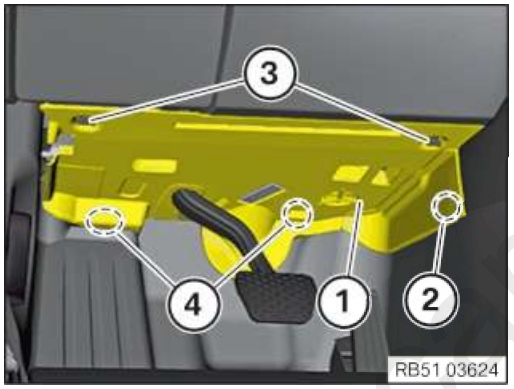


- Install the fold-down compartment (2).
- Tighten the screws (1).

Fold-down compartment to instrument panel

Oval-head screw		Tightening torque	1,8 Nm

62 – Installing the trim panel for the pedal mechanism



- Connect associated connector.
- Attach the trim panel for the pedal mechanism (1) in the guides (4) and fold it up.
- Clip the trim panel for the pedal mechanism (1) into the centre console in this area (2).

TECHNICAL INFORMATION

It is **imperative** that the screws caps of the trim panel be correctly locked. This is the only way to ensure that the trim panel does not come loose and potentially tilt into the pedal area.

- Insert screw caps (3) correctly and turn by 90° to lock.

63 – Install the A-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the A-pillar trim panel**

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

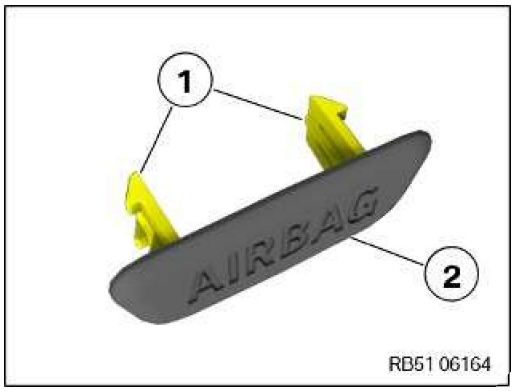
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



Check

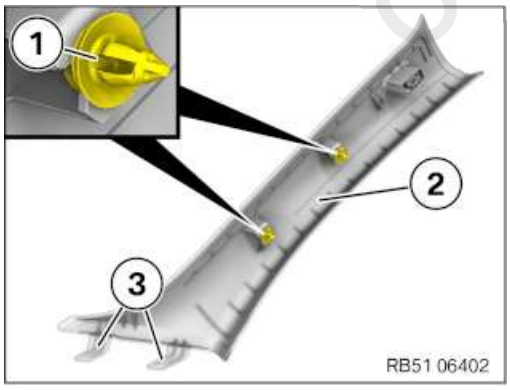
- Check retaining lugs (1) of cover (2) for damage.

Result

» Retaining lug is damaged.

Measure

- Renew the cover.



Check

- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

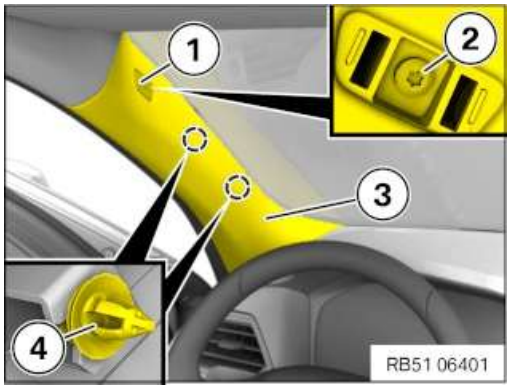
Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.

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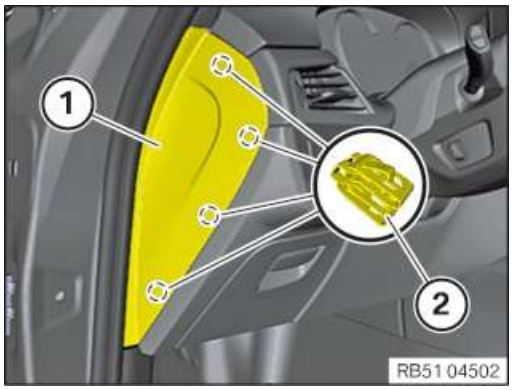
- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

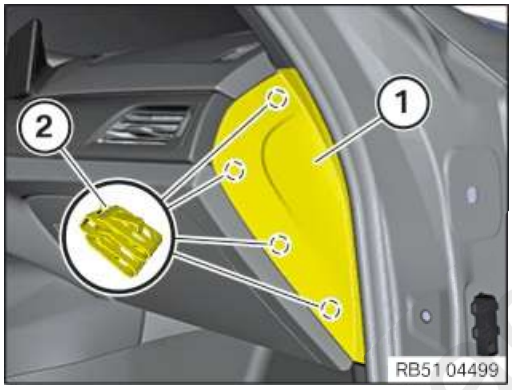
- Clip in the cover (1).

64 – Install the side panel on left instrument panel



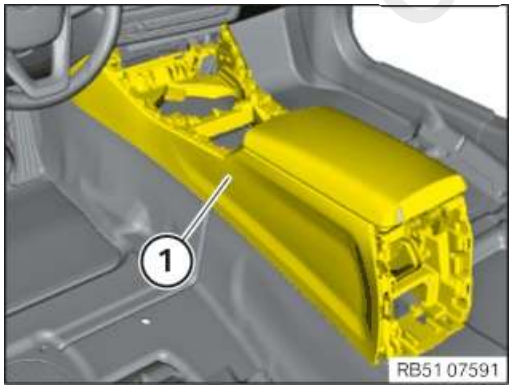
- Feed in the side panel (1) and clip it in at the clamps (2).

65 – Install the side panel on instrument panel on the right



- If required, connect the associated connector.
- Feed in the side panel (1) and clip it in at the clamps (2).

66 – Installing the centre console

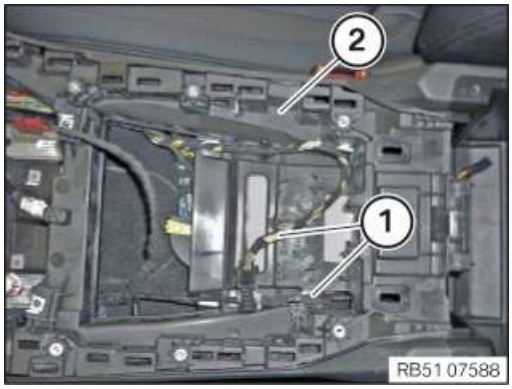


NOTICE

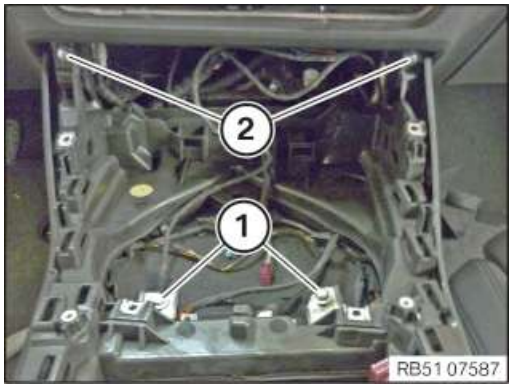
To provide a better overview: Schematic diagram with partially hidden components.

- Install centre console (1) and thereby feed in the wiring harness.
- Feed in the centre console (1) to the instrument panel and position correctly.

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- Secure the wiring harness to the centre console (1) and connect and lock the existing plug connections.



- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

- Tighten the screws (2).

Centre console to instrument panel

Oval-head screw		Tightening torque	1,8 Nm

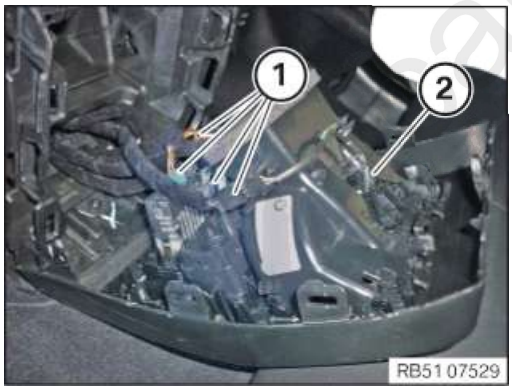


- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

67 – Installing the rear centre console trim



- Install the centre console trim (2).
- Connect connectors (1) and lock.

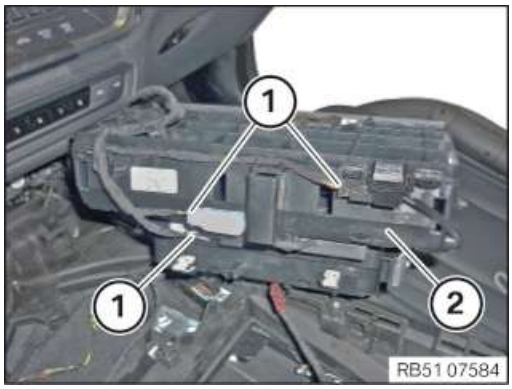


- Position centre console trim (1) and engage at the latch mechanisms at the side.

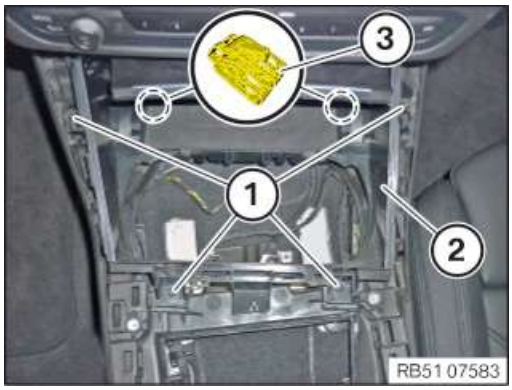
68 – Installing the storage compartment in the centre console in the front

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68 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).

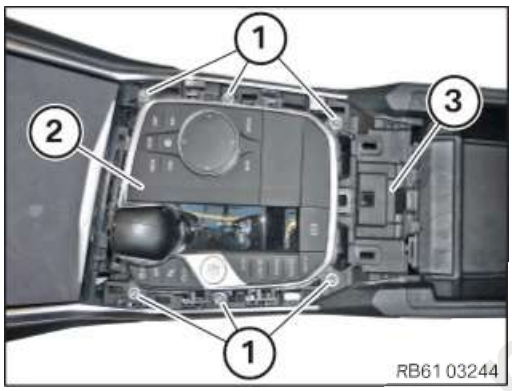


- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

69 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw	Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**



- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

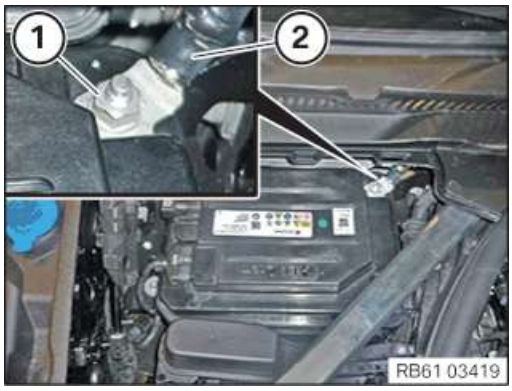
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

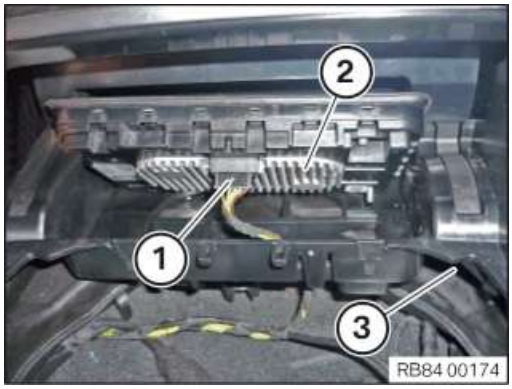


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).

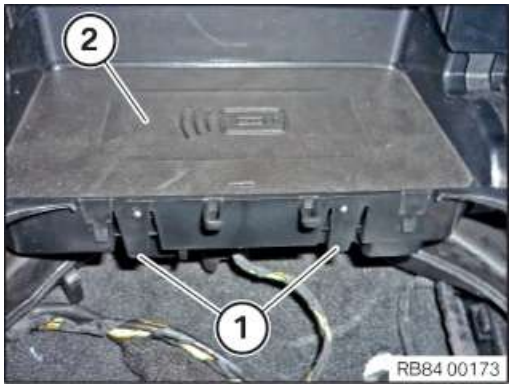


- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.

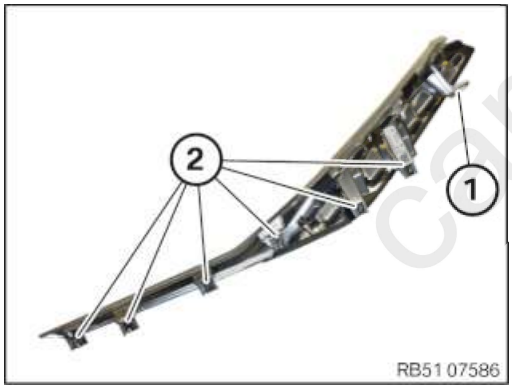
  The latch mechanisms (1) must engage correctly.

71 – Installing the decorative trim on the centre console on the left and right

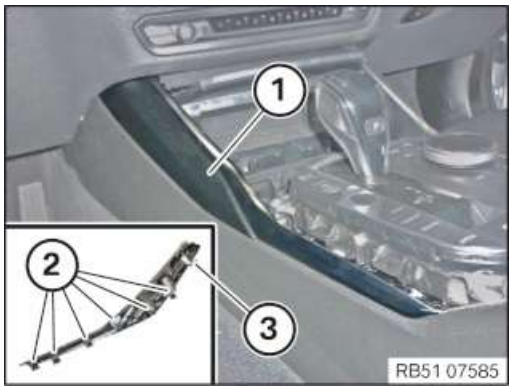
▸ **Installing the decorative trim on the centre console**

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

72 – Installing the centre console trim

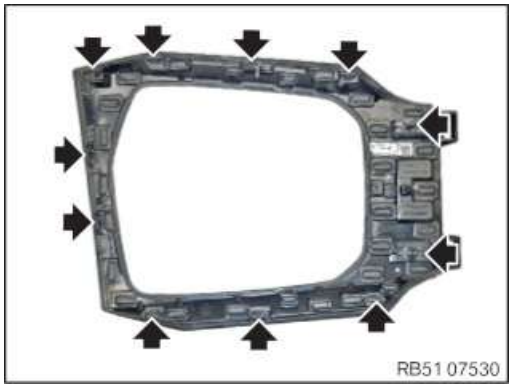
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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

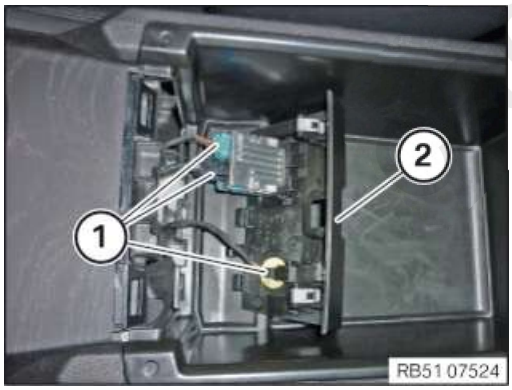


- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

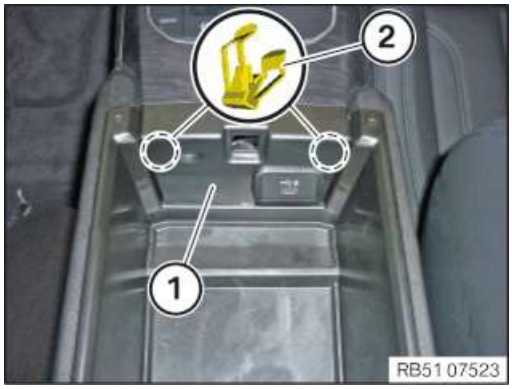


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

73 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

74 – Install the cup holder

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- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

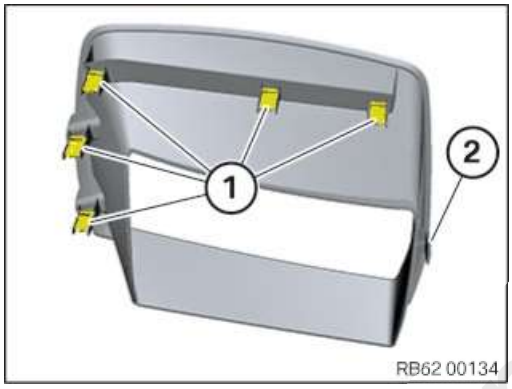
Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm

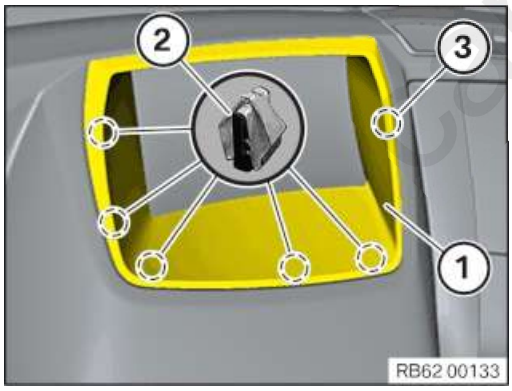


- Insert the insert (1).

75 – Installing the trim for the Head-Up Display



- Check clamps (1) and the latch mechanism (2) for damage, renew if necessary.



- Correctly position the trim (1) for the BMW Head-Up Display and engage it on the clamps (2) and the retaining lug (3).

Additional Information

Overview of Tightening Torques

Heating and air-conditioning unit on support Used in step 39

Nut M6		Tightening torque	4 Nm

Support for instrument panel Used in step 39

M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm

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Head unit to holder / holder to support			Used in step 39
Screw		Tightening torque	1,8 Nm

Steering column to dashboard support			Used in step 39
M8	Observe tightening sequence.	Tightening torque	21,4 Nm

Head-Up Display to support			Used in step 40
M6x25 screw		Tightening torque	13 Nm

Knee airbag on support structure			Used in step 42
Nut		Tlghtening torque	8 Nm

Dashboard to support			Used in step 45
Screw		Tightening torque	2,4 Nm

Speaker to support / support to instrument panel / support to body			Used in step 46
Screw		Tightening torque	1,8 Nm

Instrument cluster (KOMBI) to support			Used in step 49
Screw		Tightening torque	1,8 Nm

Steering column switch cluster (SZL) on the steering column			Used in step 50
Screw TS5x20		Tightening torque	3 Nm

Steering wheel to steering column			Used in step 5354
M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

Central information display to instrument panel			Used in step 57
Screw		Tightening torque	2,4 Nm

Fold-down compartment to instrument panel			Used in step 61
Oval-head screw		Tightening torque	1,8 Nm

A-pillar trim panel to body			Used in step 63
Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

Centre console on tunnel			Used in step 66
M6x18 Hexagon screw		Tightening torque	4,6 Nm

Centre console to instrument panel			Used in step 66
Oval-head screw		Tightening torque	1,8 Nm

Storage compartment in centre console			Used in step 68
Oval-head screw		Tightening torque	1,8 Nm

Gear selector switch to centre console trim			Used in step 69
Screw		Tightening torque	1,8 Nm

Negative battery cable to 48-V battery			Used in step 69
Nut M8		Tightening torque	19 Nm

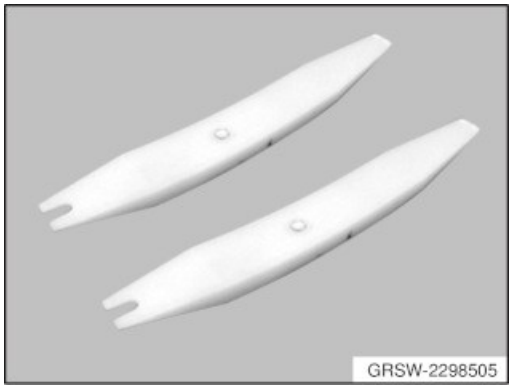
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Cup holder to centre console Used in step 74

Oval-head screw		Tightening torque	1,8 Nm

Overview of Special Tools

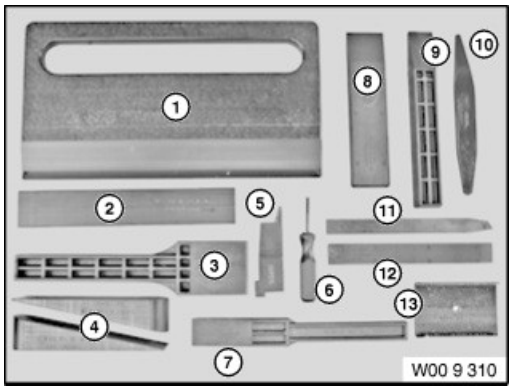
2 298 505 Wedge



Common Used in step 45

Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

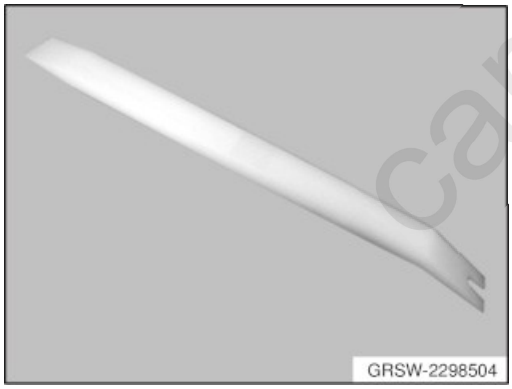
0 493 752 (00 9 329) Case



Common Used in step 1433

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

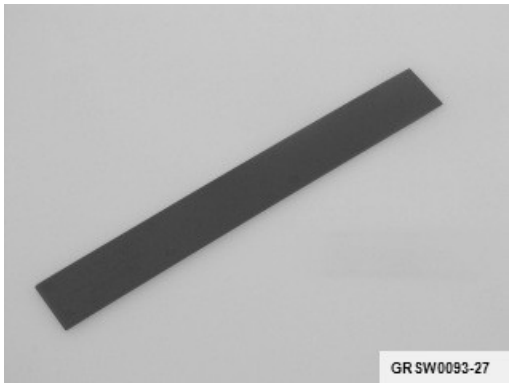
2 298 504 Wedge



Common Used in step 25

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)

0 496 571 (00 9 327) Wedge



Common Used in step 29

Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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0 496 569 (00 9 325) Wedge



Common	Used in step 30
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 (PRE)	Used in step
Notes on 48-V battery	869

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	14213542
72 00 ... Safety regulations for handling components with gas generators	14

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	869
61 20 900 Disconnecting and connecting battery earth lead	869
61 20 900 Disconnecting and connecting battery earth lead	869
61 20 900 Disconnecting and connecting battery earth lead	869
61 20 900 Disconnecting and connecting battery earth lead	869
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	869
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	869
61 20 900 Disconnecting and connecting battery earth lead	869
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	869

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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	869
61 20 900 Disconnecting and connecting battery earth lead	869
61 20 900 Disconnecting and connecting battery earth lead	869
61 20 900 Disconnecting and connecting battery earth lead	869
61 20 900 Disconnecting and connecting battery earth lead	869
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61 20 900 Disconnecting and connecting battery earth lead	869
61 20 900 Disconnecting and connecting battery earth lead	869
61 20 900 Disconnecting and connecting battery earth lead	869
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	869
61 20 900 Disconnecting and connecting battery earth lead	869
61 20 900 Disconnecting and connecting battery earth lead	869
61 20 900 Disconnecting and connecting battery earth lead	869
61 35 ... Notes on ESD protection (Electro Static Discharge)	2057
61 35 ... Notes on ESD protection (Electro Static Discharge)	2057

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51 45 382 Replace decorative strip on instrument panel at right

RISK OF DAMAGE

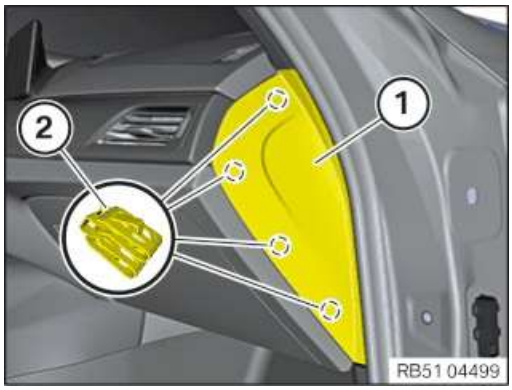
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

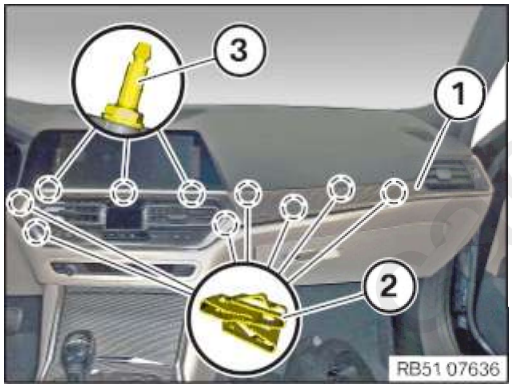
PRELIMINARY WORK

1 – Remove the side panel on the right instrument panel



- Unclip and remove the side panel (1) towards the outside from the clamps (2).
- If necessary, unlock associated plug connection and disconnect.

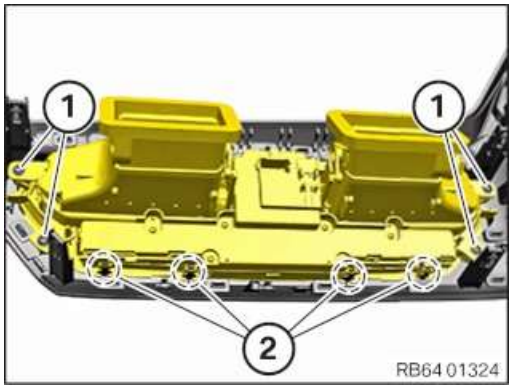
2 – Remove the finisher on the right instrument panel



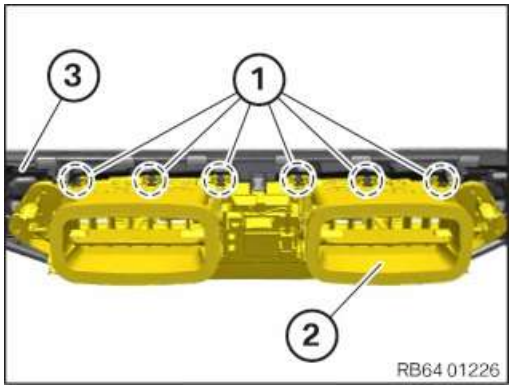
- Unclip the decorative strip (1) towards rear at the clamps (2) and the pins (3).
- Unlock associated plug connection and disconnect.
- Remove the decorative strip (1).

MAIN WORK

3 – Removing the centre ventilation grille with integrated air conditioning control panel

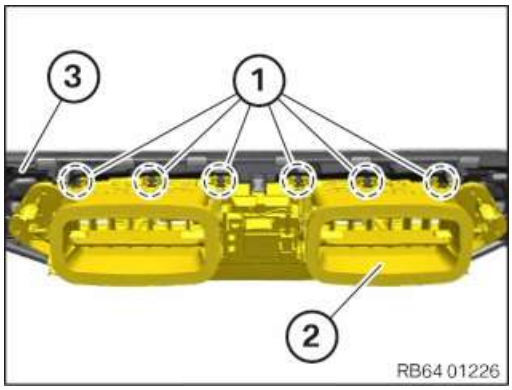


- Loosen screws (1).
- Disengage the latch mechanisms (2).

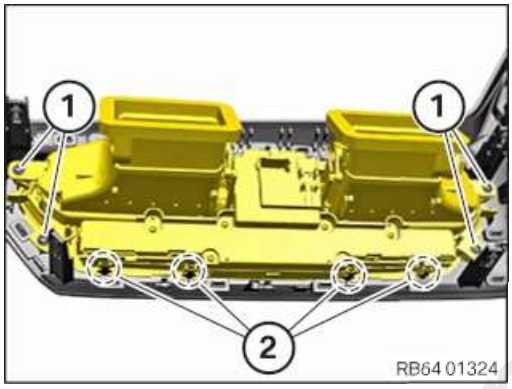


- Disengage the latch mechanism (1) from the ventilation grille (2).
- Remove the ventilation grille (2) with the integrated air conditioning control panel from the decorative strip (3).

4 – Installing the centre of the ventilation grille with the integrated air conditioning control panel



- Place ventilation grille (2) with the integrated air conditioning control panel on decorative strip (3) and position it correctly.
- Engage latch mechanisms (1) on ventilation grille (2).



- Engage the latch mechanisms (2).
- Tighten the screws (1).

Ventilation grille to decorative strip/instrument panel

Screw	Tightening torque	1.8 Nm

5 – Removing the right ventilation grille

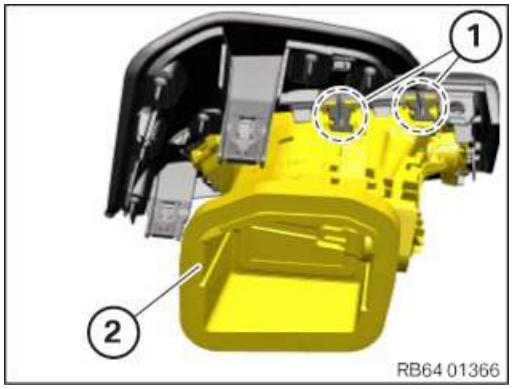
NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

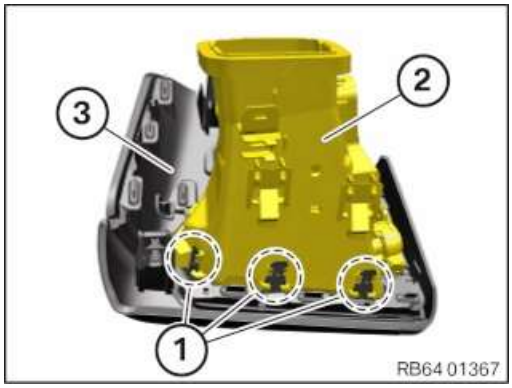
NOTICE

Description is for left component only. Procedure on the right side is identical.

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- Disengage the latch mechanisms (1) on the ventilation grille (2).



- Disengage the latch mechanisms (1) on the ventilation grille (2).
- Remove the ventilation grille (2) from the decorative strip (3) on the right side.

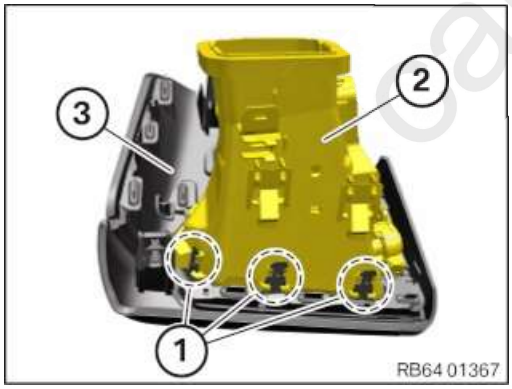
6 – Installing right ventilation grille

NOTICE

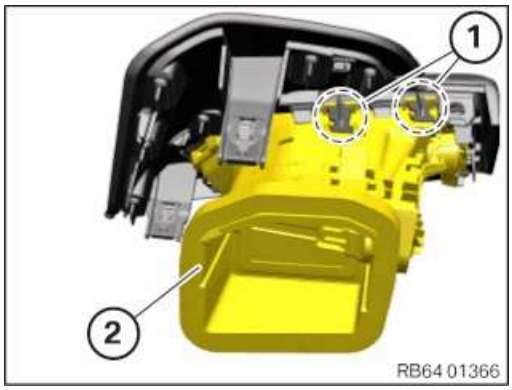
To provide a better overview: Schematic diagram with partially hidden components.

NOTICE

Description is for left component only. Procedure on the right side is identical.



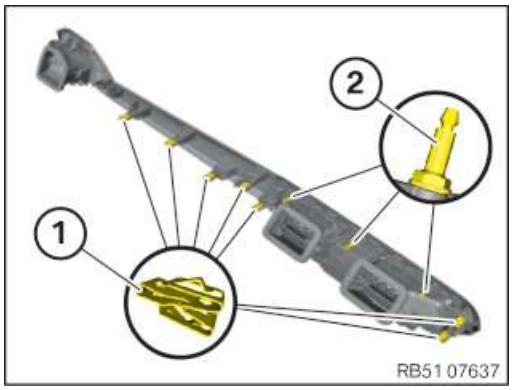
- Fit the ventilation grille (2) on the right side of the decorative strip (3) and position it correctly.
- Engage the latch mechanisms (1) on the ventilation grille (2).



- Engage the latch mechanisms (1) on the ventilation grille (2).

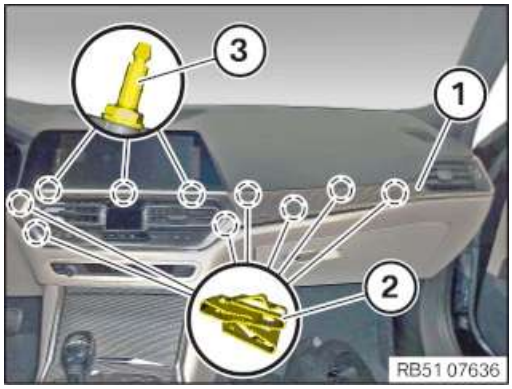
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7 – Install the finisher on the right instrument panel



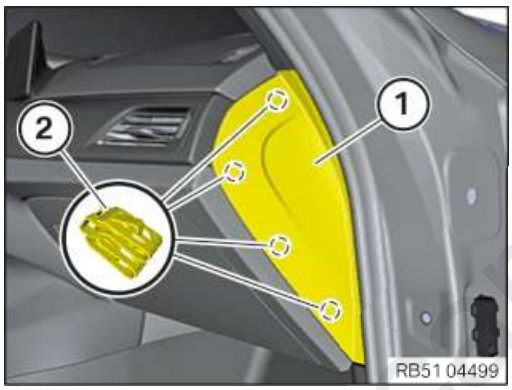
- Checks clamps (1) for damage.

  Defective or missing clamps (1) need to be renewed.
- Check the pins (2) and the accompanying clamps at the instrument panel trim for damage, renew if necessary.



- Install the decorative strip (1).
- Connect and lock corresponding connectors.
- Correctly position the decorative strip (1) and at the clamps (2) and clip in the pins (3).

8 – Install the side panel on instrument panel on the right



- If required, connect the associated connector.
- Feed in the side panel (1) and clip it in at the clamps (2).

Additional Information

Overview of Tightening Torques

Ventilation grille to decorative strip/instrument panel Used in step 4

Screw		Tightening torque	1.8 Nm

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51 45 371 Replace the decorative strip on the dashboard, left.

RISK OF DAMAGE

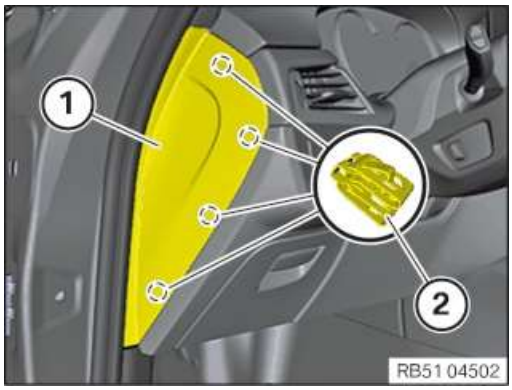
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

PRELIMINARY WORK

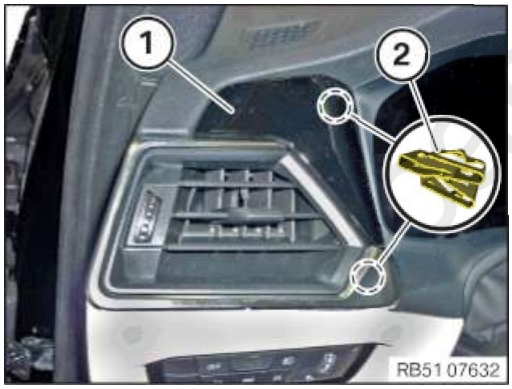
1 – Remove the side panel on the left instrument panel



- Unclip and remove the side panel (1) towards the outside from the clamps (2).

MAIN WORK

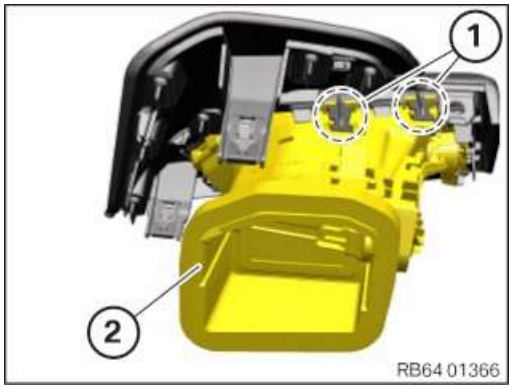
2 – Remove the finisher on the instrument panel on the left



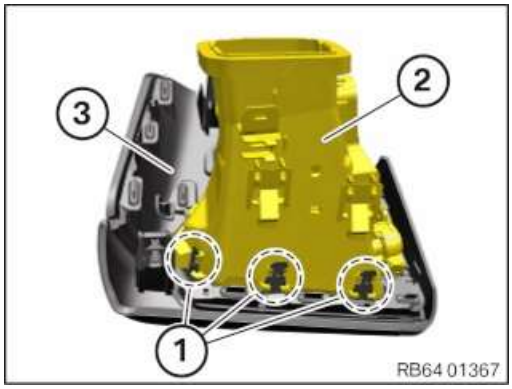
- Unclip decorative strip (1) to the rear out of the clamps (2).
- Unlock associated plug connection and disconnect.

  Remove the decorative strip (1).

3 – Removing the left ventilation grille

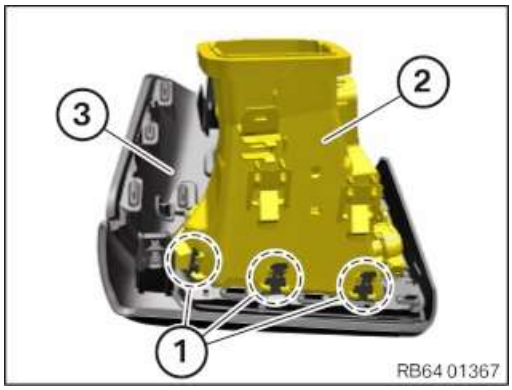


- Disengage the latch mechanisms (1) from the ventilation grille (2).

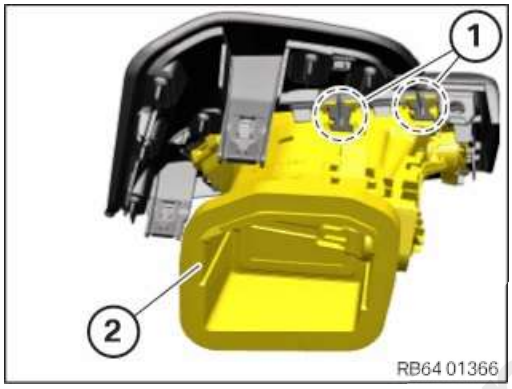


- Disengage the latch mechanisms (1) from the ventilation grille (2).
- Remove ventilation grille (2) from decorative strip (3).

4 – Installing the left ventilation grille

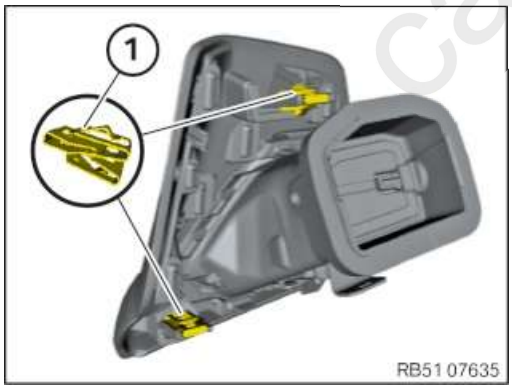


- Fit ventilation grille (2) on decorative strip (3) and position correctly.
- Engage the latch mechanisms (1) on the ventilation grille (2).



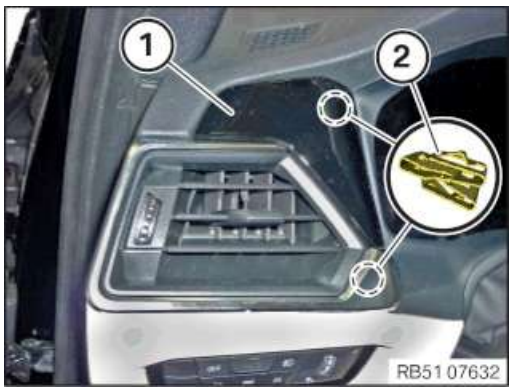
- Engage the latch mechanisms (1) on the ventilation grille (2).

5 – Install the finisher on the instrument panel on the left



- Check the clamps (1) for damage and that they are present.

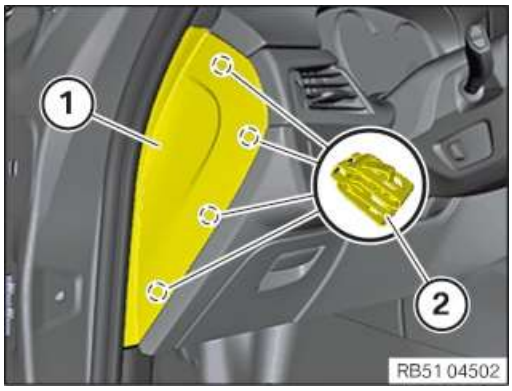
  Damaged or missing clamps (1) must be renewed.



- Install the decorative strip (1).
- Connect and lock the associated connectors.
- Clip decorative strip (1) into clamps (2).

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6 – Install the side panel on left instrument panel



- Feed in the side panel (1) and clip it in at the clamps (2).

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51 45 076 Replacing carrier for dashboard

Prerequisite

- Air conditioning has been drawn off.

  Refrigerant line to the expansion valve is released.

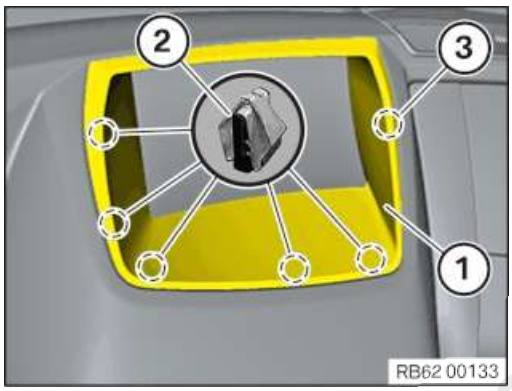
PRELIMINARY WORK

1 – Adjust the steering column position



- Adjust the length of the steering column to the maximum length in the direction of arrow (1).
- Move the steering column to the lowest steering column position in the direction of arrow (2).

2 – Removing trim for the Head-Up Display

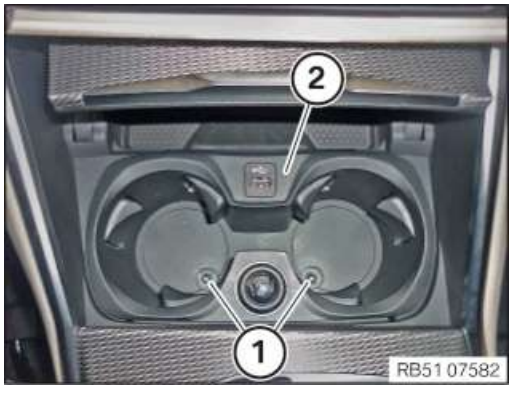


- Unclip trim (1) for the Head-Up Display upwards from clamps (2) and latch mechanism (3).

3 – Remove cupholder



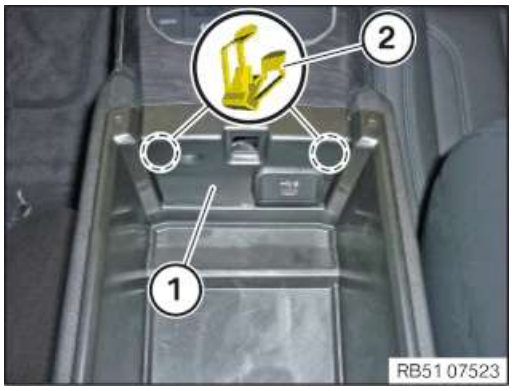
- Remove the insert (1).



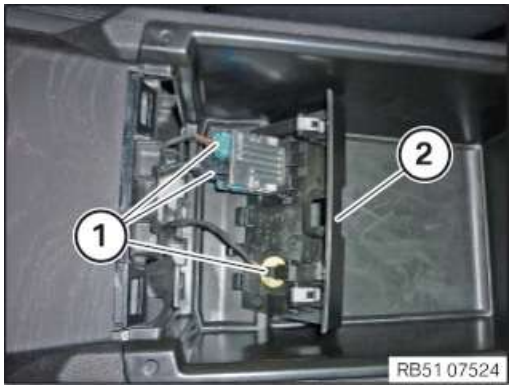
- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

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4 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

5 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

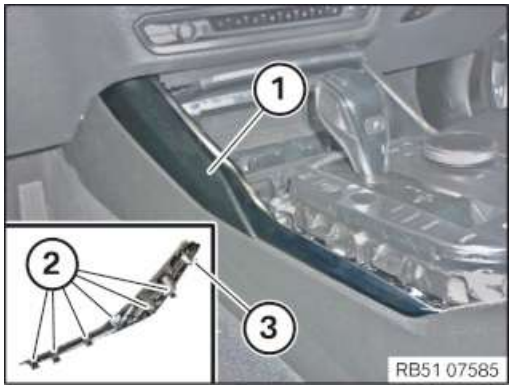
6 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

NOTICE

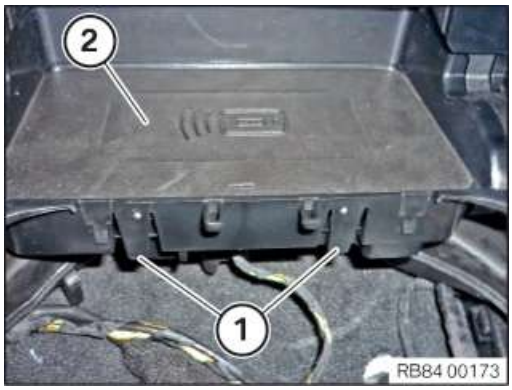
Description is for left component only. Procedure on the right side is identical.

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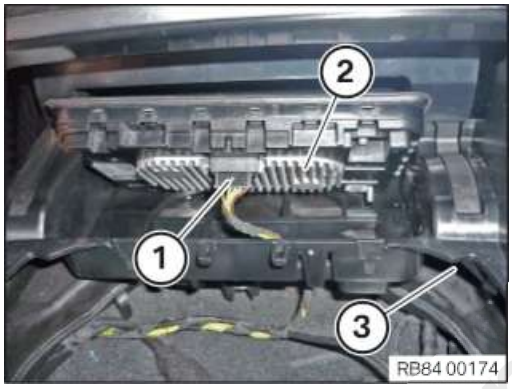


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

7 – Removing the wireless charging station



- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

8 – Remove the operating facility in the centre console

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▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

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Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

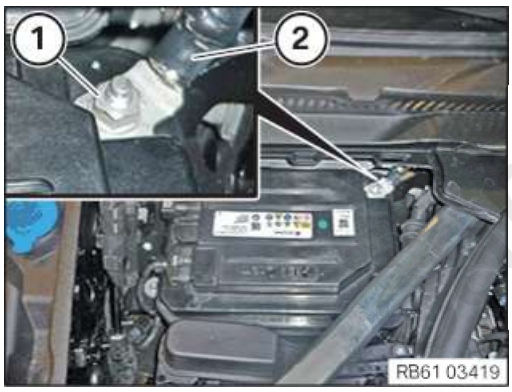
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

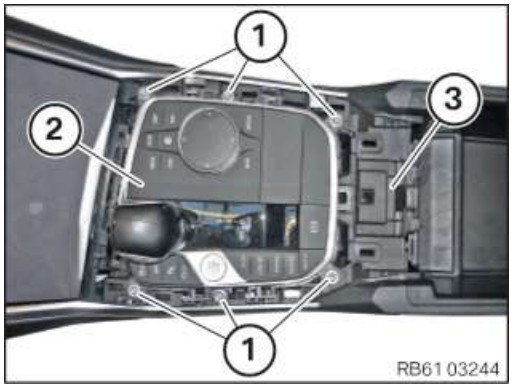
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**

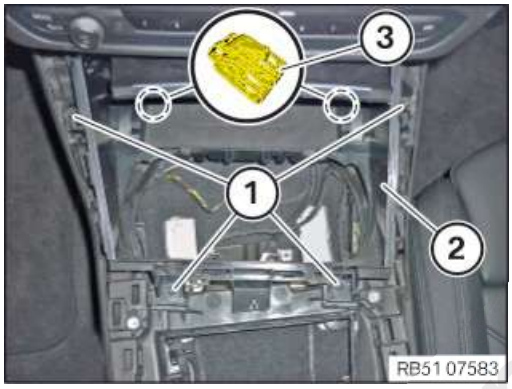


- See additional information.

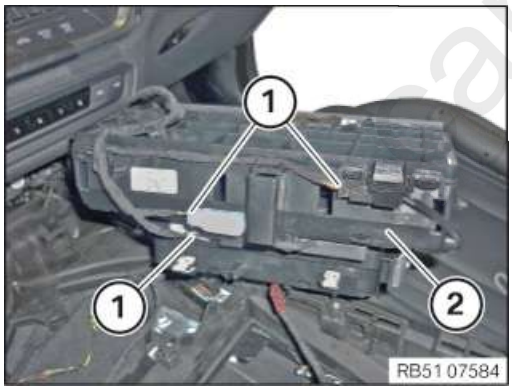


- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

9 – Removing the storage compartment in the front centre console



- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).



- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

10 – Removing the rear centre console trim

RISK OF DAMAGE

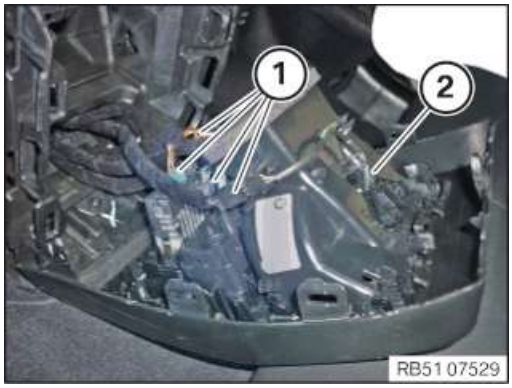
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.

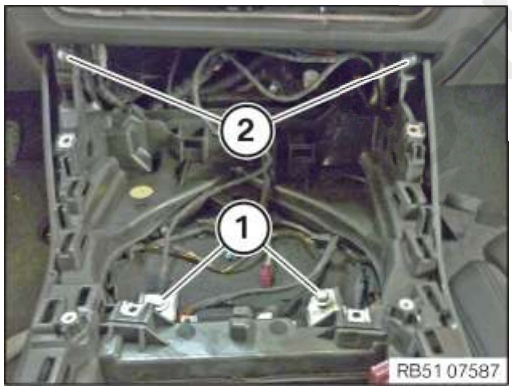


- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

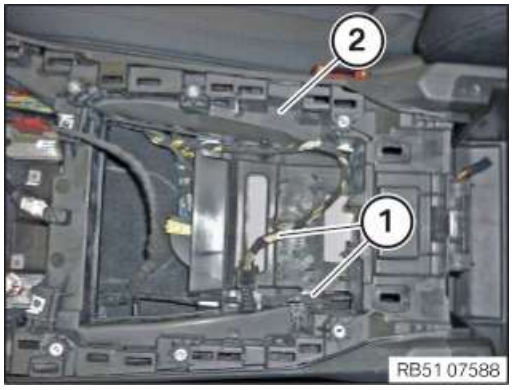
11 – Removing the centre console



- Loosen screws (1).

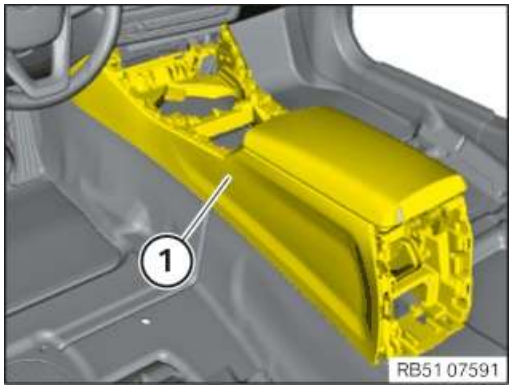


- Loosen screws (1) and (2).



- Release the wiring harness (1) from the centre console (2).

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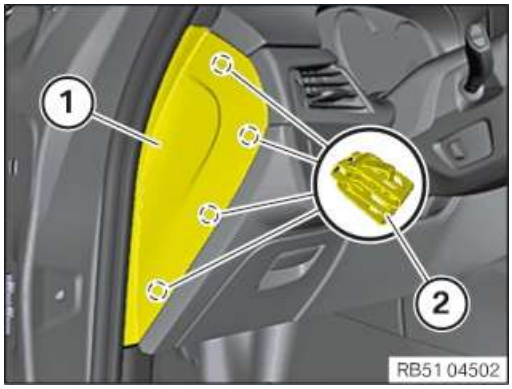


NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

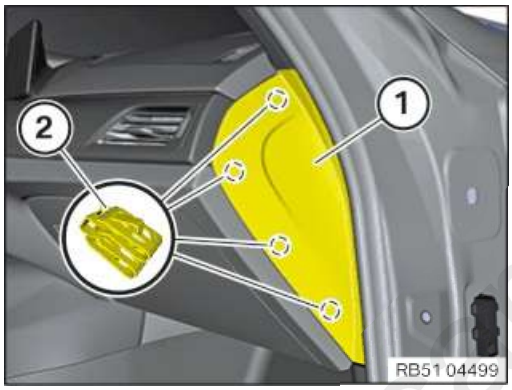
- Carefully raise rear centre console (1).
- Feed out wiring harness from the centre console (1) and unlock and disconnect existing plug connections, if required.
- Feed out and remove the centre console (1) on the instrument panel .

12 – Remove the side panel on the left instrument panel



- Unclip and remove the side panel (1) towards the outside from the clamps (2).

13 – Remove the side panel on the right instrument panel



- Unclip and remove the side panel (1) towards the outside from the clamps (2).
- If necessary, unlock associated plug connection and disconnect.

14 – Remove left and right A-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

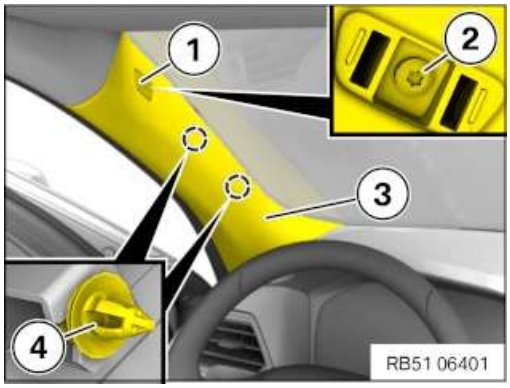
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RISK OF DAMAGE

Damage to the head airbag.

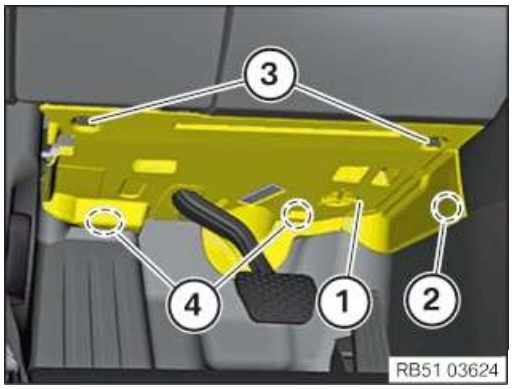
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



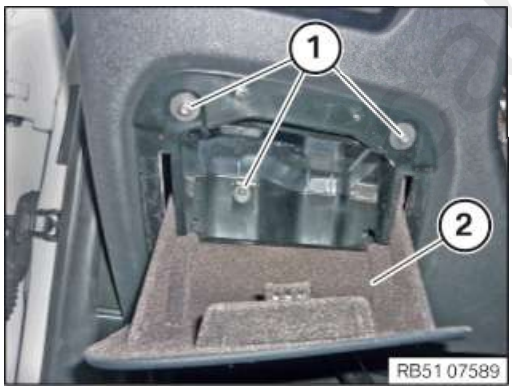
- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

15 – Removing the trim panel for pedal mechanism



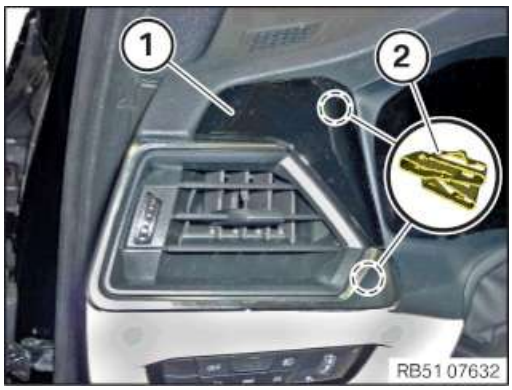
- Unclip the trim panel for the pedal mechanism (1) towards the inside in this area (2).
- Turn the locks (3) by 90°.
- Detach the trim panel for the pedal mechanism (1) inwards out of the guides (4).
- Unlock associated plug connection and disconnect.

16 – Removing the left fold-down compartment



- Loosen screws (1).
- Remove the fold-down compartment (2) toward the bottom.

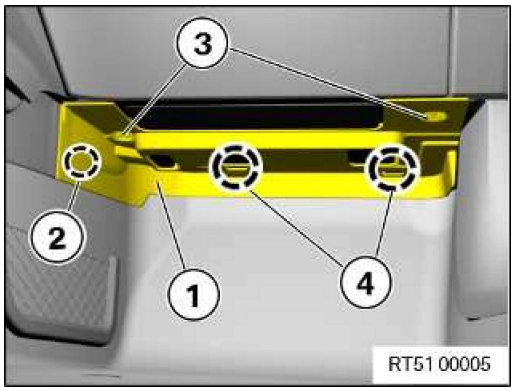
17 – Remove the finisher on the instrument panel on the left



- Unclip decorative strip (1) to the rear out of the clamps (2).
- Unlock associated plug connection and disconnect.

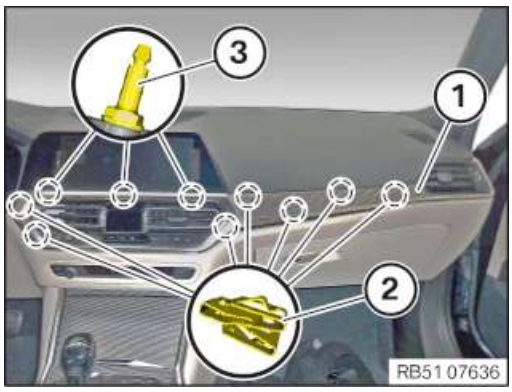
  Remove the decorative strip (1).

18 – Remove the right footwell trim



- Turn the locks (3) by 90°.
- Feed the footwell trim (1) out of the guide (2).
- Detach the footwell trim (1) inward out of the guides (4).
- Unlock associated plug connection and disconnect.

19 – Remove the finisher on the right instrument panel



- Unclip the decorative strip (1) towards rear at the clamps (2) and the pins (3).
- Unlock associated plug connection and disconnect.
- Remove the decorative strip (1).

20 – Remove Central Information Display (CID)

RISK OF DAMAGE

Electrostatic discharge.

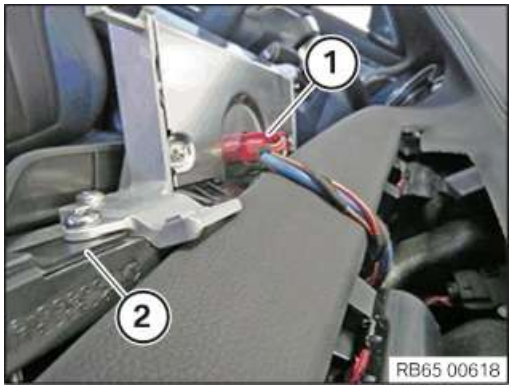
Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)



- Loosen screws (1).
- Pull out central information display (CID) (2) slightly off the instrument panel.

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- Unlock plug connection (1) and disconnect.
- Remove the central information display (CID) (2).

21 – Removing the airbag unit

WARNING

Airbag unit.

Danger! Life-threatening injuries!

- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

RISK OF DAMAGE

Damage to the steering wheel.

Incorrect handling of the tool may damage the steering wheel.

- Ensure the tool is positioned correctly (angle and inclination).
- When unlocking, do not use "levering" action. Instead, press in the Torx screwdriver toward the centre of steering wheel only.

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▸ **Removing the airbag unit for sports steering wheel**



- Insert Torx screwdriver T25 (1) diagonally upwards in the hidden opening (2) on the rear side of the steering wheel until a spring resistance is felt.

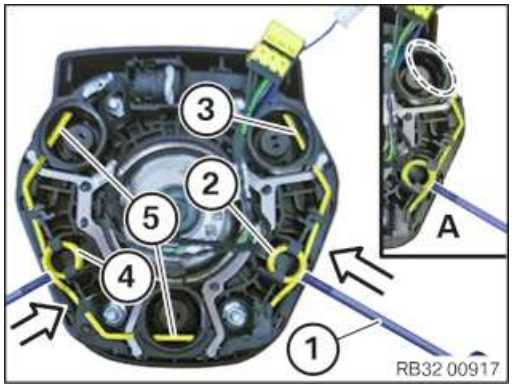
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NOTICE

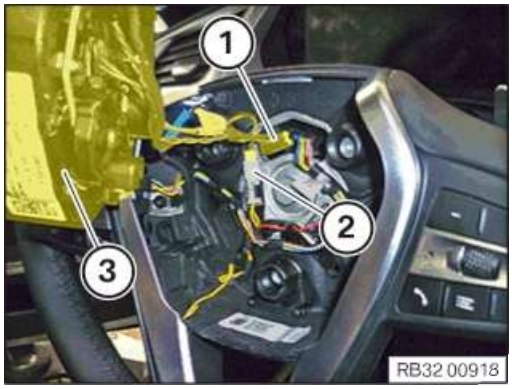
To provide a better overview: Diagram with airbag unit removed.

- To unlock the airbag unit, press Torx screwdriver T25 (1) diagonally upwards in the direction of the arrow to the centre of the steering wheel.



- Press the airbag unit over a large area of the steering wheel.
- Use Torx screwdriver T25 (1) to press wire spring clip (2) in the direction of the arrow towards the centre of the steering wheel and release lock (3).

  (A): Wire spring clip (2) is unlocked.
- Press wire spring clip (4) with Torx screwdriver T25 (1) in the direction of the arrow towards the centre of the steering wheel and release locks (5).
- Carefully raise the airbag unit.



- Unlock and disconnect the plug connections (1) and (2).
- Remove airbag unit (3).

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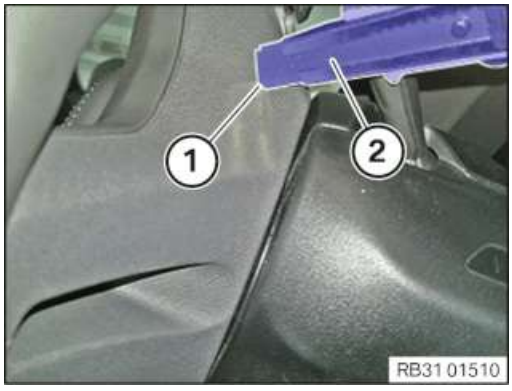
▸ Removing the airbag unit for M Sport steering wheel



NOTICE

Perform the operations on the left and right side.

- Locate the mark (1) for unlocking the airbag unit on the steering wheel by touching it.



NOTICE

Perform the operations on the left and right side.

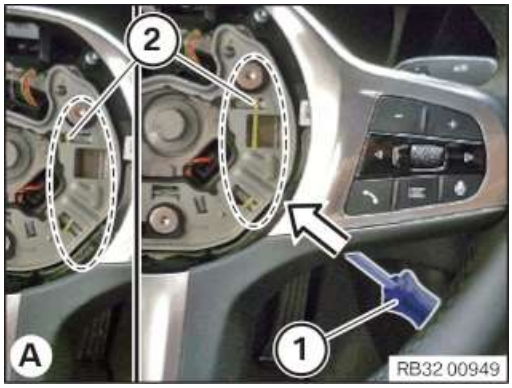
- Cut the mark (1) carefully with a knife (2) to an approx. length of 4 mm .



TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

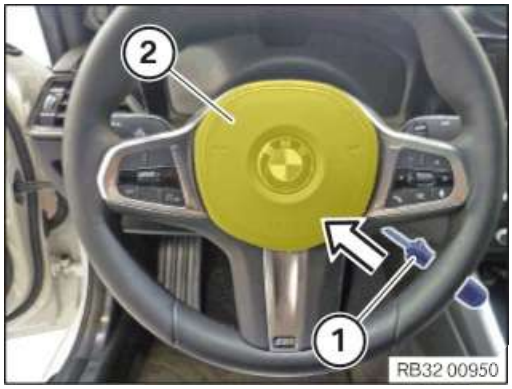
- In case of vehicles with shift paddles (2) made of carbon-fibre-reinforced plastic, use a Torx socket T15 (1) for unlocking the airbag unit.



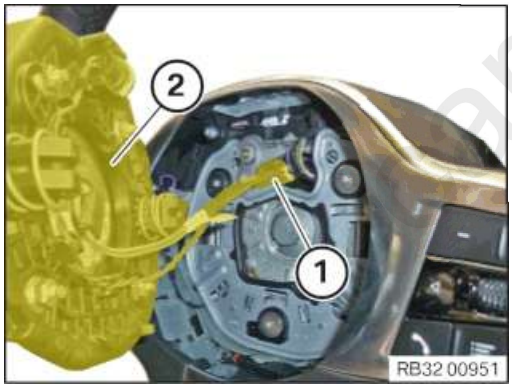
NOTICE

To provide a better overview: Diagram with airbag unit removed.

- Insert the Torx socket T15 (1) diagonally upwards until a resilient resistance is felt.
- Press in Torx socket T15(1) straight in the direction of arrow towards the centre of the steering wheel in order to unlock the wire spring clip (2) or to unlock the airbag unit (A).



- Press in Torx screwdriver T15 (1) straight in direction of arrow towards the centre of the steering wheel and lift the airbag unit (2) on the unlocked side.
- Repeat procedure on left side and carefully release airbag unit (2) from the steering wheel.



- Unlock and disconnect the plug connection (1) and remove the airbag unit (2).

22 – Removing airbag unit (M Sport 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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RISK OF DAMAGE

Damage to the steering wheel.

Incorrect handling of the tool may damage the steering wheel.

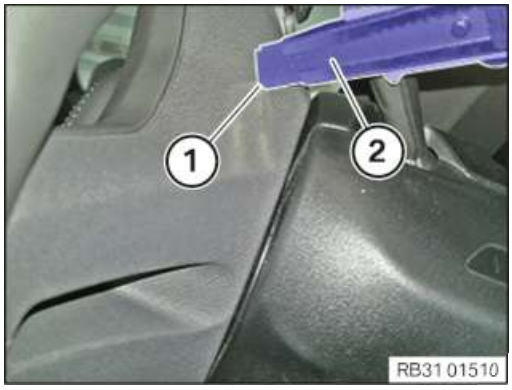
- Ensure the tool is positioned correctly (angle and inclination).
- When unlocking, do not use "levering" action. Instead, press in the Torx screwdriver toward the centre of steering wheel only.



NOTICE

Perform the operations on the left and right side.

- Locate the mark (1) for unlocking the airbag unit on the steering wheel by touching it.



NOTICE

Perform the operations on the left and right side.

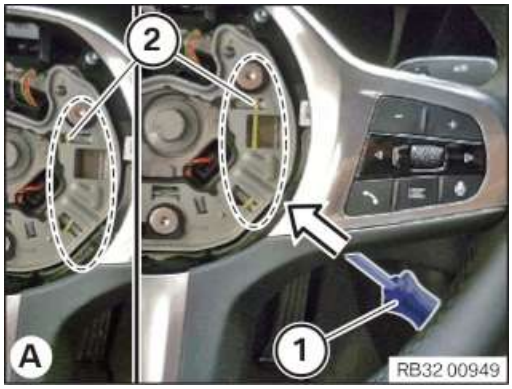
- Cut the mark (1) carefully with a knife (2) to an approx. length of 4 mm .



TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

- In case of vehicles with shift paddles (2) made of carbon-fibre-reinforced plastic, use a Torx socket T15 (1) for unlocking the airbag unit.

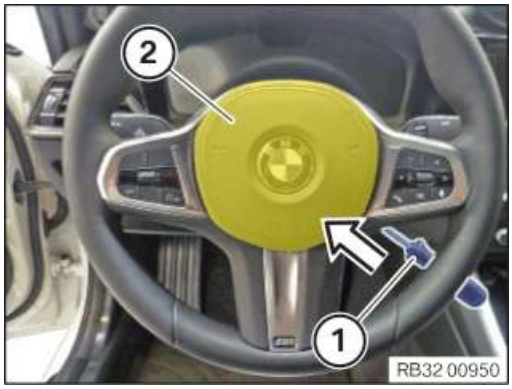


NOTICE

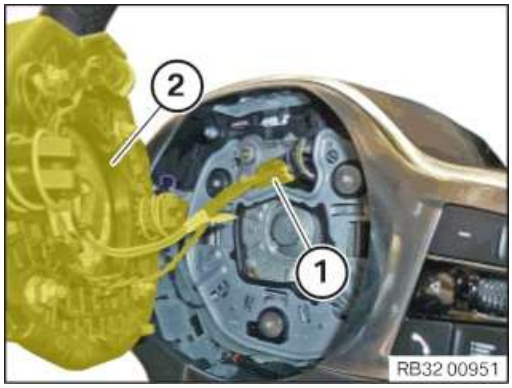
To provide a better overview: Diagram with airbag unit removed.

- Insert the Torx socket T15 (1) diagonally upwards until a resilient resistance is felt.
- Press in Torx socket T15(1) straight in the direction of arrow towards the centre of the steering wheel in order to unlock the wire spring clip (2) or to unlock the airbag unit (A).

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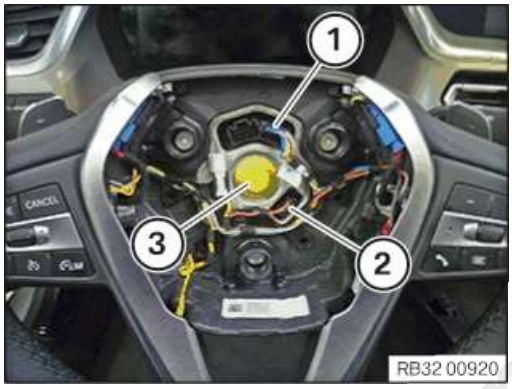


- Press in the wire spring clip with Torx socket T15 (1) in the direction of arrow and lift the airbag unit (2) on the unlocked side.
- Repeat procedure on left side and carefully release airbag unit (2) from the steering wheel.



- Unlock plug connection (1) and disconnect.
- Remove the airbag unit (2).

23 – Remove sports steering wheel



- Move the steering wheel and wheels to the straight-ahead position.
- Unlock plug connection (1) and disconnect.
- If installed: Unlock plug connection (2) and disconnect.
- Release the screw (3) and pull off and remove the steering wheel.

24 – Removing the steering wheel/M Sport steering wheel

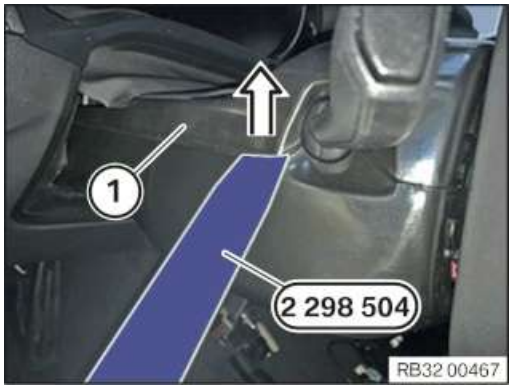


TECHNICAL INFORMATION

When releasing the screw, have an auxiliary person brace the steering wheel in order to reduce torque on the steering column!

- Move the steering wheel and wheels to the straight-ahead position.
- Loosen screw (1).
- Pull down the steering wheel and remove.

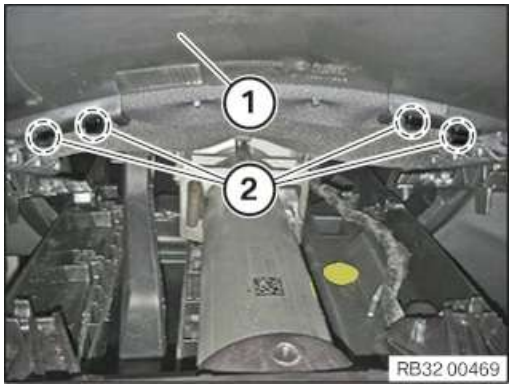
25 – Removing steering column shroud upper section



NOTICE

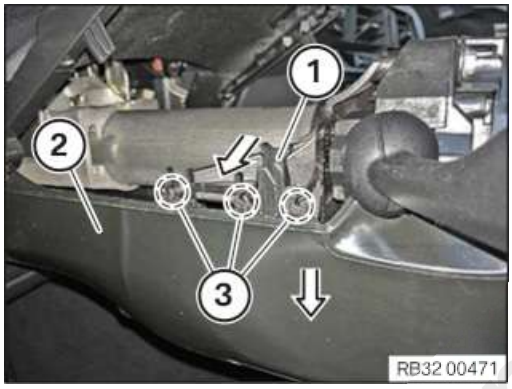
Perform the operations on the left and right side.

- Unlock the steering column shroud upper section (1) with the special tool 2 298 504 and fold up.



- Unclip the steering column shroud upper section (1) from the brackets (2).
- Remove the steering column shroud upper section (1).

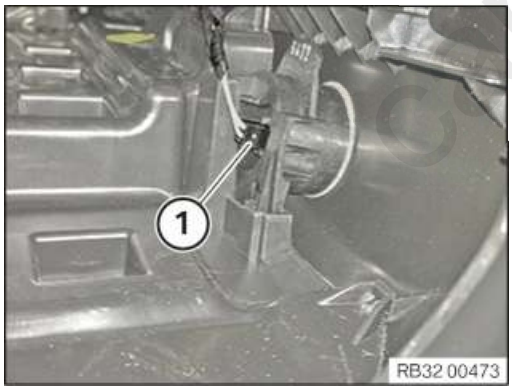
26 – Removing steering column shroud lower section



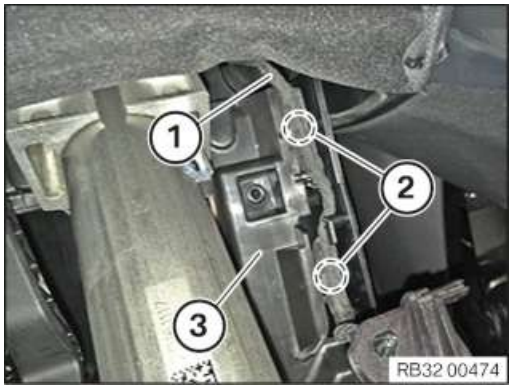
NOTICE

Perform the operations on the left and right side.

- Push the retaining lug (1) to the outside in the direction of the arrow and unclip the steering column shroud lower section (2) from the holders (3) in the direction of the arrow to the bottom at the same time.



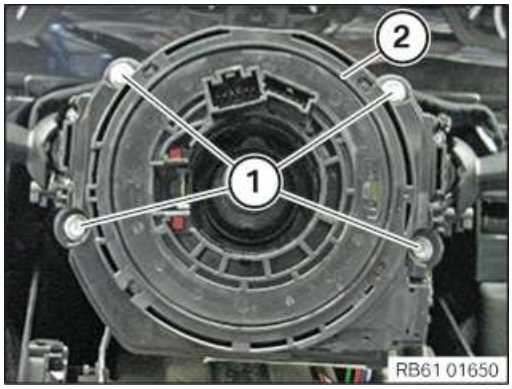
- Fold the steering column shroud lower section down.
- Unlock and disconnect connector (1).



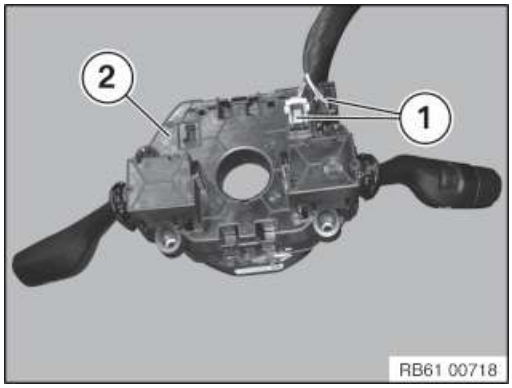
- Detach the cable (1) from the brackets (2).
- Remove the steering column shroud lower section (3).

27 – Removing the steering column switch cluster (SZL)

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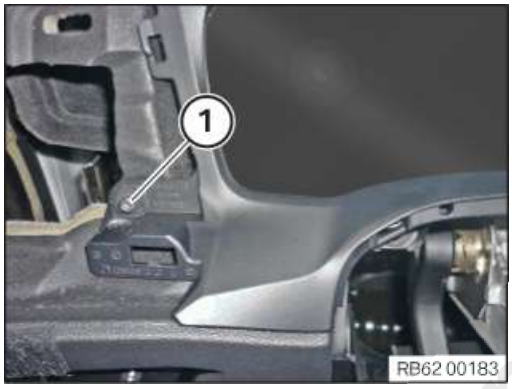


- Loosen screws (1).
- Remove the steering column switch cluster (SZL) (2).



- Unlock and disconnect plug connections (1) on the SZL (2).

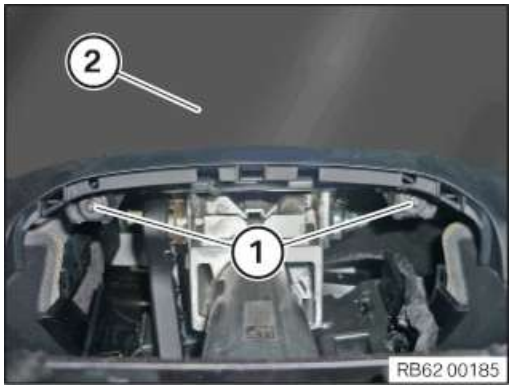
28 – Removing the instrument cluster (KOMBI)



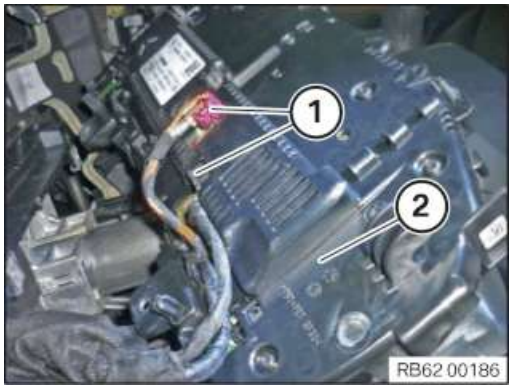
- Loosen screw (1).



- Loosen screw (1).

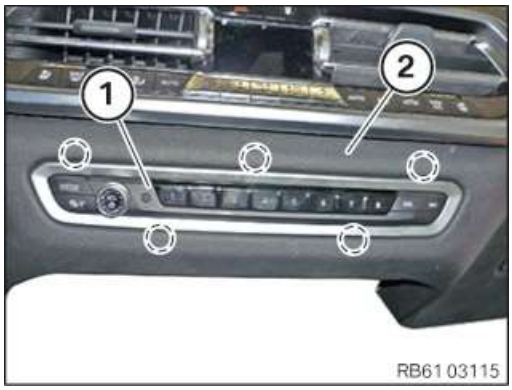


- Loosen screws (1).
- Feed out instrument cluster (KOMBI) (2).

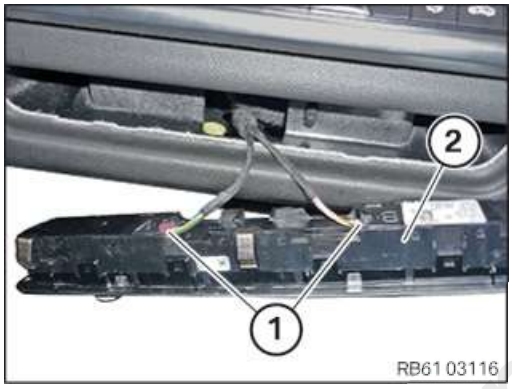


- Unlock and disconnect plug connections (1) from instrument cluster (KOMBI) (2).
- Remove the instrument cluster (KOMBI) (2).

29 – Remove the audio operating unit

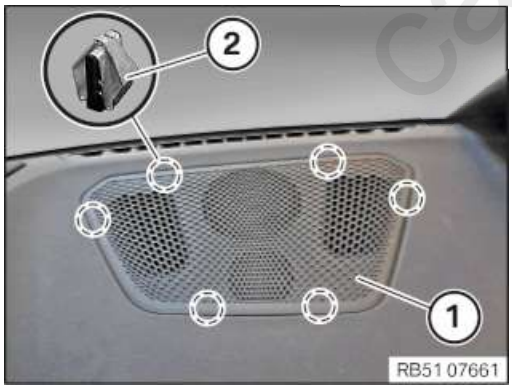


- Unclip the audio operating unit (1) from the instrument panel (2) at the points marked using special tool 0 496 571 (00 9 327).



- Disconnect plug connections (1) and remove the audio operating unit (2).

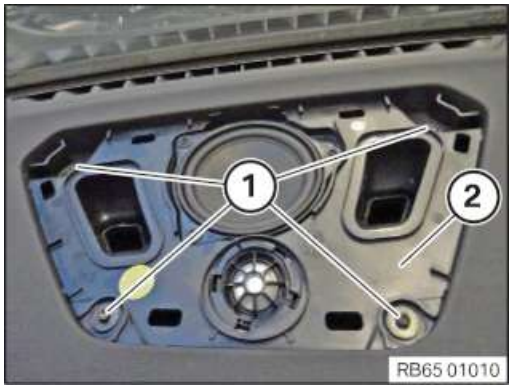
30 – Remove the speaker trim at the instrument panel



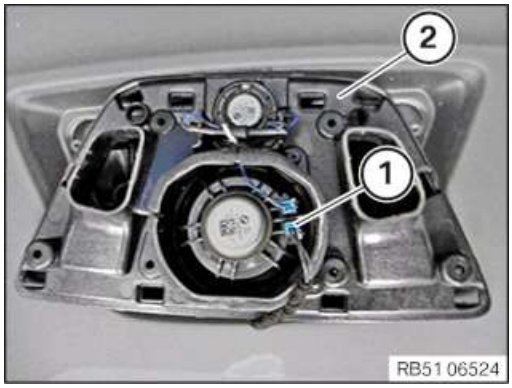
- Lever out the speaker trim (1) with the special tool 0 496 569 (00 9 325) from the clamps (2) toward the top and remove.

31 – Remove the speaker holder at the instrument panel

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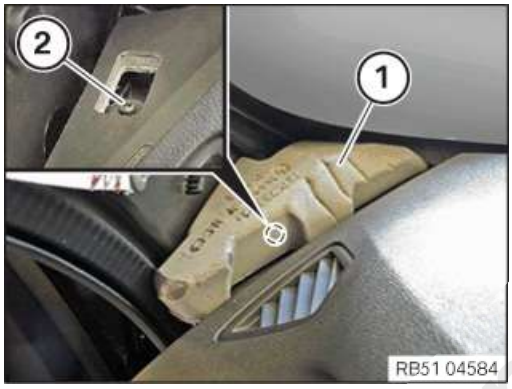


- Loosen screws (1).
- Pull out speaker holder (2) slightly with the loudspeakers and tilt it to the side.



- Unlock plug connection (1) and disconnect.
- Remove the speaker holder (2).

32 – Remove the instrument panel trim panel



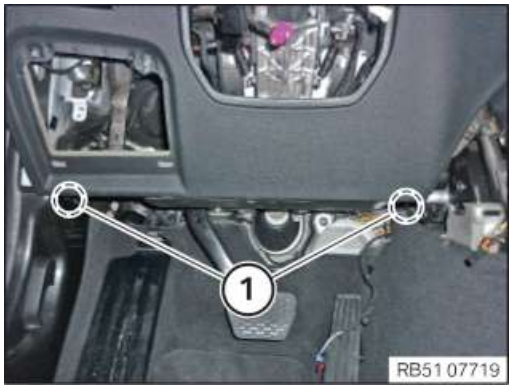
NOTICE

Perform the operations on the left and right side.

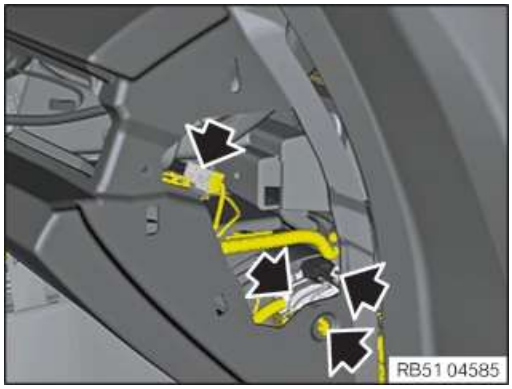
- Remove the sound insulation (1).
- Loosen screw (2).



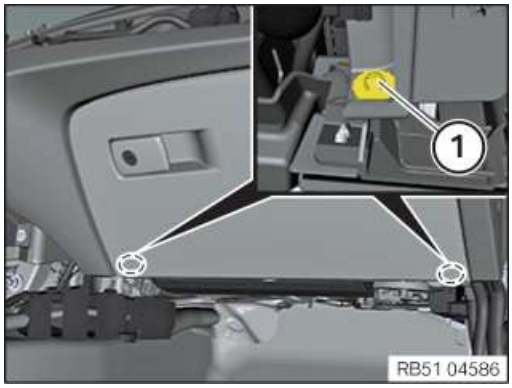
- Loosen screws (1).



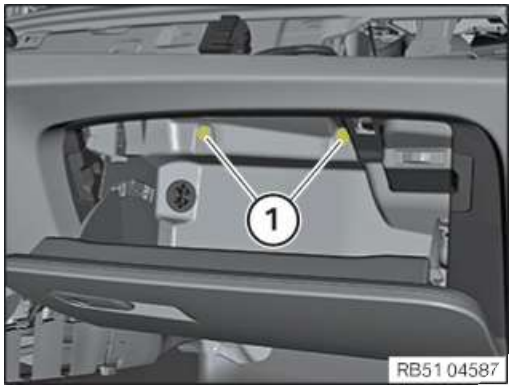
- Loosen screws (1).



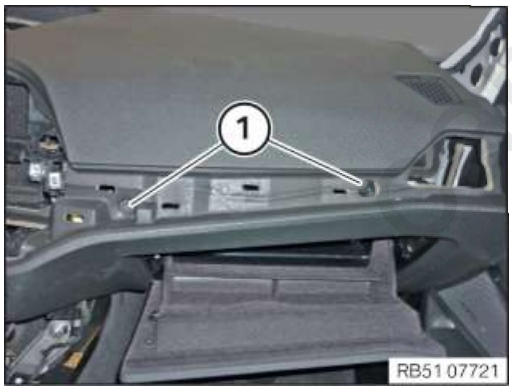
- Release all plug connections and cable clips (arrows) behind the glove box.



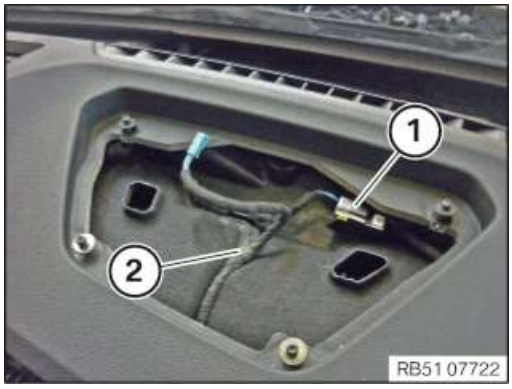
- Release the screws (1) on the lower side of the glove box.



- Open glovebox.
- Loosen screws (1).



- Loosen screws (1).



- Unlock plug connection (1) and disconnect.
- Release the wiring harness (2) on the holders.

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- Unlock the plug connection (1) on the light operating unit and disconnect it.



- Loosen screws (1).

TECHNICAL INFORMATION

Conduct the following operation with the assistance of a second person.

- Pull the instrument panel trim back slightly.

  If necessary, unlock and disconnect additional plug connections.
- Remove the instrument panel trim from the vehicle.

33 – Removing inner right door sill cover strip

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the inner door sill cover strip**

RISK OF DAMAGE

Bending of plastic parts.

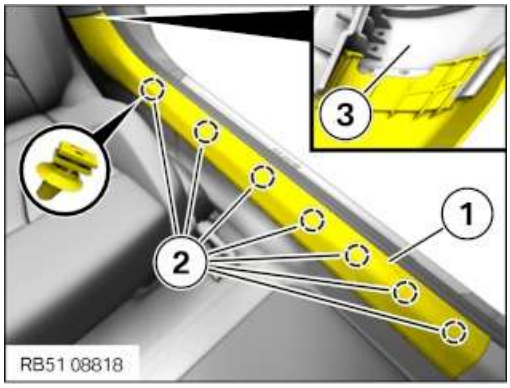
Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

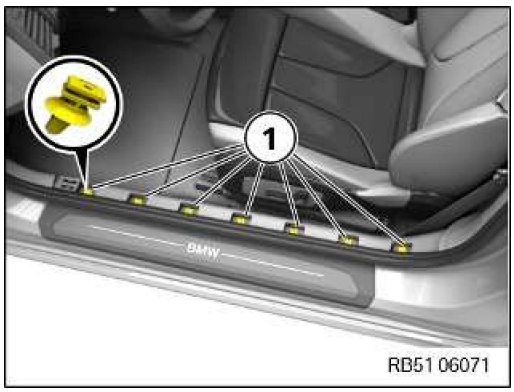
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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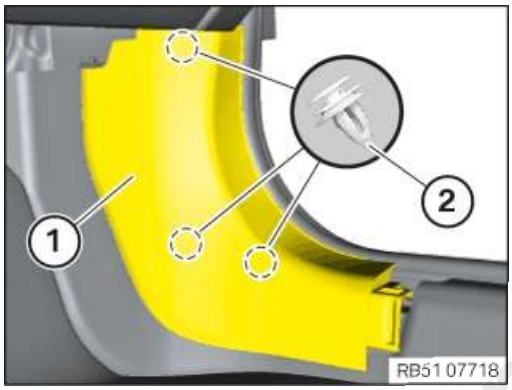


- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .



- If necessary, remove clips (1) and connect them to the door sill cover strip.

34 – Removing the side trim panel in the footwell at the right-hand A-pillar



- Loosen the side trim panel (1) at the clips (2) and remove it toward the inside.

35 – Removing knee airbag

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

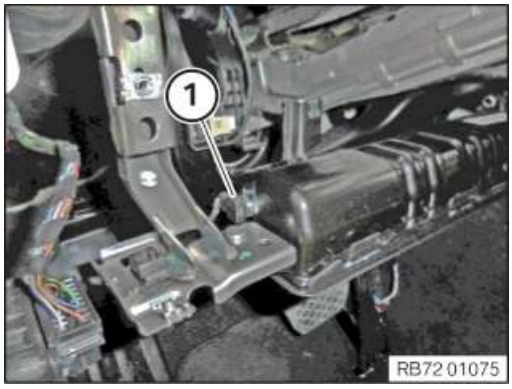
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WARNING

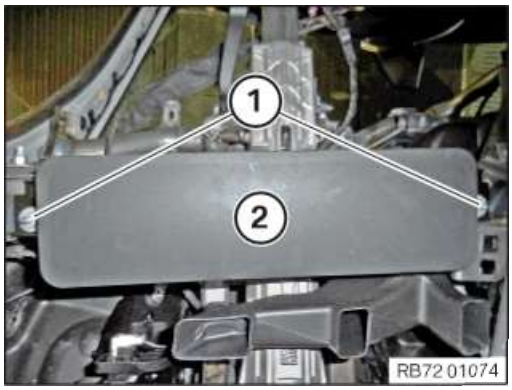
Pyrotechnic components.

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.

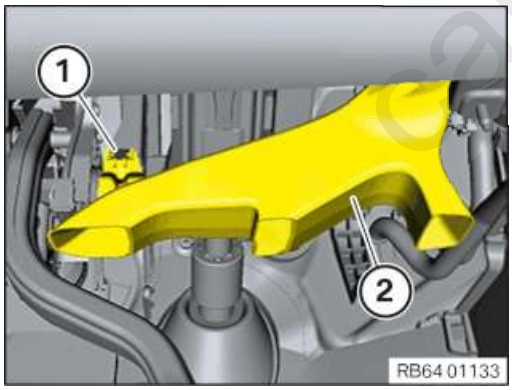


- Unlock plug connection (1) and disconnect.



- Loosen nuts (1).
- Remove knee airbag (2).

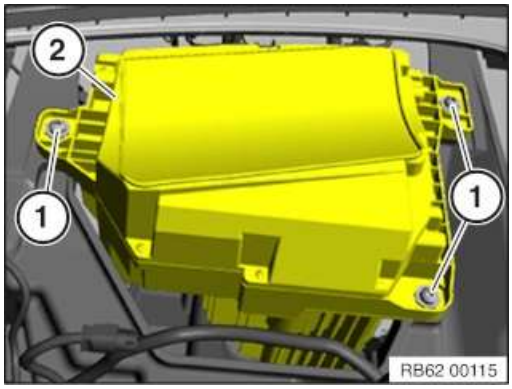
36 – Remove left air duct



- Unclip the air duct (2) from the air conditioning housing at an angle towards the bottom at the clamp (1).

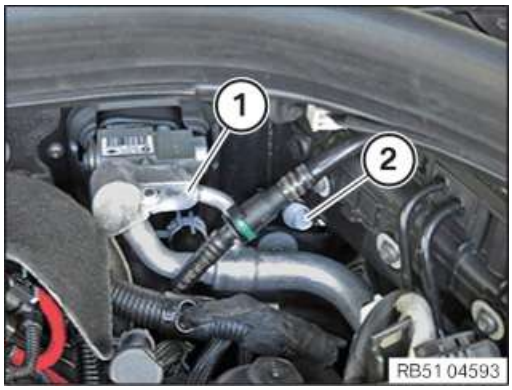
37 – Removing the Head-Up Display

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- Loosen screws (1).
- Remove head-up display (2) from support.
- Unlock associated cable and disconnect.

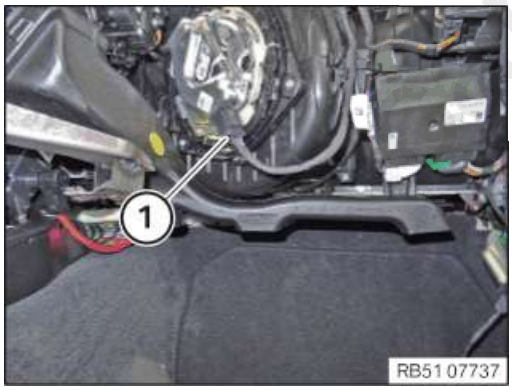
38 – Removing the support for the instrument panel



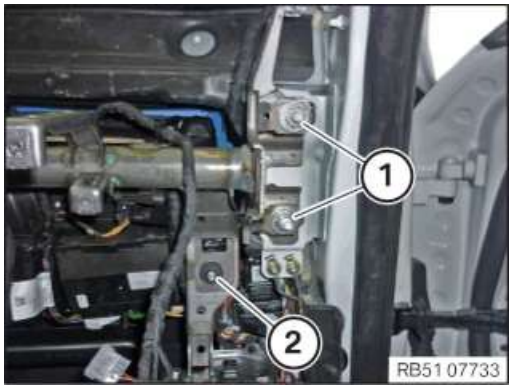
- Push the refrigerant line (1) slightly to one side and loosen the screw (2).



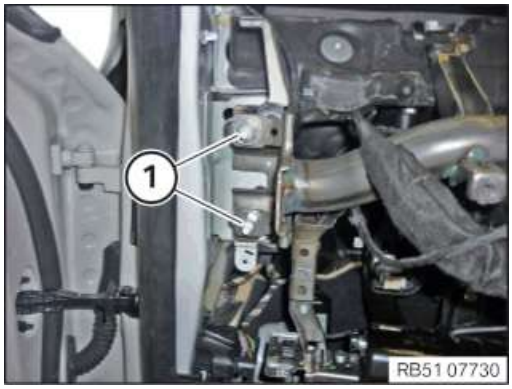
- Push the carpet in the area of the right B-pillar to the side.
- Unlock and disconnect plug connections (1).



- Unlock and disconnect the plug connection (1) on the blower motor.



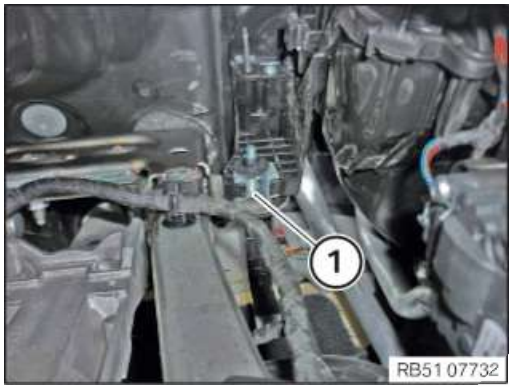
- Loosen nuts (1) and (2).



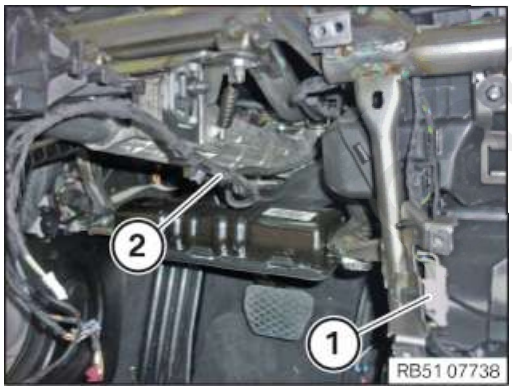
- Loosen nuts (1).



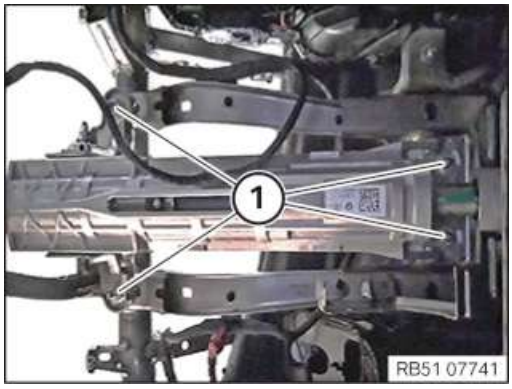
- Loosen screws (1).



- Slacken the nut (1) in the left footwell on the heating and air-conditioning unit.



- Release plug connection (1).
- Release the wiring harness (2) from the steering column.



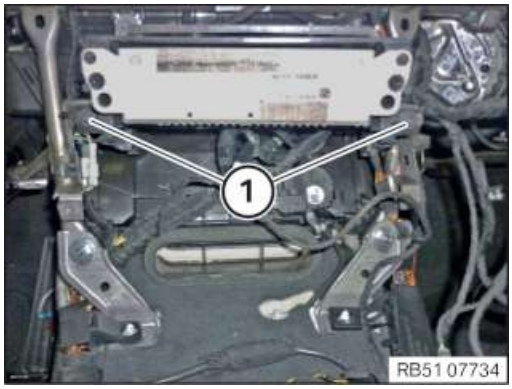
TECHNICAL INFORMATION

Secure component against falling.

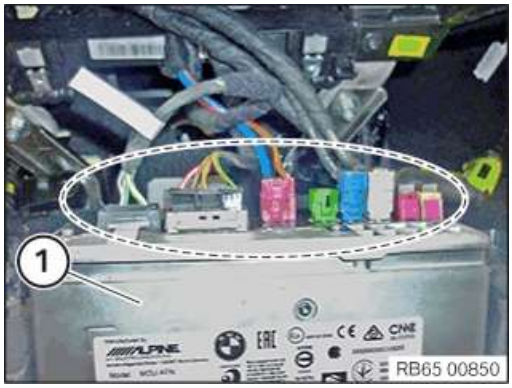
- Release the nuts (1) at the steering column.
- Drop steering column (1) a little away and support it in the footwell.

  Drop steering column not too far away and support it absolutely.

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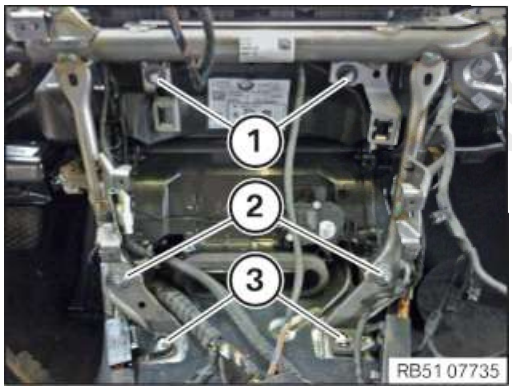
- Loosen screws (1).
- Feed out Head Unit High.



- Unlock and disconnect all connectors in the marked area.
- Remove headunit (1).



- Unlock and disconnect plug connection (1) from airbag control unit.
- Release the wiring harness (2) on the holders.



- Loosen nuts (1).
- Loosen nuts (2).
- Remove cable clip and release the nuts (3).
  Remove retaining bracket from left and right sides.
- Carefully feed out the support for the instrument panel to the rear.
  If necessary, unlock and disconnect additional plug connections.
- Carefully remove support for the instrument panel from the vehicle.

MAIN WORK

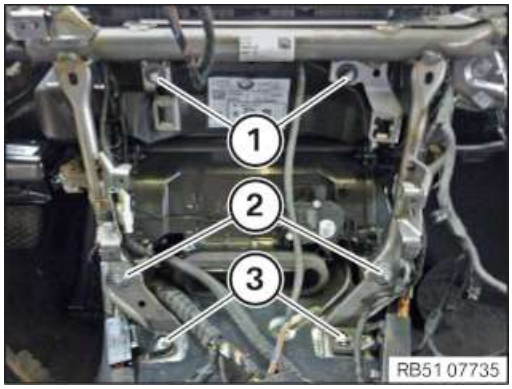
39 – When replacing the support for the instrument panel

- Remount the wiring harness on the new support for the instrument panel.
- Remount small parts and holder.

POSTPROCESSES

40 – Installing the support for instrument panel

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- Install the instrument panel support into the vehicle carefully.
- Insert the instrument panel support carefully.

  If necessary, connect and lock the additional connector.
- Tighten nuts (1).

Heating and air-conditioning unit on support

Nut M6		Tightening torque	4 Nm

- Mount retaining bracket on left and right.

  Tighten nuts (2).

Support for instrument panel

M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm

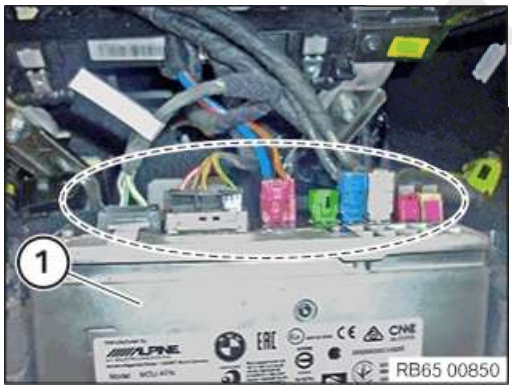
- Tighten nuts (3) and fit cable clip .

Support for instrument panel

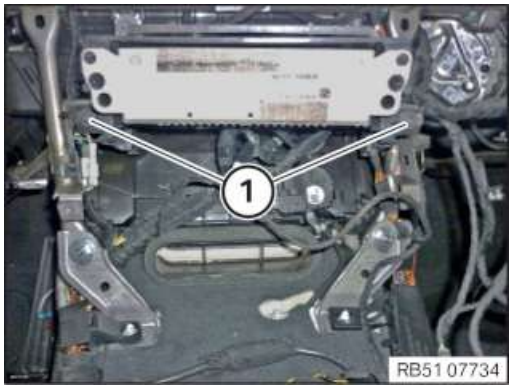
M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm



- Connect the connector (1) to the airbag control unit and lock it.
- Secure the wiring harness (2) on the holders.



- Position head unit (1).
- Connect and lock all connectors in the marked area.

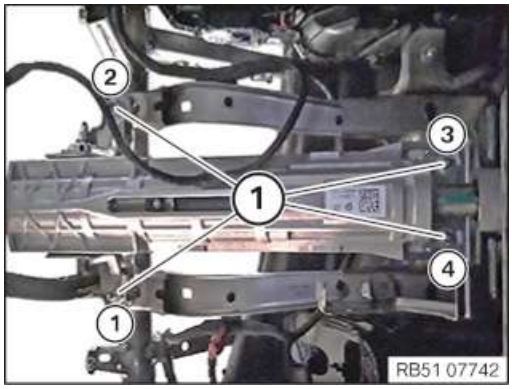


- Feed in the head unit.
- Tighten the screws (1).

Head unit to holder / holder to support

Screw		Tightening torque	1,8 Nm

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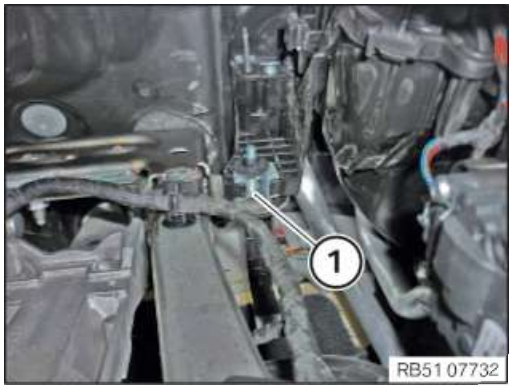
- Correctly position the steering column (2) and tighten the nuts (1) in the sequence (1), (2), (3) and (4).

Steering column to dashboard support

M8	Observe tightening sequence.	Tightening torque	21,4 Nm



- Connect connectors (1) and lock.
- Secure the vehicle wiring harness (2) to the steering column.



- Tighten nut (1) in the left foot well on the heating and air-conditioning unit.

Heating and air-conditioning unit on support

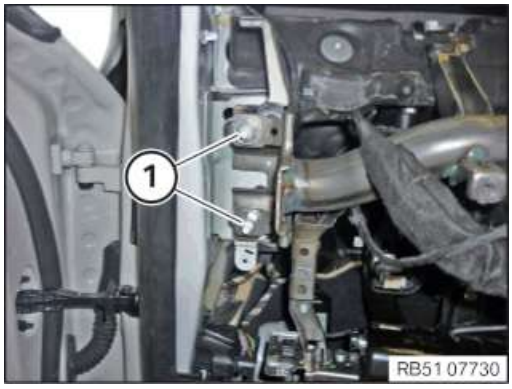
Nut M6		Tightening torque	4 Nm



- Tighten the screws (1).

Support for instrument panel

M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm

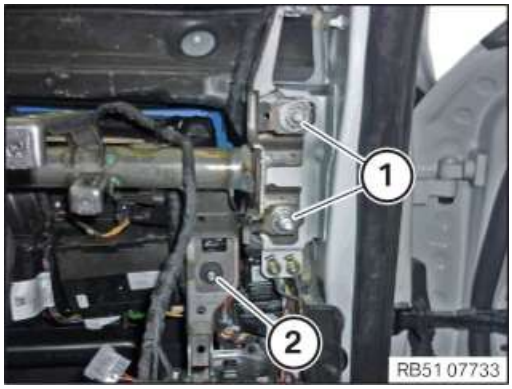


- Tighten nuts (1).

Support for instrument panel

M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm

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- Tighten nuts (1).

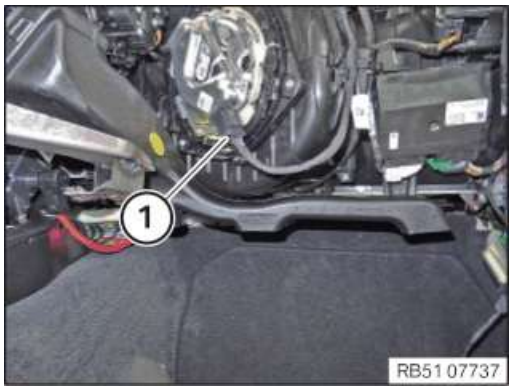
Support for instrument panel

M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm

- Tighten nut (2).

Heating and air-conditioning unit on support

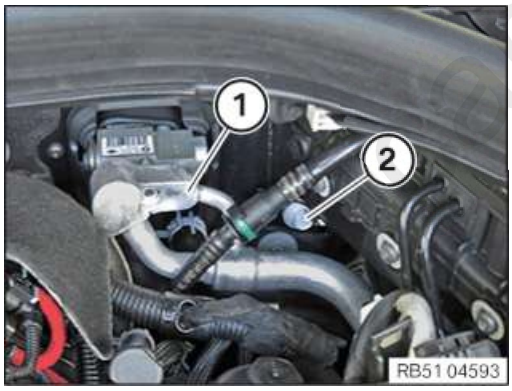
Nut M6		Tightening torque	4 Nm



- Connect the connector (1) to the blower motor and lock.



- Connect connectors (1) and lock.
- Correctly position the carpet in the area of B-pillar at the right.

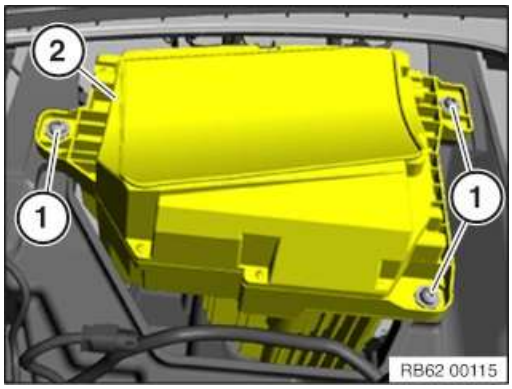


- Push the refrigerant line (1) slightly to one side and tighten the screw (2).

Support for instrument panel

M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm

41 – Installing the head-up display



- Connect the associated connector to the Head-Up Display.
- Guide the Head-Up Display (2) into the support.
- Tighten the screws (1).

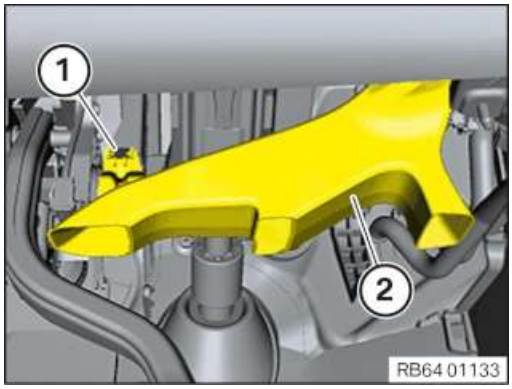
Head-Up Display to support

M6x25 screw		Tightening torque	13 Nm

42 – Installing the air duct, left

mdiagn.com

42 – Installing the air duct, left



- Clip in the air duct (2) at the clamp (1) in the air conditioning housing at an angle towards the top.

43 – Installing knee airbag

WARNING

Airbag unit.

Danger! Life-threatening injuries!

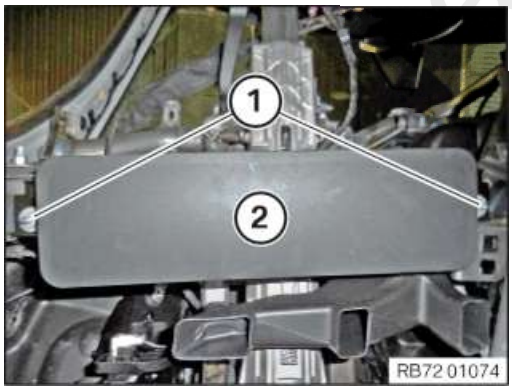
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

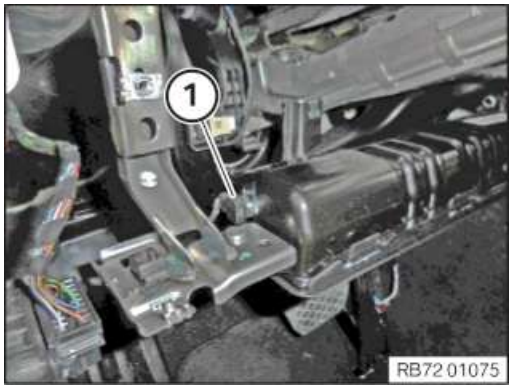
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Position knee airbag (2) correctly.
- Tighten nuts (1).

Knee airbag on support structure

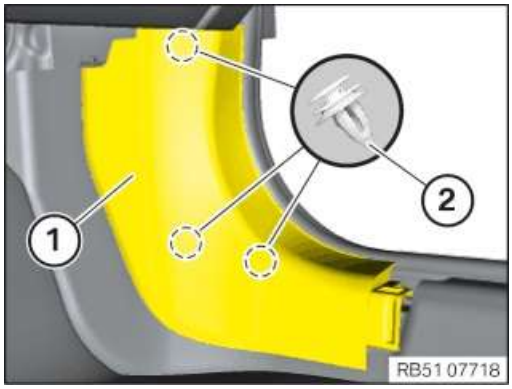
Nut		Tlghtening torque	8 Nm



- Connect connectors (1) and lock.

airdiagn.com

44 – Installing side trim panel in footwell on right A-pillar



- Check the clips (2) for damage.

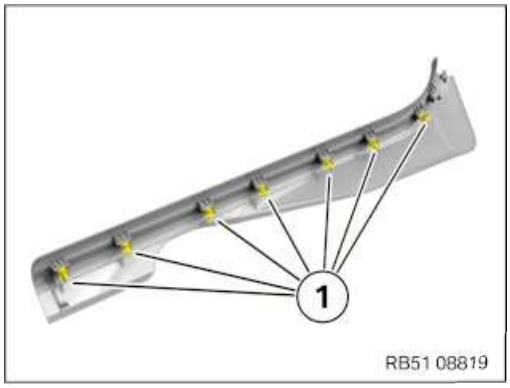
  Renew damaged or missing clips (2).
- Correctly position the side trim panel (1) and clip in to the clips (2).
- Make sure that the side trim panel (1) is correctly fitted against edge protection.

45 – Installing inner right door sill cover strip

NOTICE

Description is for left component only. Procedure on the right side is identical.

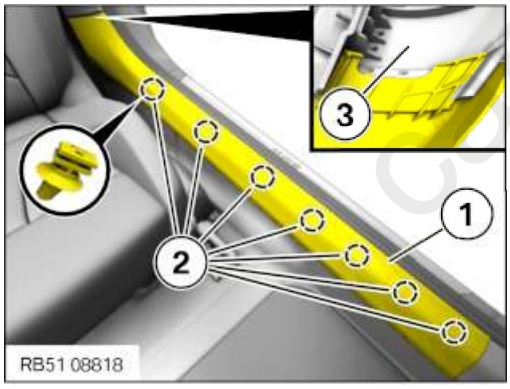
▸ **Installing the inner door sill cover strip**



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

46 – Install the trim panel for the instrument panel

cardiagn.com



TECHNICAL INFORMATION

Conduct the following operation with the assistance of a second person.

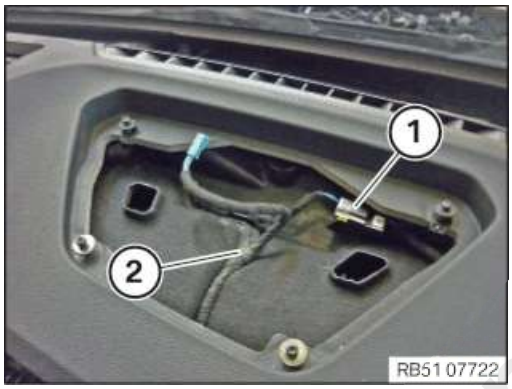
- Insert the instrument panel trim in the vehicle and position it at the support.
- Insert the associated wiring harnesses and connect the connectors.
- Tighten the screws (1).

Dashboard to support

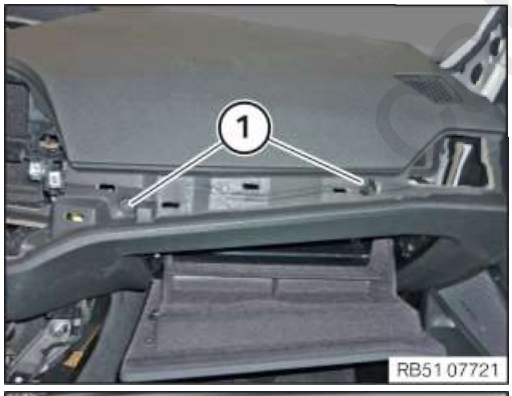
Screw		Tightening torque	2,4 Nm



- Connect connector (1) to the light operating unit and lock.



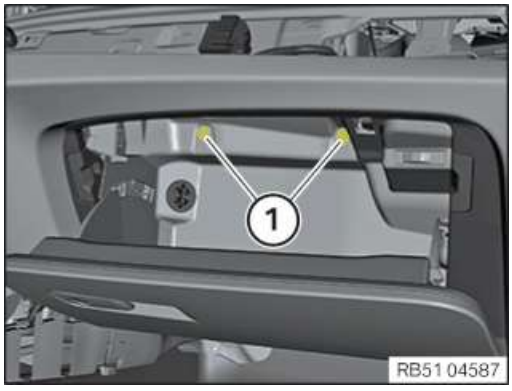
- Secure the wiring harness (2) on the holders.
- Connect connectors (1) and lock.



- Tighten the screws (1).

Dashboard to support

Screw		Tightening torque	2,4 Nm

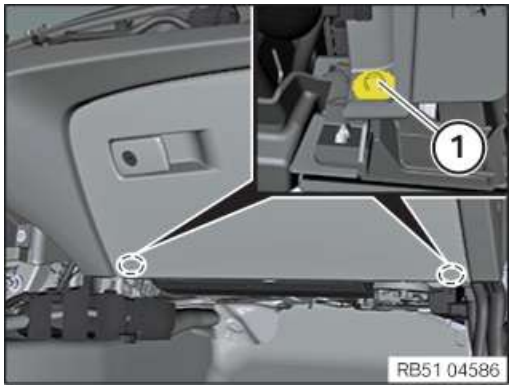


- Open glovebox.
- Tighten the screws (1).

Dashboard to support

Screw		Tightening torque	2,4 Nm

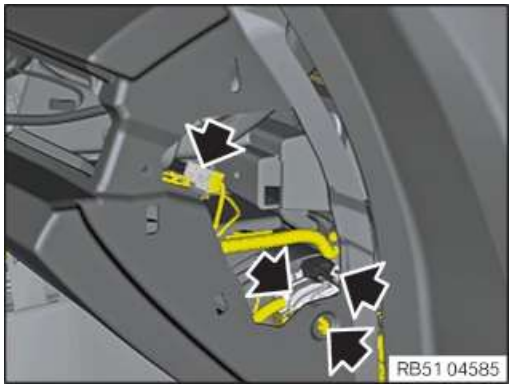
cardiagn.com



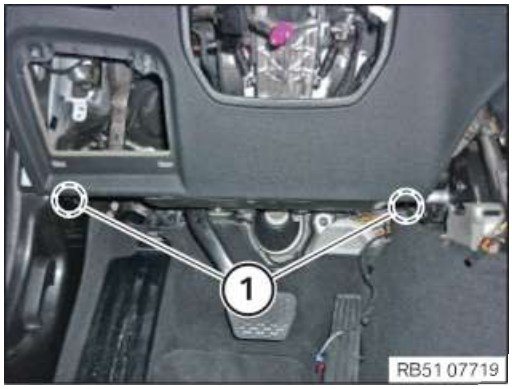
- Tighten the screws (1) on the lower side of the glove box button.

Dashboard to support

Screw		Tightening torque	2,4 Nm



- Connect all plug connections and cable clips (arrows) behind the glove box.



- Tighten the screws (1).

Dashboard to support

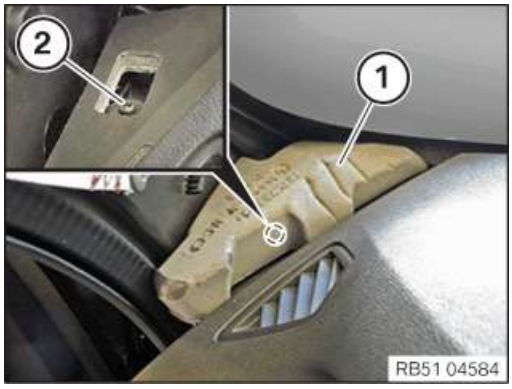
Screw		Tightening torque	2,4 Nm



- Tighten the screws (1).

Dashboard to support

Screw		Tightening torque	2,4 Nm



NOTICE

Perform the operations on the left and right side.

- Tighten down screw (2).

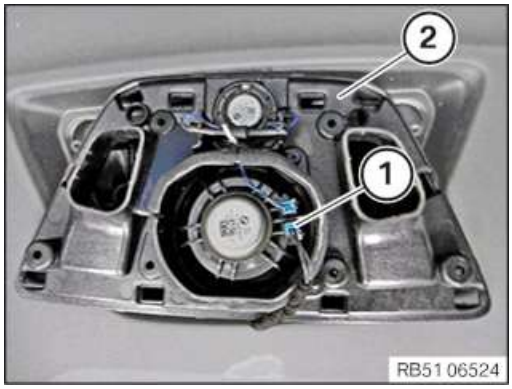
Dashboard to support

Screw		Tightening torque	2,4 Nm

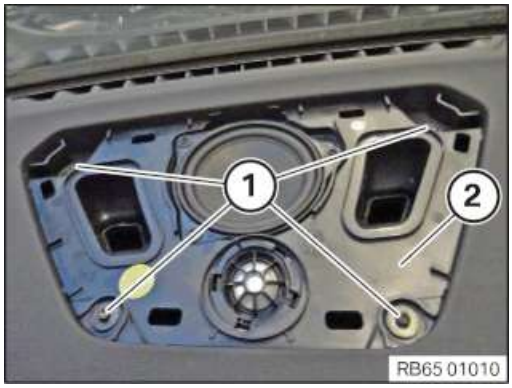
- Use sound insulation (1).

47 – Install the speaker holder at the instrument panel

rdiagn.com



- Position the speaker holder (2).
- Connect connector (1).

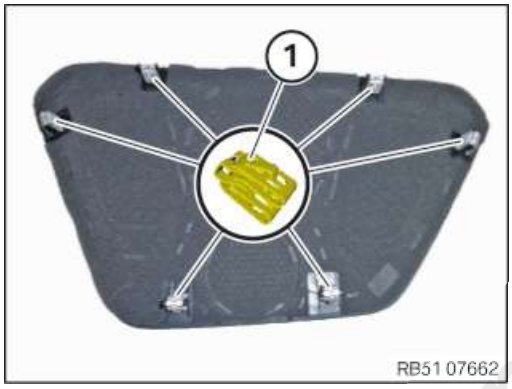


- Install the speaker holder (2).
- Tighten the screws (1).

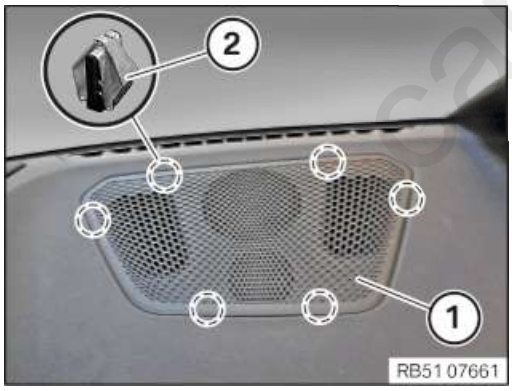
Speaker to support / support to instrument panel / support to body

Screw		Tightening torque	1,8 Nm

48 – Install the speaker trim at the instrument panel

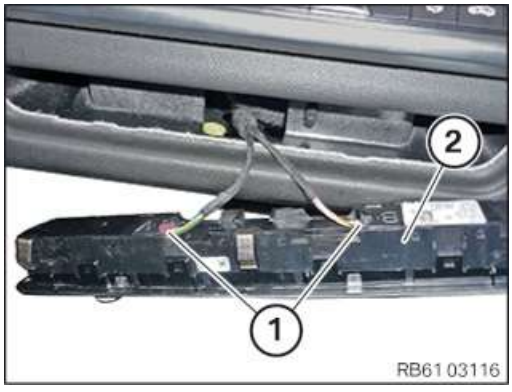


- Check clamps (1) for damage.
- Replace broken or missing clamps (1).



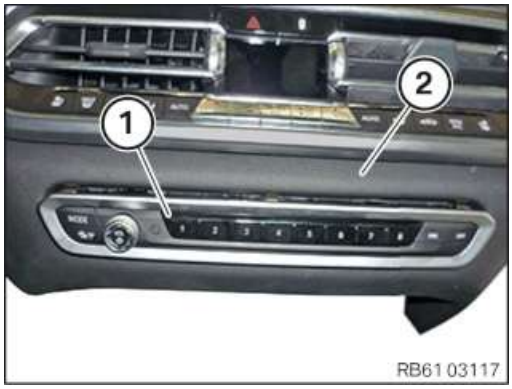
- Position the speaker trim (1) correctly and engage it at the clamps (2).

49 – Install the audio operating unit



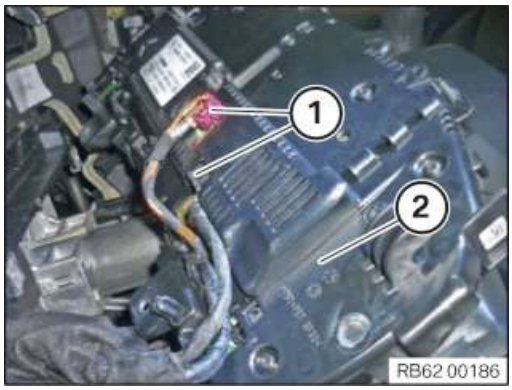
- Connect the connector (1) to the audio operating unit (2).

carsdiagn.com

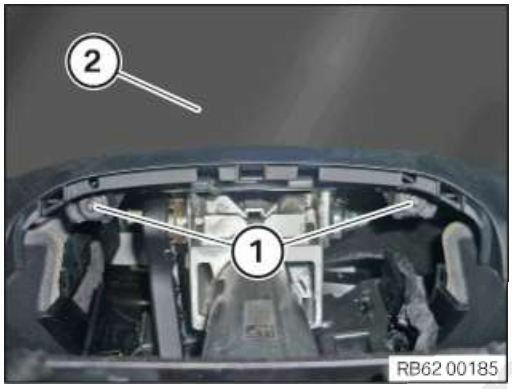


- Correctly position the audio operating unit (1) and install in the instrument panel(2).

50 – Installing the instrument cluster (KOMBI)



- Connect and lock connector (1) to the instrument cluster (KOMBI) (2).



- Feed in and position the instrument cluster (KOMBI) (2).
- Tighten the screws (1).

Instrument cluster (KOMBI) to support

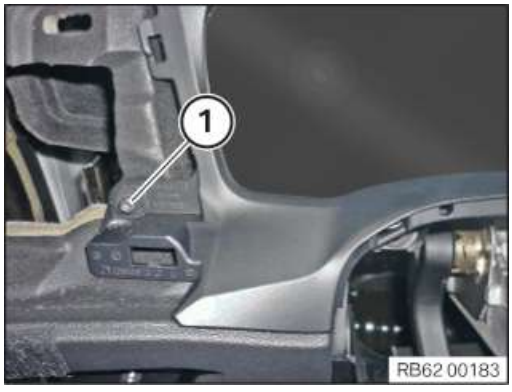
Screw		Tightening torque	1,8 Nm



- Tighten down screw (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm

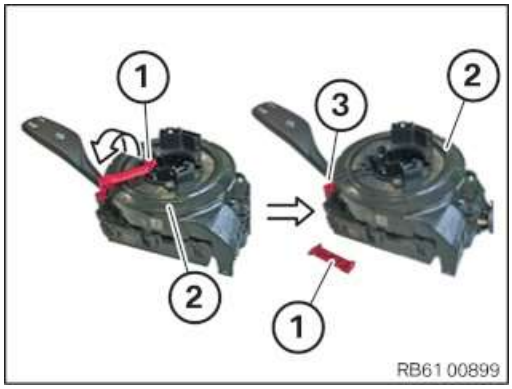


- Tighten down screw (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm

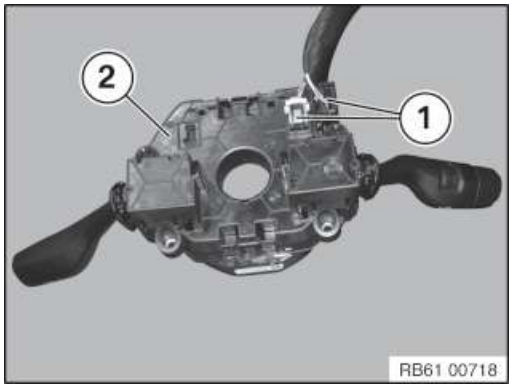
51 – Installing the steering column switch cluster (SZL)



- **Replacement:**

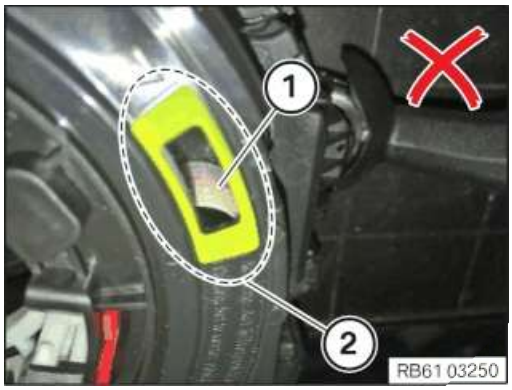
  Break off the transportation retainer (1) on the steering column switch cluster (SZL) (2) in direction of arrow.

  The broken off piece (3) of 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



- **Version A:**

  Check whether the correct marking (1) is seen in inspection glass (2).

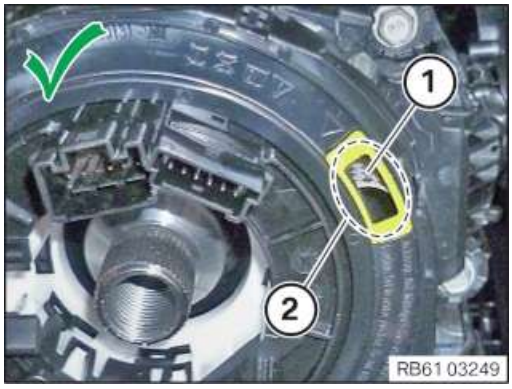
Result

» Ensure that no incorrect marking (1) is seen in inspection glass (2).

Measure

- Turn the coil spring cassette until the right mark (1) becomes visible in the inspection glass (2).

Check



- **Version A:**

  Check whether the correct marking (1) is seen in inspection glass (2).

Result

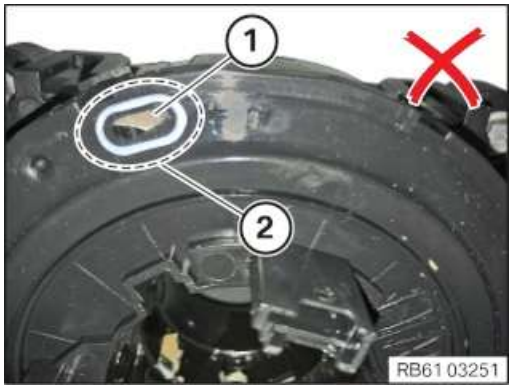
» Correct marking (1) is seen in inspection glass (2).

Measure

- Continue with the next step.

Check

cardiagn.com



- **Version B:**

  Check whether the correct marking (1) is seen in inspection glass (2).

Result

» Ensure that no incorrect marking (1) is seen in inspection glass (2).

Measure

- Turn the coil spring cassette until the right mark (1) becomes visible in the inspection glass (2).

Check



- **Version B:**

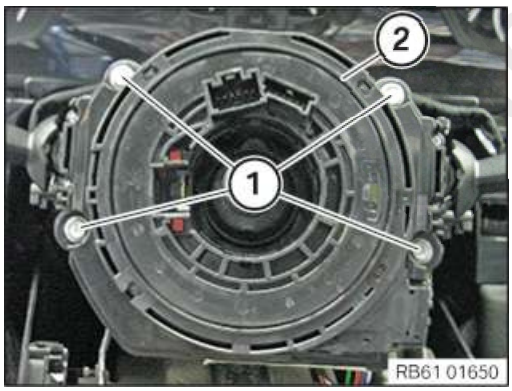
  Check if the correct mark (1) can be seen in the inspection glass (2).

Result

» Correct marking (1) is seen in inspection glass (2).

Measure

- Continue with the next work step.

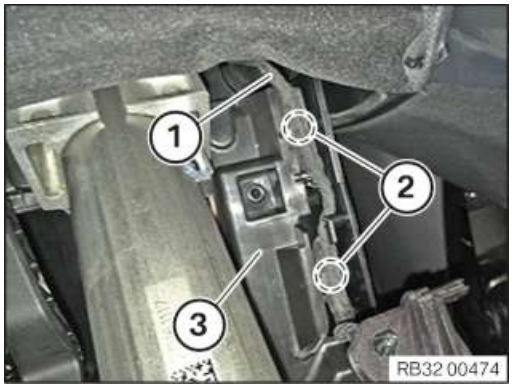


- Position the steering column switch cluster (SZL) (2).
- Tighten the screws (1).

Steering column switch cluster (SZL) on the steering column

Screw TS5x20		Tightening torque	3 Nm

52 – Install steering column shroud lower section

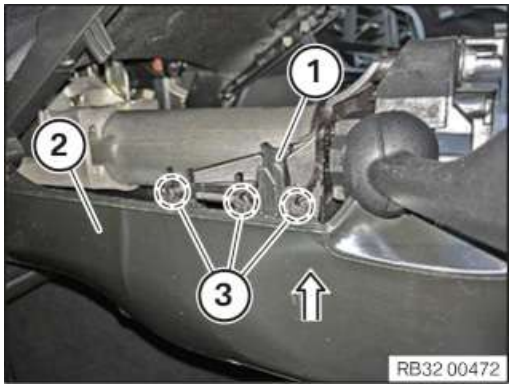


- Position the steering column shroud lower section (3).
- Secure the line (1) on the brackets (2).

vwdiagn.com



- Connect the connector (1).

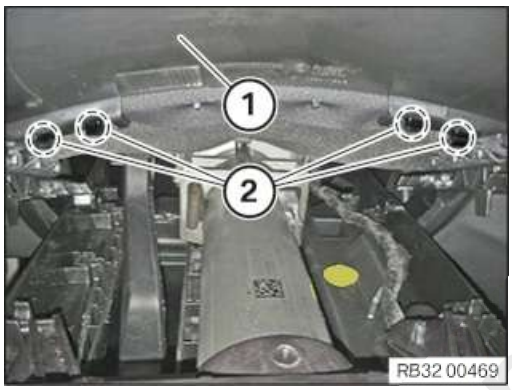


NOTICE

Perform the operations on the left and right side.

- Align the steering column shroud lower section (2) to the steering column using the retaining lug (1).
- Push the steering column shroud lower section (2) up in the direction of the arrow until the brackets (3) engage.

53 – Fit steering column shroud upper section



- Clip in the steering column shroud upper section (1) at the brackets (2).



NOTICE

Perform the operations on the left and right side.

- Clip in the steering column shroud upper section (1)into the guide (2).



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.

54 – Installing the sports steering wheel

diag.com

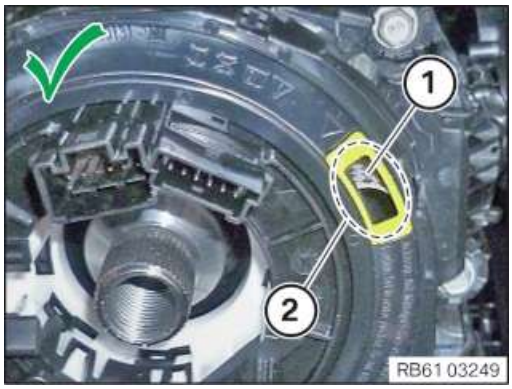
▶ **Check the neutral position of the clock spring**

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▷ **Version A: Checking the visibility of the marking on the coil spring**

Check



- Check the visibility of the marking (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).

◁

▷ **Version B: Checking the visibility of the marking on the coil spring**

Check



- Check the visibility of the marking (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



- Check if a microencapsulated screw (3) is installed.

Result

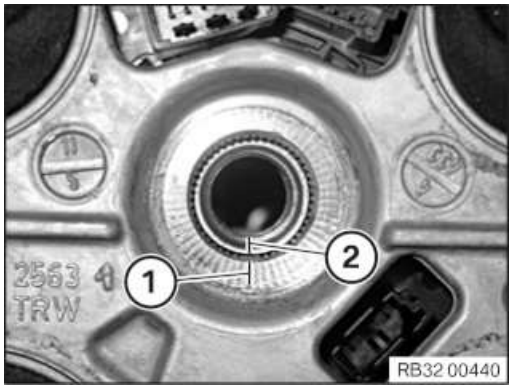
» Screw (3) is micro-encapsulated.

Measure

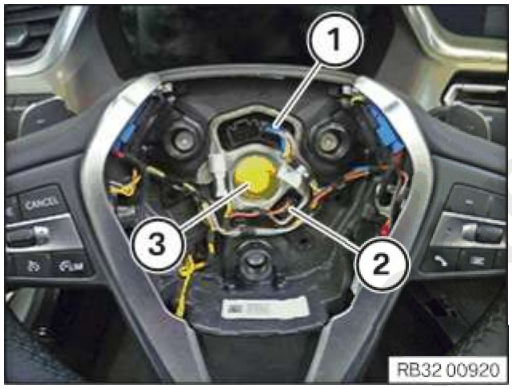
- Clean thread in the steering column.

  Renew the screw (3).

  Parts: Screw



- Align mark (1) on steering wheel to mark (2) on steering column.
- Connect steering wheel.



- Connect connectors (1) and lock.
- If installed: Connect connectors (2) and lock.
- Tighten screw (3) .

Steering wheel to steering column

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

55 – Installing the steering wheel/M Sport steering wheel

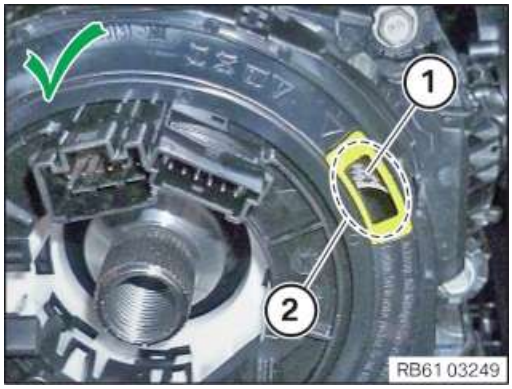
▸ **Check the neutral position of the clock spring**

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▹ **Version A: Checking the visibility of the marking on the coil spring**

Check



- Check the visibility of the marking (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).

◁

▷ **Version B: Checking the visibility of the marking on the coil spring**

Check



- Check the visibility of the marking (1) on the coil spring in the inspection glass (2) .

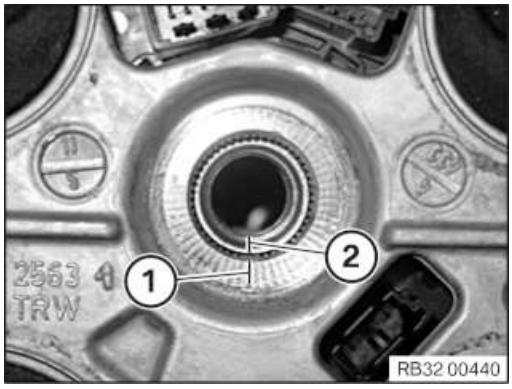
Result

» 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).

◁



- Align mark (1) on steering wheel to mark (2) on steering column.
- Position the steering wheel.

Check

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- A micro-encapsulated screw (1) may be fitted.

  Check the screw connection.

Result

» Screw (1) is micro-encapsulated.

Measure

- Clean thread in the steering column.

  Renew the screw (1).

  Parts: Screw



- Tighten down screw (1).

Steering wheel to steering column

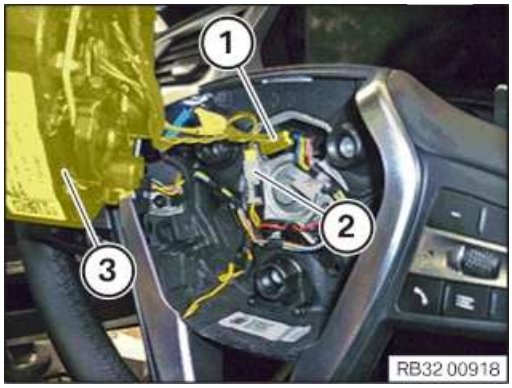
M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

56 – Installing the airbag unit

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▸ **Installing the airbag unit for the sports steering wheel**



- Position airbag unit (3).
- Connect connectors (1) and (2) lock.

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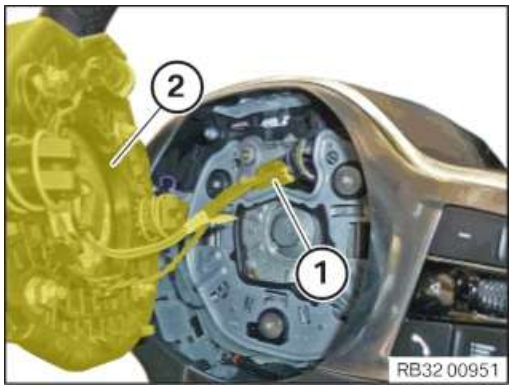
- Press the airbag unit (1) with even pressure in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

▸ **Installing the airbag unit for M Sport steering wheel**

TECHNICAL INFORMATION

After replacing the airbag unit (M sport steering wheel) or after a possible conversion of standard steering wheel and airbag unit to M-sports steering wheel, a software update or a programming/encoding via ISTA must be performed!



- Connect and lock the connector (1) of the airbag unit (2).



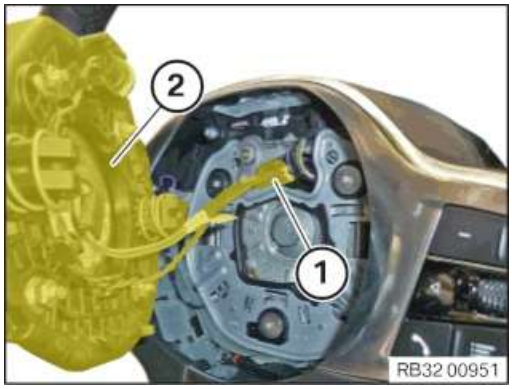
- Press the airbag unit further (1) with even pressure in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

57 – Installing the airbag unit (M Sport steering wheel)

TECHNICAL INFORMATION

After replacing the airbag unit (M sport steering wheel) or after a possible conversion of standard steering wheel and airbag unit to M-sports steering wheel, a software update or a programming/encoding via ISTA must be performed!



- Connect and lock the connector (1) of the airbag unit (2).



- Press the airbag unit further (1) with even pressure in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

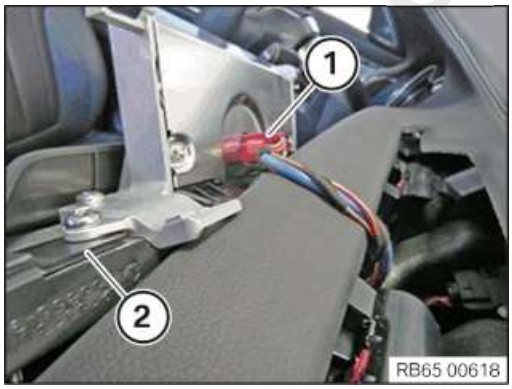
58 – Install the central information display (CID)

RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)



- Position Central Information Display (CID) (2).
- Connect plug connection (1) and lock.

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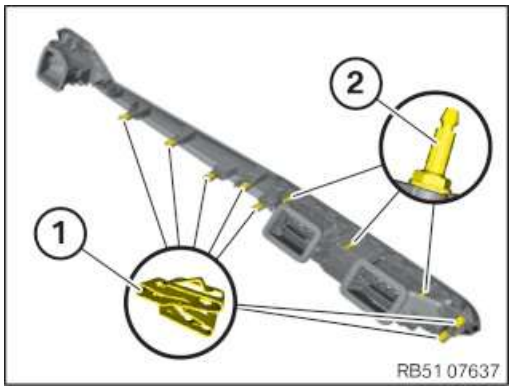


- Insert the central information display (CID) (2) in the instrument panel and position correctly.
- Tighten the screws (1).

Central information display to instrument panel

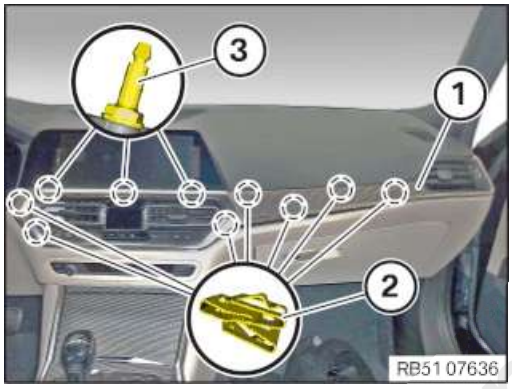
Screw		Tightening torque	2,4 Nm

59 – Install the finisher on the right instrument panel



- Checks clamps (1) for damage.

  Defective or missing clamps (1) need to be renewed.
- Check the pins (2) and the accompanying clamps at the instrument panel trim for damage, renew if necessary.



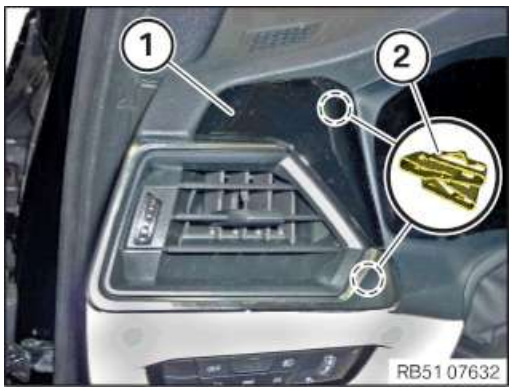
- Install the decorative strip (1).
- Connect and lock corresponding connectors.
- Correctly position the decorative strip (1) and at the clamps (2) and clip in the pins (3).

60 – Install the finisher on the instrument panel on the left



- Check the clamps (1) for damage and that they are present.

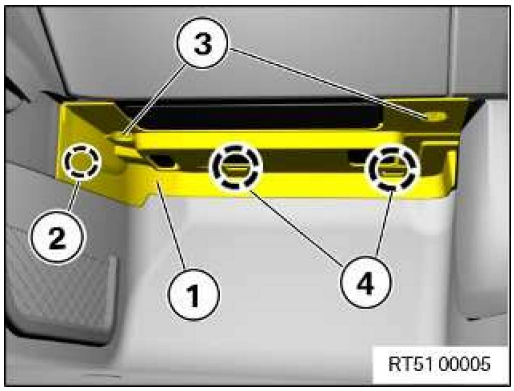
  Damaged or missing clamps (1) must be renewed.



- Install the decorative strip (1).
- Connect and lock the associated connectors.
- Clip decorative strip (1) into clamps (2).

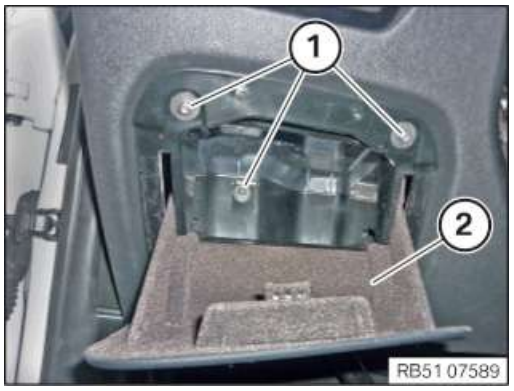
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61 – Install the right footwell trim panel



- Connect associated connector.
- Attach the footwell trim (1) to the guides (4) and fold up.
- Guide the footwell trim (1) into the guide (2) of the centre console.
- Position the locks (3) correctly and turn by 90°.

62 – Installing the left fold-down compartment

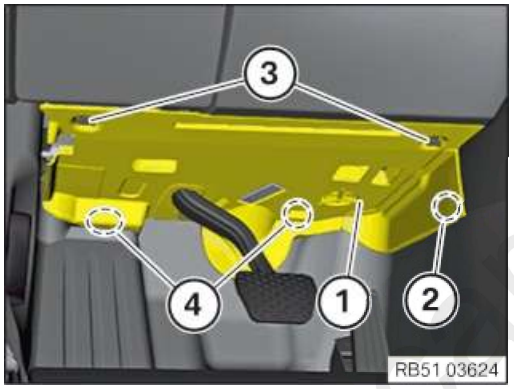


- Install the fold-down compartment (2).
- Tighten the screws (1).

Fold-down compartment to instrument panel

Oval-head screw		Tightening torque	1,8 Nm

63 – Installing the trim panel for the pedal mechanism



- Connect associated connector.
- Attach the trim panel for the pedal mechanism (1) in the guides (4) and fold it up.
- Clip the trim panel for the pedal mechanism (1) into the centre console in this area (2).

TECHNICAL INFORMATION

It is **imperative** that the screws caps of the trim panel be correctly locked. This is the only way to ensure that the trim panel does not come loose and potentially tilt into the pedal area.

- Insert screw caps (3) correctly and turn by 90° to lock.

64 – Install the A-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the A-pillar trim panel**

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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

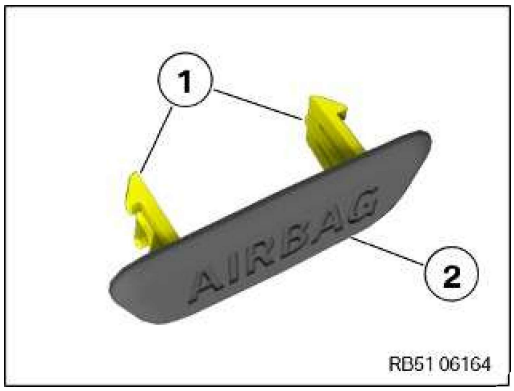
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



Check

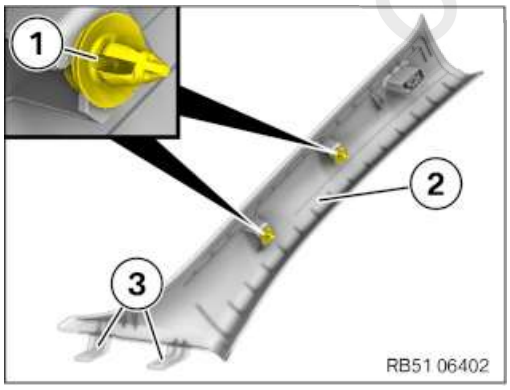
- Check retaining lugs (1) of cover (2) for damage.

Result

» Retaining lug is damaged.

Measure

- Renew the cover.



Check

- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

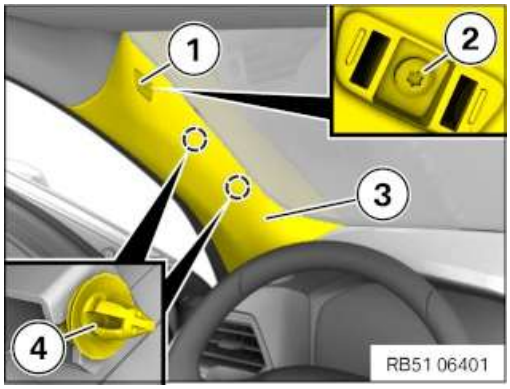
Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.

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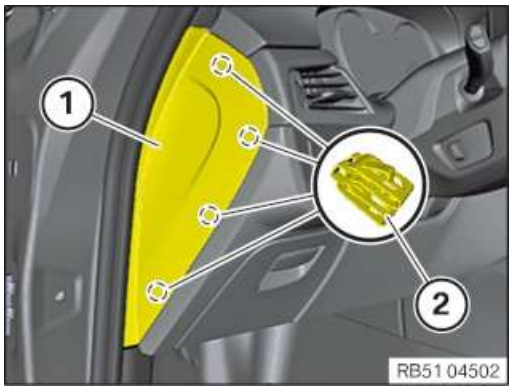
- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

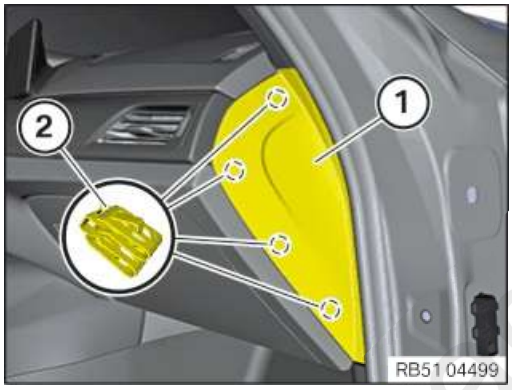
- Clip in the cover (1).

65 – Install the side panel on left instrument panel



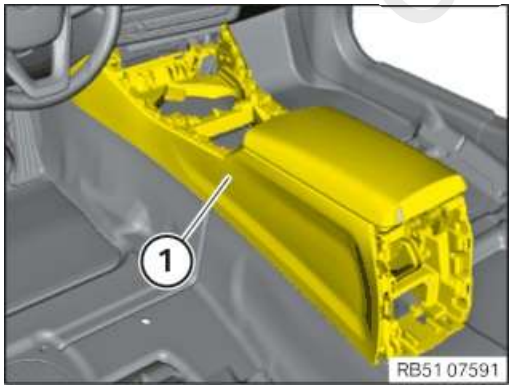
- Feed in the side panel (1) and clip it in at the clamps (2).

66 – Install the side panel on instrument panel on the right



- If required, connect the associated connector.
- Feed in the side panel (1) and clip it in at the clamps (2).

67 – Installing the centre console

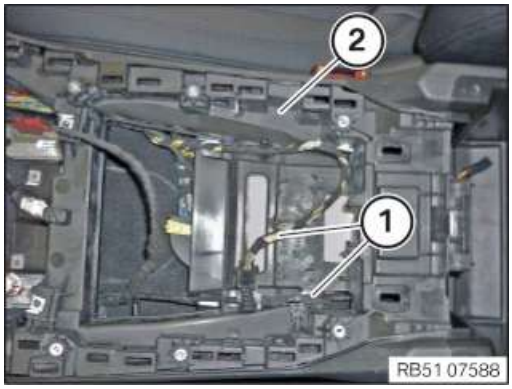


NOTICE

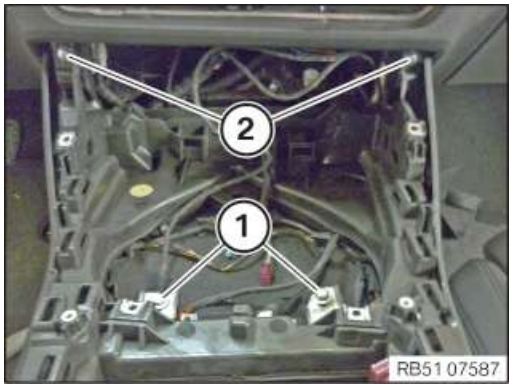
To provide a better overview: Schematic diagram with partially hidden components.

- Install centre console (1) and thereby feed in the wiring harness.
- Feed in the centre console (1) to the instrument panel and position correctly.

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- Secure the wiring harness to the centre console (1) and connect and lock the existing plug connections.



- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

- Tighten the screws (2).

Centre console to instrument panel

Oval-head screw		Tightening torque	1,8 Nm

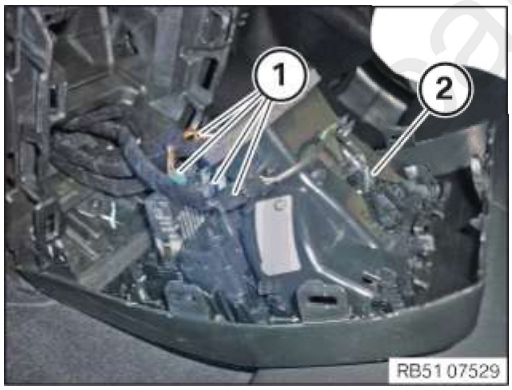


- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

68 – Installing the rear centre console trim



- Install the centre console trim (2).
- Connect connectors (1) and lock.

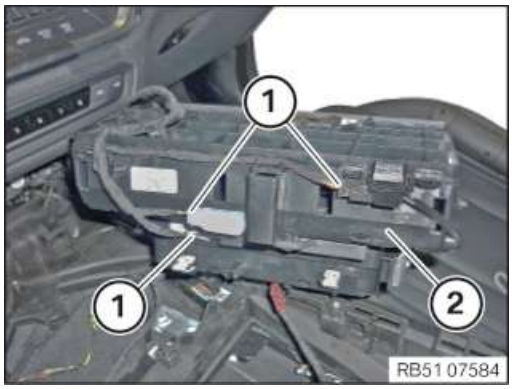


- Position centre console trim (1) and engage at the latch mechanisms at the side.

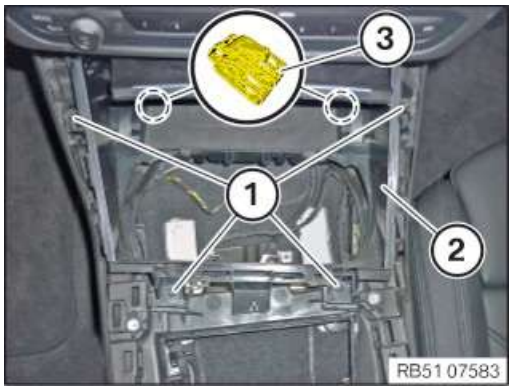
69 – Installing the storage compartment in the centre console in the front

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69 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).

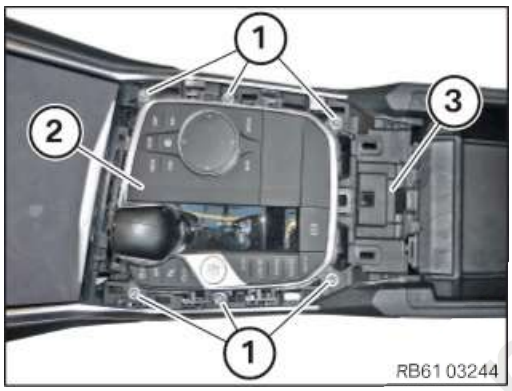


- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

70 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw		Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**



- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

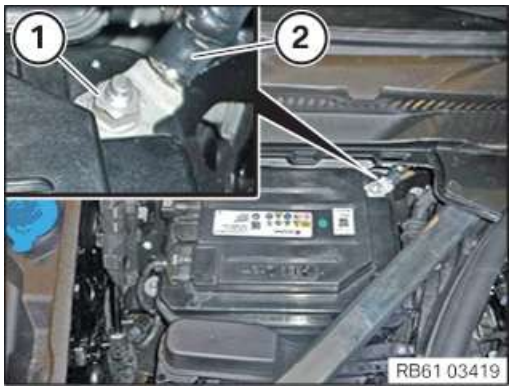
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



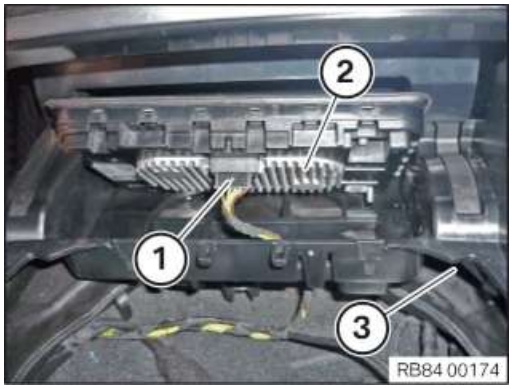
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



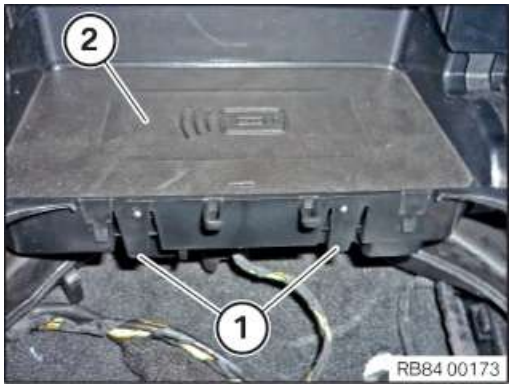
- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

71 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.

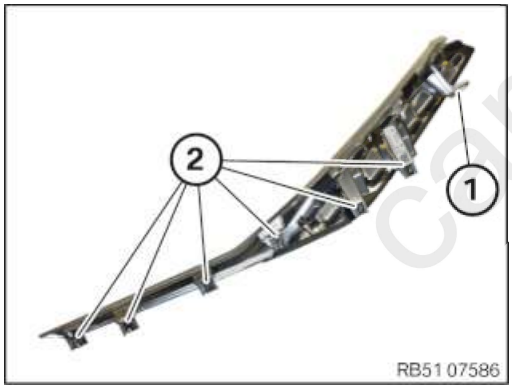
  The latch mechanisms (1) must engage correctly.

72 – Installing the decorative trim on the centre console on the left and right

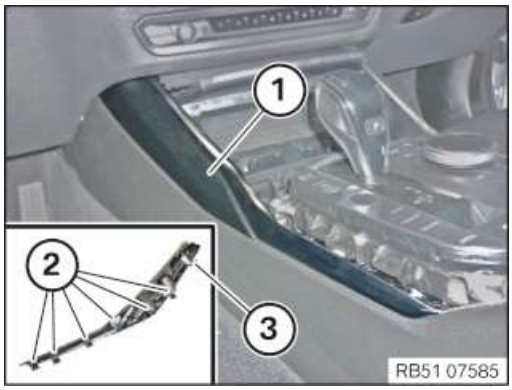
▸ **Installing the decorative trim on the centre console**

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

73 – Installing the centre console trim

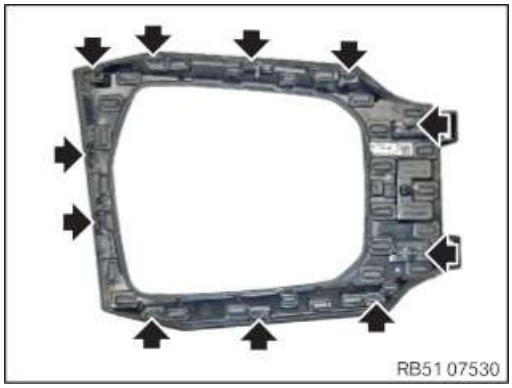
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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

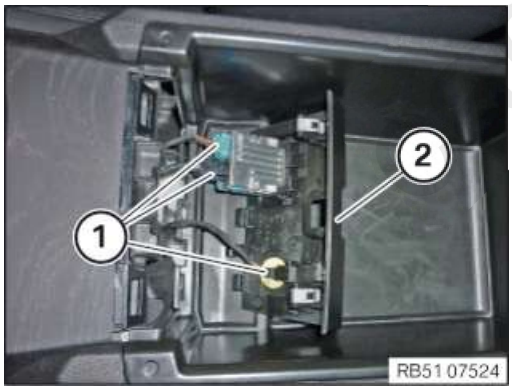


- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

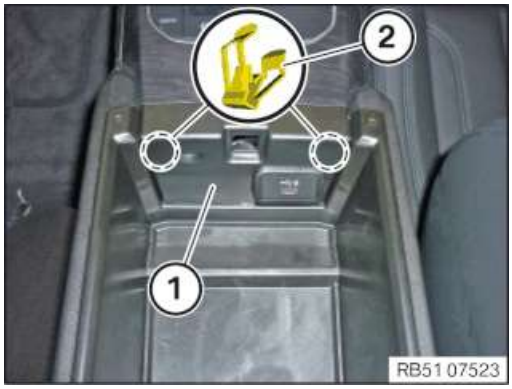


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

74 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

75 – Install the cup holder

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- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

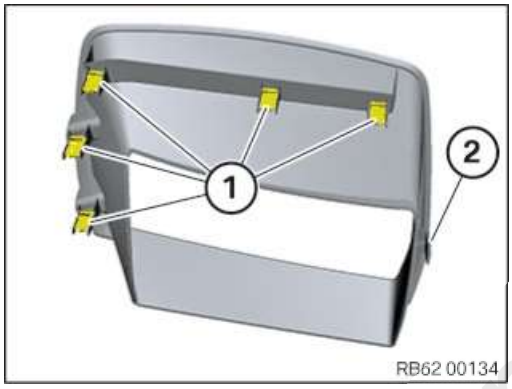
Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm

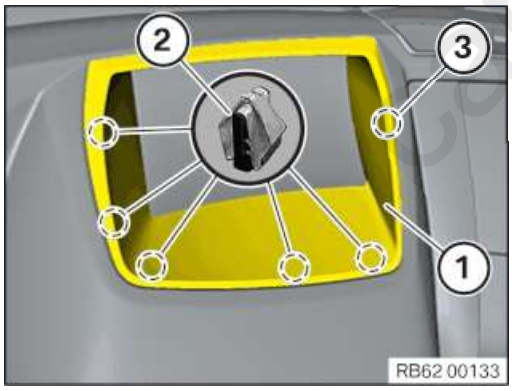


- Insert the insert (1).

76 – Installing the trim for the Head-Up Display



- Check clamps (1) and the latch mechanism (2) for damage, renew if necessary.



- Correctly position the trim (1) for the BMW Head-Up Display and engage it on the clamps (2) and the retaining lug (3).

Additional Information

Overview of Tightening Torques

Heating and air-conditioning unit on support Used in step 40

Nut M6		Tightening torque	4 Nm

Support for instrument panel Used in step 40

M8 hexagon nut		Tightening torque	21 Nm
Hexagon screw		Tightening torque	21 Nm

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Head unit to holder / holder to support			Used in step 40
Screw		Tightening torque	1,8 Nm

Steering column to dashboard support			Used in step 40
M8	Observe tightening sequence.	Tightening torque	21,4 Nm

Head-Up Display to support			Used in step 41
M6x25 screw		Tightening torque	13 Nm

Knee airbag on support structure			Used in step 43
Nut		Tlghtening torque	8 Nm

Dashboard to support			Used in step 46
Screw		Tightening torque	2,4 Nm

Speaker to support / support to instrument panel / support to body			Used in step 47
Screw		Tightening torque	1,8 Nm

Instrument cluster (KOMBI) to support			Used in step 50
Screw		Tightening torque	1,8 Nm

Steering column switch cluster (SZL) on the steering column			Used in step 51
Screw TS5x20		Tightening torque	3 Nm

Steering wheel to steering column			Used in step 5455
M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

Central information display to instrument panel			Used in step 58
Screw		Tightening torque	2,4 Nm

Fold-down compartment to instrument panel			Used in step 62
Oval-head screw		Tightening torque	1,8 Nm

A-pillar trim panel to body			Used in step 64
Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

Centre console on tunnel			Used in step 67
M6x18 Hexagon screw		Tightening torque	4,6 Nm

Centre console to instrument panel			Used in step 67
Oval-head screw		Tightening torque	1,8 Nm

Storage compartment in centre console			Used in step 69
Oval-head screw		Tightening torque	1,8 Nm

Gear selector switch to centre console trim			Used in step 70
Screw		Tightening torque	1,8 Nm

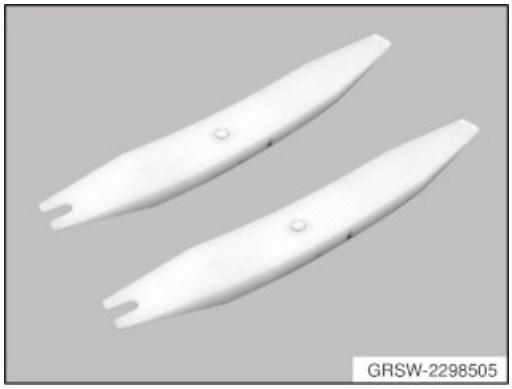
Negative battery cable to 48-V battery			Used in step 70
Nut M8		Tightening torque	19 Nm

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Cup holder to centre console			Used in step 75
Oval-head screw		Tightening torque	1,8 Nm

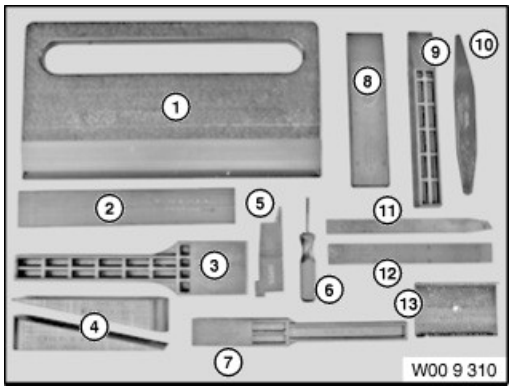
Overview of Special Tools

2 298 505 Wedge



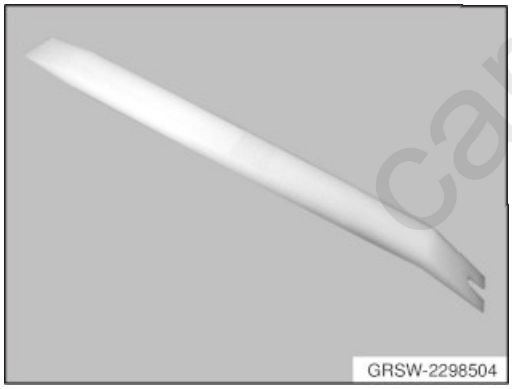
Common	Used in step 45
Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

0 493 752 (00 9 329) Case



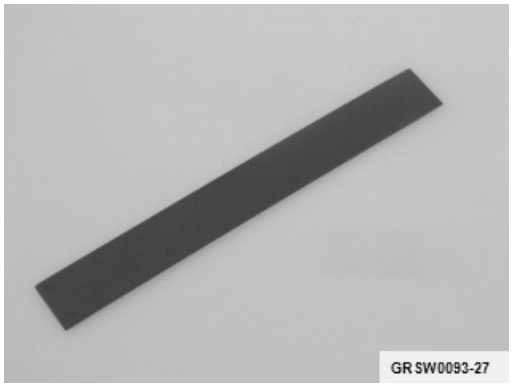
Common	Used in step 1433
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 298 504 Wedge



Common	Used in step 25
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)

0 496 571 (00 9 327) Wedge



Common	Used in step 29
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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0 496 569 (00 9 325) Wedge



Common	Used in step 30
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 (PRE)	Used in step
Notes on 48-V battery	870

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	14213543
72 00 ... Safety regulations for handling components with gas generators	14

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	870
61 20 900 Disconnecting and connecting battery earth lead	870
61 20 900 Disconnecting and connecting battery earth lead	870
61 20 900 Disconnecting and connecting battery earth lead	870
61 20 900 Disconnecting and connecting battery earth lead	870
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61 20 900 Disconnecting and connecting battery earth lead	870
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	870
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	870
61 20 900 Disconnecting and connecting battery earth lead	870
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	870

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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	870
61 20 900 Disconnecting and connecting battery earth lead	870
61 20 900 Disconnecting and connecting battery earth lead	870
61 20 900 Disconnecting and connecting battery earth lead	870
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61 20 900 Disconnecting and connecting battery earth lead	870
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	870
61 20 900 Disconnecting and connecting battery earth lead	870
61 20 900 Disconnecting and connecting battery earth lead	870
61 20 900 Disconnecting and connecting battery earth lead	870
61 35 ... Notes on ESD protection (Electro Static Discharge)	2058
61 35 ... Notes on ESD protection (Electro Static Discharge)	2058

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51 45 031 Replacing instrument panel trim

PRELIMINARY WORK

1 – Adjust the steering column position

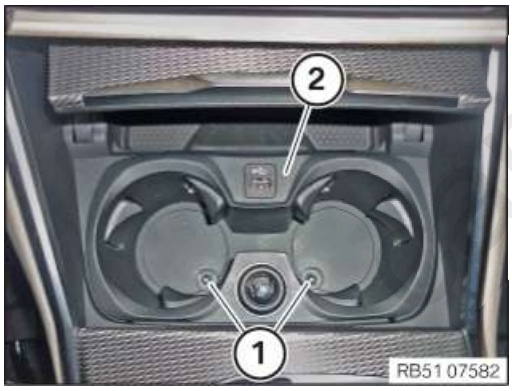


- Adjust the length of the steering column to the maximum length in the direction of arrow (1).
- Move the steering column to the lowest steering column position in the direction of arrow (2).

2 – Remove cupholder

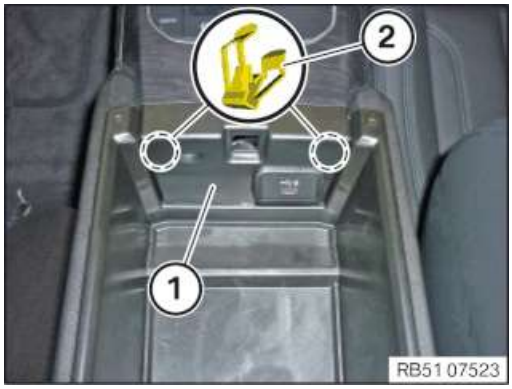


- Remove the insert (1).

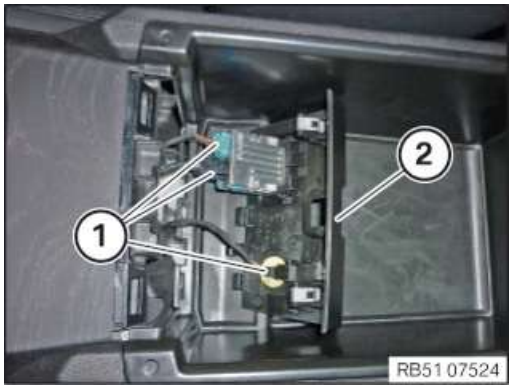


- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

3 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

4 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



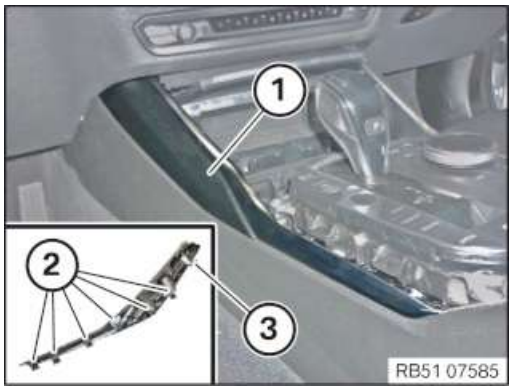
- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

5 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

NOTICE

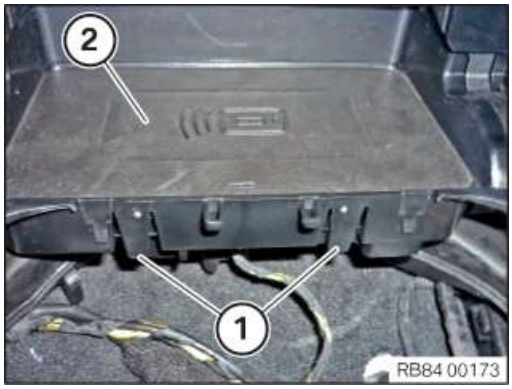
Description is for left component only. Procedure on the right side is identical.



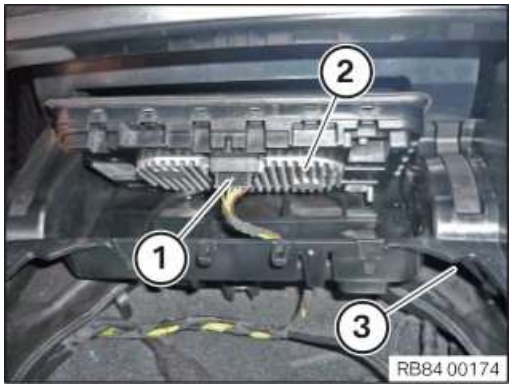
- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

6 – Removing the wireless charging station

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- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

7 – Remove the operating facility in the centre console

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

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- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

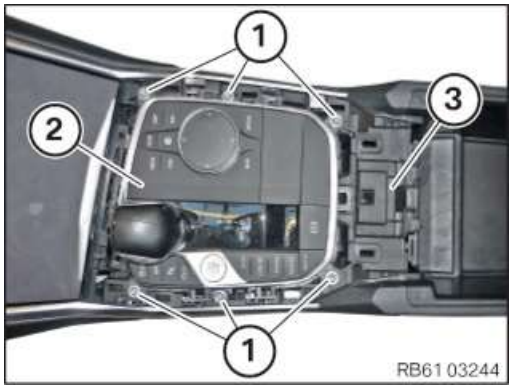
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**

- See additional information.

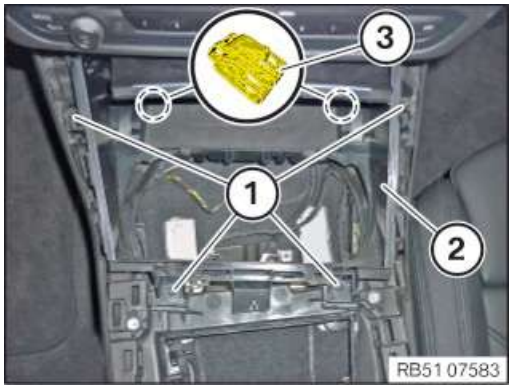




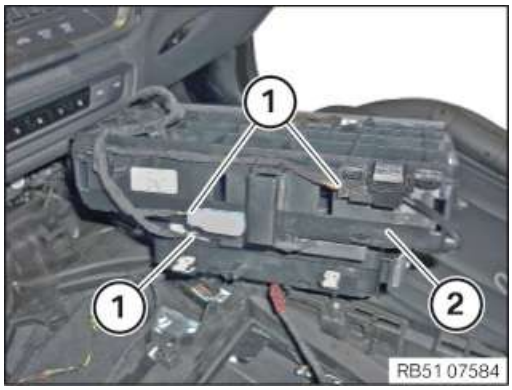
- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

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8 – Removing the storage compartment in the front centre console



- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).



- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

9 – Removing the rear centre console trim

RISK OF DAMAGE

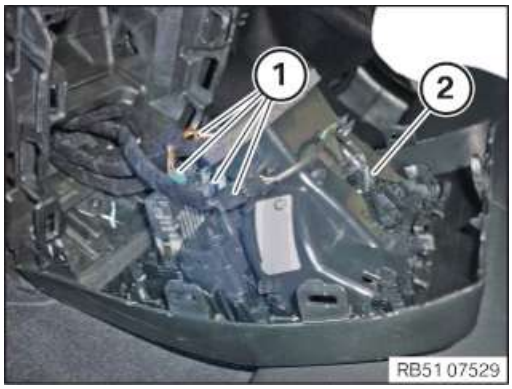
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.



- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

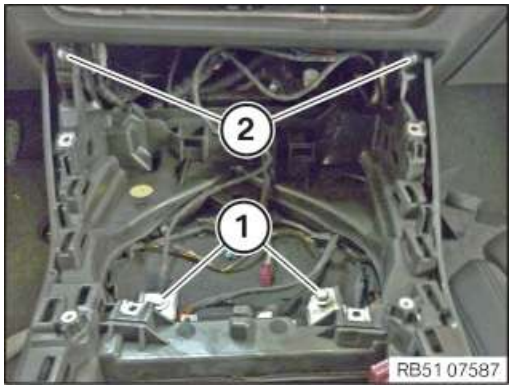
10 – Removing the centre console

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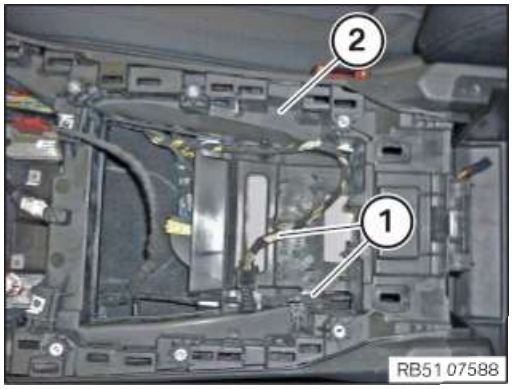
10 – Removing the centre console



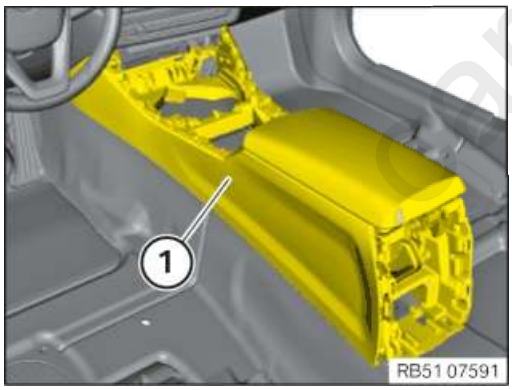
- Loosen screws (1).



- Loosen screws (1) and (2).



- Release the wiring harness (1) from the centre console (2).

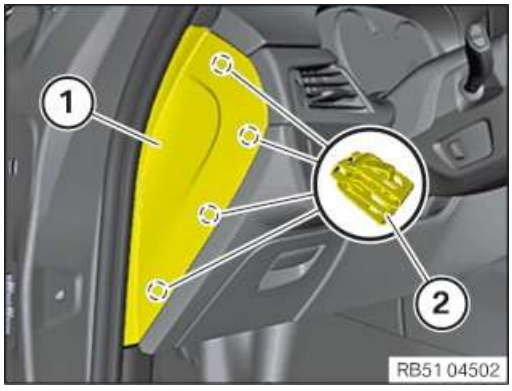


NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Carefully raise rear centre console (1).
- Feed out wiring harness from the centre console (1) and unlock and disconnect existing plug connections, if required.
- Feed out and remove the centre console (1) on the instrument panel .

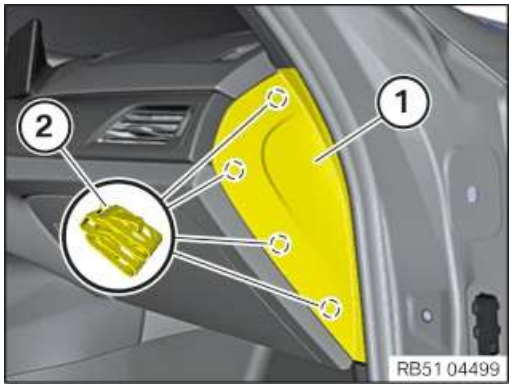
11 – Remove the side panel on the left instrument panel



- Unclip and remove the side panel (1) towards the outside from the clamps (2).

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12 – Remove the side panel on the right instrument panel



- Unclip and remove the side panel (1) towards the outside from the clamps (2).
- If necessary, unlock associated plug connection and disconnect.

13 – Remove left and right A-pillar trim panel

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

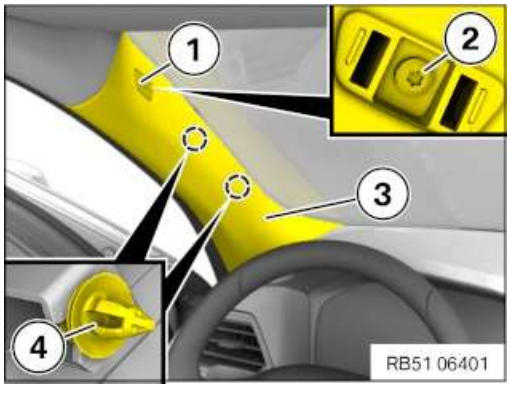
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



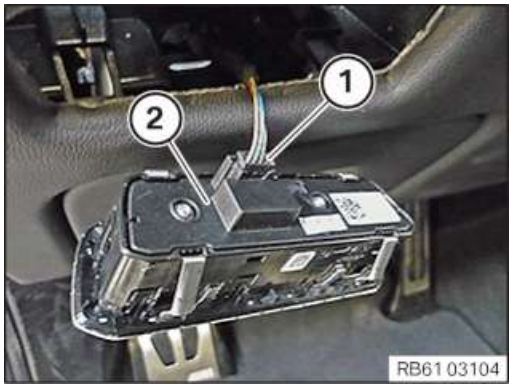
- Unclip cover (1) with a suitable special tool from the special tool kit 0 493 752 (00 9 329).
- Loosen screw (2).
- Unclip A-pillar trim panel (3) with clips (4) and feed it out to the top.

14 – Removing the light operating unit

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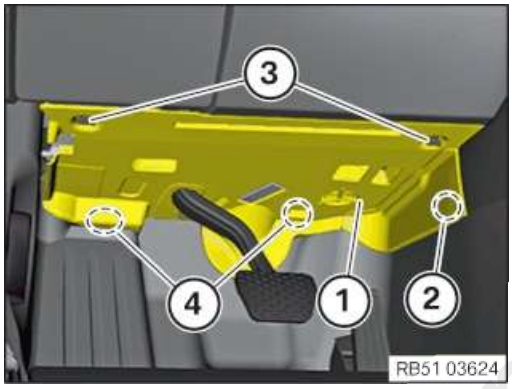


- Unclip light operating unit (1) at the marked positions of the rear.



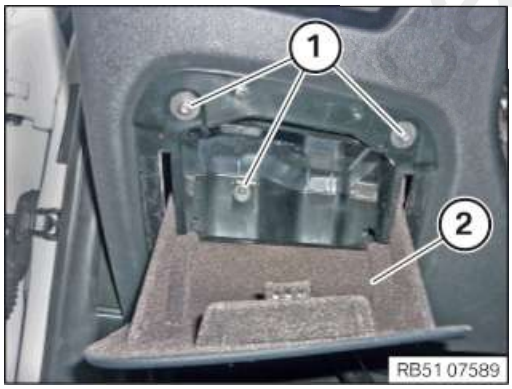
- Unlock the plug connection (1) on the light operating unit (2) and disconnect it.

15 – Removing the trim panel for pedal mechanism



- Unclip the trim panel for the pedal mechanism (1) towards the inside in this area (2).
- Turn the locks (3) by 90°.
- Detach the trim panel for the pedal mechanism (1) inwards out of the guides (4).
- Unlock associated plug connection and disconnect.

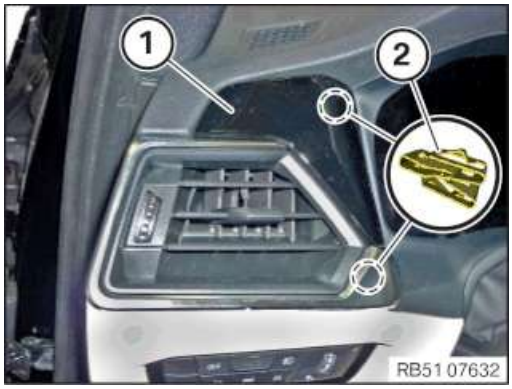
16 – Removing the left fold-down compartment



- Loosen screws (1).
- Remove the fold-down compartment (2) toward the bottom.

17 – Remove the finisher on the instrument panel on the left

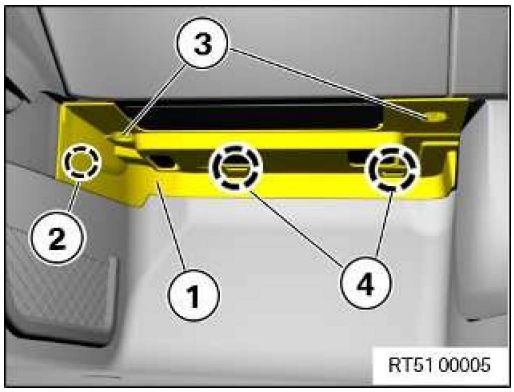
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- Unclip decorative strip (1) to the rear out of the clamps (2).
- Unlock associated plug connection and disconnect.

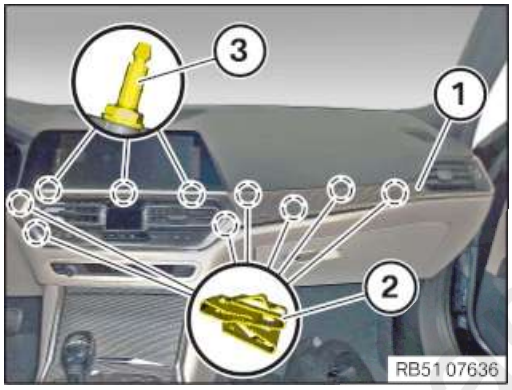
  Remove the decorative strip (1).

18 – Remove the right footwell trim



- Turn the locks (3) by 90°.
- Feed the footwell trim (1) out of the guide (2).
- Detach the footwell trim (1) inward out of the guides (4).
- Unlock associated plug connection and disconnect.

19 – Remove the finisher on the right instrument panel



- Unclip the decorative strip (1) towards rear at the clamps (2) and the pins (3).
- Unlock associated plug connection and disconnect.
- Remove the decorative strip (1).

20 – Remove Central Information Display (CID)

RISK OF DAMAGE

Electrostatic discharge.

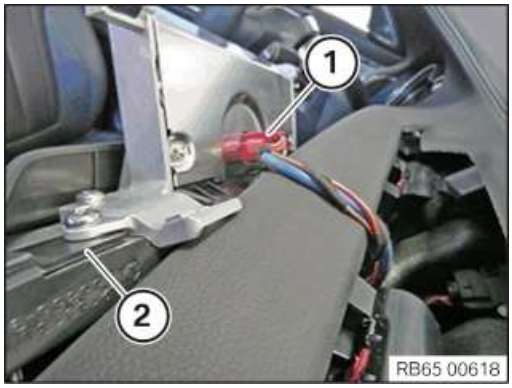
Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)

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- Loosen screws (1).
- Pull out central information display (CID) (2) slightly off the instrument panel.



- Unlock plug connection (1) and disconnect.
- Remove the central information display (CID) (2).

21 – Removing the airbag unit

WARNING

Airbag unit.

Danger! Life-threatening injuries!

- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

RISK OF DAMAGE

Damage to the steering wheel.

Incorrect handling of the tool may damage the steering wheel.

- Ensure the tool is positioned correctly (angle and inclination).
- When unlocking, do not use "levering" action. Instead, press in the Torx screwdriver toward the centre of steering wheel only.

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▸ **Removing the airbag unit for sports steering wheel**

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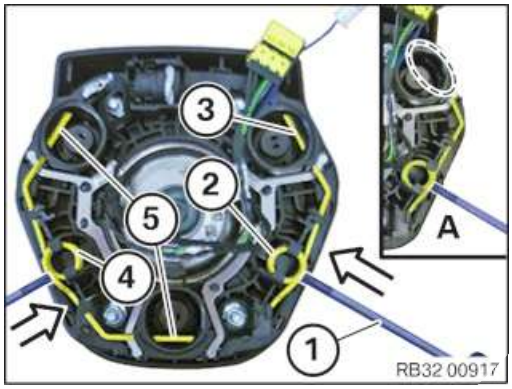
- Insert Torx screwdriver T25 (1) diagonally upwards in the hidden opening (2) on the rear side of the steering wheel until a spring resistance is felt.



NOTICE

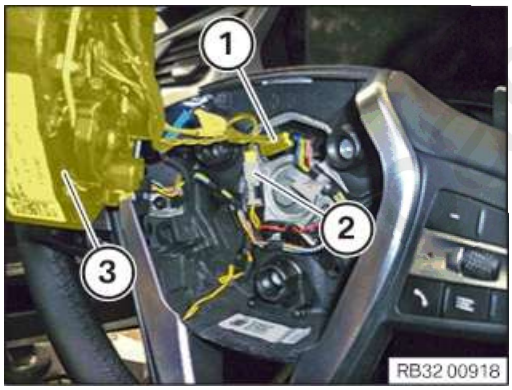
To provide a better overview: Diagram with airbag unit removed.

- To unlock the airbag unit, press Torx screwdriver T25 (1) diagonally upwards in the direction of the arrow to the centre of the steering wheel.



- Press the airbag unit over a large area of the steering wheel.
- Use Torx screwdriver T25 (1) to press wire spring clip (2) in the direction of the arrow towards the centre of the steering wheel and release lock (3).

  (A): Wire spring clip (2) is unlocked.
- Press wire spring clip (4) with Torx screwdriver T25 (1) in the direction of the arrow towards the centre of the steering wheel and release locks (5).
- Carefully raise the airbag unit.



- Unlock and disconnect the plug connections (1) and (2).
- Remove airbag unit (3).

▸ Removing the airbag unit for M Sport steering wheel



NOTICE

Perform the operations on the left and right side.

- Locate the mark (1) for unlocking the airbag unit on the steering wheel by touching it.



NOTICE

Perform the operations on the left and right side.

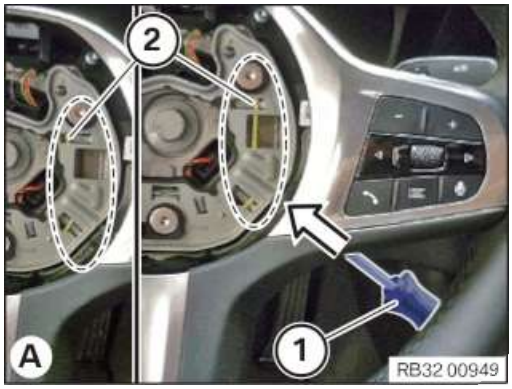
- Cut the mark (1) carefully with a knife (2) to an approx. length of 4 mm .



TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

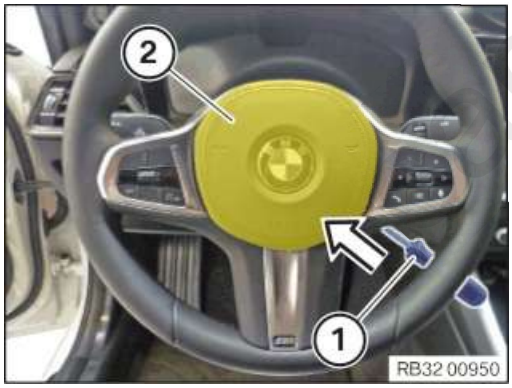
- In case of vehicles with shift paddles (2) made of carbon-fibre-reinforced plastic, use a Torx socket T15 (1) for unlocking the airbag unit.



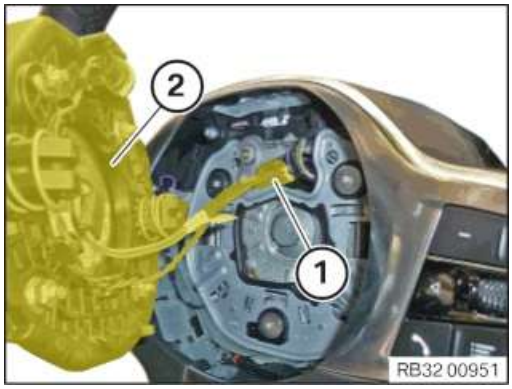
NOTICE

To provide a better overview: Diagram with airbag unit removed.

- Insert the Torx socket T15 (1) diagonally upwards until a resilient resistance is felt.
- Press in Torx socket T15(1) straight in the direction of arrow towards the centre of the steering wheel in order to unlock the wire spring clip (2) or to unlock the airbag unit (A).



- Press in Torx screwdriver T15 (1) straight in direction of arrow towards the centre of the steering wheel and lift the airbag unit (2) on the unlocked side.
- Repeat procedure on left side and carefully release airbag unit (2) from the steering wheel.



- Unlock and disconnect the plug connection (1) and remove the airbag unit (2).

22 – Removing airbag unit (M Sport 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

RISK OF DAMAGE

Damage to the steering wheel.

Incorrect handling of the tool may damage the steering wheel.

- Ensure the tool is positioned correctly (angle and inclination).
- When unlocking, do not use "levering" action. Instead, press in the Torx screwdriver toward the centre of steering wheel only.



NOTICE

Perform the operations on the left and right side.

- Locate the mark (1) for unlocking the airbag unit on the steering wheel by touching it.



NOTICE

Perform the operations on the left and right side.

- Cut the mark (1) carefully with a knife (2) to an approx. length of 4 mm .

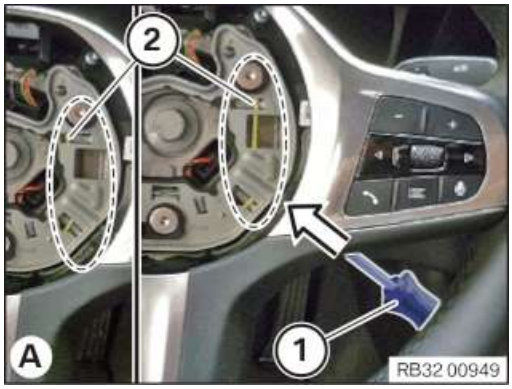


TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

- In case of vehicles with shift paddles (2) made of carbon-fibre-reinforced plastic, use a Torx socket T15 (1) for unlocking the airbag unit.

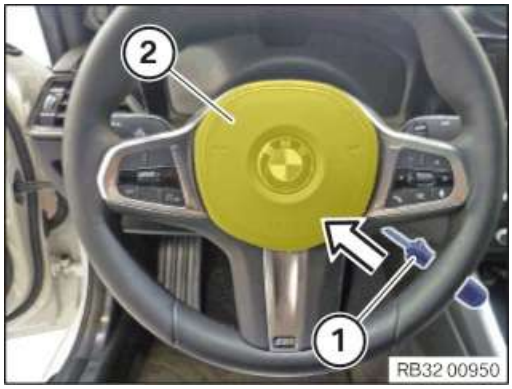
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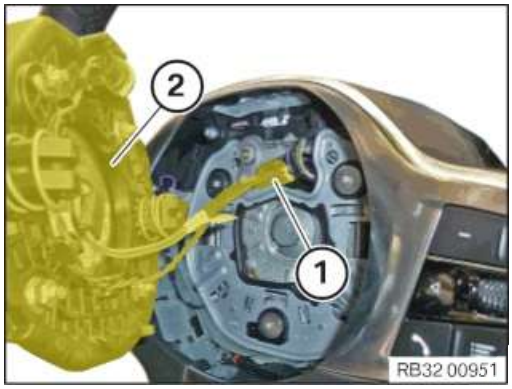
NOTICE

To provide a better overview: Diagram with airbag unit removed.

- Insert the Torx socket T15 (1) diagonally upwards until a resilient resistance is felt.
- Press in Torx socket T15(1) straight in the direction of arrow towards the centre of the steering wheel in order to unlock the wire spring clip (2) or to unlock the airbag unit (A).

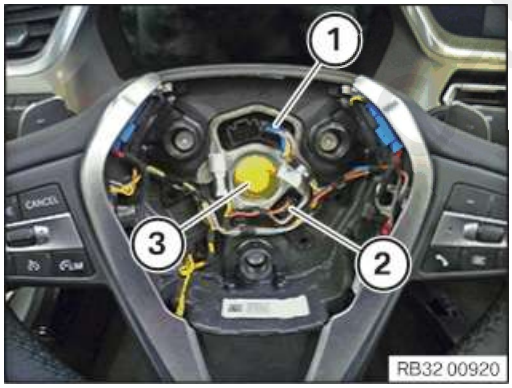


- Press in the wire spring clip with Torx socket T15 (1) in the direction of arrow and lift the airbag unit (2) on the unlocked side.
- Repeat procedure on left side and carefully release airbag unit (2) from the steering wheel.



- Unlock plug connection (1) and disconnect.
- Remove the airbag unit (2).

23 – Remove sports steering wheel



- Move the steering wheel and wheels to the straight-ahead position.
- Unlock plug connection (1) and disconnect.
- If installed: Unlock plug connection (2) and disconnect.
- Release the screw (3) and pull off and remove the steering wheel.

24 – Removing the steering wheel/M Sport steering wheel



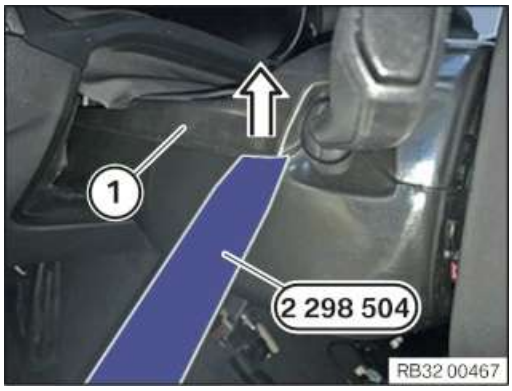
TECHNICAL INFORMATION

When releasing the screw, have an auxiliary person brace the steering wheel in order to reduce torque on the steering column!

- Move the steering wheel and wheels to the straight-ahead position.
- Loosen screw (1).
- Pull down the steering wheel and remove.

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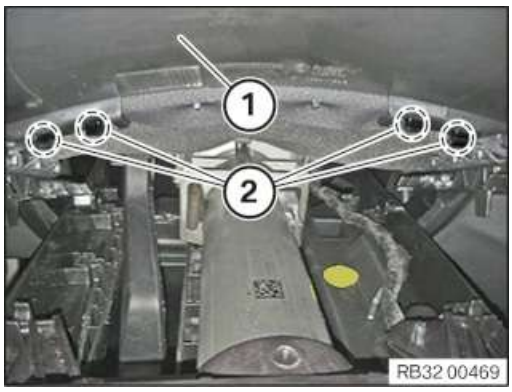
25 – Removing steering column shroud upper section



NOTICE

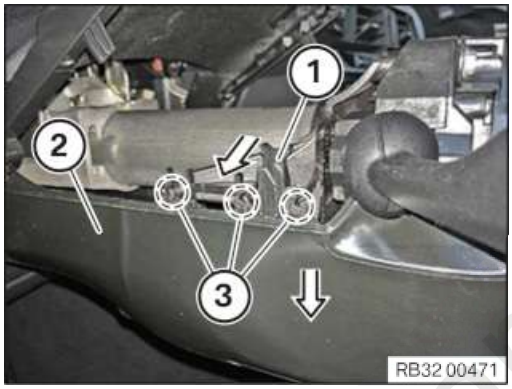
Perform the operations on the left and right side.

- Unlock the steering column shroud upper section (1) with the special tool 2 298 504 and fold up.



- Unclip the steering column shroud upper section (1) from the brackets (2).
- Remove the steering column shroud upper section (1).

26 – Removing steering column shroud lower section



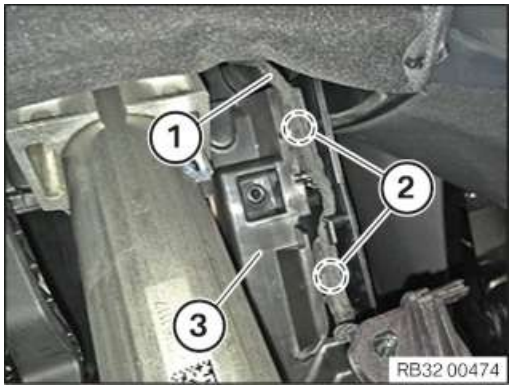
NOTICE

Perform the operations on the left and right side.

- Push the retaining lug (1) to the outside in the direction of the arrow and unclip the steering column shroud lower section (2) from the holders (3) in the direction of the arrow to the bottom at the same time.

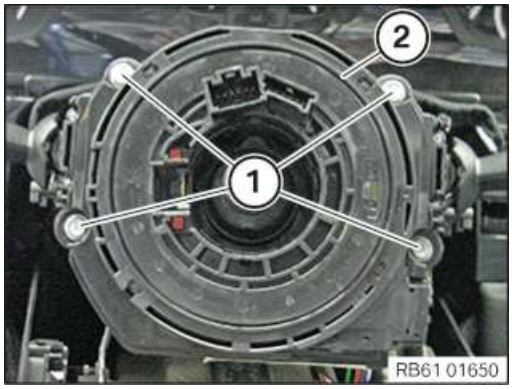


- Fold the steering column shroud lower section down.
- Unlock and disconnect connector (1).

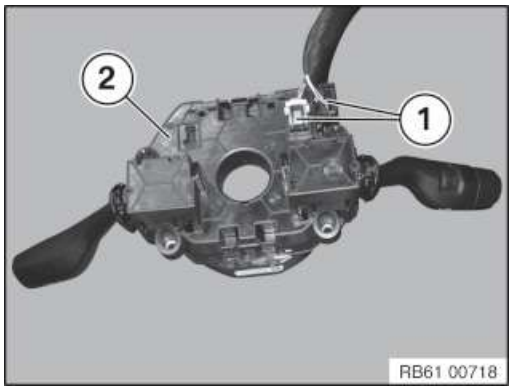


- Detach the cable (1) from the brackets (2).
- Remove the steering column shroud lower section (3).

27 – Removing the steering column switch cluster (SZL)

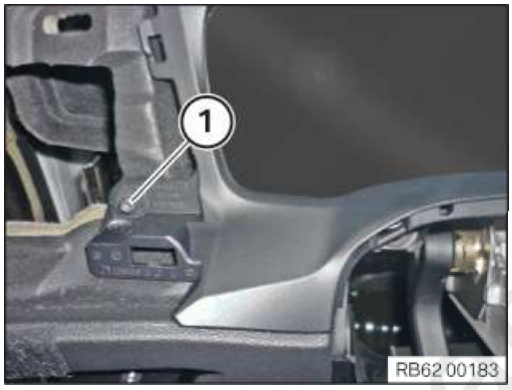


- Loosen screws (1).
- Remove the steering column switch cluster (SZL) (2).



- Unlock and disconnect plug connections (1) on the SZL (2).

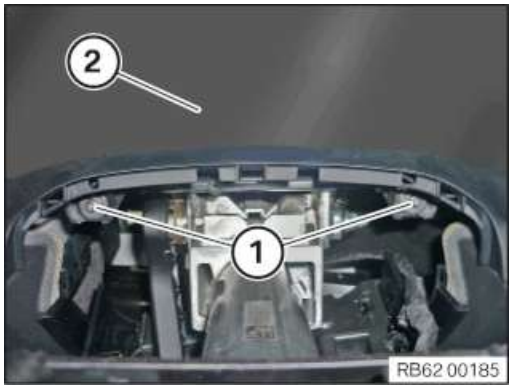
28 – Removing the instrument cluster (KOMBI)



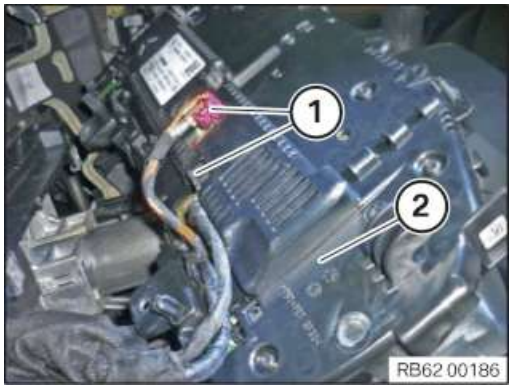
- Loosen screw (1).



- Loosen screw (1).

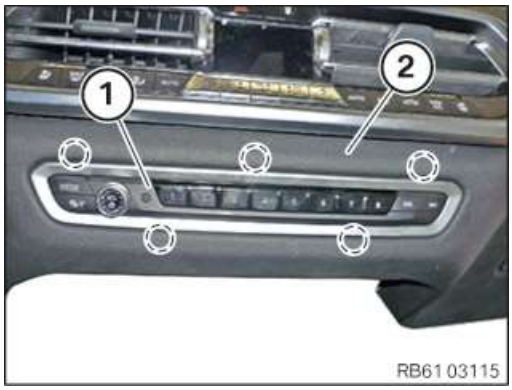


- Loosen screws (1).
- Feed out instrument cluster (KOMBI) (2).

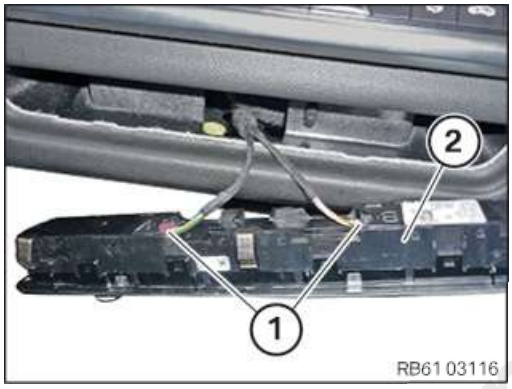


- Unlock and disconnect plug connections (1) from instrument cluster (KOMBI) (2).
- Remove the instrument cluster (KOMBI) (2).

29 – Remove the audio operating unit

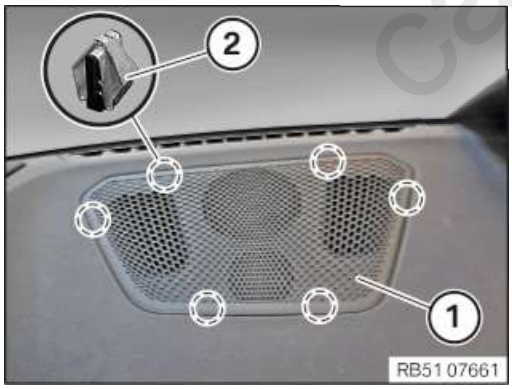


- Unclip the audio operating unit (1) from the instrument panel (2) at the points marked using special tool 0 496 571 (00 9 327).



- Disconnect plug connections (1) and remove the audio operating unit (2).

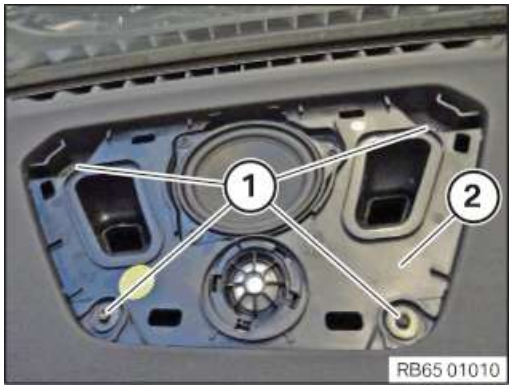
30 – Remove the speaker trim at the instrument panel



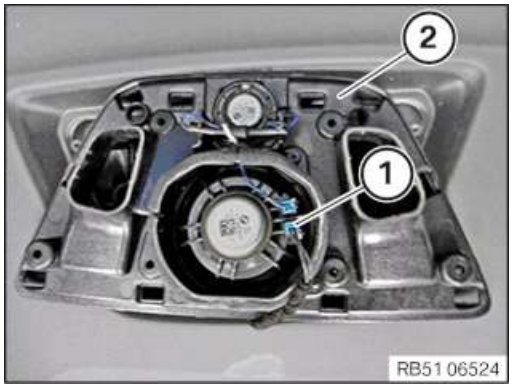
- Lever out the speaker trim (1) with the special tool 0 496 569 (00 9 325) from the clamps (2) toward the top and remove.

31 – Remove the speaker holder at the instrument panel

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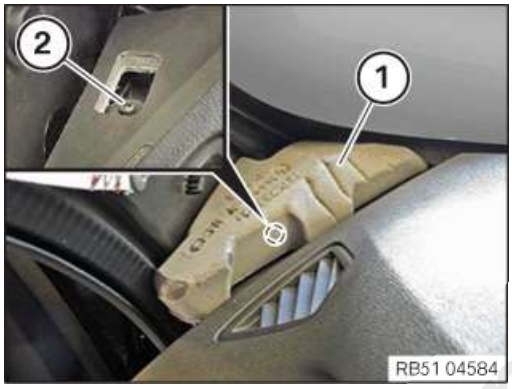


- Loosen screws (1).
- Pull out speaker holder (2) slightly with the loudspeakers and tilt it to the side.



- Unlock plug connection (1) and disconnect.
- Remove the speaker holder (2).

32 – Remove the instrument panel trim panel



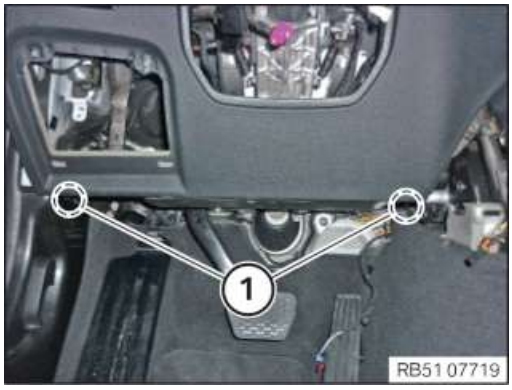
NOTICE

Perform the operations on the left and right side.

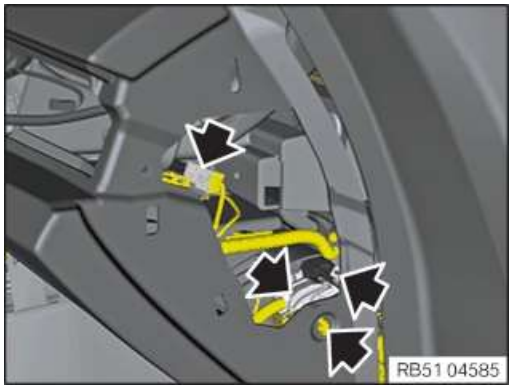
- Remove the sound insulation (1).
- Loosen screw (2).



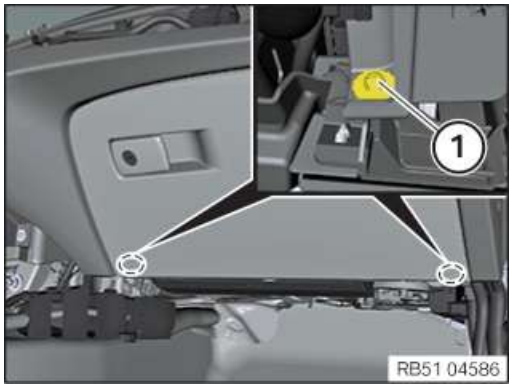
- Loosen screws (1).



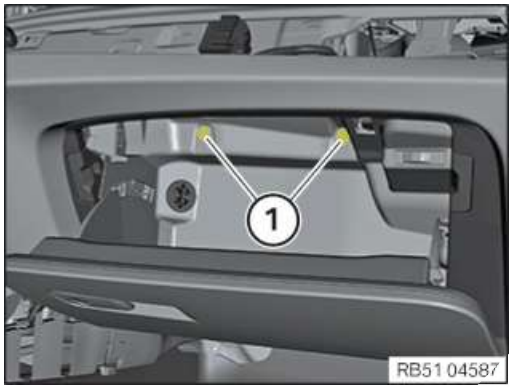
- Loosen screws (1).



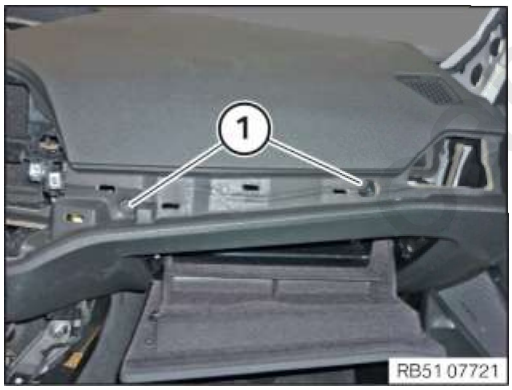
- Release all plug connections and cable clips (arrows) behind the glove box.



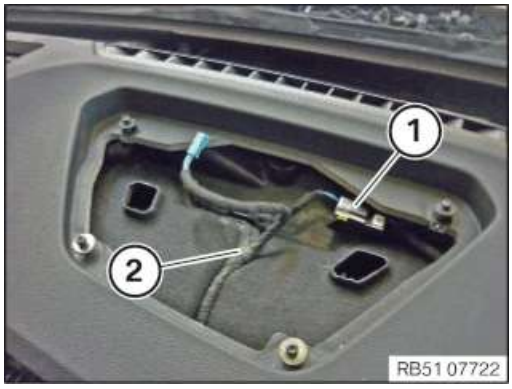
- Release the screws (1) on the lower side of the glove box.



- Open glovebox.
- Loosen screws (1).



- Loosen screws (1).



- Unlock plug connection (1) and disconnect.
- Release the wiring harness (2) on the holders.

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- Unlock the plug connection (1) on the light operating unit and disconnect it.



- Loosen screws (1).

TECHNICAL INFORMATION

Conduct the following operation with the assistance of a second person.

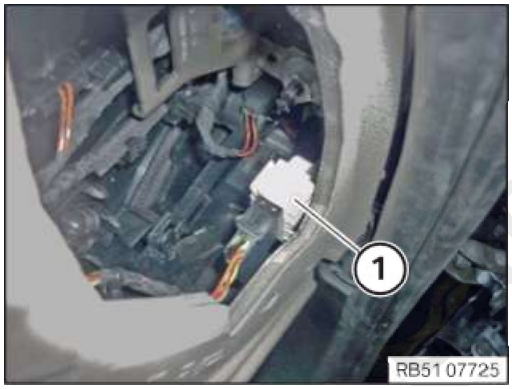
- Pull the instrument panel trim back slightly.

  If necessary, unlock and disconnect additional plug connections.
- Remove the instrument panel trim from the vehicle.

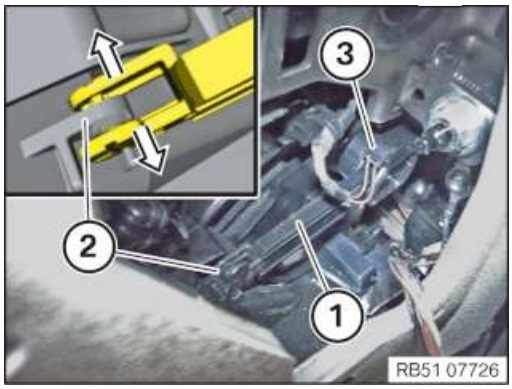
MAIN WORK

33 – Remounting for replacement of the instrument panel trim

▸ **Remove glove box damper**



- Release plug connection (1) from the instrument panel and pull to the outside.



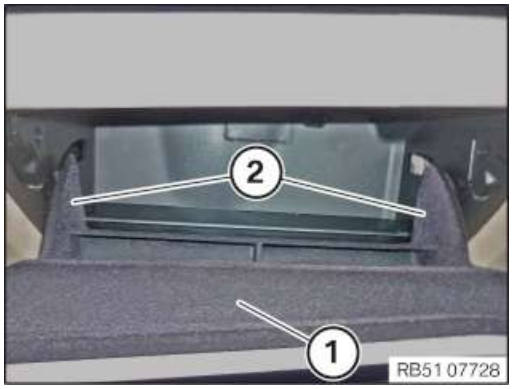
- Release damper (1) from retaining bracket (2) (spread slightly in the direction of the arrow).
- Open glove box cover.
- Twist damper (1) slightly in the clockwise direction and remove it outwards.
- Feed damper (1) out of the instrument panel.
- Disconnect plug connection (3).

▸ **Remove glove box lid**

Prerequisite

The glove box lid is open.

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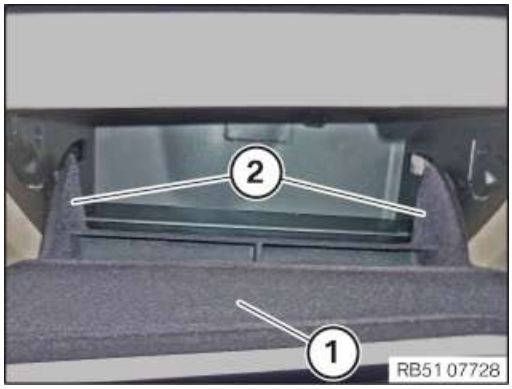


- Raise the glove box lid (1) slightly.
- Carefully bend the side section (2)of glove box lid (1) inside so that the glove box lid (1) can be fed out of the instrument panel .
- Swivel the glove box lid (1) further down until it feeds out of the hinges.

▸ **Install glovebox cover**

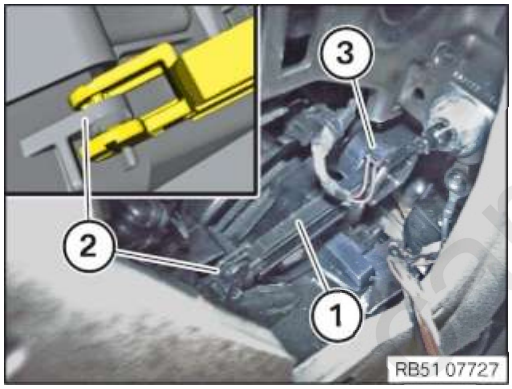
Prerequisite

The glove box lid is open.



- Insert glove box lid (1) on the hinges and swivel to the top.
- Bend the side section (2) of the glove box lid (1) carefully inward and feed in at the instrument panel.

▸ **Installing glove box damper**

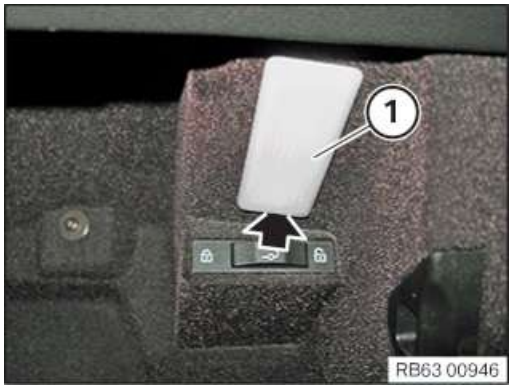


- Connect connector (3).
- Insert damper (1) in instrument panel.
- Open glove box cover.
- Install damper (1) and twist it slightly in the anticlockwise direction.
- Engage the damper (1) in the retaining bracket (2).



- Install connector (1) and mount on the instrument panel.

▸ **Remove glove box light**



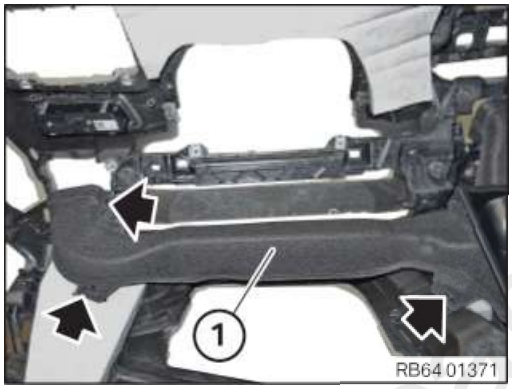
- Lever out the glove box light (1) at the marked position (arrow).
- Disconnect associated plug connection.

▸ **Installing the glove box light**

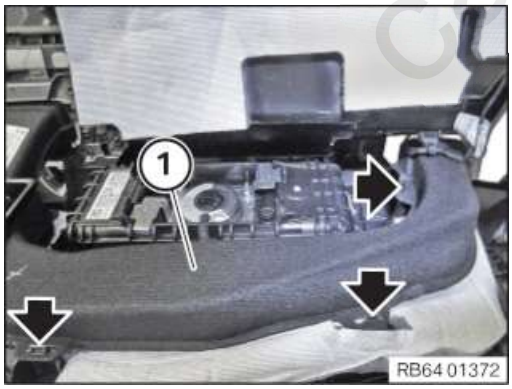


- Connect associated connector.
- Install the glove box light (1).

▸ **Removing the air duct in the instrument panel**

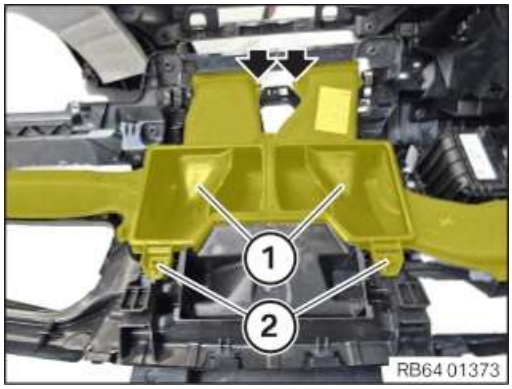


- Disengage left air duct (1) from latch mechanisms (arrows).



- Disengage right air duct (1) from latch mechanisms (arrows).

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- Disengage air ducts (1) from latch mechanisms (arrows).
- Disengage the air ducts (1) from the latch mechanisms (2) towards the top.
- Feed the air ducts (1) out of the instrument panel and remove it.

▸ **Remove front passenger airbag**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

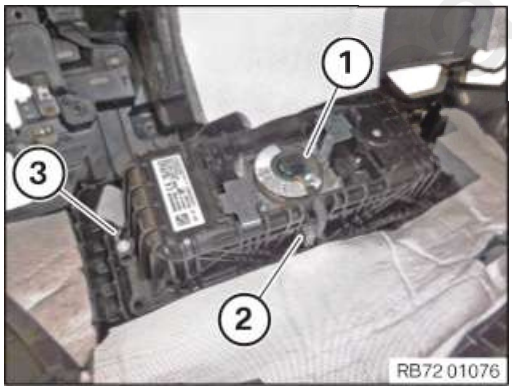
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

WARNING

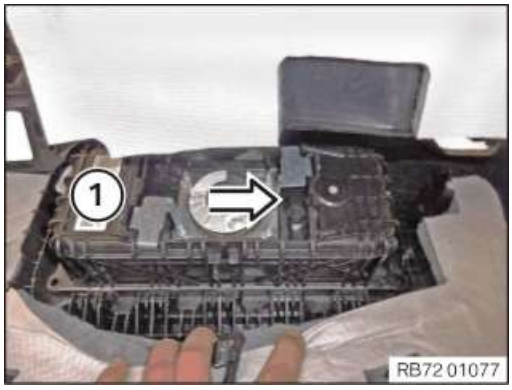
Airbag unit.

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



- Unlock plug connection (1) and disconnect.
- Unclip the cable clip (2).
- Loosen screw (3).



- Unlock front passenger airbag (1) in direction of arrow and remove upwards.

▸ **Installing front passenger airbag**

WARNING

Airbag unit.

Danger! Life-threatening injuries!

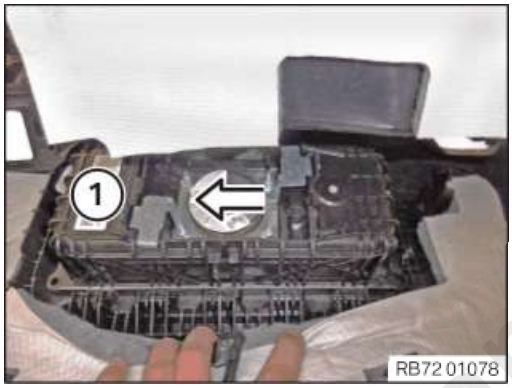
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

WARNING

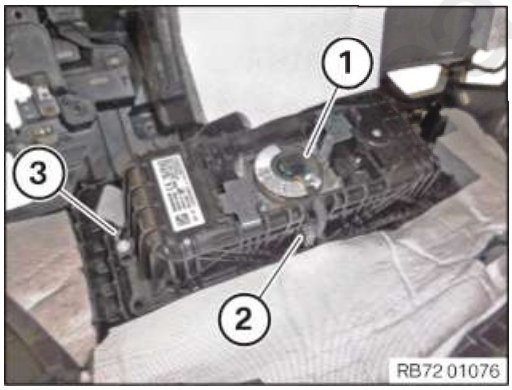
Pyrotechnic components.

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.



- Correctly position front passenger airbag (1) correctly and lock in the direction of the arrow.



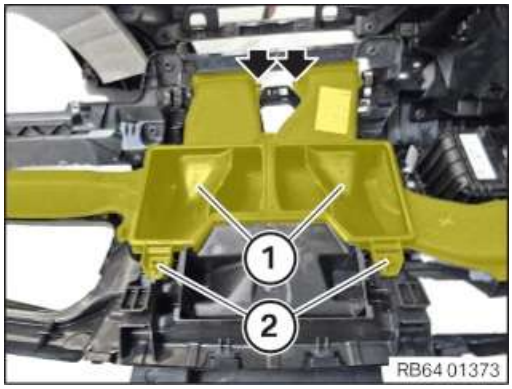
- Tighten down screw (3).

Front passenger airbag on instrument panel trim

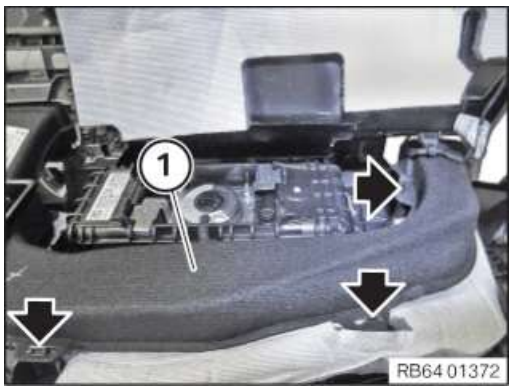
Oval-head screw		Tightening torque	2 Nm

- Clip in the cable clip (2).
- Connect plug connection (1) and lock.

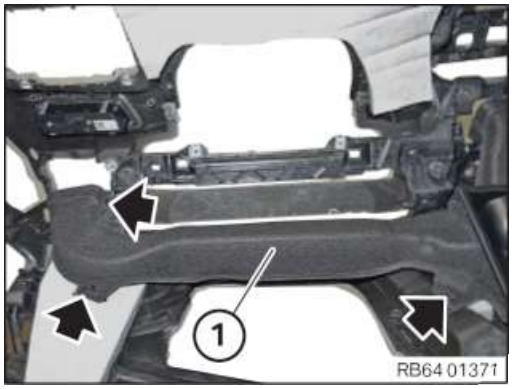
▸ **Installing air ducts in the instrument panel**



- Guide in and position air ducts (1) in the instrument panel.
- Engage the air ducts (1) into the latch mechanisms (2) from the top.
- Engage the air ducts (1) into the latch mechanisms (arrows).



- Engage the right air duct (2) into the latch mechanisms (arrows).

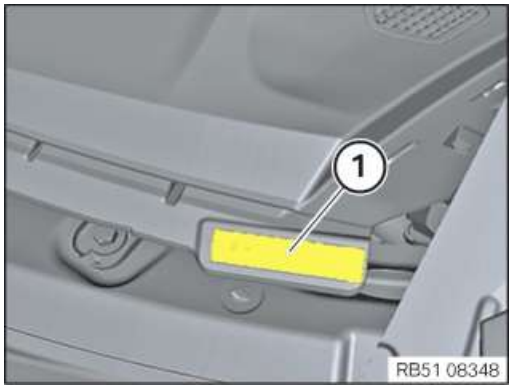


- Engage the left air duct (1) into the latch mechanisms (arrows).



- Remove wiring harness (1) and remount on the new instrument panel trim.

34 – Stick on sign



NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Renew the vehicle identification number label.

  Parts: Label
- Stick on the new information sign in the area (1).

POSTPROCESSES

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35 – Install the trim panel for the instrument panel



TECHNICAL INFORMATION

Conduct the following operation with the assistance of a second person.

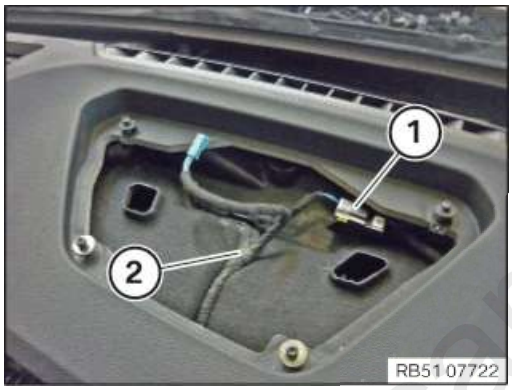
- Insert the instrument panel trim in the vehicle and position it at the support.
- Insert the associated wiring harnesses and connect the connectors.
- Tighten the screws (1).

Dashboard to support

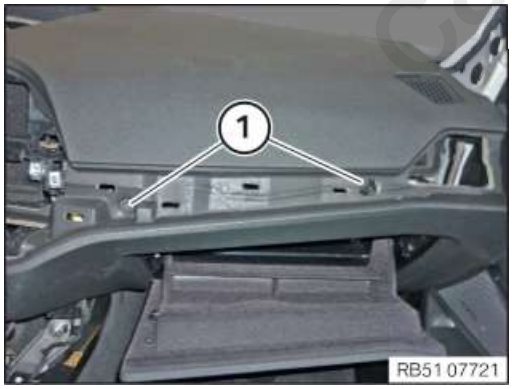
Screw		Tightening torque	2,4 Nm



- Connect connector (1) to the light operating unit and lock.



- Secure the wiring harness (2) on the holders.
- Connect connectors (1) and lock.

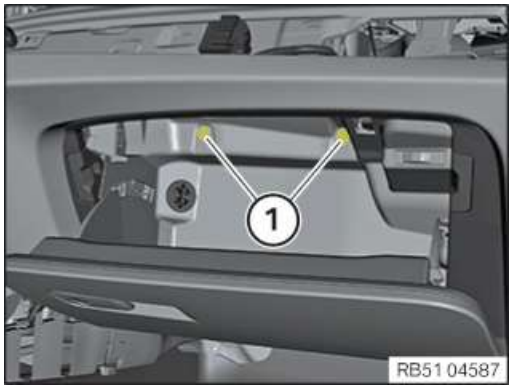


- Tighten the screws (1).

Dashboard to support

Screw		Tightening torque	2,4 Nm

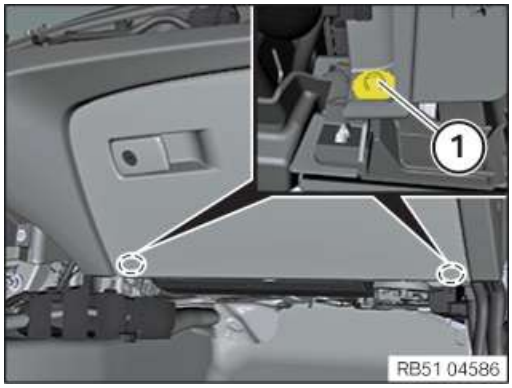
cardiagn.com



- Open glovebox.
- Tighten the screws (1).

Dashboard to support

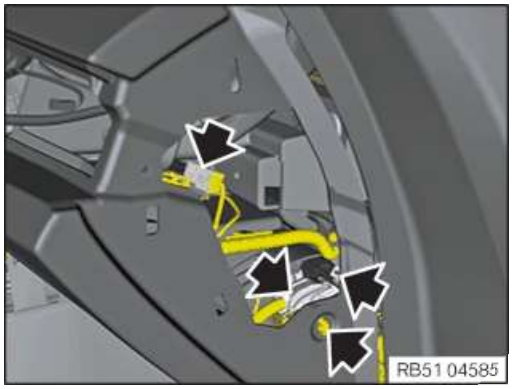
Screw		Tightening torque	2,4 Nm



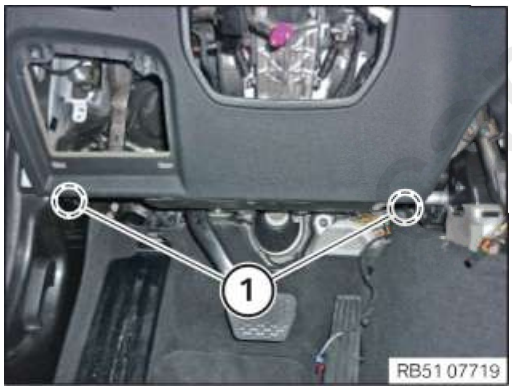
- Tighten the screws (1) on the lower side of the glove box button.

Dashboard to support

Screw		Tightening torque	2,4 Nm



- Connect all plug connections and cable clips (arrows) behind the glove box.



- Tighten the screws (1).

Dashboard to support

Screw		Tightening torque	2,4 Nm

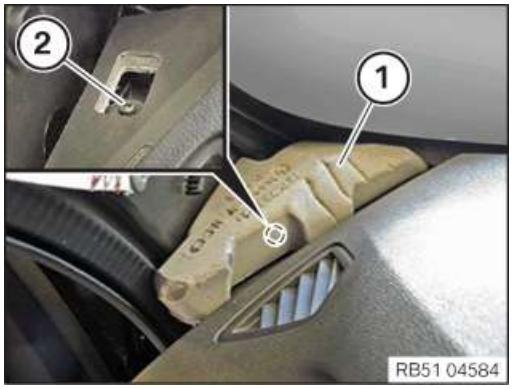


- Tighten the screws (1).

Dashboard to support

Screw		Tightening torque	2,4 Nm

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NOTICE

Perform the operations on the left and right side.

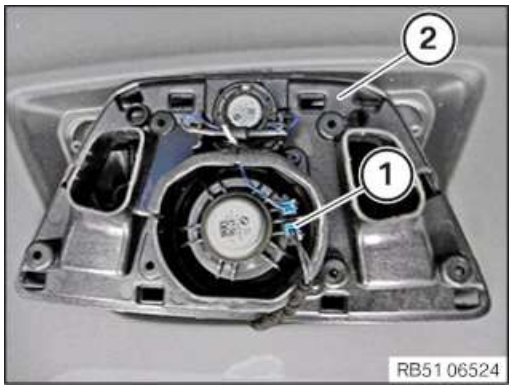
- Tighten down screw (2).

Dashboard to support

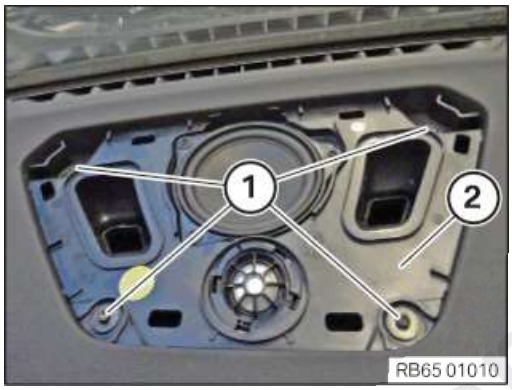
Screw		Tightening torque	2,4 Nm

- Use sound insulation (1).

36 – Install the speaker holder at the instrument panel



- Position the speaker holder (2).
- Connect connector (1).

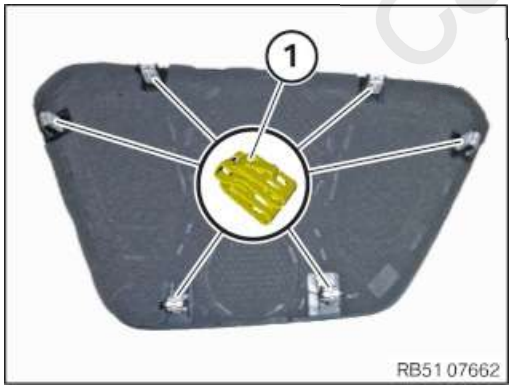


- Install the speaker holder (2).
- Tighten the screws (1).

Speaker to support / support to instrument panel / support to body

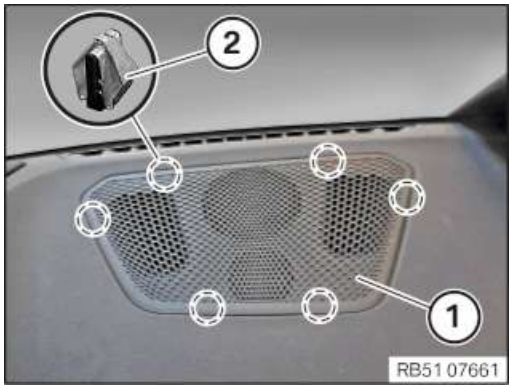
Screw	Tightening torque	1,8 Nm

37 – Install the speaker trim at the instrument panel



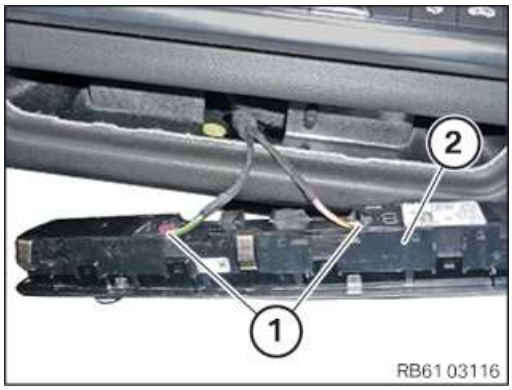
- Check clamps (1) for damage.
- Replace broken or missing clamps (1).

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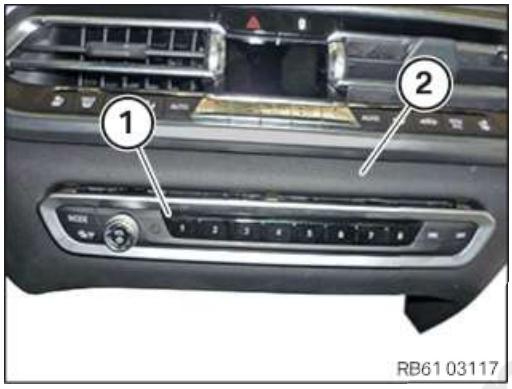


- Position the speaker trim (1) correctly and engage it at the clamps (2).

38 – Install the audio operating unit

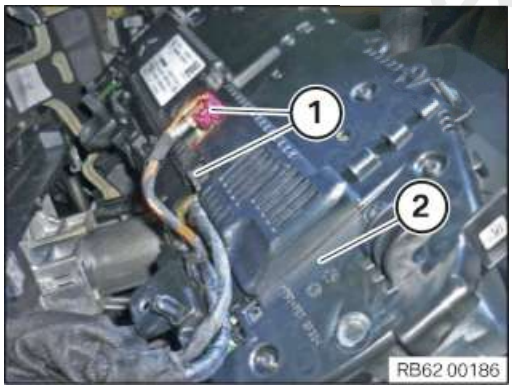


- Connect the connector (1) to the audio operating unit (2).

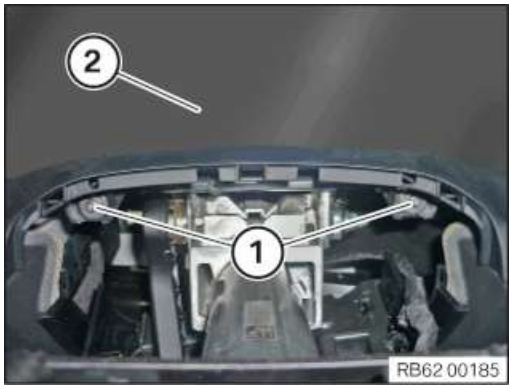


- Correctly position the audio operating unit (1) and install in the instrument panel(2).

39 – Installing the instrument cluster (KOMBI)



- Connect and lock connector (1) to the instrument cluster (KOMBI) (2).



- Feed in and position the instrument cluster (KOMBI) (2).
- Tighten the screws (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm

erdiagn.com



- Tighten down screw (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm

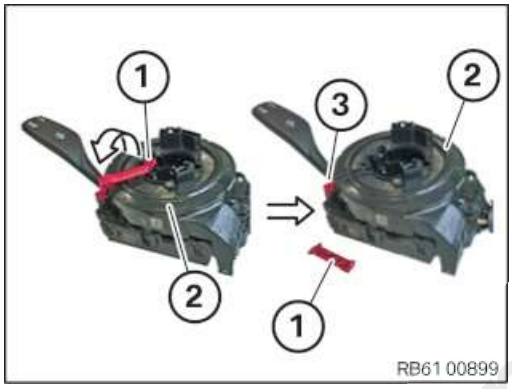


- Tighten down screw (1).

Instrument cluster (KOMBI) to support

Screw		Tightening torque	1,8 Nm

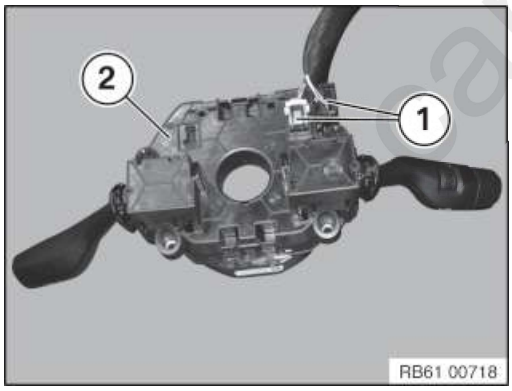
40 – Installing the steering column switch cluster (SZL)



- **Replacement:**

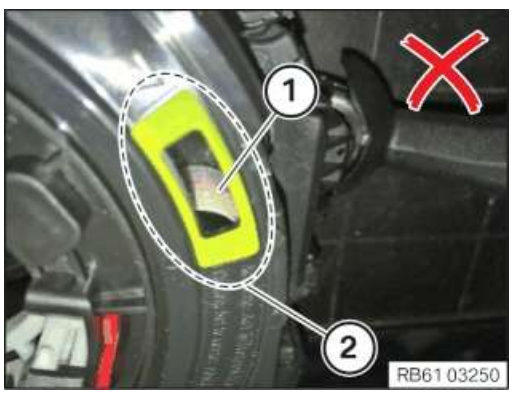
  Break off the transportation retainer (1) on the steering column switch cluster (SZL) (2) in direction of arrow.

  The broken off piece (3) of 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



- **Version A:**

  Check whether the correct marking (1) is seen in inspection glass (2).

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Result

» Ensure that no incorrect marking (1) is seen in inspection glass (2).

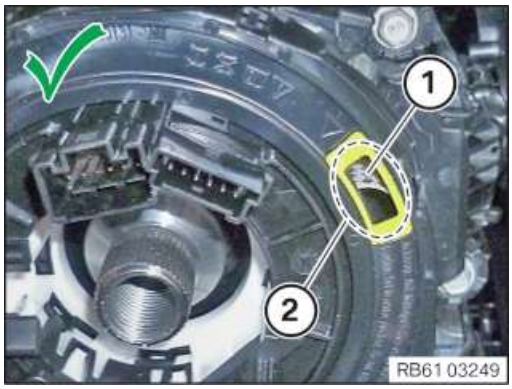
Measure

- Turn the coil spring cassette until the right mark (1) becomes visible in the inspection glass (2).

Check

- **Version A:**

  Check whether the correct marking (1) is seen in inspection glass (2).



Result

» Correct marking (1) is seen in inspection glass (2).

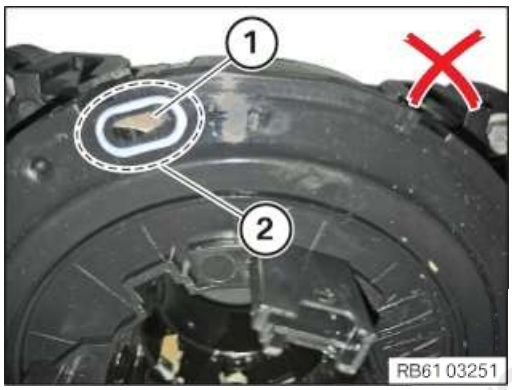
Measure

- Continue with the next step.

Check

- **Version B:**

  Check whether the correct marking (1) is seen in inspection glass (2).



Result

» Ensure that no incorrect marking (1) is seen in inspection glass (2).

Measure

- Turn the coil spring cassette until the right mark (1) becomes visible in the inspection glass (2).

Check

- **Version B:**

  Check if the correct mark (1) can be seen in the inspection glass (2).



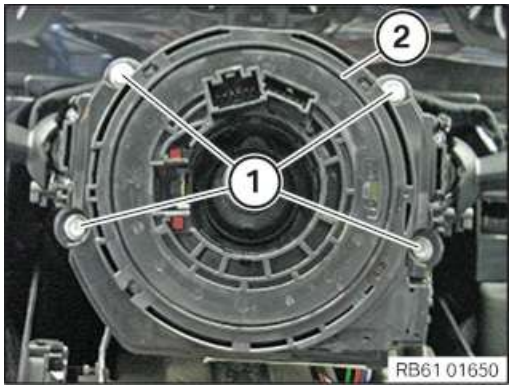
Result

» Correct marking (1) is seen in inspection glass (2).

Measure

- Continue with the next work step.

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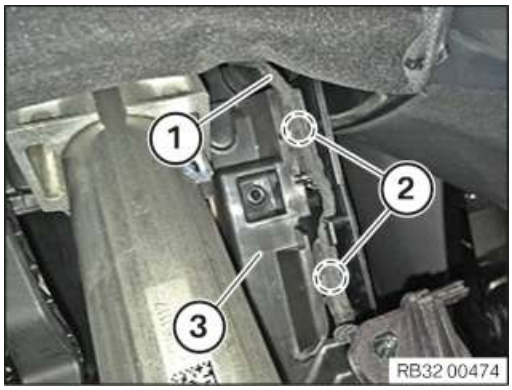


- Position the steering column switch cluster (SZL) (2).
- Tighten the screws (1).

Steering column switch cluster (SZL) on the steering column

Screw TS5x20		Tightening torque	3 Nm

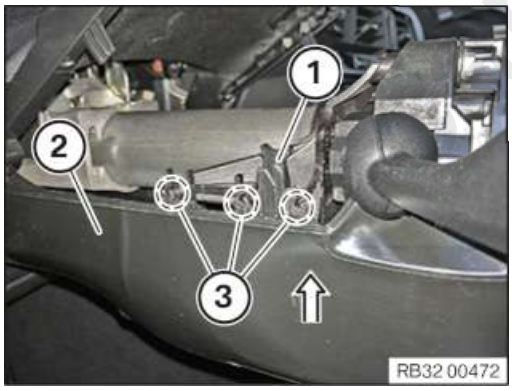
41 – Install steering column shroud lower section



- Position the steering column shroud lower section (3).
- Secure the line (1) on the brackets (2).



- Connect the connector (1).

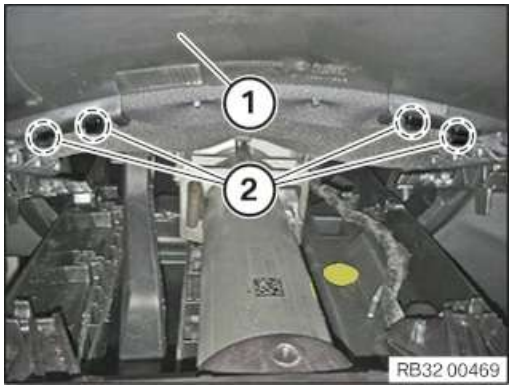


NOTICE

Perform the operations on the left and right side.

- Align the steering column shroud lower section (2) to the steering column using the retaining lug (1).
- Push the steering column shroud lower section (2) up in the direction of the arrow until the brackets (3) engage.

42 – Fit steering column shroud upper section



- Clip in the steering column shroud upper section (1) at the brackets (2).

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NOTICE

Perform the operations on the left and right side.

- Clip in the steering column shroud upper section (1)into the guide (2).



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.

43 – Installing the sports steering wheel

▸ **Check the neutral position of the clock spring**

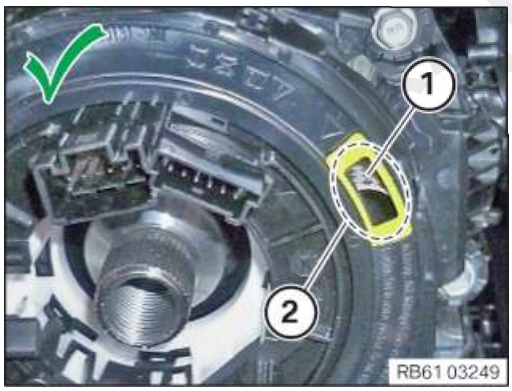
TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▹ **Version A: Checking the visibility of the marking on the coil spring**

Check

- Check the visibility of the marking (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).

◃

▹ **Version B: Checking the visibility of the marking on the coil spring**

Check



- Check the visibility of the marking (1) on the coil spring in the inspection glass (2) .

Result

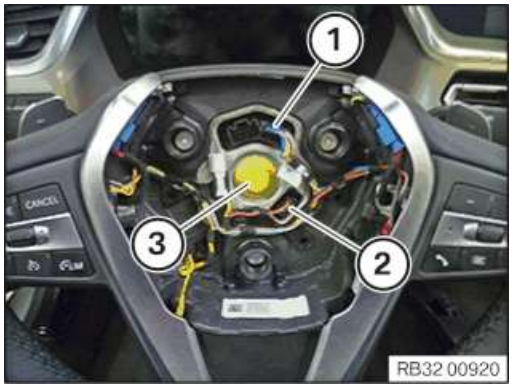
» The mark (1) on the coil spring is not visible.

Measure

- Turn the coil spring cassette until the mark (1) on the coil spring becomes visible in the inspection glass (2).

◁

Check



- Check if a microencapsulated screw (3) is installed.

Result

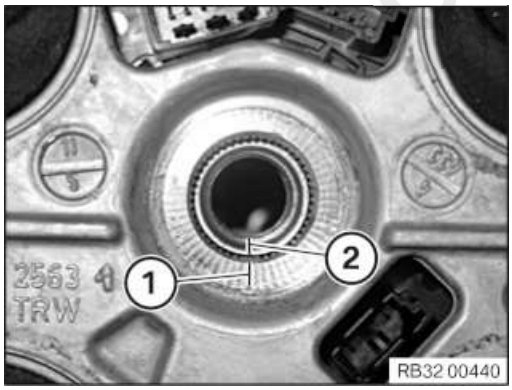
» Screw (3) is micro-encapsulated.

Measure

- Clean thread in the steering column.

  Renew the screw (3).

  Parts: Screw



- Align mark (1) on steering wheel to mark (2) on steering column.
- Connect steering wheel.

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- Connect connectors (1) and lock.
- If installed: Connect connectors (2) and lock.
- Tighten screw (3) .

Steering wheel to steering column

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

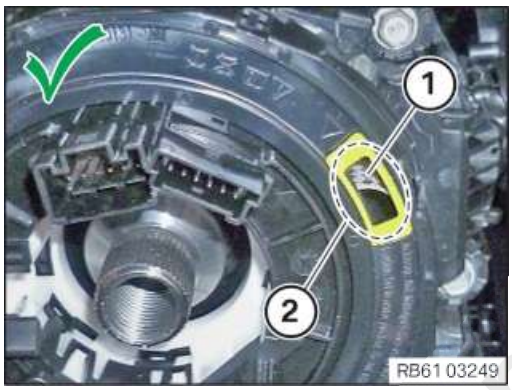
44 – Installing the steering wheel/M Sport steering wheel

▸ **Check the neutral position of the clock spring**

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

▹ **Version A: Checking the visibility of the marking on the coil spring**



Check

- Check the visibility of the marking (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).

◃

▹ **Version B: Checking the visibility of the marking on the coil spring**



Check

- Check the visibility of the marking (1) on the coil spring in the inspection glass (2) .

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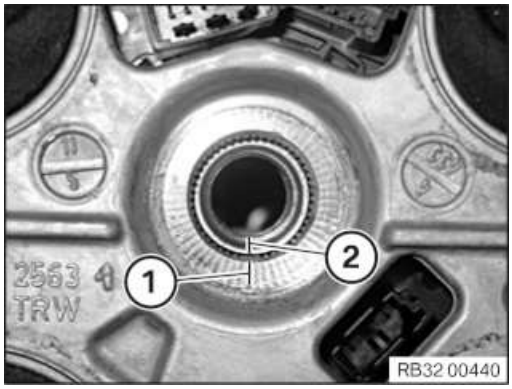
Result

» 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).

◁



- Align mark (1) on steering wheel to mark (2) on steering column.
- Position the steering wheel.

Check



- A micro-encapsulated screw (1) may be fitted.

  Check the screw connection.

Result

» Screw (1) is micro-encapsulated.

Measure

- Clean thread in the steering column.

  Renew the screw (1).

  Parts: Screw



- Tighten down screw (1).

Steering wheel to steering column

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

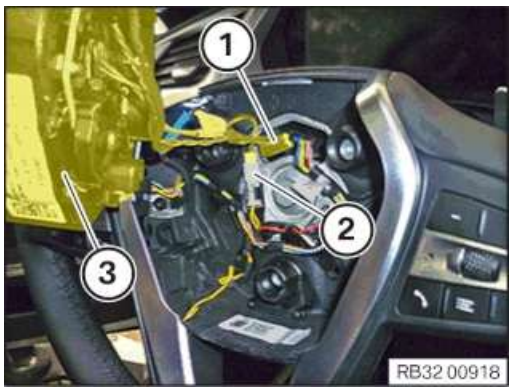
45 – Installing the airbag unit

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

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▸ **Installing the airbag unit for the sports steering wheel**



- Position airbag unit (3).
- Connect connectors (1) and (2) lock.



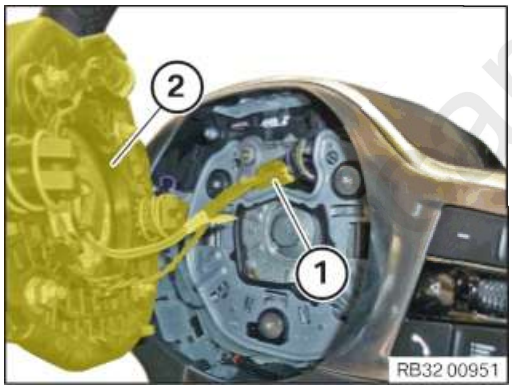
- Press the airbag unit (1) with even pressure in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

▸ **Installing the airbag unit for M Sport steering wheel**

TECHNICAL INFORMATION

After replacing the airbag unit (M sport steering wheel) or after a possible conversion of standard steering wheel and airbag unit to M-sports steering wheel, a software update or a programming/encoding via ISTA must be performed!



- Connect and lock the connector (1) of the airbag unit (2).



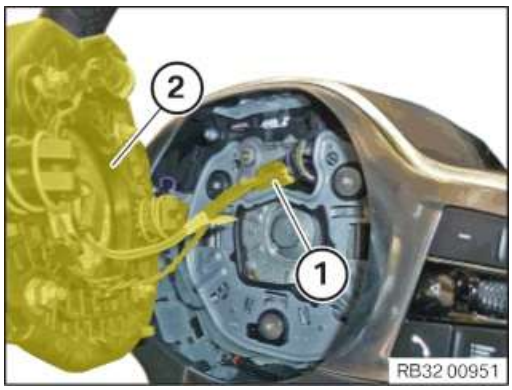
- Press the airbag unit further (1) with even pressure in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

46 – Installing the airbag unit (M Sport steering wheel)

TECHNICAL INFORMATION

After replacing the airbag unit (M sport steering wheel) or after a possible conversion of standard steering wheel and airbag unit to M-sports steering wheel, a software update or a programming/encoding via ISTA must be performed!



- Connect and lock the connector (1) of the airbag unit (2).



- Press the airbag unit further (1) with even pressure in the direction of the arrow into the steering wheel.

  The airbag unit (1) must engage audibly and perceptibly.

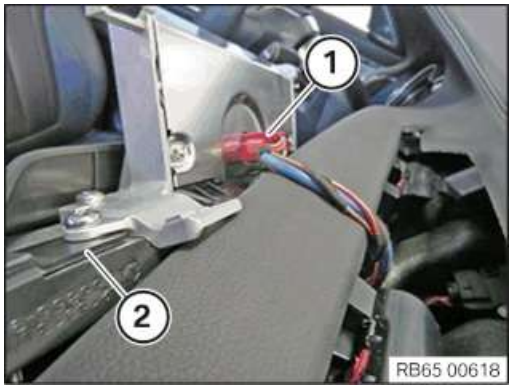
47 – Install the central information display (CID)

RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)



- Position Central Information Display (CID) (2).
- Connect plug connection (1) and lock.

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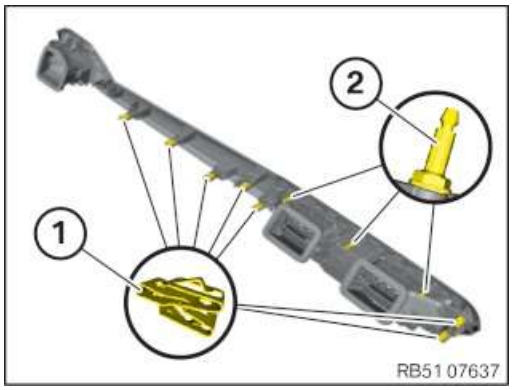


- Insert the central information display (CID) (2) in the instrument panel and position correctly.
- Tighten the screws (1).

Central information display to instrument panel

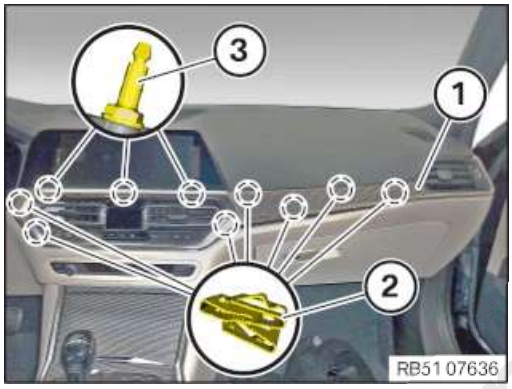
Screw		Tightening torque	2,4 Nm

48 – Install the finisher on the right instrument panel



- Checks clamps (1) for damage.

  Defective or missing clamps (1) need to be renewed.
- Check the pins (2) and the accompanying clamps at the instrument panel trim for damage, renew if necessary.



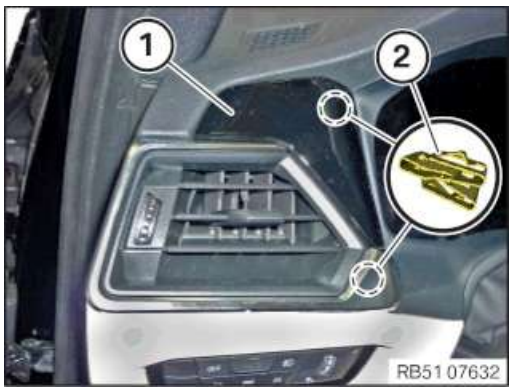
- Install the decorative strip (1).
- Connect and lock corresponding connectors.
- Correctly position the decorative strip (1) and at the clamps (2) and clip in the pins (3).

49 – Install the finisher on the instrument panel on the left



- Check the clamps (1) for damage and that they are present.

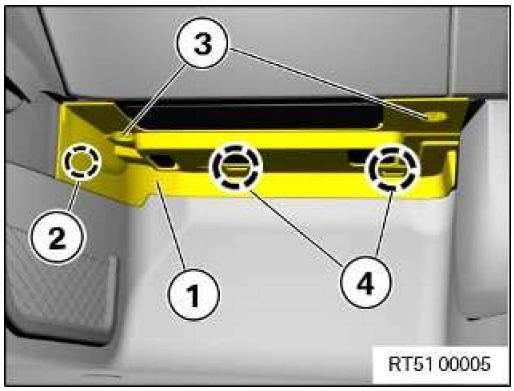
  Damaged or missing clamps (1) must be renewed.



- Install the decorative strip (1).
- Connect and lock the associated connectors.
- Clip decorative strip (1) into clamps (2).

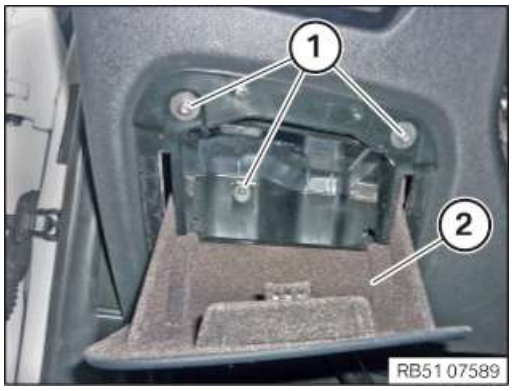
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50 – Install the right footwell trim panel



- Connect associated connector.
- Attach the footwell trim (1) to the guides (4) and fold up.
- Guide the footwell trim (1) into the guide (2) of the centre console.
- Position the locks (3) correctly and turn by 90°.

51 – Installing the left fold-down compartment

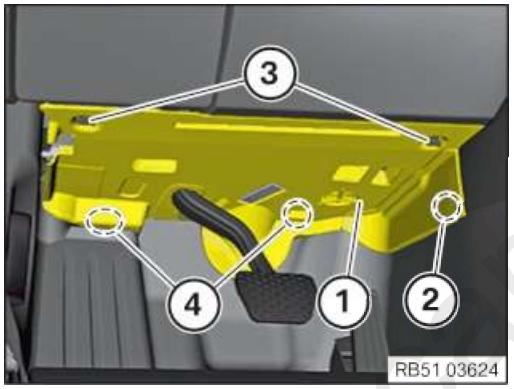


- Install the fold-down compartment (2).
- Tighten the screws (1).

Fold-down compartment to instrument panel

Oval-head screw		Tightening torque	1,8 Nm

52 – Installing the trim panel for the pedal mechanism



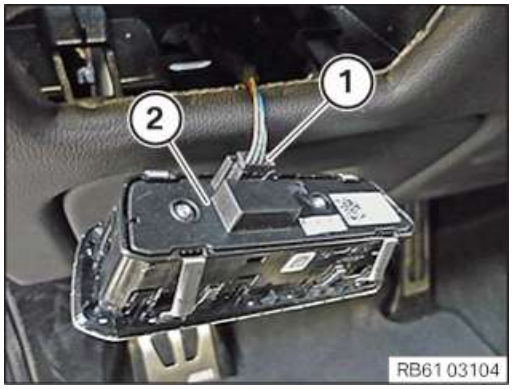
- Connect associated connector.
- Attach the trim panel for the pedal mechanism (1) in the guides (4) and fold it up.
- Clip the trim panel for the pedal mechanism (1) into the centre console in this area (2).

TECHNICAL INFORMATION

It is **imperative** that the screws caps of the trim panel be correctly locked. This is the only way to ensure that the trim panel does not come loose and potentially tilt into the pedal area.

- Insert screw caps (3) correctly and turn by 90° to lock.

53 – Installing the light operating unit



- Connect the connector (1) to the light operating unit (2).



- Correctly position the light operating unit (1) and clip in at the marked points.

54 – Install the A-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the A-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

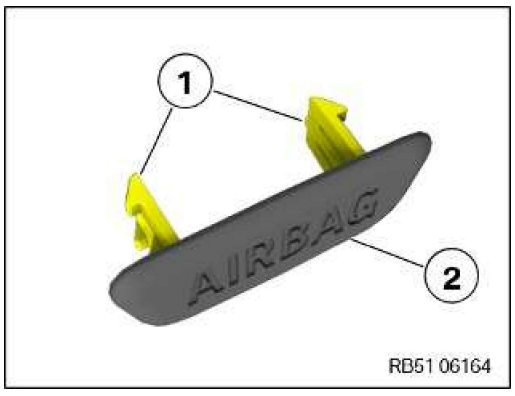
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



Check

- Check retaining lugs (1) of cover (2) for damage.

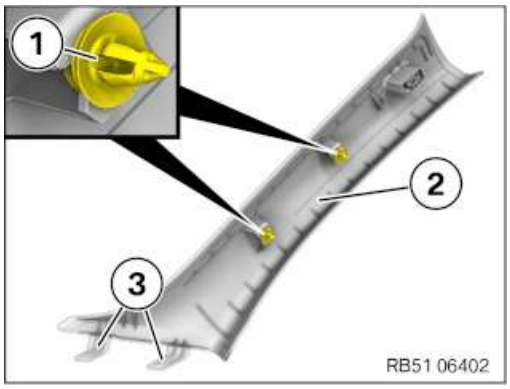
Result

» Retaining lug is damaged.

Measure

- Renew the cover.

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Check

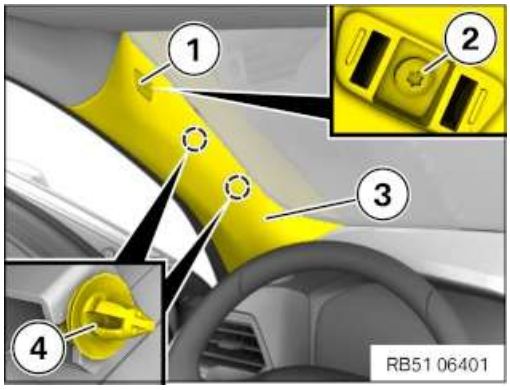
- Check the clips (1) for damage and renew if necessary.
- Check the guides (3) for damage.

Result

» Guide is damaged.

Measure

- Renew the A-pillar trim panel.



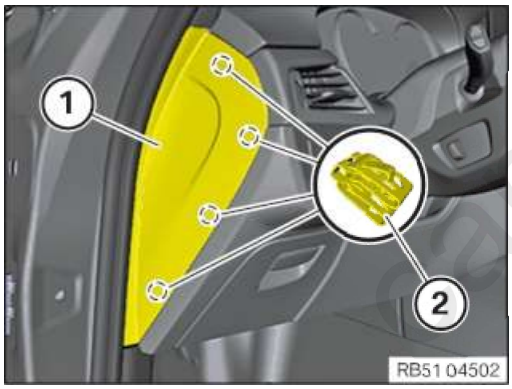
- Guide in A-pillar trim panel (3) downwards and clip it in with clips (4).
- Tighten down screw (2).

A-pillar trim panel to body

Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

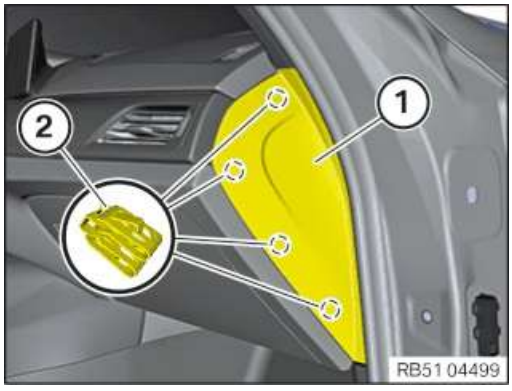
- Clip in the cover (1).

55 – Install the side panel on left instrument panel



- Feed in the side panel (1) and clip it in at the clamps (2).

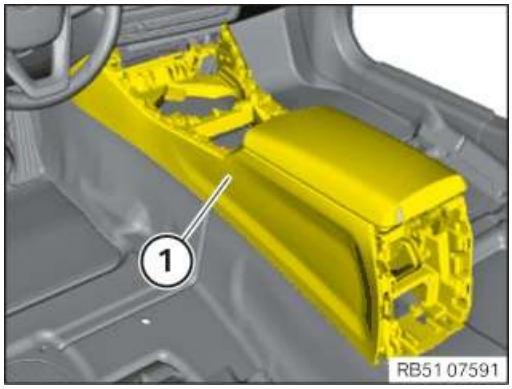
56 – Install the side panel on instrument panel on the right



- If required, connect the associated connector.
- Feed in the side panel (1) and clip it in at the clamps (2).

57 – Installing the centre console

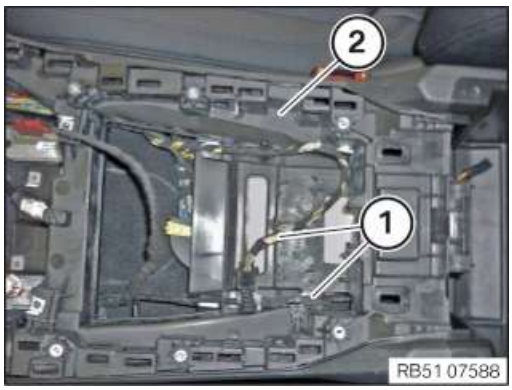
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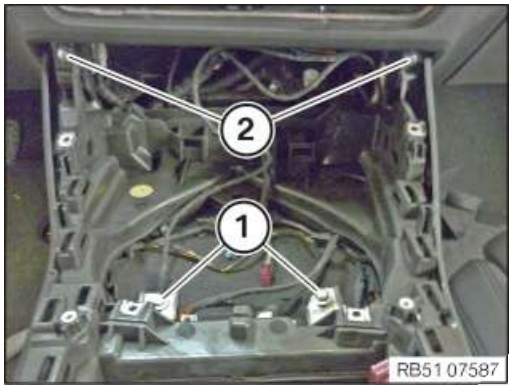
NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Install centre console (1) and thereby feed in the wiring harness.
- Feed in the centre console (1) to the instrument panel and position correctly.



- Secure the wiring harness to the centre console (1) and connect and lock the existing plug connections.



- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

- Tighten the screws (2).

Centre console to instrument panel

Oval-head screw		Tightening torque	1,8 Nm

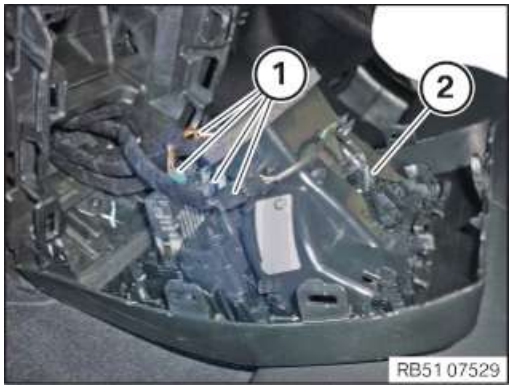


- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

58 – Installing the rear centre console trim

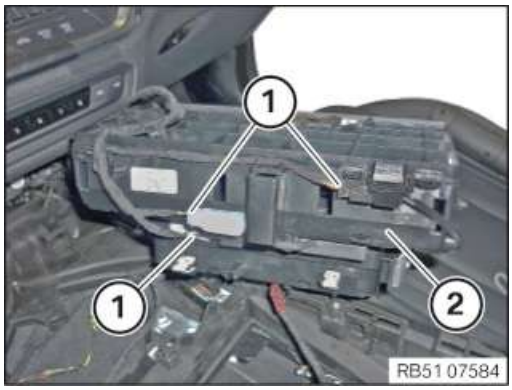


- Install the centre console trim (2).
- Connect connectors (1) and lock.

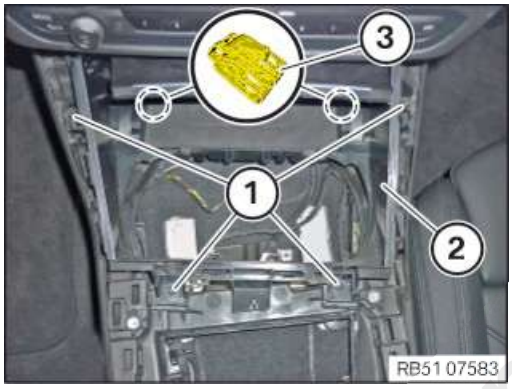


- Position centre console trim (1) and engage at the latch mechanisms at the side.

59 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).

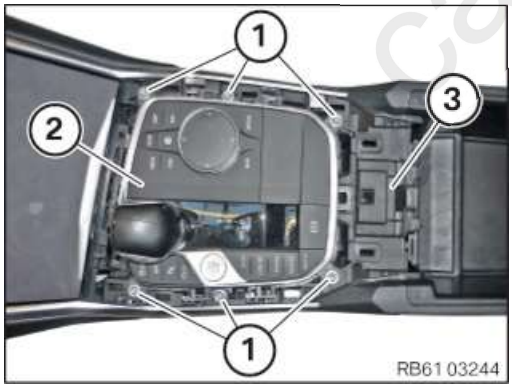


- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw	Tightening torque	1,8 Nm

60 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw		Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**

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- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

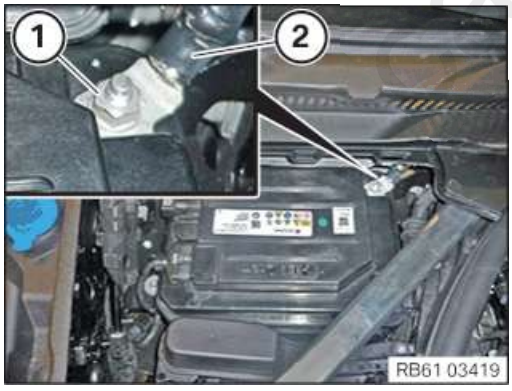
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



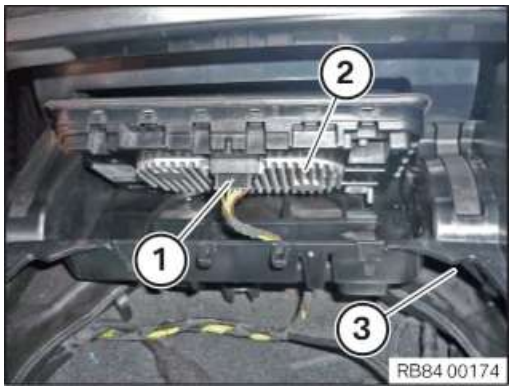
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



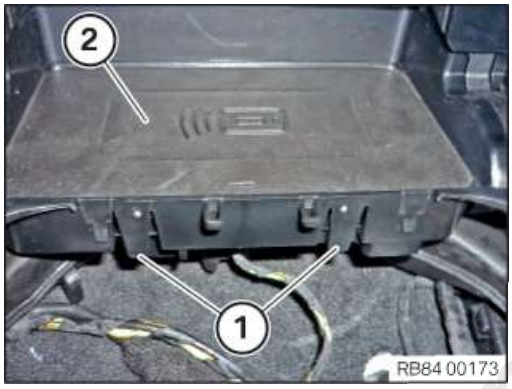
- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

61 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.

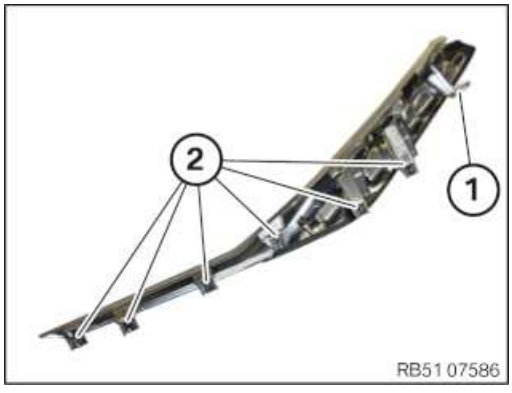
  The latch mechanisms (1) must engage correctly.

62 – Installing the decorative trim on the centre console on the left and right

▸ **Installing the decorative trim on the centre console**

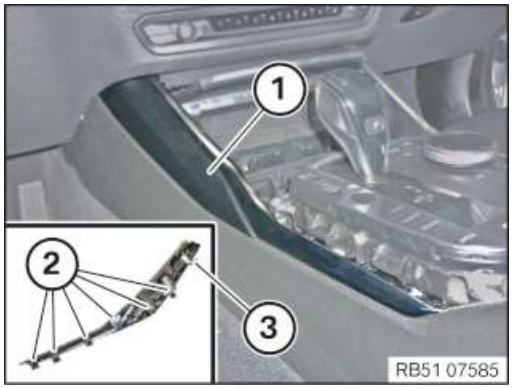
NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.

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- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

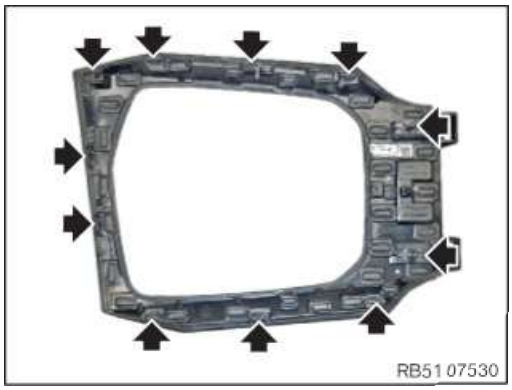
63 – Installing the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

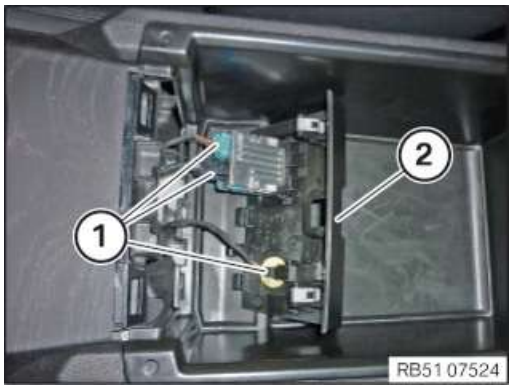


- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .



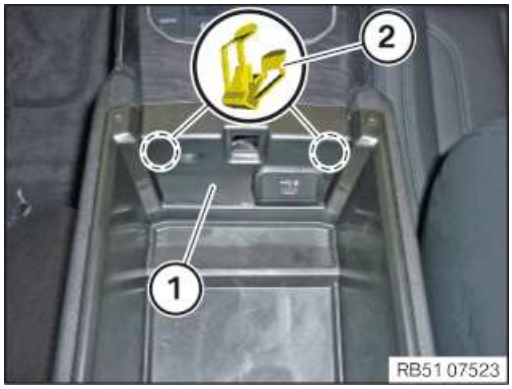
- Correctly position the centre console trim (1) and engage at the latch mechanisms.

64 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.

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- Correctly position trim (1) and snap into the clamps (2).

65 – Install the cup holder



- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm



- Insert the insert (1).

Additional Information

Overview of Tightening Torques

Front passenger airbag on instrument panel trim — Used in step 33

Oval-head screw		Tightening torque	2 Nm

Dashboard to support — Used in step 35

Screw		Tightening torque	2,4 Nm

Speaker to support / support to instrument panel / support to body — Used in step 36

Screw		Tightening torque	1,8 Nm

Instrument cluster (KOMBI) to support — Used in step 39

Screw		Tightening torque	1,8 Nm

Steering column switch cluster (SZL) on the steering column — Used in step 40

Screw TS5x20		Tightening torque	3 Nm

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Steering wheel to steering column			Used in step 4344
M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm

Central information display to instrument panel			Used in step 47
Screw		Tightening torque	2,4 Nm

Fold-down compartment to instrument panel			Used in step 51
Oval-head screw		Tightening torque	1,8 Nm

A-pillar trim panel to body			Used in step 54
Sheet metal screw 4,8x38		Tightening torque	2,6 Nm

Centre console on tunnel			Used in step 57
M6x18 Hexagon screw		Tightening torque	4,6 Nm

Centre console to instrument panel			Used in step 57
Oval-head screw		Tightening torque	1,8 Nm

Storage compartment in centre console			Used in step 59
Oval-head screw		Tightening torque	1,8 Nm

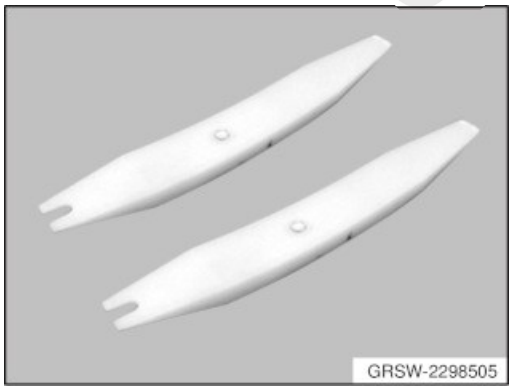
Gear selector switch to centre console trim			Used in step 60
Screw		Tightening torque	1,8 Nm

Negative battery cable to 48-V battery			Used in step 60
Nut M8		Tightening torque	19 Nm

Cup holder to centre console			Used in step 65
Oval-head screw		Tightening torque	1,8 Nm

Overview of Special Tools

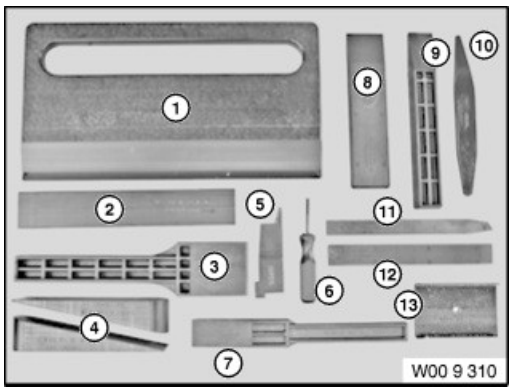
2 298 505 Wedge



Common		Used in step 34
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)	

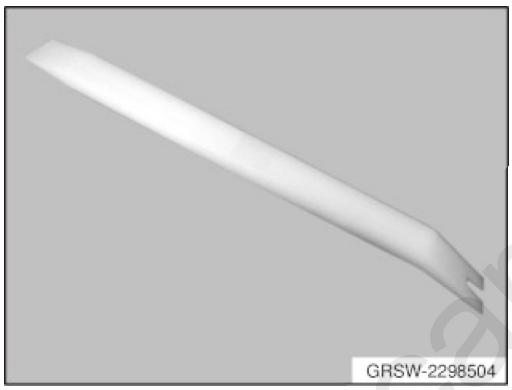
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0 493 752 (00 9 329) Case



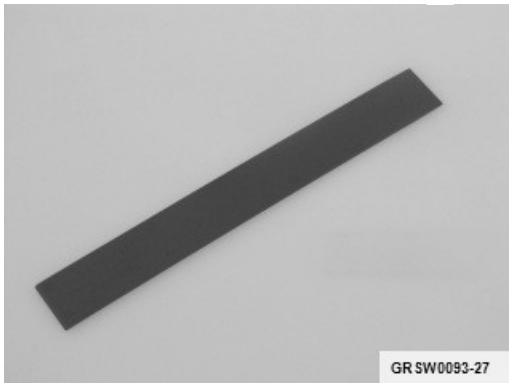
Common	Used in step 13
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 298 504 Wedge



Common	Used in step 25
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)

0 496 571 (00 9 327) Wedge



Common	Used in step 29
Usage	(Cleaning wedge) From 11/2008 this special tool replaces panel wedge 00 9 323 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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0 496 569 (00 9 325) Wedge



Common	Used in step 30
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 (PRE)	Used in step
Notes on 48-V battery	760

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	1321
72 00 ... Safety regulations for handling components with gas generators	13

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	760
61 20 900 Disconnecting and connecting battery earth lead	760
61 20 900 Disconnecting and connecting battery earth lead	760
61 20 900 Disconnecting and connecting battery earth lead	760
61 20 900 Disconnecting and connecting battery earth lead	760
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61 35 ... Notes on ESD protection (Electro Static Discharge)	2047
61 35 ... Notes on ESD protection (Electro Static Discharge)	2047

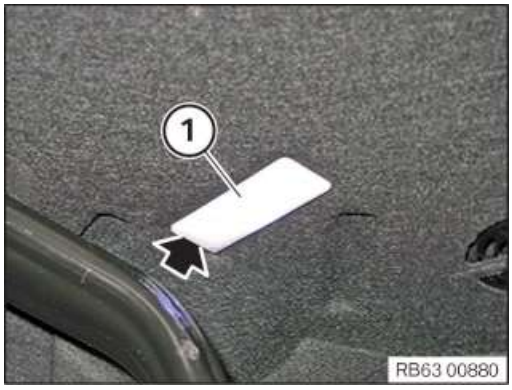
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51 45 196 Replacing instrument panel trim at bottom right

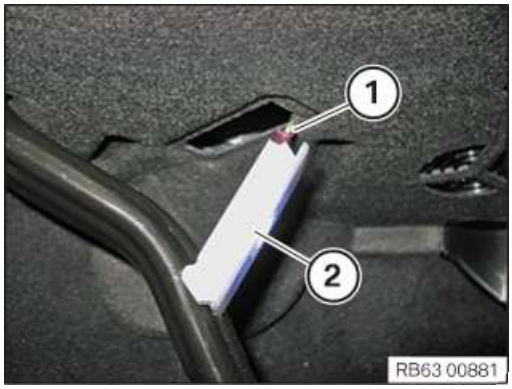
1 – Removing the footwell light at the front left or right

NOTICE

Description is for left component only. Procedure on the right side is identical.

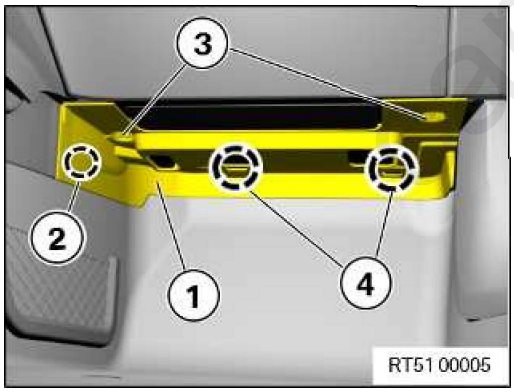


- Lever out the footwell light (1) from the footwell trim in the highlighted area.



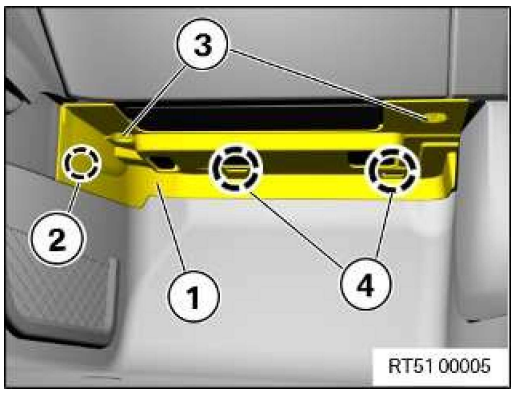
- Unlock and disconnect connector (1).
- Remove the footwell light (2).

2 – Remove the right footwell trim



- Turn the locks (3) by 90°.
- Feed the footwell trim (1) out of the guide (2).
- Detach the footwell trim (1) inward out of the guides (4).
- Unlock associated plug connection and disconnect.

3 – Install the right footwell trim panel



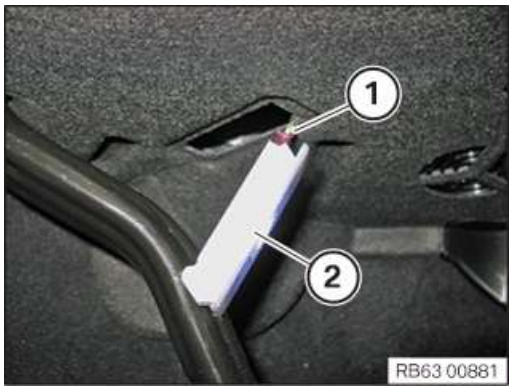
- Connect associated connector.
- Attach the footwell trim (1) to the guides (4) and fold up.
- Guide the footwell trim (1) into the guide (2) of the centre console.
- Position the locks (3) correctly and turn by 90°.

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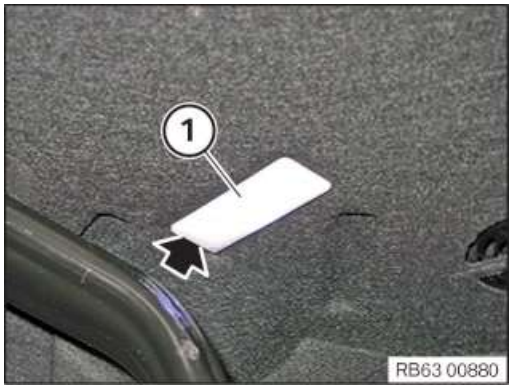
4 – Installing the footwell light at the front left or right

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Connect and lock the connector (1) with the footwell light (2).



- Position the footwell light (1) in the footwell trim (arrow).

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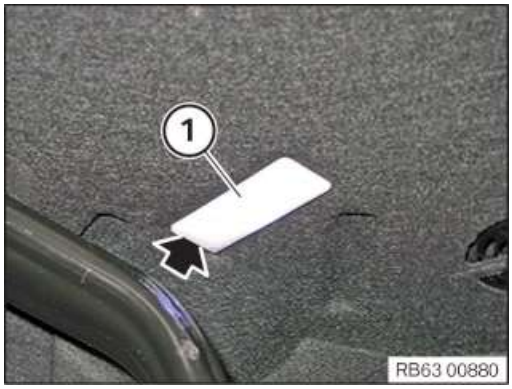
51 45 186 Replacing trim panel for pedal mechanism

PRELIMINARY WORK

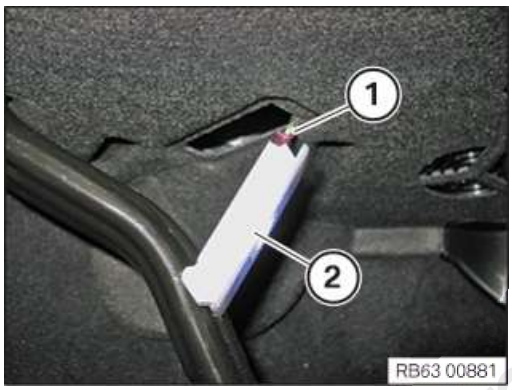
1 – Removing the footwell light at the front left or right

NOTICE

Description is for left component only. Procedure on the right side is identical.



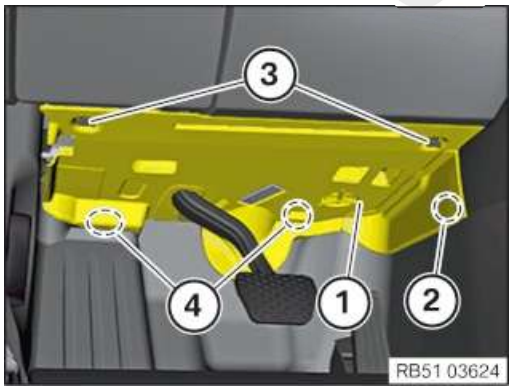
- Lever out the footwell light (1) from the footwell trim in the highlighted area.



- Unlock and disconnect connector (1).
- Remove the footwell light (2).

MAIN WORK

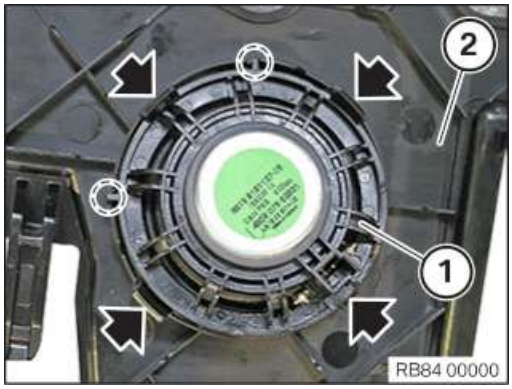
2 – Removing the trim panel for pedal mechanism



- Unclip the trim panel for the pedal mechanism (1) towards the inside in this area (2).
- Turn the locks (3) by 90°.
- Detach the trim panel for the pedal mechanism (1) inwards out of the guides (4).
- Unlock associated plug connection and disconnect.

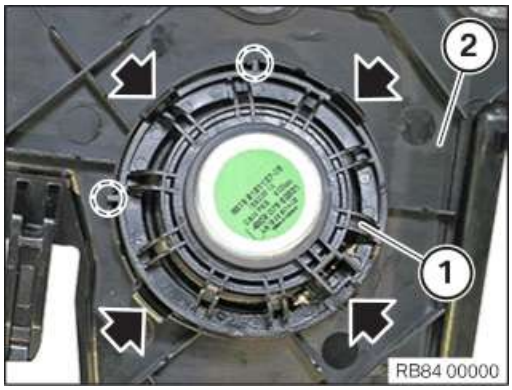
3 – Remove emergency loudspeaker

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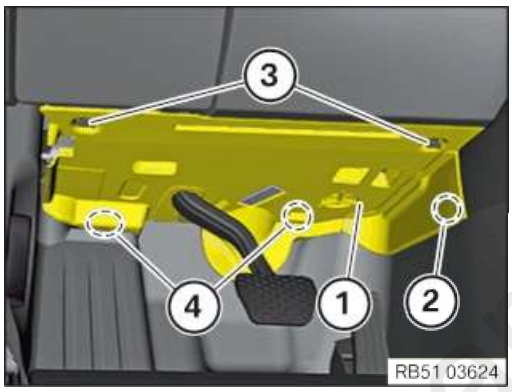
- Unclip the emergency loudspeaker (1) from the trim panel for pedal mechanism (2).

4 – Install emergency loudspeaker



- Clip in the emergency loudspeaker (1) in the trim panel for pedal mechanism (2).
- Check that the emergency loudspeaker (1)is engaged correctly (arrows).

5 – Installing the trim panel for the pedal mechanism



- Connect associated connector.
- Attach the trim panel for the pedal mechanism (1) in the guides (4) and fold it up.
- Clip the trim panel for the pedal mechanism (1) into the centre console in this area (2).

TECHNICAL INFORMATION

It is **imperative** that the screws caps of the trim panel be correctly locked. This is the only way to ensure that the trim panel does not come loose and potentially tilt into the pedal area.

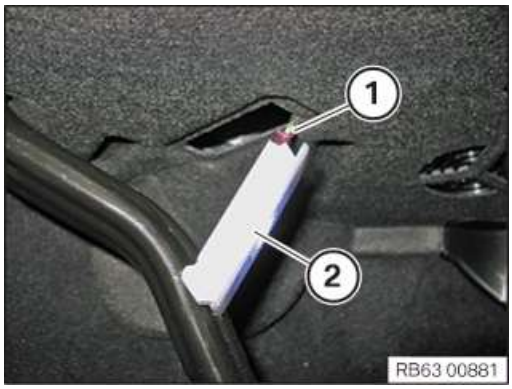
- Insert screw caps (3) correctly and turn by 90° to lock.

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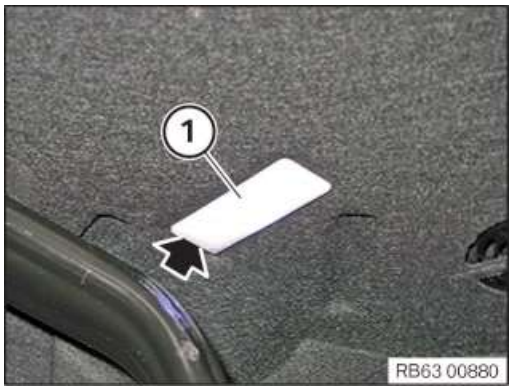
6 – Installing the footwell light at the front left or right

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Connect and lock the connector (1) with the footwell light (2).



- Position the footwell light (1) in the footwell trim (arrow).

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51 46 001 Remove and install trim panel for storage shelf

RISK OF DAMAGE

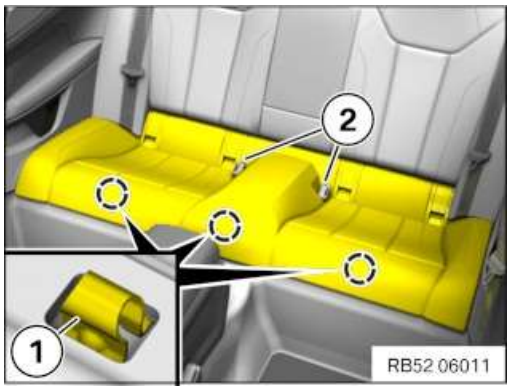
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

PRELIMINARY WORK

1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

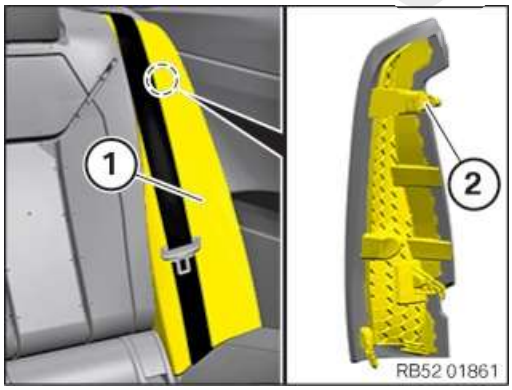
2 – Remove backrest side section on left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

3 – Removing the C-pillar trim panel on the left and right

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NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

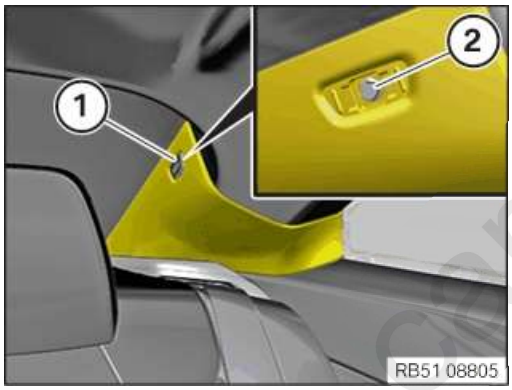
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

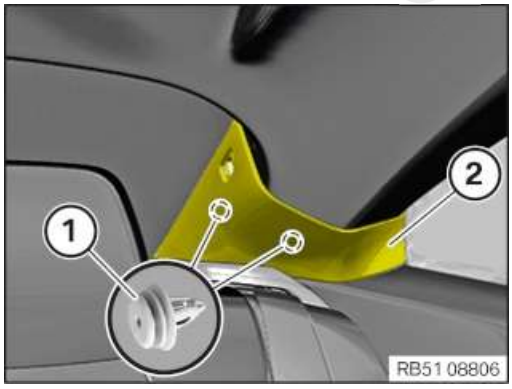
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

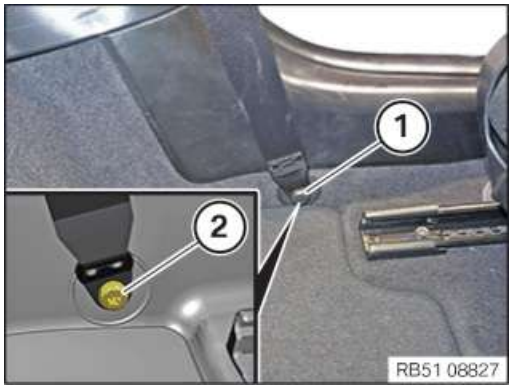
4 – Remove side trim panel, rear left and right

NOTICE

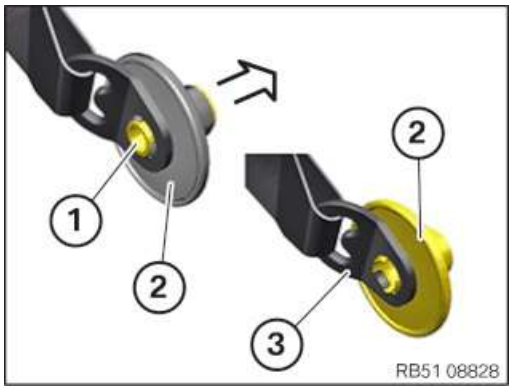
Description is for left component only. Procedure on the right side is identical.

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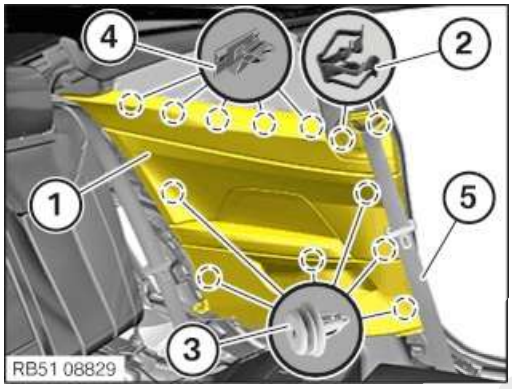
▸ **Remove rear side trim panel**



- Unclip the cover cap (1).
- Release the screw (2).



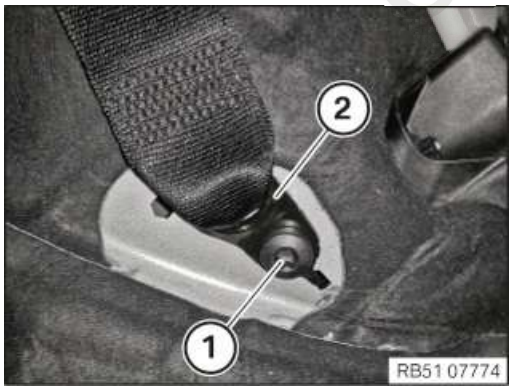
- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

MAIN WORK

5 – Removing the trim panel for the storage shelf

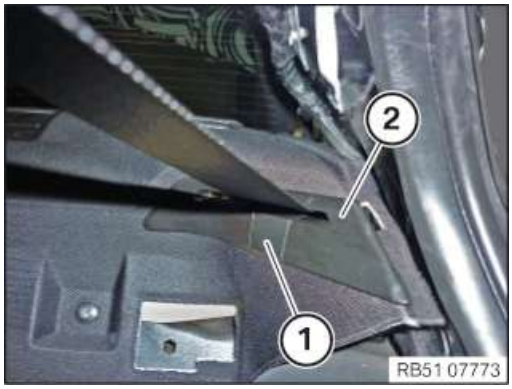


NOTICE

Perform the operations on the left and right side.

- Release the screw (1) from the rear end fitting (2).
- Feed out the rear end fitting (2) from the body.

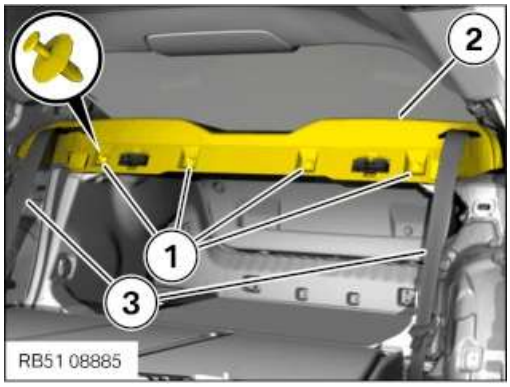
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NOTICE

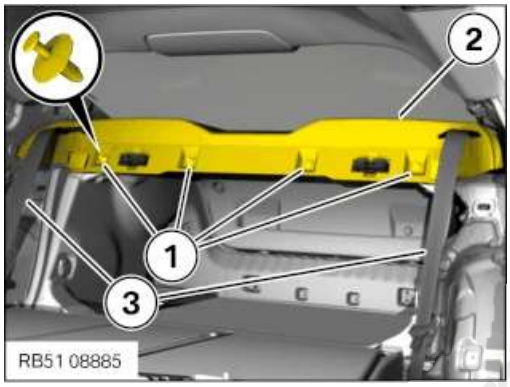
Perform the operations on the left and right side.

- Unclip the cover (1) to the front.
- Unclip the outer belt feed trim (2) starting from the front and remove it.

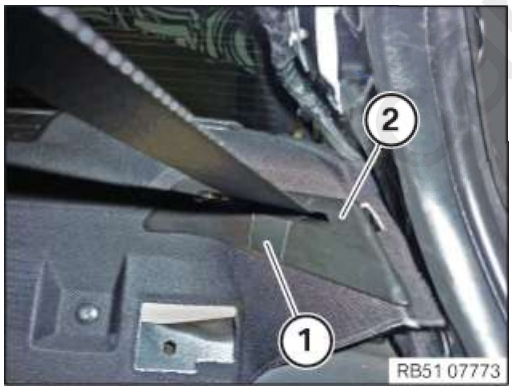


- Release the expanding rivet (1).
- Unlock and disconnect the plug connections under the trim panel (2). Lift the trim panel (2) for that.
- Release the wiring harness with all holders from trim panel (2).
- Remove the trim panel (2) to the front and feed out the seat belts (3).

6 – Install the trim panel for the storage shelf



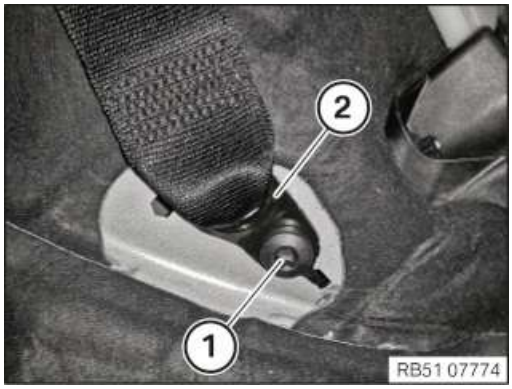
- Install the trim panel (2) and the feed in the seat belts (3).
- Clip in the wiring harness with all the holders to the trim panel for the storage shelf (2).
- Connect all connectors and lock.
- Feed in the trim panel (2) to the rear guides and position it correctly.
- Secure expanding rivet (1).



NOTICE

Perform the operations on the left and right side.

- Feed in the belt feed trim (2).
- Clip in the cover (1).



NOTICE

Perform the operations on the left and right side.

- Feed the rear end fitting (2) into the body.
- Renew the screw (1).

  Part: Screw
- Tighten down screw (1).

End fitting to body

M10	Renew screw.	Tightening torque	42 Nm

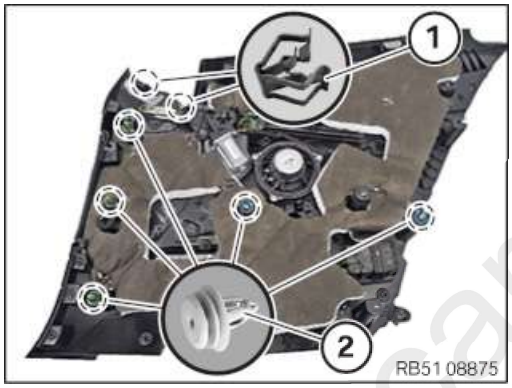
POSTPROCESSES

7 – Install side trim panel, rear left and right

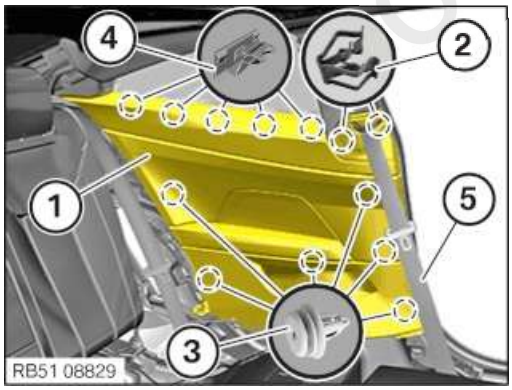
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install rear side trim panel**

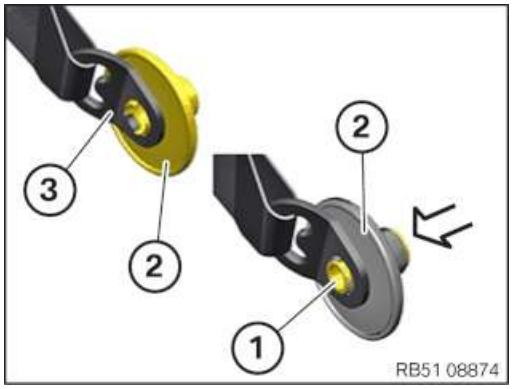


- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.

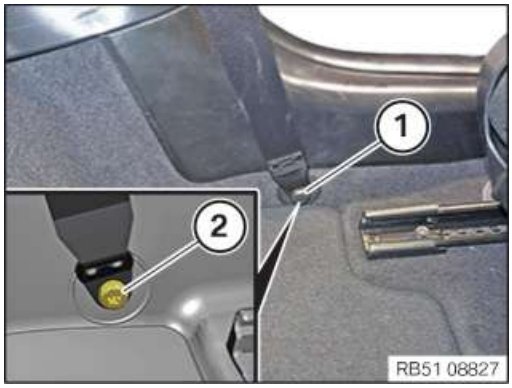


- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).

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- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

8 – Installing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

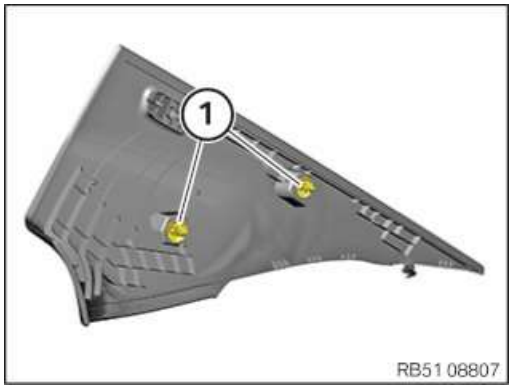
RISK OF DAMAGE

Damage to the head airbag.

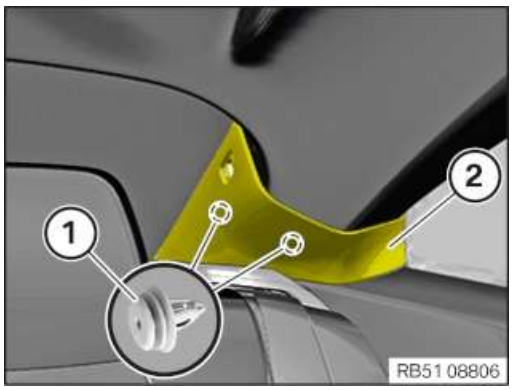
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

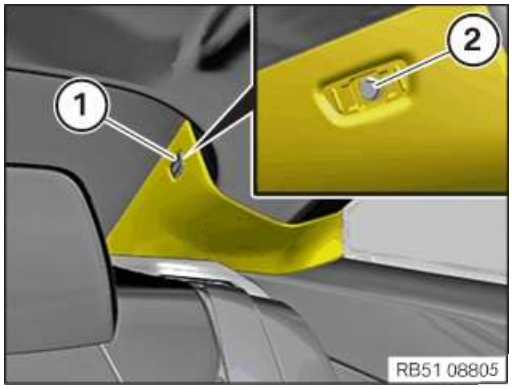
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- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

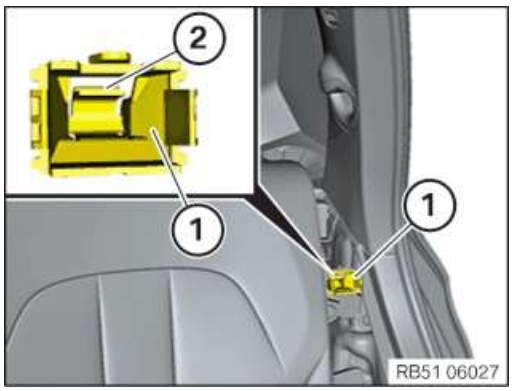
9 – Install the backrest side section on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing backrest side section**

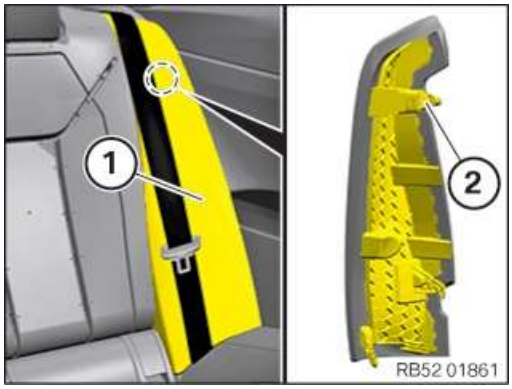
▹ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.

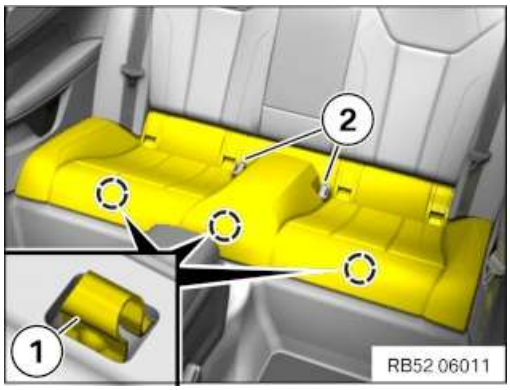
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- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

10 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

Overview of Tightening Torques

End fitting to body			Used in step 6
M10	Renew screw.	Tightening torque	42 Nm

End fitting to body			Used in step 7
M10		Tightening torque	42 Nm

C-pillar trim panel to body			Used in step 8
Screw		Tightening torque	2,6 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	**Used in step**
Notes on 48-V battery	29

General repair instructions	**Used in step**
72 00 ... Safety regulations for handling components with gas generators	29

Repair instructions	**Used in step**
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting battery earth lead	29

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61 20 900 Disconnecting and connecting battery earth lead	29
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	29
61 20 900 Disconnecting and connecting battery earth lead

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51 46 002 Replace the trim panel for the storage shelf

RISK OF DAMAGE

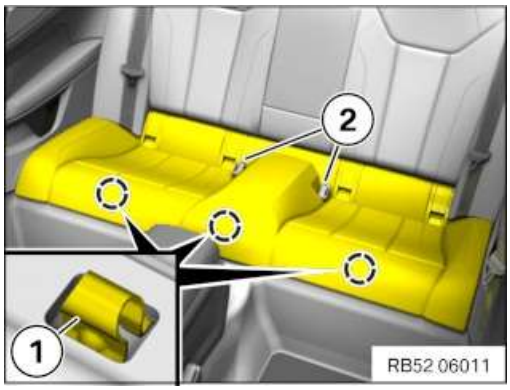
Damage of high-quality surfaces.

Plastic wedges can damage high-quality surfaces.

- Protect surfaces from damage.

PRELIMINARY WORK

1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

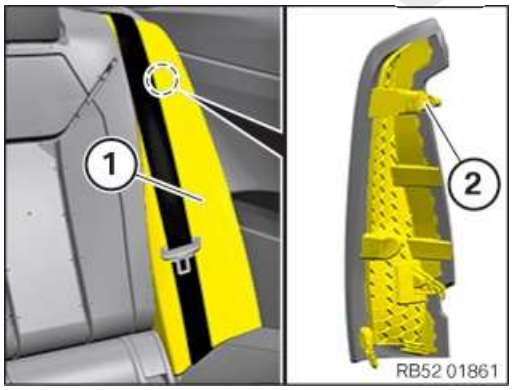
2 – Remove backrest side section on left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

3 – Removing the C-pillar trim panel on the left and right

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NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

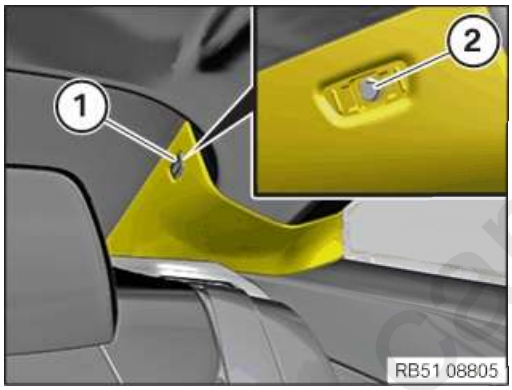
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

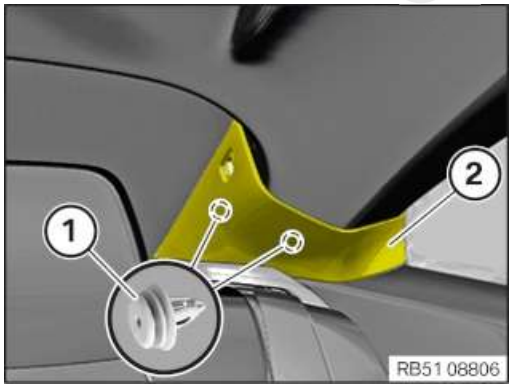
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

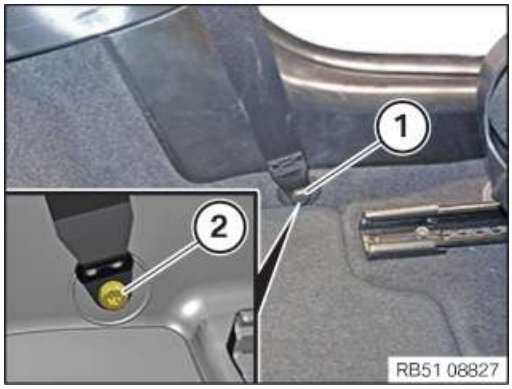
4 – Remove side trim panel, rear left and right

NOTICE

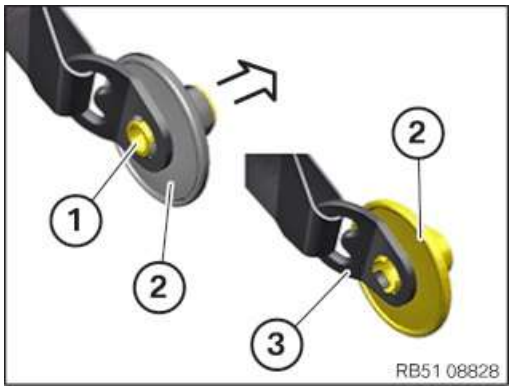
Description is for left component only. Procedure on the right side is identical.

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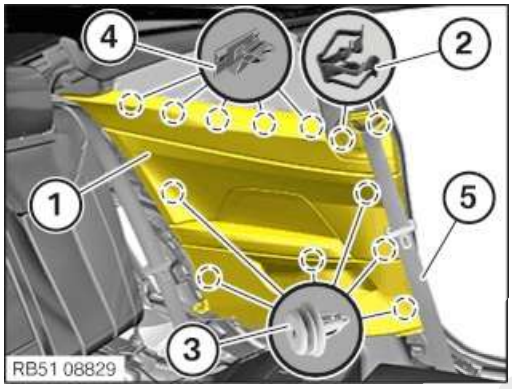
▸ **Remove rear side trim panel**



- Unclip the cover cap (1).
- Release the screw (2).

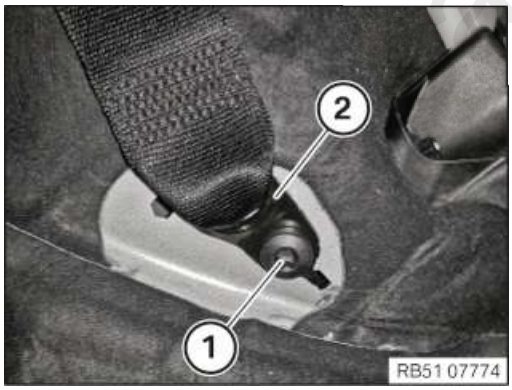


- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

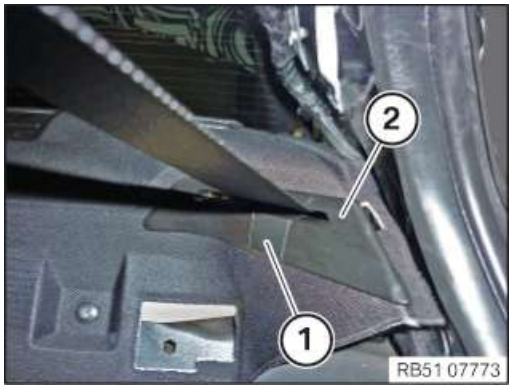
5 – Removing the trim panel for the storage shelf



NOTICE

Perform the operations on the left and right side.

- Release the screw (1) from the rear end fitting (2).
- Feed out the rear end fitting (2) from the body.

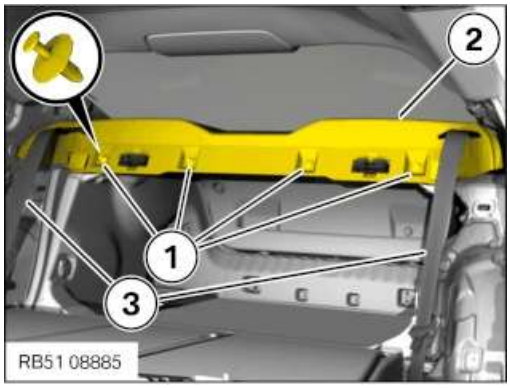


NOTICE

Perform the operations on the left and right side.

- Unclip the cover (1) to the front.
- Unclip the outer belt feed trim (2) starting from the front and remove it.

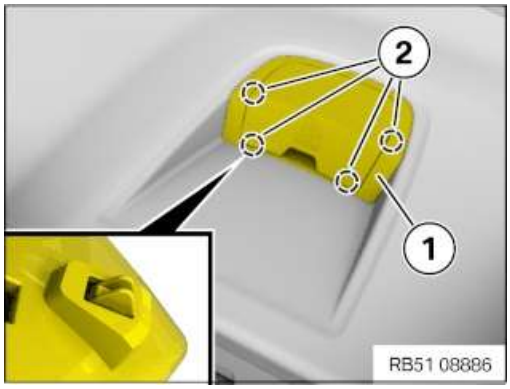
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- Release the expanding rivet (1).
- Unlock and disconnect the plug connections under the trim panel (2). Lift the trim panel (2) for that.
- Release the wiring harness with all holders from trim panel (2).
- Remove the trim panel (2) to the front and feed out the seat belts (3).

MAIN WORK

6 – Replace the trim panel for the storage shelf

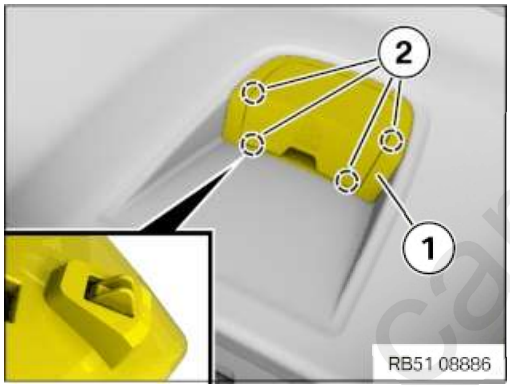


▸ **Remounting the top tether trim**

NOTICE

Perform the operations on the left and right side.

- Release the top tether trim (1) with a suitable special tool from the set of special tools 0 493 752 (00 9 329) from the latch mechanisms (2).
- Remove the top tether trim (1) from the storage shelf.



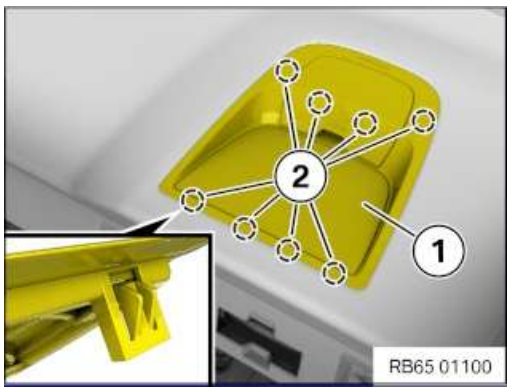
NOTICE

Perform the operations on the left and right side.

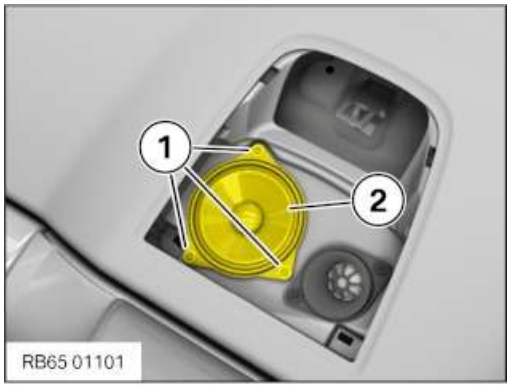
- Position the top tether trim (1) on the storage box.

  Clip in the top tether trim (1) to the storage shelf with the latch mechanisms (2).

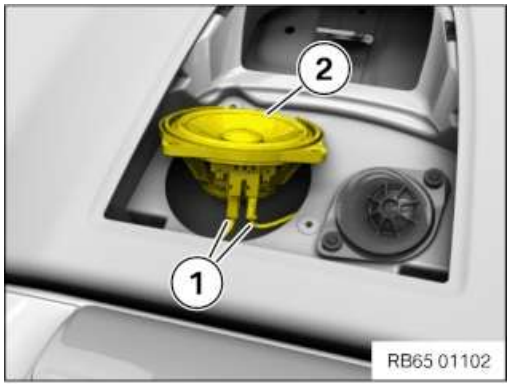
▸ **Remove rear mid-range speaker**



- Release the cover (1) with a suitable special tool from the set of special tools 0 493 752 (00 9 329) at the latch mechanisms (2).
- Remove the cover (1) from the storage shelf.

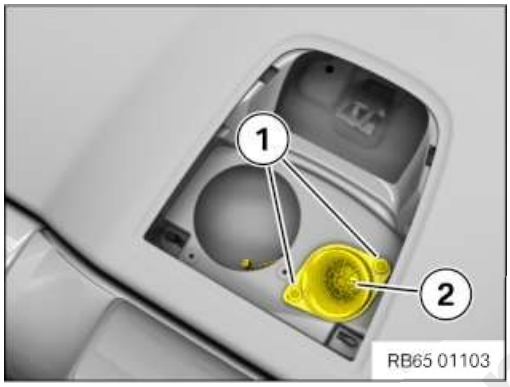


- Loosen screws (1).
- Lift the mid-range speaker (2) to reach the plug connections below that.



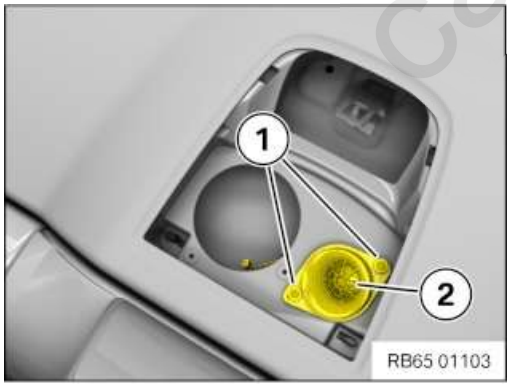
- Unlock plug connections (1) and disconnect.
- Remove the mid-range speaker (2).

▸ **Remove rear tweeter**



- Loosen screws (1).
- Feed out and remove the tweeter (2) with the cable.

▸ **Installing the rear tweeter**



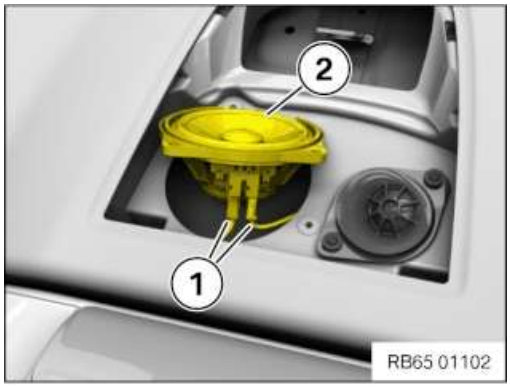
- Guide in tweeter (2) with the cable and position it correctly.
- Tighten the screws (1).

Speaker to storage shelf/support

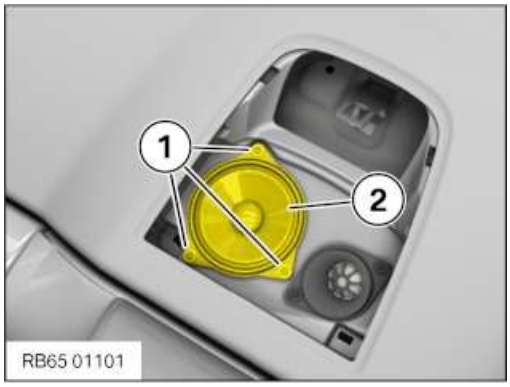
Screw		Tightening torque	1,8 Nm

▸ **Installing the rear mid-range speaker**

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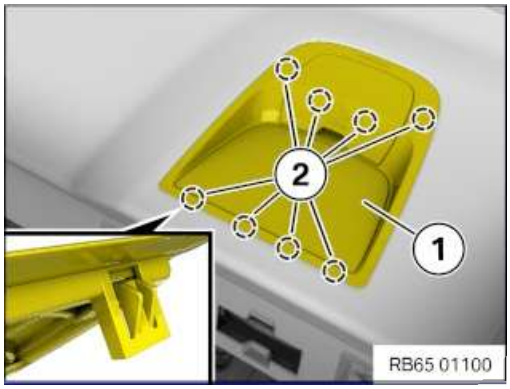
- Position mid-range speaker (2).
- Connect connectors (1) and lock.



- Position mid-range speaker (2) correctly.
- Tighten the screws (1).

Speaker to storage shelf/support

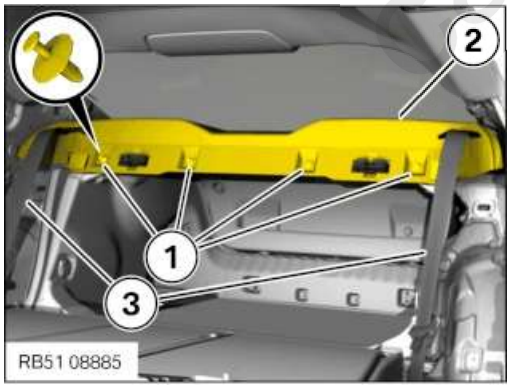
Screw		Tightening torque	1,8 Nm



- Position cover (1) of the storage shelf.
- Clip cover (1) with latch mechanisms (2) into the storage shelf.

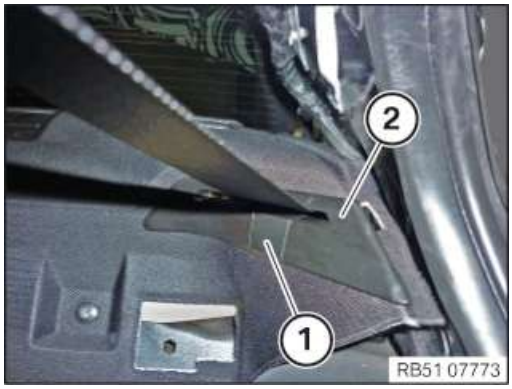
POSTPROCESSES

7 – Install the trim panel for the storage shelf



- Install the trim panel (2) and the feed in the seat belts (3).
- Clip in the wiring harness with all the holders to the trim panel for the storage shelf (2).
- Connect all connectors and lock.
- Feed in the trim panel (2) to the rear guides and position it correctly.
- Secure expanding rivet (1).

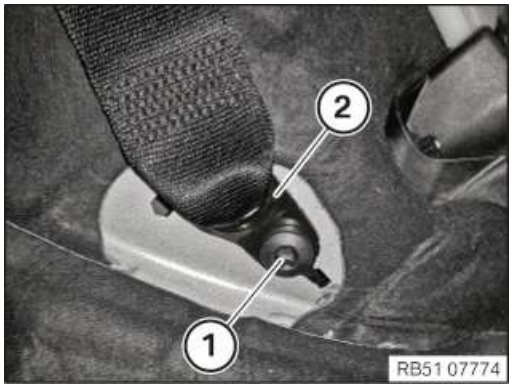
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NOTICE

Perform the operations on the left and right side.

- Feed in the belt feed trim (2).
- Clip in the cover (1).



NOTICE

Perform the operations on the left and right side.

- Feed the rear end fitting (2) into the body.
- Renew the screw (1).

  Part: Screw
- Tighten down screw (1).

End fitting to body

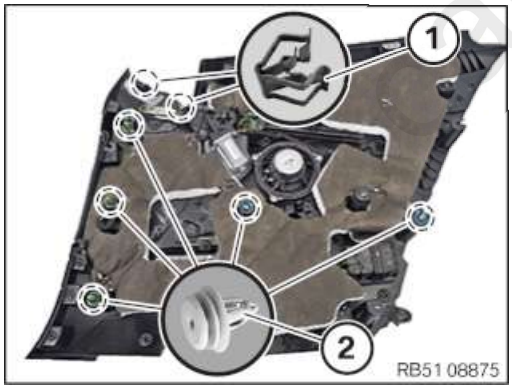
M10	Renew screw.	Tightening torque	42 Nm

8 – Install side trim panel, rear left and right

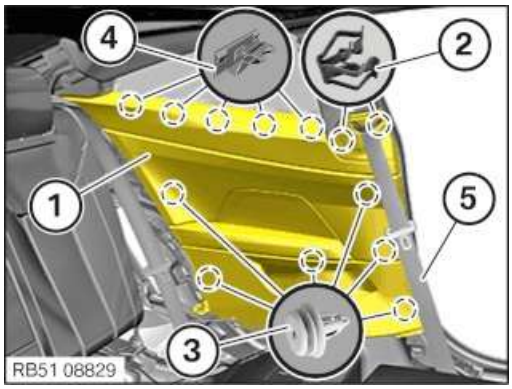
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install rear side trim panel**

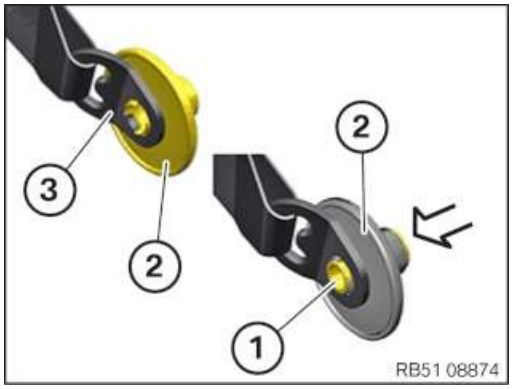


- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.

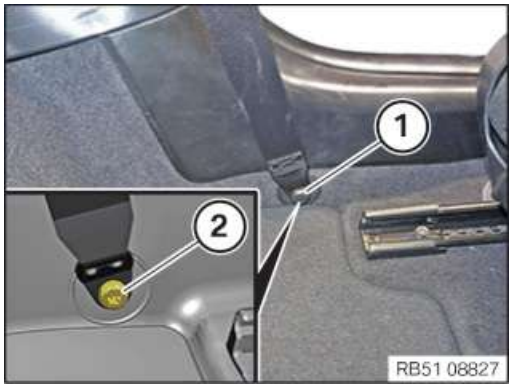


- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).

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- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

9 – Installing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

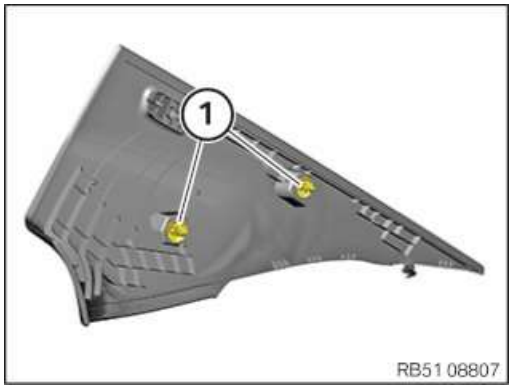
RISK OF DAMAGE

Damage to the head airbag.

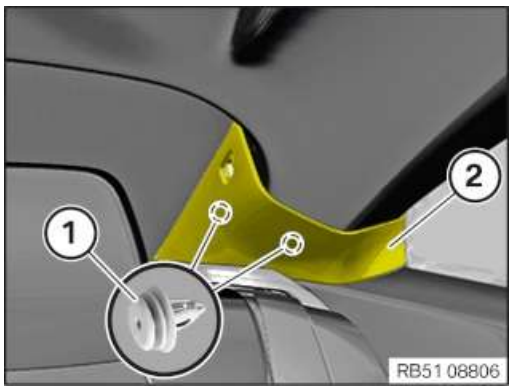
Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

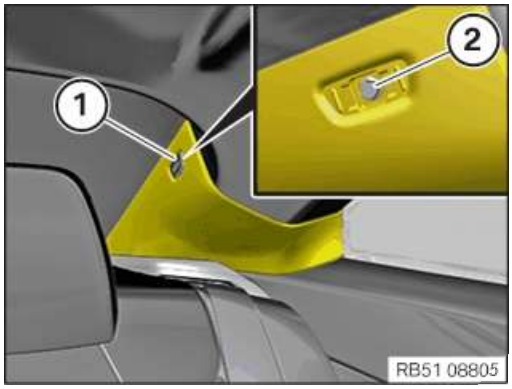
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- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).



- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

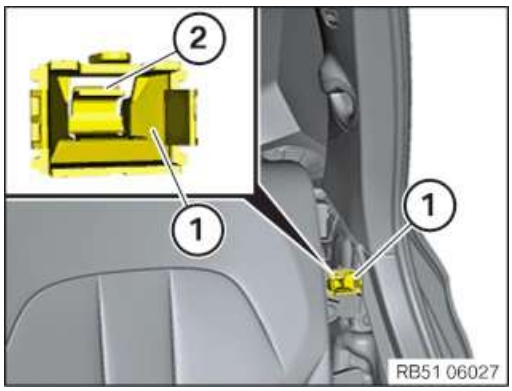
10 – Install the backrest side section on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing backrest side section**

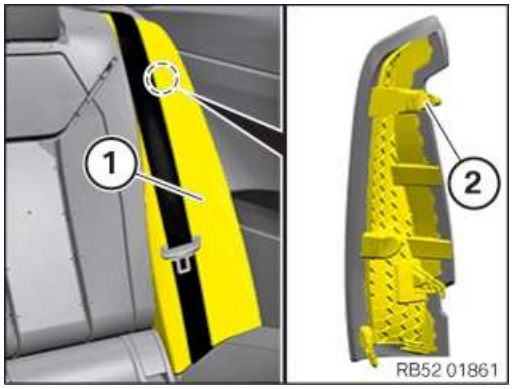
▹ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.

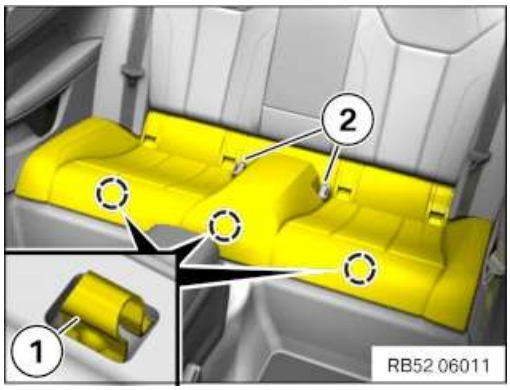
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- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

11 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

Overview of Tightening Torques

Speaker to storage shelf/support			Used in step 6
Screw		Tightening torque	1,8 Nm

End fitting to body			Used in step 7
M10	Renew screw.	Tightening torque	42 Nm

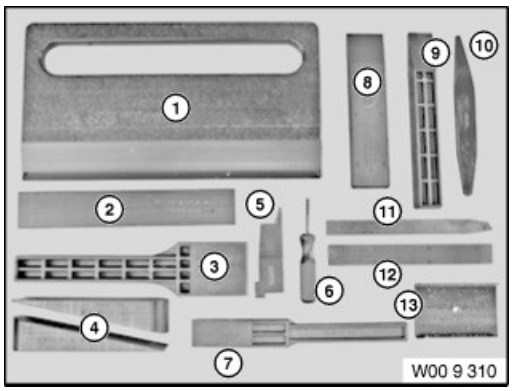
End fitting to body			Used in step 8
M10		Tightening torque	42 Nm

C-pillar trim panel to body			Used in step 9
Screw		Tightening torque	2,6 Nm

Overview of Special Tools

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0 493 752 (00 9 329) Case



Common	Used in step 6
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	210

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	210

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	210
61 20 900 Disconnecting and connecting battery earth lead	210
61 20 900 Disconnecting and connecting battery earth lead	210
61 20 900 Disconnecting and connecting battery earth lead	210
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	210
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	210
61 20 900 Disconnecting and connecting battery earth lead	210
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	210
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	210
61 20 900 Disconnecting and connecting battery earth lead	210
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61 20 900 Disconnecting and connecting battery earth lead	210
61 20 900 Disconnecting and connecting battery earth lead	210
61 20 900 Disconnecting and connecting battery earth lead	210

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51 47 315 Removing and installing/replacing carpet for vehicle interior

PRELIMINARY WORK

1 – Remove the front seats on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

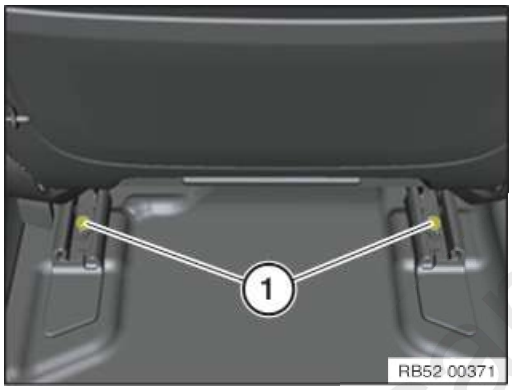
▸ **Remove front seat**

WARNING

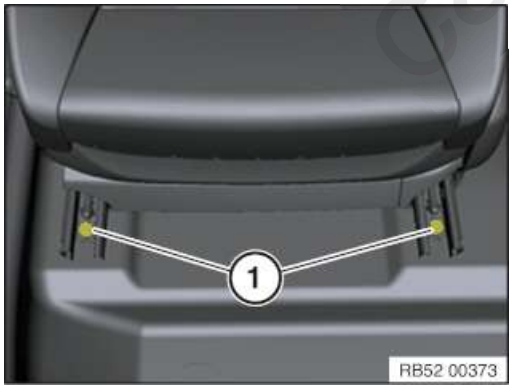
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▹ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

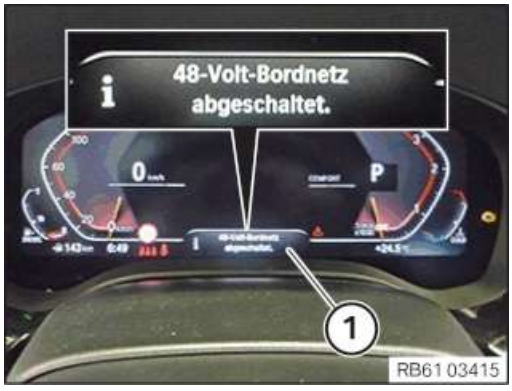
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.

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WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

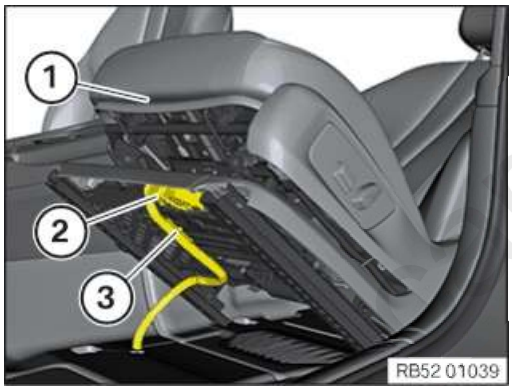
◁

▷ **Disconnecting all battery earth leads**



- See additional information.

◁



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

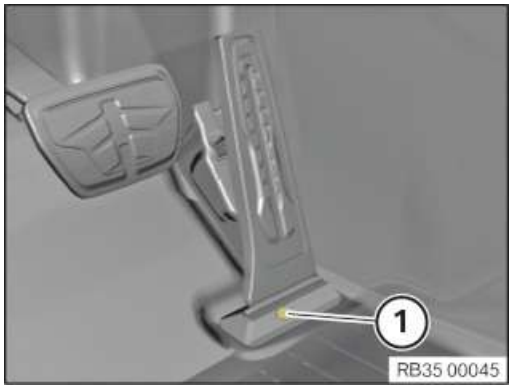
Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

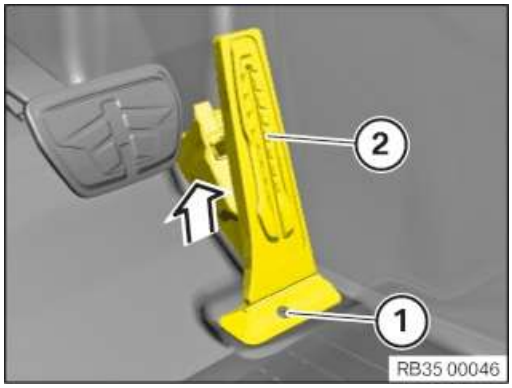
- Lift out front seat (1) with the assistance of a second person.

2 – Remove accelerator pedal module

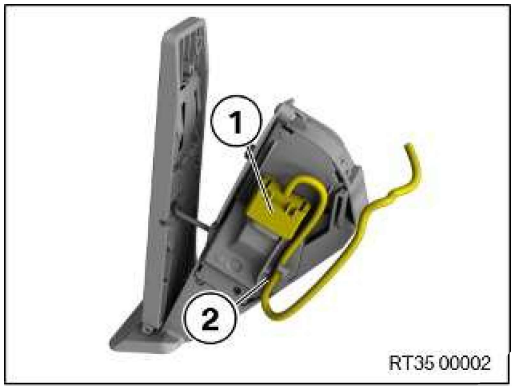
.com



- Lever out cover (1) towards the top.



- Release the hexagon socket screw (1).
- Feed out accelerator pedal module (2) towards the top.



- Unlock plug connection (1) and disconnect.
- Feed the wiring harness out of the holder (2).

3 – Removing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the inner door sill cover strip**

RISK OF DAMAGE

Bending of plastic parts.

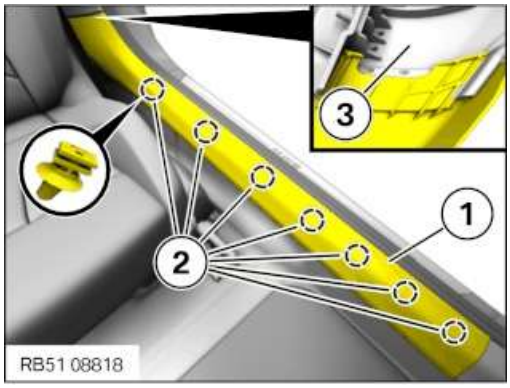
Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

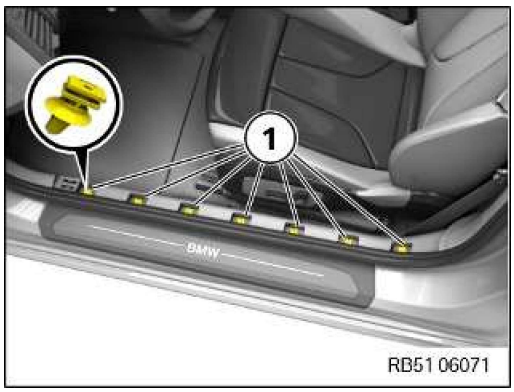
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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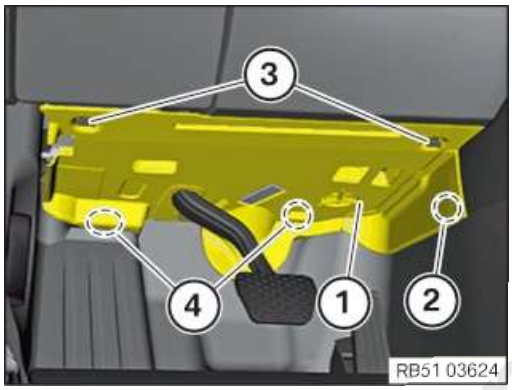


- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .



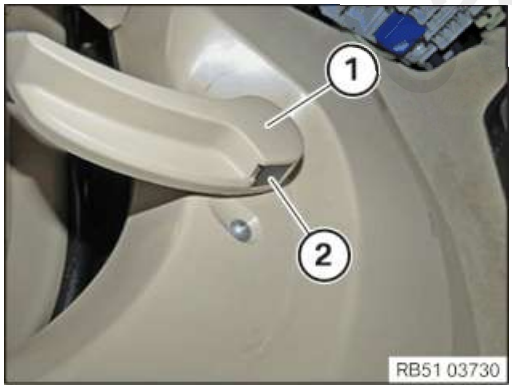
- If necessary, remove clips (1) and connect them to the door sill cover strip.

4 – Removing the trim panel for pedal mechanism

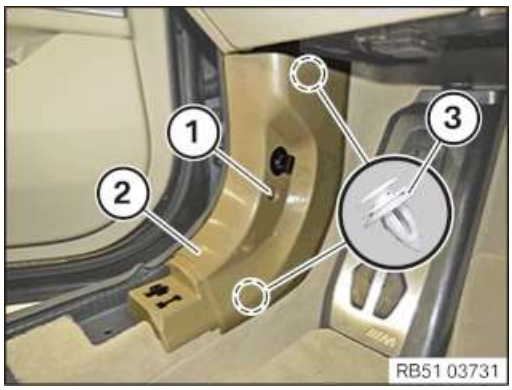


- Unclip the trim panel for the pedal mechanism (1) towards the inside in this area (2).
- Turn the locks (3) by 90°.
- Detach the trim panel for the pedal mechanism (1) inwards out of the guides (4).
- Unlock associated plug connection and disconnect.

5 – Remove the side trim panel in the footwell at the left A-pillar

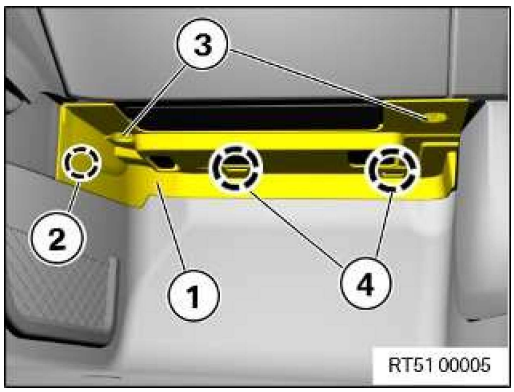


- Pull bonnet release lever (1) towards the rear.
- Lever out the locking wedge (2).
- Remove the bonnet release lever (1) inward.



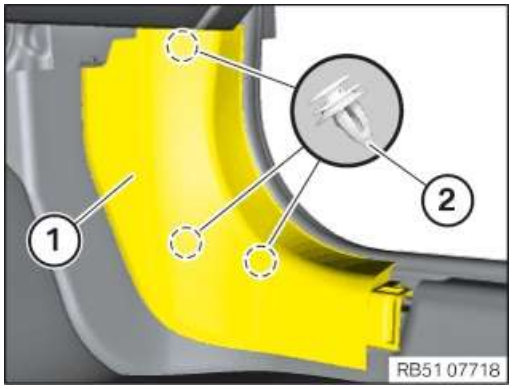
- Loosen screw (1).
- Loosen the side trim panel (2) at the clips (3) and remove it toward the inside.

6 – Remove the right footwell trim



- Turn the locks (3) by 90°.
- Feed the footwell trim (1) out of the guide (2).
- Detach the footwell trim (1) inward out of the guides (4).
- Unlock associated plug connection and disconnect.

7 – Removing the side trim panel in the footwell at the right-hand A-pillar



- Loosen the side trim panel (1) at the clips (2) and remove it toward the inside.

8 – Remove cupholder

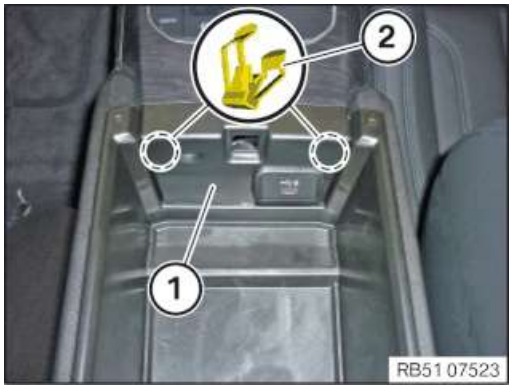


- Remove the insert (1).

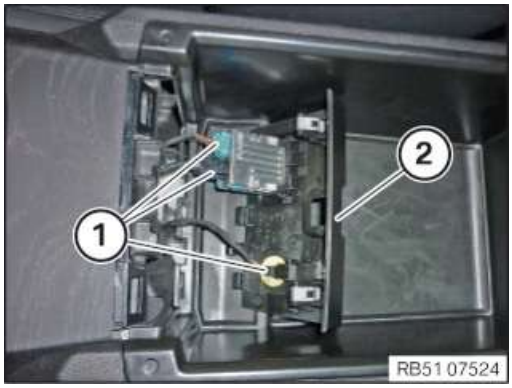


- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

9 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

10 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



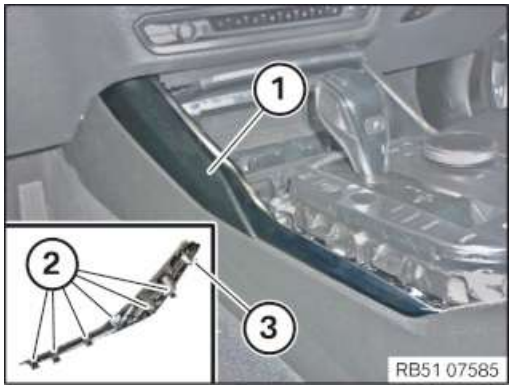
- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

11 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

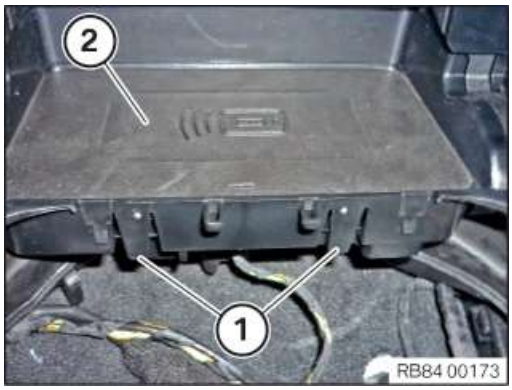
NOTICE

Description is for left component only. Procedure on the right side is identical.

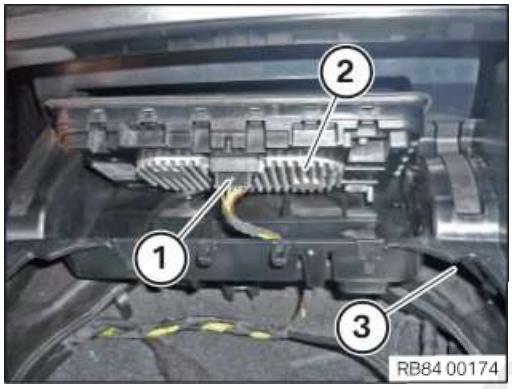


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

12 – Removing the wireless charging station



- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.



- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

13 – Remove the operating facility in the centre console

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▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

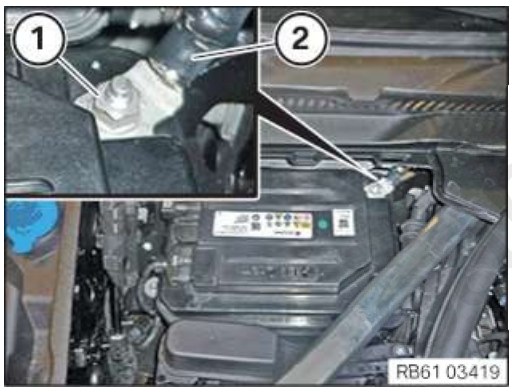
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

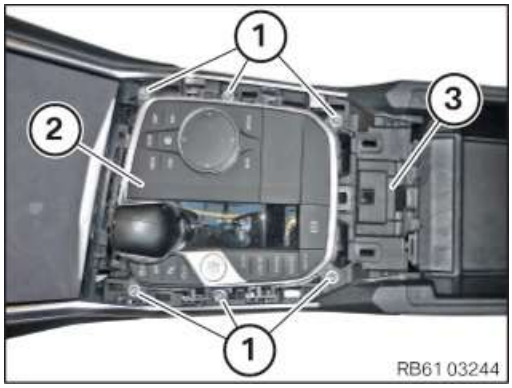
- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**

.com

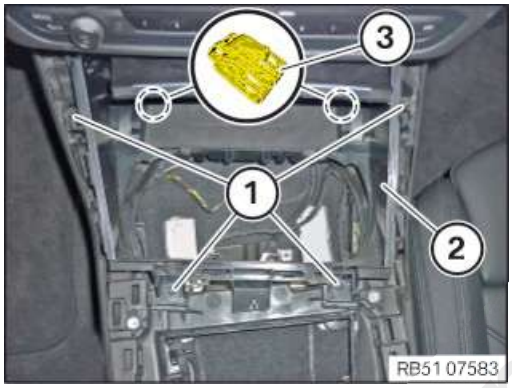


- See additional information.

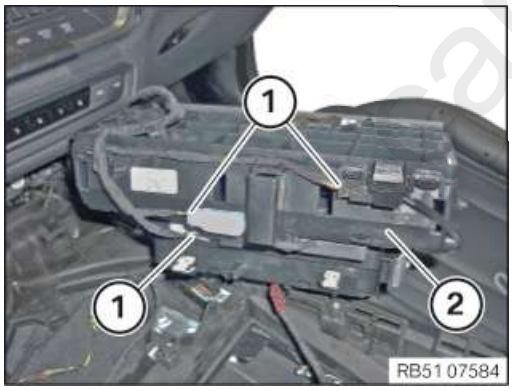


- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

14 – Removing the storage compartment in the front centre console



- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).



- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

15 – Removing the rear centre console trim

RISK OF DAMAGE

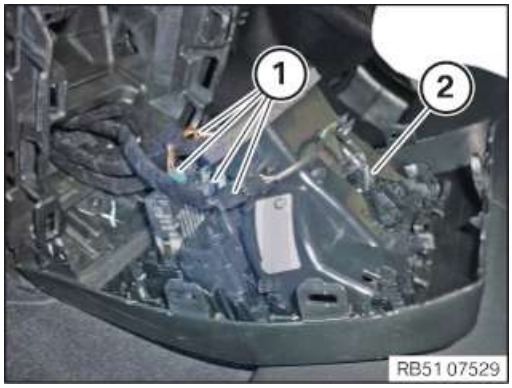
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.

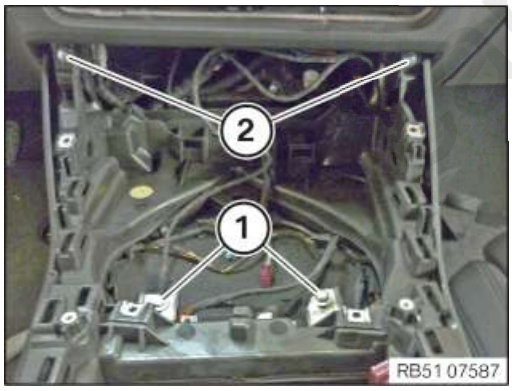


- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

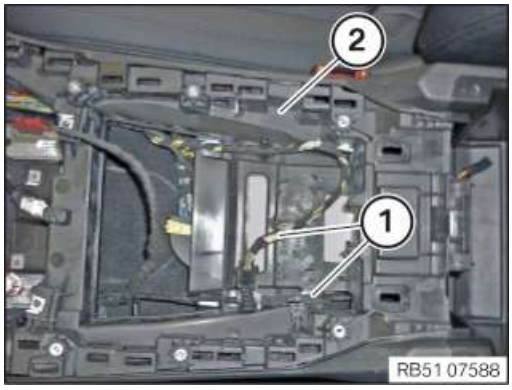
16 – Removing the centre console



- Loosen screws (1).

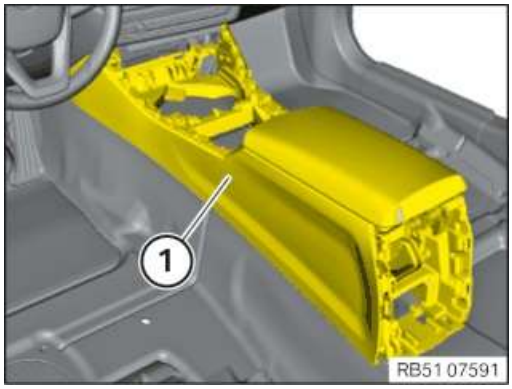


- Loosen screws (1) and (2).



- Release the wiring harness (1) from the centre console (2).

rdiagn.com



NOTICE

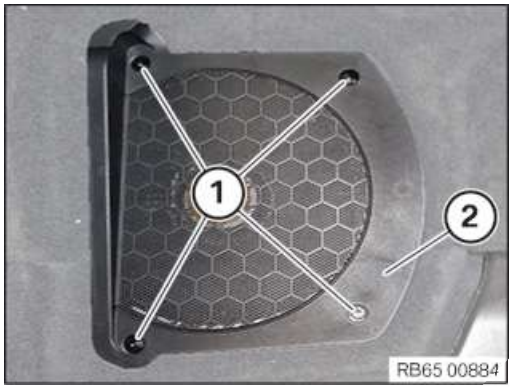
To provide a better overview: Schematic diagram with partially hidden components.

- Carefully raise rear centre console (1).
- Feed out wiring harness from the centre console (1) and unlock and disconnect existing plug connections, if required.
- Feed out and remove the centre console (1) on the instrument panel .

17 – Removing the speaker trim for the left and right central bass

NOTICE

Description is for left component only. Procedure on the right side is identical.

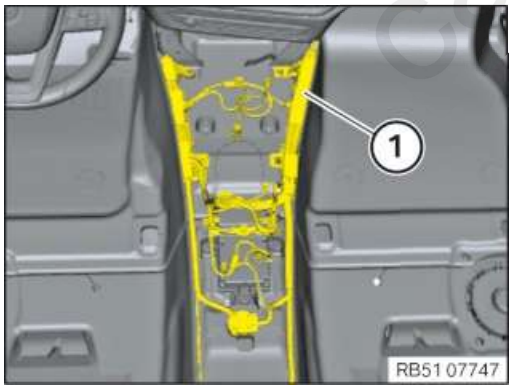


▸ **Remove the speaker trim for the central bass**

- Loosen screws (1).
- Remove the speaker trim for the central bass (2).

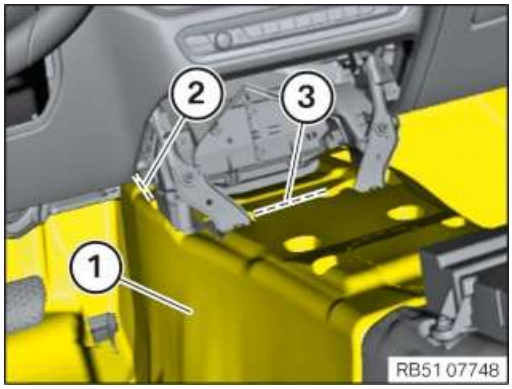
MAIN WORK

18 – Removing the front carpet



- Unclip wiring harness (1) using the holders and unlock and disconnect the plug connections.

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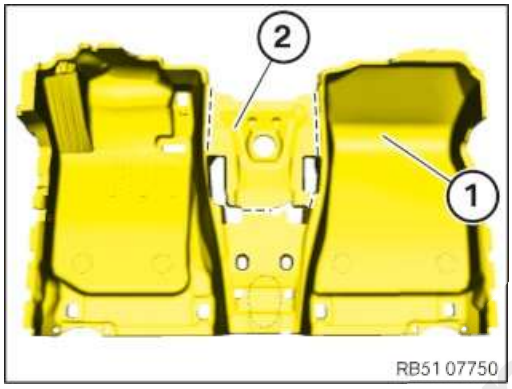


- Cut carpet (1) along the dotted line (2) on the left and right of the heating and air-conditioning unit.
- Cut carpet (1) along the dotted line (3) of the heating and air-conditioning unit.



- Feed out carpet (1) and remove from the vehicle.

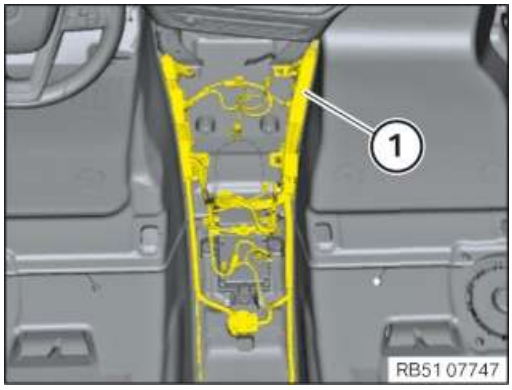
19 – Installing the front carpet



- Place the removed carpet on top of the new carpet (1) and transfer the cuts to the new carpet (1).
- Cut off the highlighted area (2) on the new carpet (1).



- Install the carpet (1) in the motor vehicle.
- Make sure the carpet (1) is positioned correctly on all adjacent parts and in the area of the heating and air conditioning unit .



- Clip in wiring harness (1) with the holders and connect and lock the connectors.

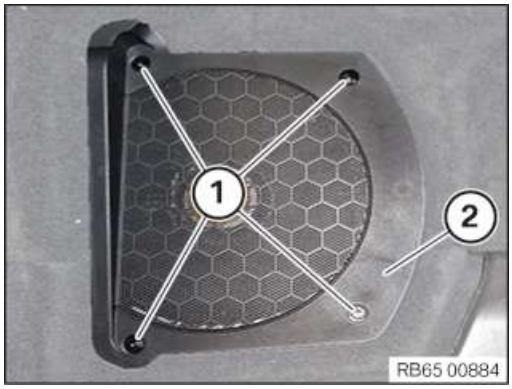
POSTPROCESSES

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20 – Installing the speaker trim for the left and right central bass

NOTICE

Description is for left component only. Procedure on the right side is identical.



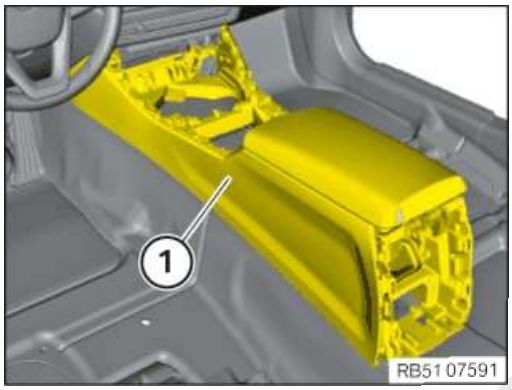
▸ **Install the speaker trim for the central bass**

- Position the speaker trim for the central bass (2).
- Tighten the screws (1).

Central bass speaker trim

Screw		Tightening torque	2 Nm

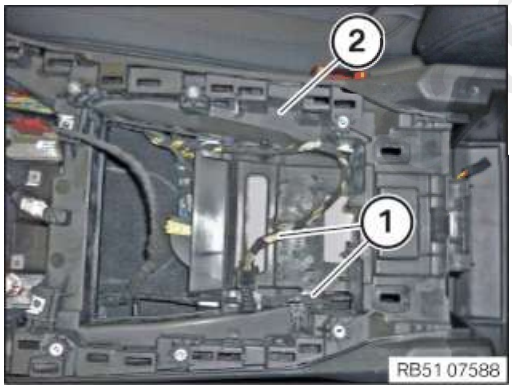
21 – Installing the centre console



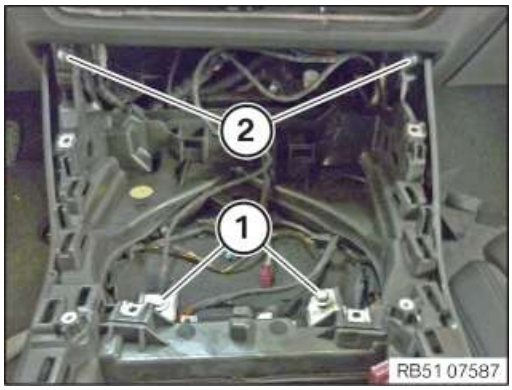
NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Install centre console (1) and thereby feed in the wiring harness.
- Feed in the centre console (1) to the instrument panel and position correctly.



- Secure the wiring harness to the centre console (1) and connect and lock the existing plug connections.



- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

- Tighten the screws (2).

Centre console to instrument panel

Oval-head screw		Tightening torque	1,8 Nm

mdiagn.com

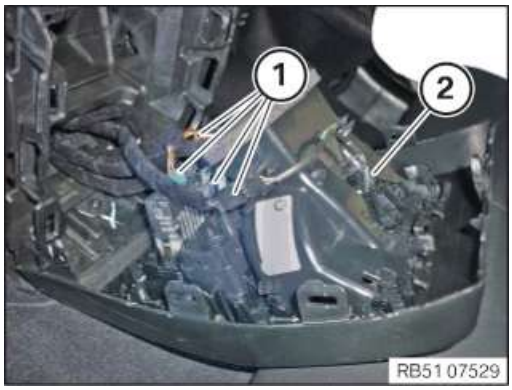


- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

22 – Installing the rear centre console trim

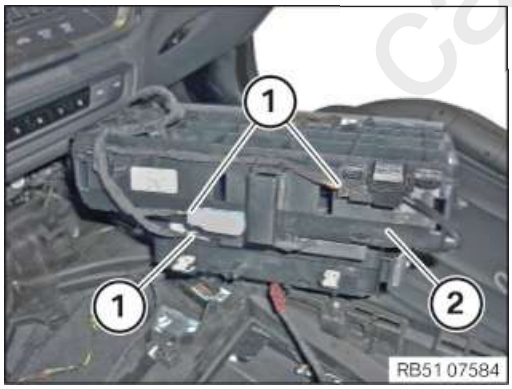


- Install the centre console trim (2).
- Connect connectors (1) and lock.

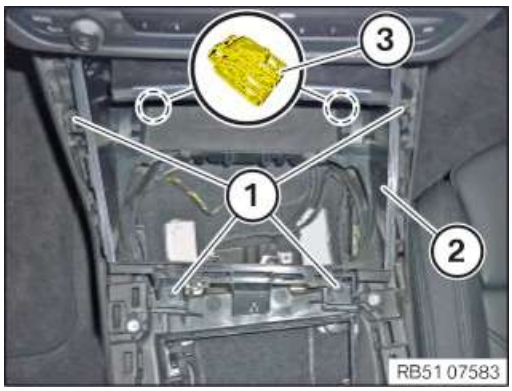


- Position centre console trim (1) and engage at the latch mechanisms at the side.

23 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).



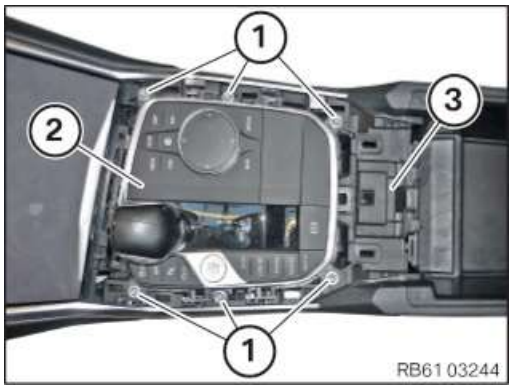
- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

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24 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw		Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**



- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .

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- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



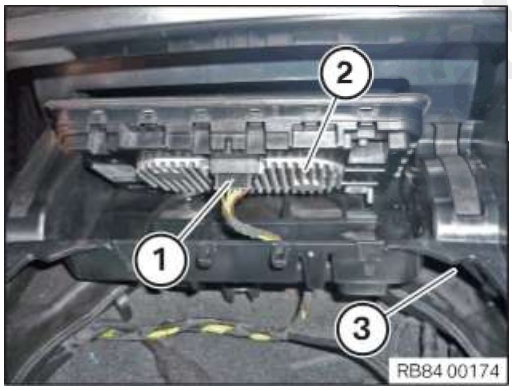
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



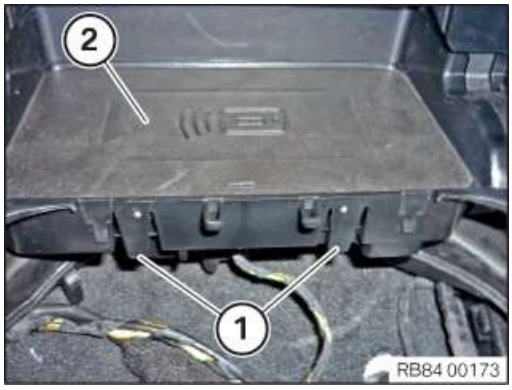
- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

25 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.

  The latch mechanisms (1) must engage correctly.

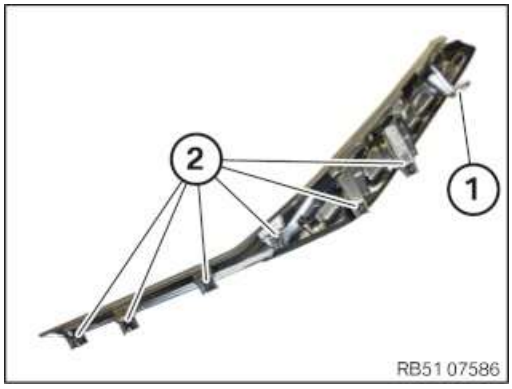
26 – Installing the decorative trim on the centre console on the left and right

rdiagn.com

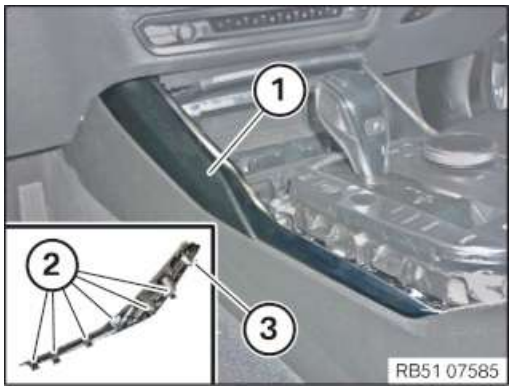
▸ **Installing the decorative trim on the centre console**

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

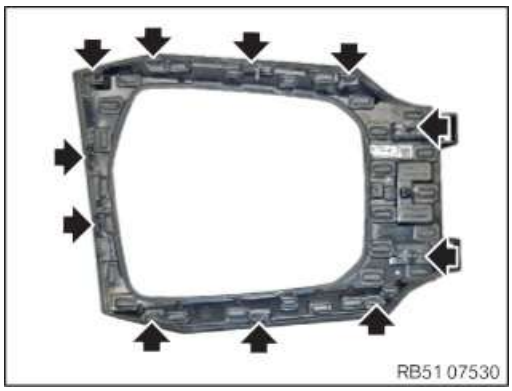
27 – Installing the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



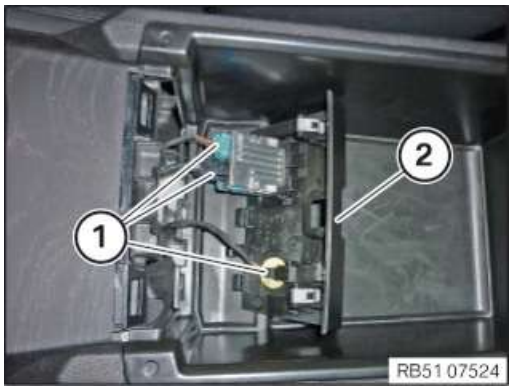
- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

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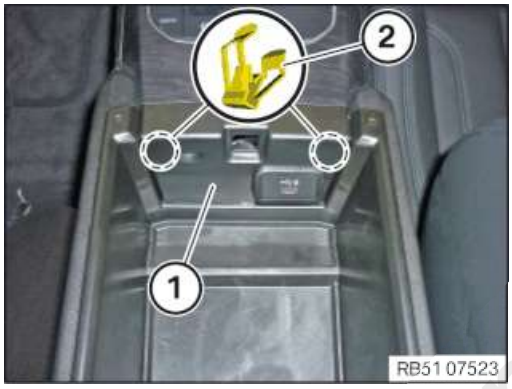


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

28 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

29 – Install the cup holder



- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

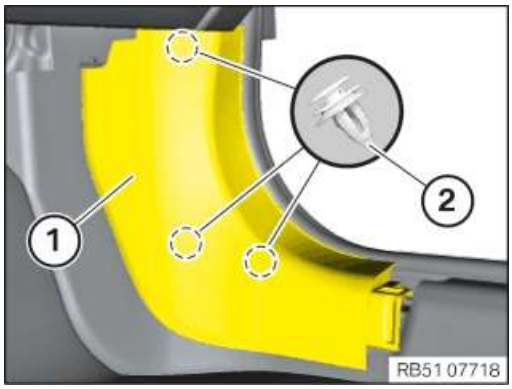
Oval-head screw		Tightening torque	1,8 Nm



- Insert the insert (1).

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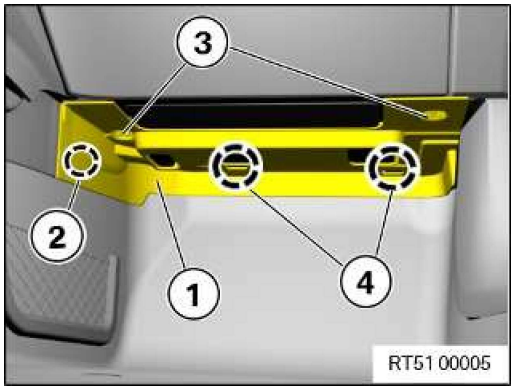
30 – Installing side trim panel in footwell on right A-pillar



- Check the clips (2) for damage.

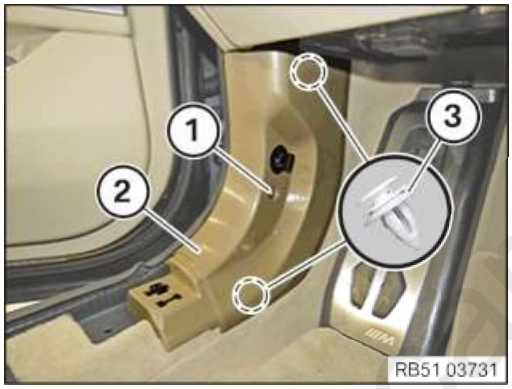
  Renew damaged or missing clips (2).
- Correctly position the side trim panel (1) and clip in to the clips (2).
- Make sure that the side trim panel (1) is correctly fitted against edge protection.

31 – Install the right footwell trim panel



- Connect associated connector.
- Attach the footwell trim (1) to the guides (4) and fold up.
- Guide the footwell trim (1) into the guide (2) of the centre console.
- Position the locks (3) correctly and turn by 90°.

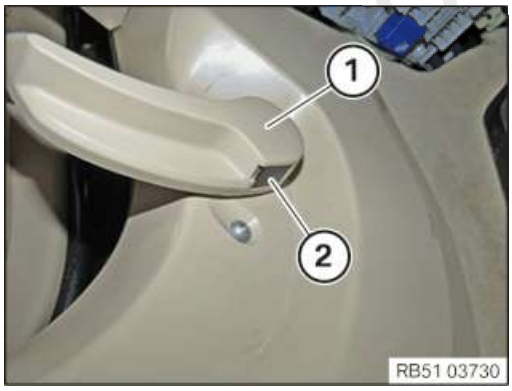
32 – Install the side trim panel in the footwell at the left A-pillar



- Check the clips (3) for damage and renew if necessary.
- Position the side trim panel (2) and engage it in the clips (3).
- Make sure that the side trim panel (2) is correctly fitted against edge protection.
- Tighten down screw (1).

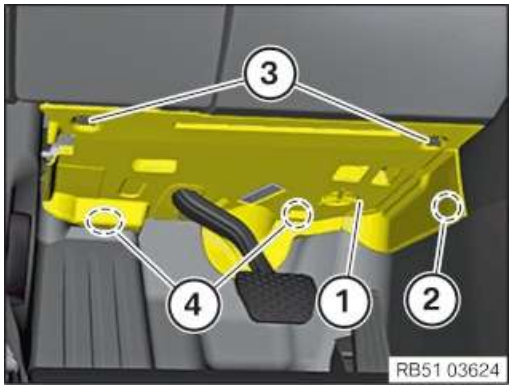
A-pillar footwell side trim panel

Screw		Tightening torque	2,5 Nm



- Install bonnet release lever (1).
- Pull bonnet release lever (1) towards the rear.
- Install locking wedge (2).

33 – Installing the trim panel for the pedal mechanism



- Connect associated connector.
- Attach the trim panel for the pedal mechanism (1) in the guides (4) and fold it up.
- Clip the trim panel for the pedal mechanism (1) into the centre console in this area (2).

TECHNICAL INFORMATION

It is **imperative** that the screws caps of the trim panel be correctly locked. This is the only way to ensure that the trim panel does not come loose and potentially tilt into the pedal area.

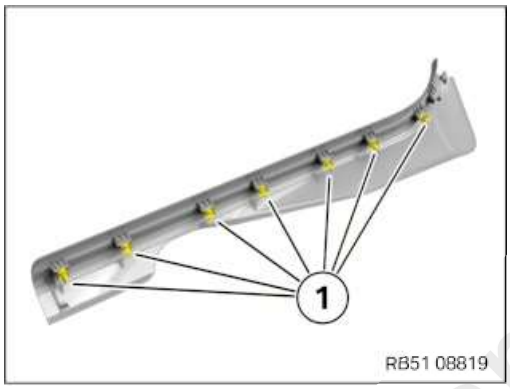
- Insert screw caps (3) correctly and turn by 90° to lock.

34 – Installing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

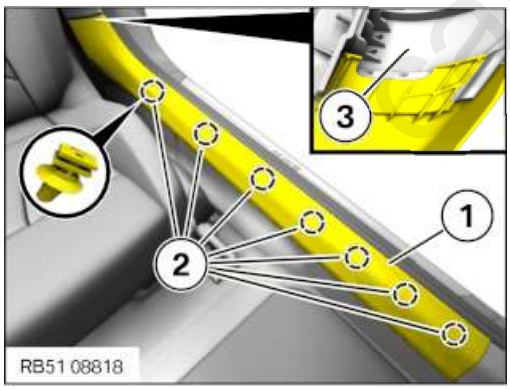
▸ **Installing the inner door sill cover strip**



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

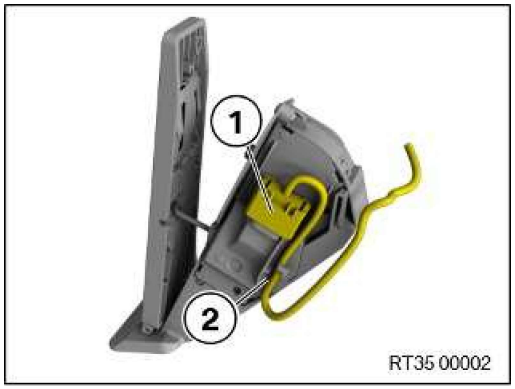
- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

35 – Install accelerator pedal module

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- Connect connectors (1) and lock.
- Feed the wiring harness into the holder (2).

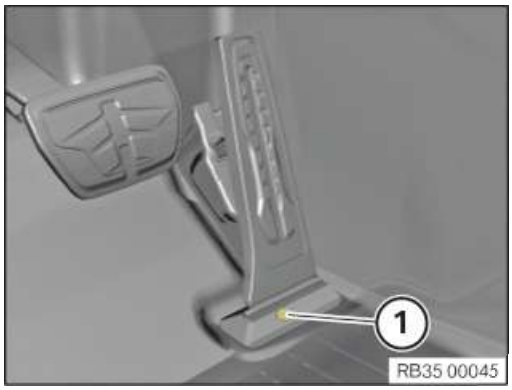


- Feed in accelerator pedal module (2) from above.
- Renew the hexagon socket screw (1).

  Parts: Hexagon socket screw
- Fit the hexagon socket screw (1) and tighten.

Accelerator pedal module to body

M6	Renew screw.	Tightening torque	8 Nm



- Clip in the cover (1).

36 – Install the front seat on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install front seat**

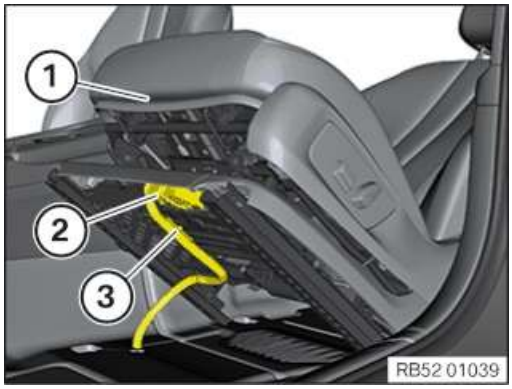
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▷ **Connecting all battery earth leads**

- See additional information.



◁

▷ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



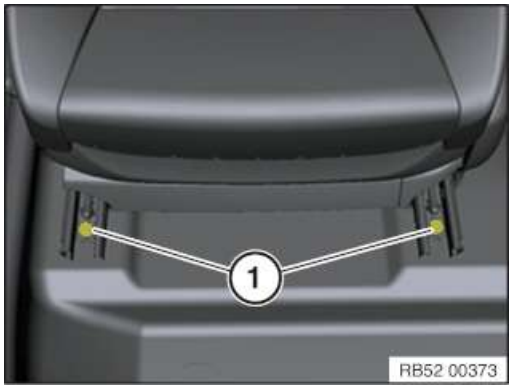
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

◁



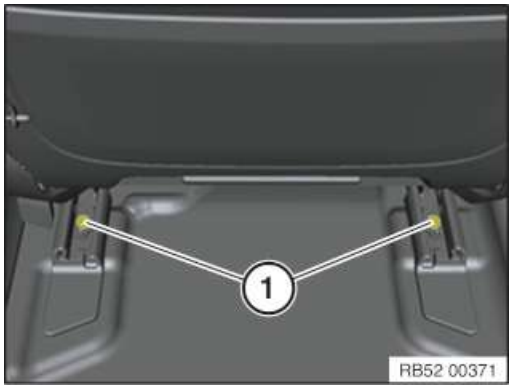
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Central bass speaker trim — Used in step 20

Screw		Tightening torque	2 Nm

Centre console on tunnel — Used in step 21

M6x18 Hexagon screw		Tightening torque	4,6 Nm

Centre console to instrument panel — Used in step 21

Oval-head screw		Tightening torque	1,8 Nm

Storage compartment in centre console — Used in step 23

Oval-head screw		Tightening torque	1,8 Nm

Gear selector switch to centre console trim — Used in step 24

Screw		Tightening torque	1,8 Nm

Negative battery cable to 48-V battery — Used in step 2436

Nut M8		Tightening torque	19 Nm

Cup holder to centre console — Used in step 29

Oval-head screw		Tightening torque	1,8 Nm

A-pillar footwell side trim panel — Used in step 32

Screw		Tightening torque	2,5 Nm

Accelerator pedal module to body — Used in step 35

M6	Renew screw.	Tightening torque	8 Nm

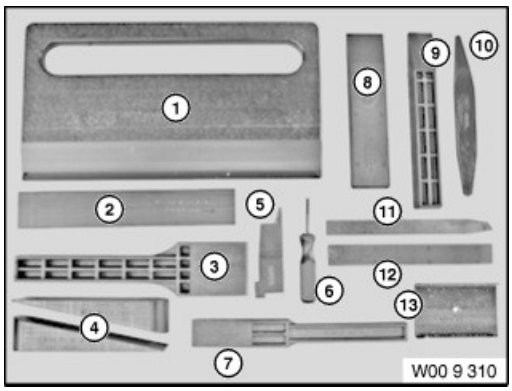
Seat to body — Used in step 36

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

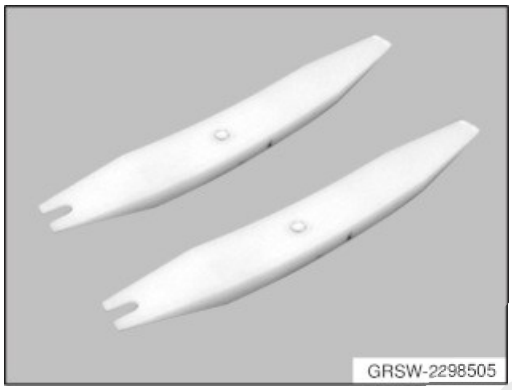
cardiagn.com

0 493 752 (00 9 329) Case



Common	Used in step 3
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 298 505 Wedge



Common	Used in step 910
Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	1132436

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	136

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1132436
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1132436

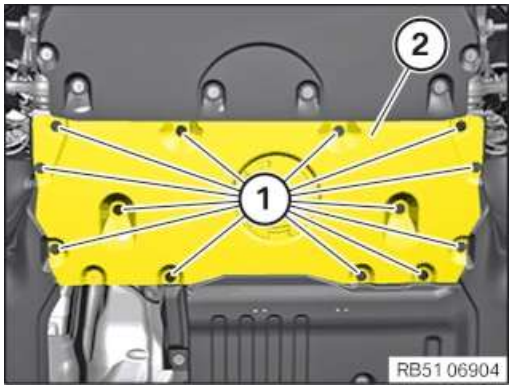
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1132436
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1132436
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
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61 20 900 Disconnecting and connecting battery earth lead	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436
61 20 900 Disconnecting and connecting battery earth lead	1132436

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51 47 492 Removing and installing/replacing centre underbody protection

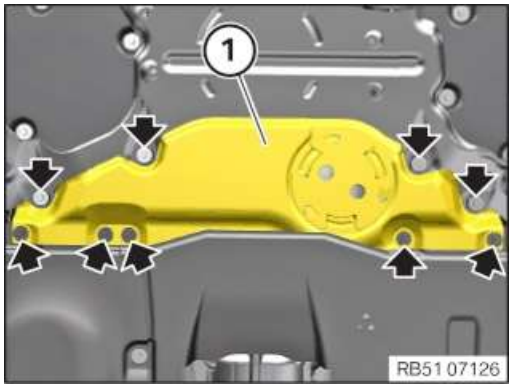
1 – Removing the centre underbody protection



- **Variant with rear wheel drive:**

  Loosen screws (1).

  Remove centre underbody protection (2) .

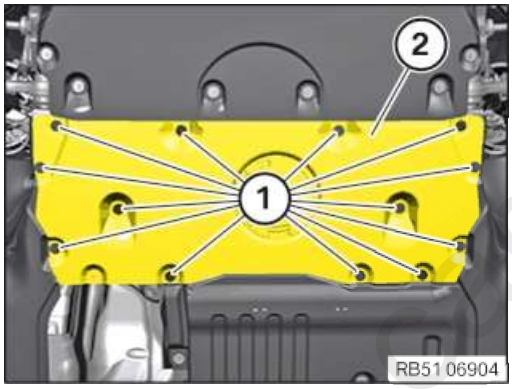


- **Version with all-wheel drive:**

  Remove screws (arrows).

  Feed out and remove the centre underbody protection (1).

2 – Installing the centre underbody protection



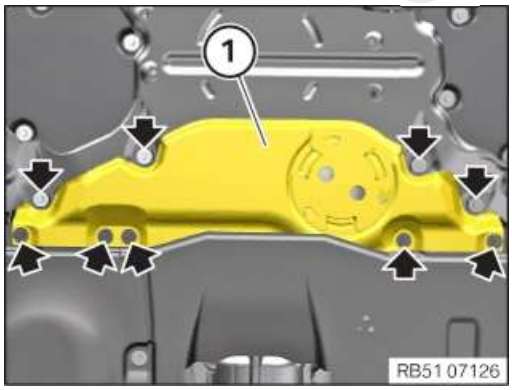
- **Variant with rear wheel drive:**

  Position central underbody protection (2).

  Tighten the screws (1).

Underbody protection

Hexagon screw		Tightening torque	3 Nm



- **Version with all-wheel drive:**

  Guide in centre underbody protection (1) and install.

  Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm

Additional Information

Overview of Tightening Torques

Underbody protection Used in step 2

Hexagon screw		Tightening torque		3 Nm

51 47 000 Removing and installing/replacing front left door sill cover strip

1 – Removing the inner door sill cover strip

RISK OF DAMAGE

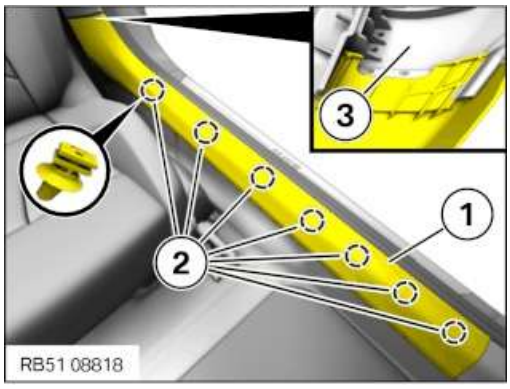
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

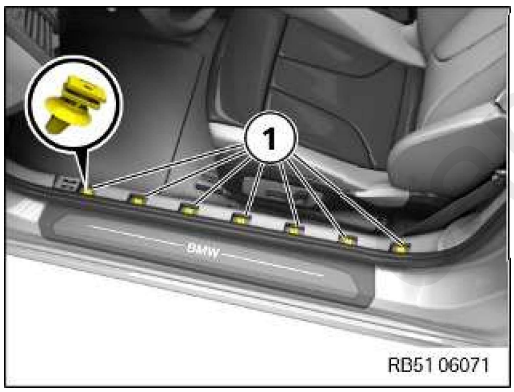
- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

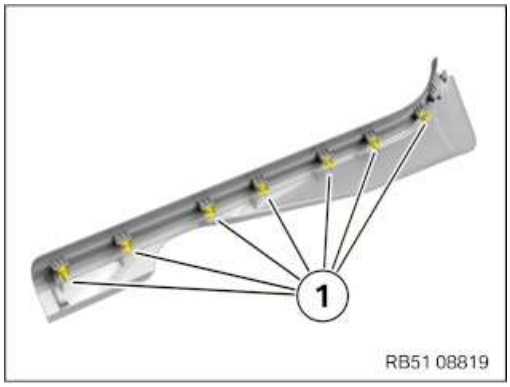


- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .



- If necessary, remove clips (1) and connect them to the door sill cover strip.

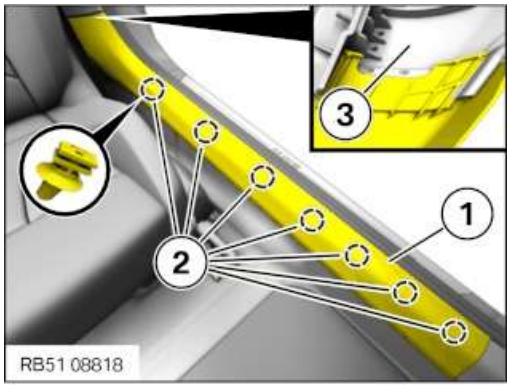
2 – Installing the inner door sill cover strip



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.

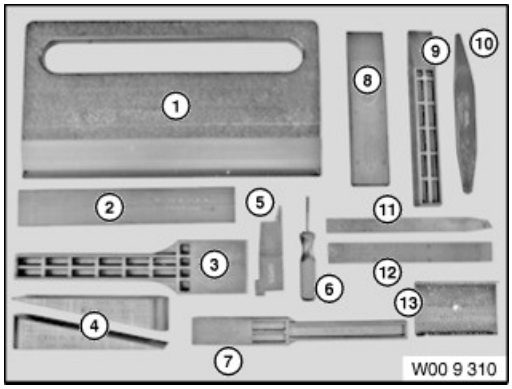


- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

Additional Information

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 1
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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51 47 151 Removing and installing/replacing left luggage compartment wheel arch panel

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

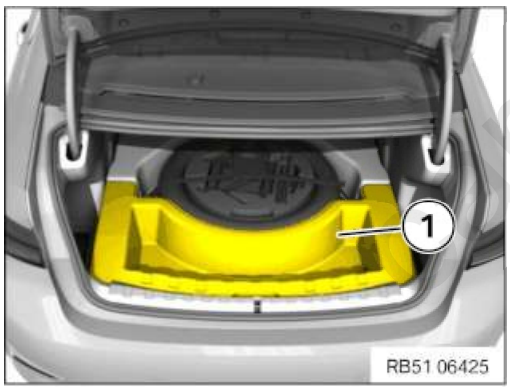
Schematic diagram is for example purposes. Some parts may differ in certain details.



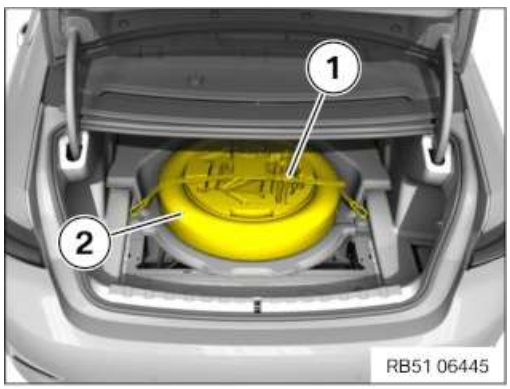
- Remove luggage compartment floor trim panel (1).

2 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).

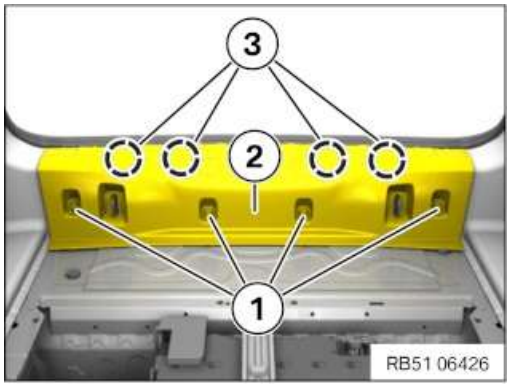


- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

3 – Removing the loading edge trim

NOTICE

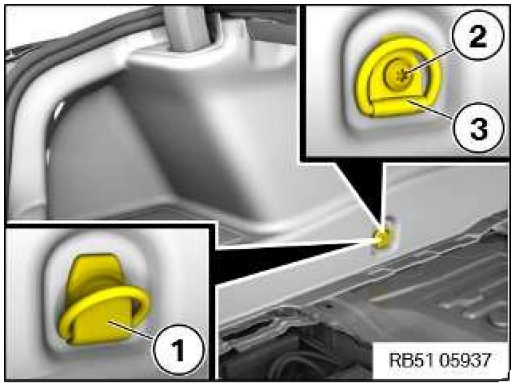
Schematic diagram is for example purposes. Some parts may differ in certain details.



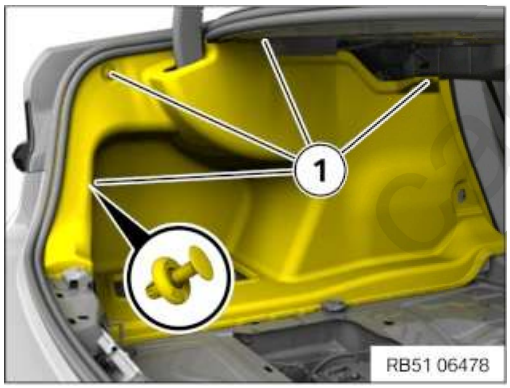
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

MAIN WORK

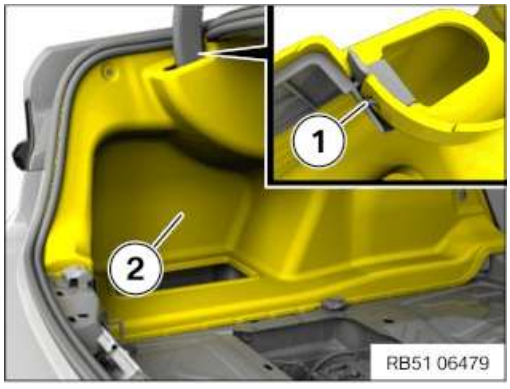
4 – Remove luggage compartment wheel arch trim panel on left.



- Remove the cover (1).
- Loosen screw (2).
- Remove lashing eye (3).



- Reposition left rear seat backrest.
- Loosen the expanding rivet (1).



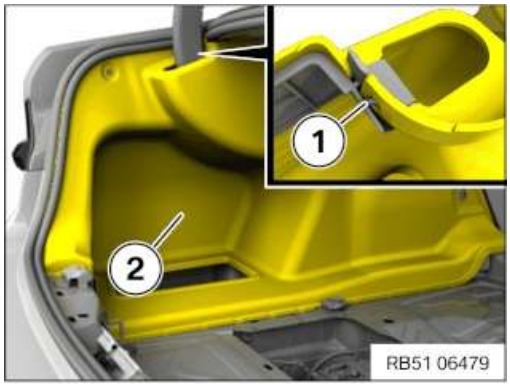
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip for the tailgate and the side trim panel in the rear passenger compartment.
- Remove luggage compartment wheel arch trim panel (2).

5 – Install luggage compartment wheel arch trim panel at left

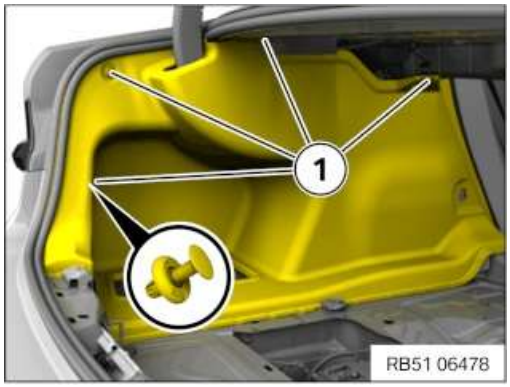
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NOTICE

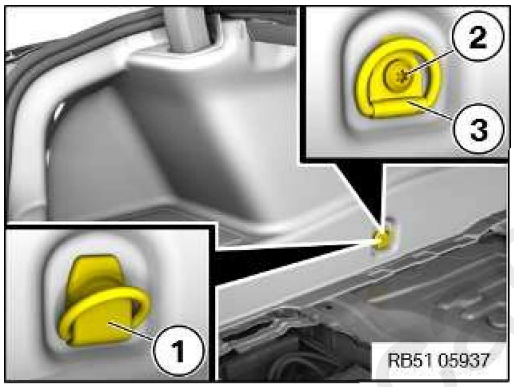
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Feed luggage compartment wheel arch trim panel (2) under the side trim panel in the rear passenger compartment and the sealing lip for the tailgate.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



- Secure expanding rivet (1).
- Raise the link rear seat backrest.



- Position the lashing eye (3).
- Tighten down screw (2).

Lashing eye to body

	Tightening torque	19 Nm

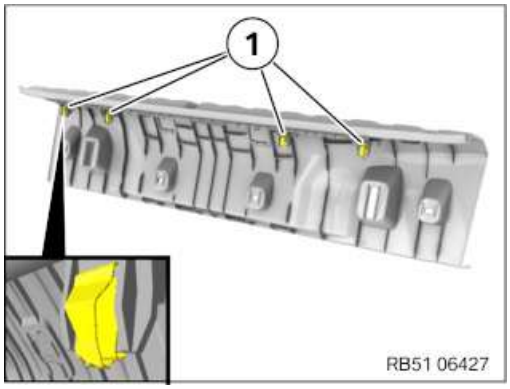
- Install the cover (1) .

POSTPROCESSES

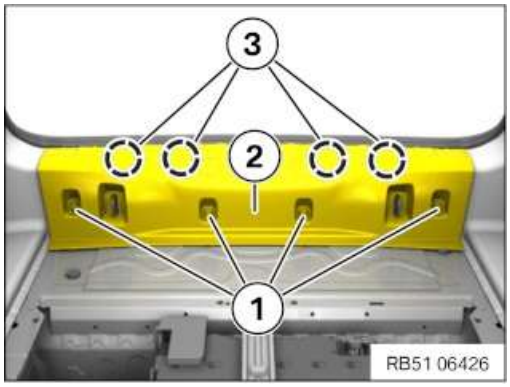
6 – Installing loading edge trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

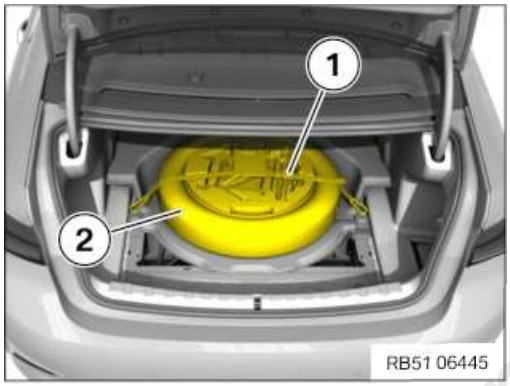


- Check the clamps (1) for damage and renew if necessary.



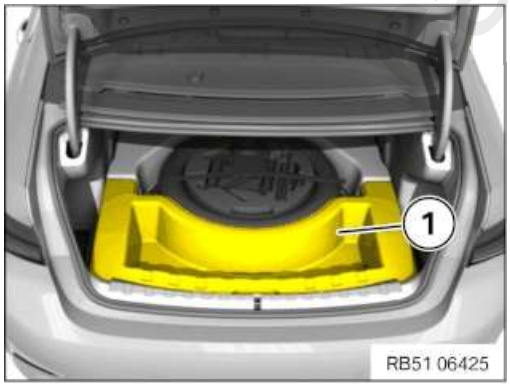
- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

7 – If installed: Install the emergency wheel



- Install the emergency wheel (2) with the insert.
- Position the seat belt strap above the emergency wheel and close the buckle on the seat belt strap (1).

▸ **Installing rear luggage compartment well**



- Install rear luggage compartment well (1).

8 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Lashing eye to body		Used in step 5
	Tightening torque	19 Nm

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51 47 101 Removing and installing/replacing luggage compartment floor trim panel

1 – Removing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

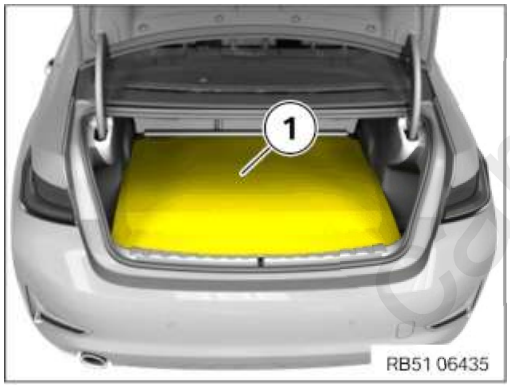


- Remove luggage compartment floor trim panel (1).

2 – Installing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Insert the luggage compartment floor trim panel (1).

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51 47 161 Removing and installing/replacing right luggage compartment wheel arch panel

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

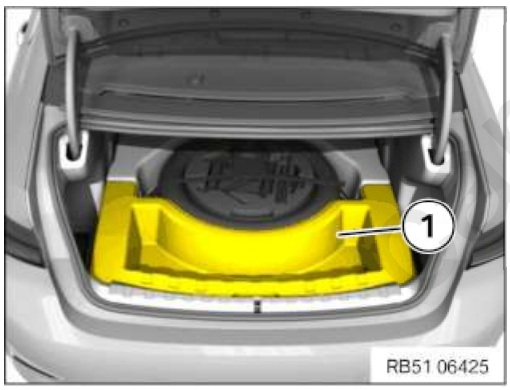
Schematic diagram is for example purposes. Some parts may differ in certain details.



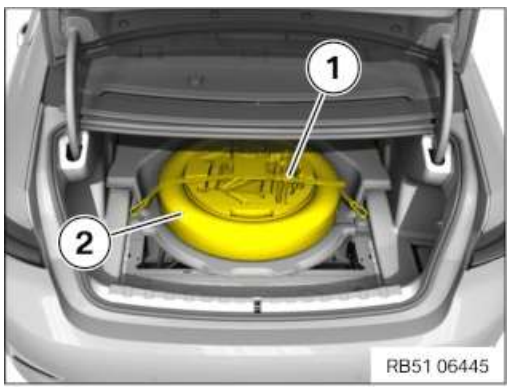
- Remove luggage compartment floor trim panel (1).

2 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).

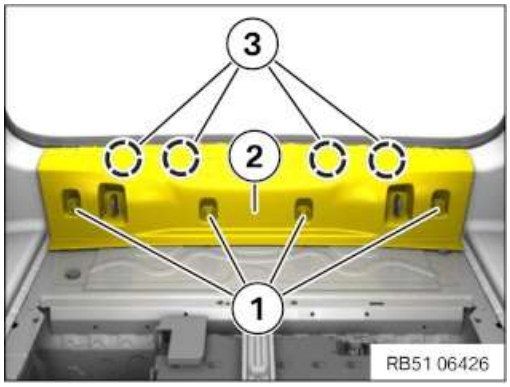


- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

3 – Removing the loading edge trim

NOTICE

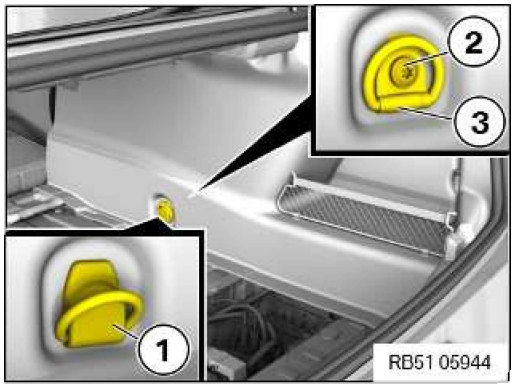
Schematic diagram is for example purposes. Some parts may differ in certain details.



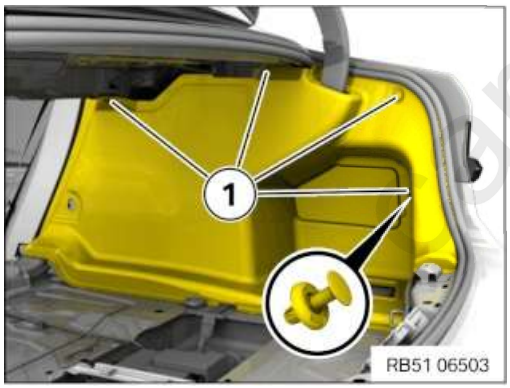
- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

MAIN WORK

4 – Removing right luggage compartment wheel arch trim panel

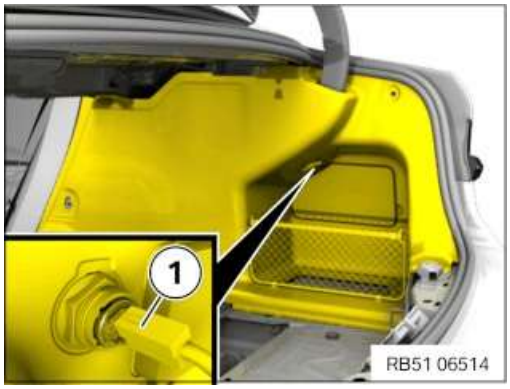


- Remove the cover (1).
- Loosen screw (2).
- Remove the lashing eye (3).



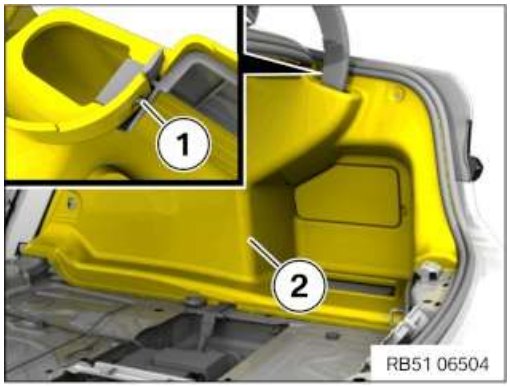
- Reposition the right rear seat backrest.
- Loosen the expanding rivet (1).

▸ If installed: Disconnect plug connection of the 12 V connection (additional work with storage package equipment specification)



- Unlock and disconnect the plug connection (1) of the 12 V power socket.

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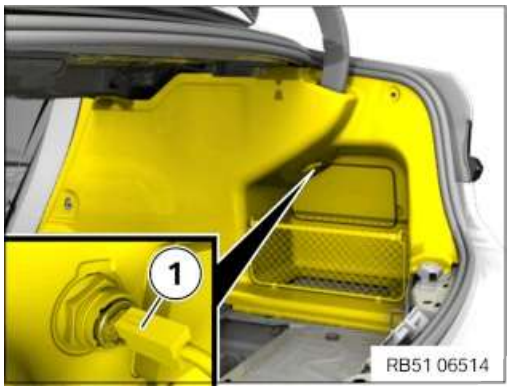
- Press the tab for luggage compartment wheel arch trim panel (2) on the outer side of the hinge to the front using the stop on trim (1).
- Guide out luggage compartment wheel arch trim panel (2) under the sealing lip for the tailgate and the side trim panel in the rear passenger compartment.
- Remove luggage compartment wheel arch trim panel (2).

5 – Installing the luggage compartment wheel arch trim panel on the right

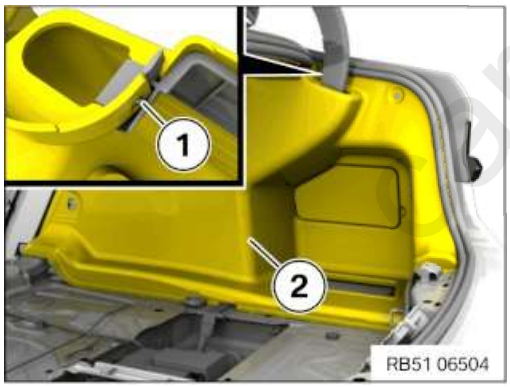
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

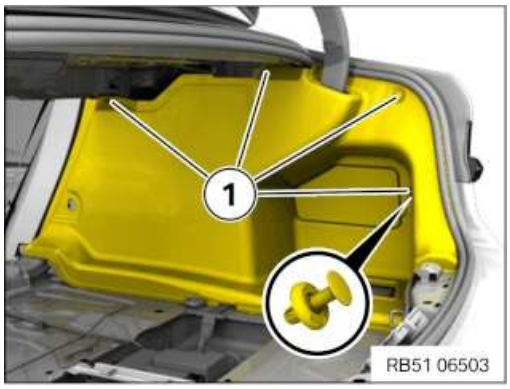
▸ If installed: Connecting plug of the 12 V power socket (additional work for equipment specification with storage package)



- Connect and lock connector (1) of the 12 V power socket.

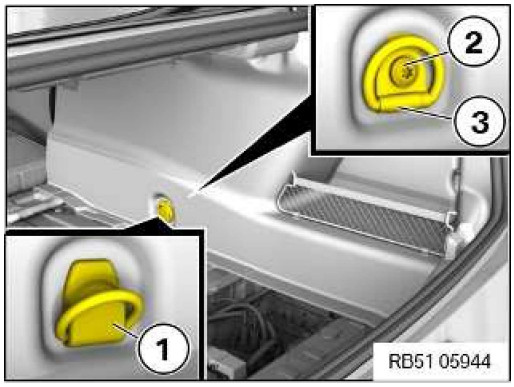


- Feed luggage compartment wheel arch trim panel (2) under the side trim panel in the rear passenger compartment and the sealing lip for the tailgate.
- Feed the tab of the luggage compartment wheel arch trim panel (2) on the outer side of the hinge into the stop on the trim (1).



- Secure expanding rivet (1).
- Raise the right rear seat backrest.

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- Position the lashing eye (3).
- Tighten down screw (2).

Lashing eye to body

	Tightening torque	19 Nm

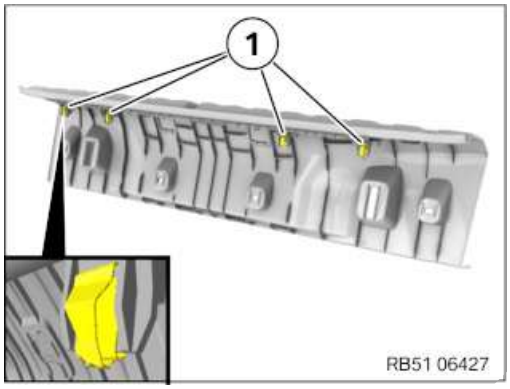
- Install the cover (1) .

POSTPROCESSES

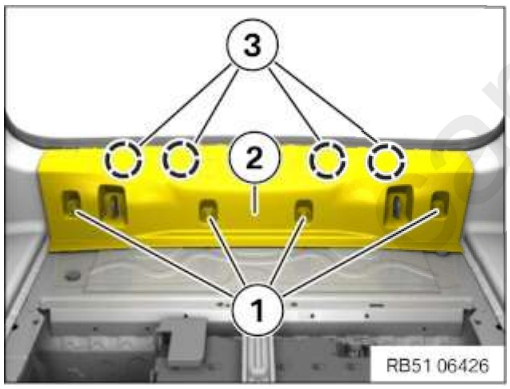
6 – Installing loading edge trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

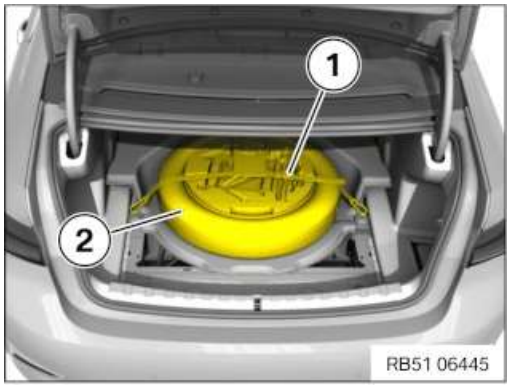


- Check the clamps (1) for damage and renew if necessary.



- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

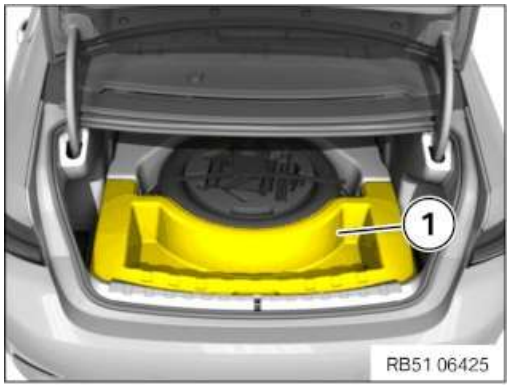
7 – If installed: Install the emergency wheel



- Install the emergency wheel (2) with the insert.
- Position the seat belt strap above the emergency wheel and close the buckle on the seat belt strap (1).

▸ **Installing rear luggage compartment well**

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- Install rear luggage compartment well (1).

8 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Insert the luggage compartment floor trim panel (1).

Additional Information

Overview of Tightening Torques

Lashing eye to body		Used in step 5
	Tightening torque	19 Nm

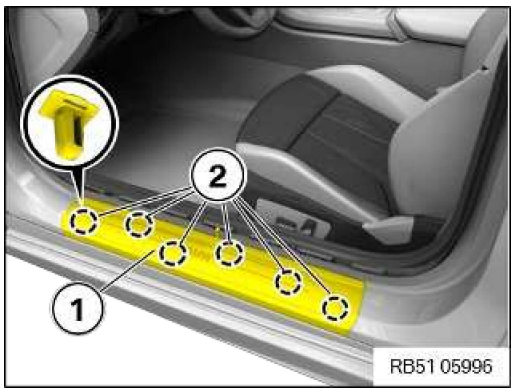
cardiagn.com

51 47 065 Removing and installing/replacing sill trim, front left or right

1 – Remove the front sill trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



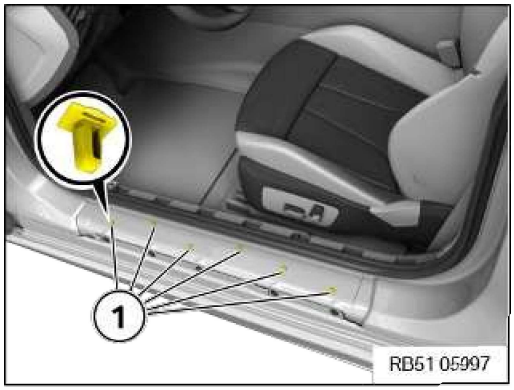
RISK OF DAMAGE

Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

- Release and remove the front sill trim (1) using special tool 0 496 569 (00 9 325) from clips (2).

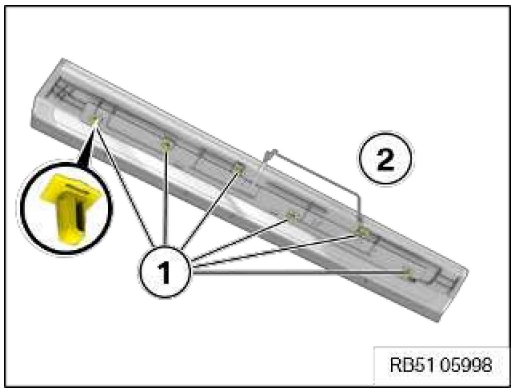


- Remove clips (1) if necessary and connect them on the front sill trim.

2 – Installing the front sill trim

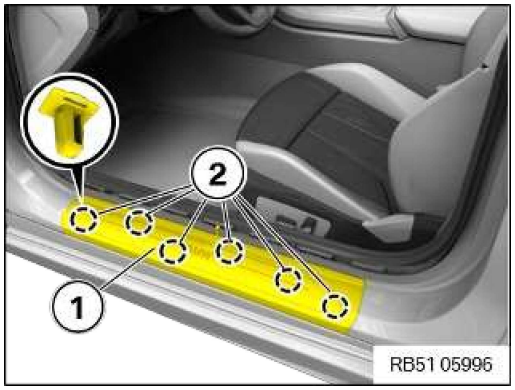
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check if clips (1) on the front sill trim (2) are missing or damaged and renew them if necessary.

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- Position the front sill trim (1) correctly.
- Clip in the front sill trim (1) with the clips (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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51 47 219 Removing and installing/replacing the loading edge trim

PRELIMINARY WORK

1 – Removing the luggage compartment floor trim panel

▸ **Removing the luggage compartment floor trim panel**

NOTICE

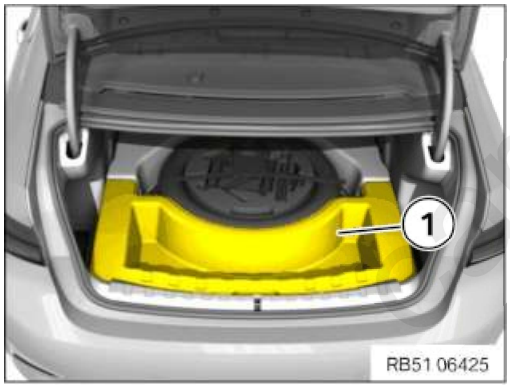
Schematic diagram is for example purposes. Some parts may differ in certain details.



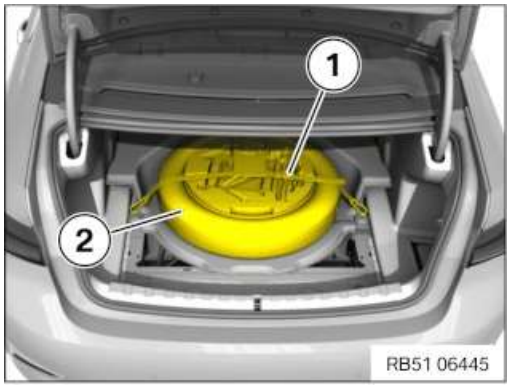
- Remove luggage compartment floor trim panel (1).

2 – If installed: Removing the compact spare wheel

▸ **Removing rear luggage compartment well**



- Remove rear luggage compartment well (1).



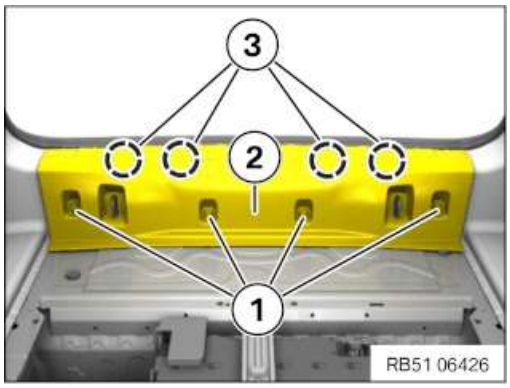
- Open buckle on seat belt strap (1) and set it aside.
- Remove emergency wheel (2) with the insert.

rdiagn.com

3 – Removing the loading edge trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

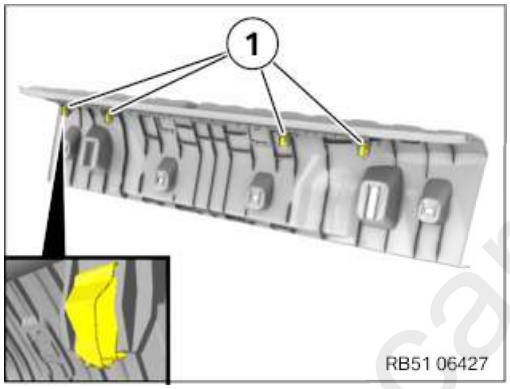


- Loosen the expanding rivet (1).
- Unclip loading edge trim(2) upwards from latch mechanisms (3).
- Guide out and remove loading edge trim (2) under the sealing lip of the tailgate seal.

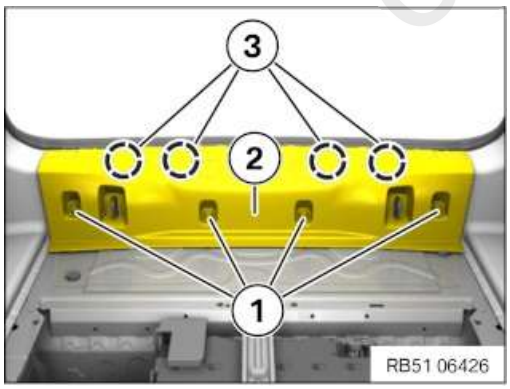
4 – Installing loading edge trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



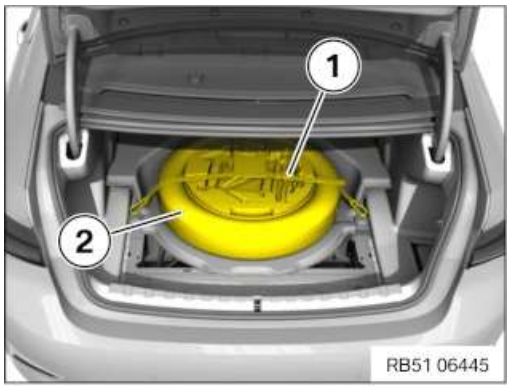
- Check the clamps (1) for damage and renew if necessary.



- Insert the loading edge trim (2) under the sealing lip of the tailgate seal.
- Fit the trim of the loading edge (2) at the latch mechanisms (3) and clip it in to the bottom.
- Secure expanding rivet (1).

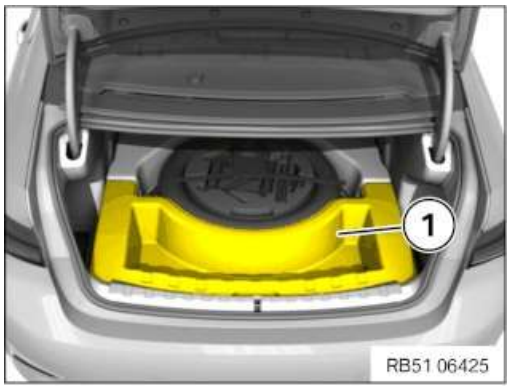
cardiagn.com

5 – If installed: Install the emergency wheel



- Install the emergency wheel (2) with the insert.
- Position the seat belt strap above the emergency wheel and close the buckle on the seat belt strap (1).

▸ **Installing rear luggage compartment well**



- Install rear luggage compartment well (1).

6 – Installing the luggage compartment floor trim panel

▸ **Installing the luggage compartment floor trim panel**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Insert the luggage compartment floor trim panel (1).

51 47 440 Removing and installing/replacing the rear carpet

PRELIMINARY WORK

1 – Remove the front seats on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

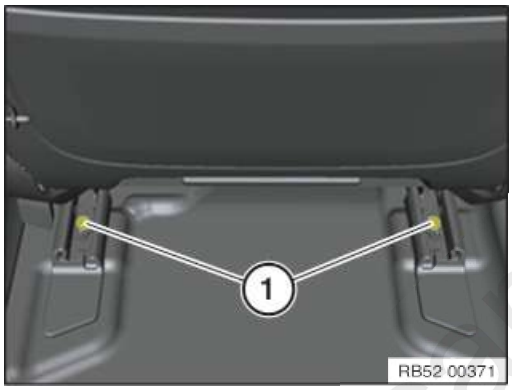
▸ **Remove front seat**

WARNING

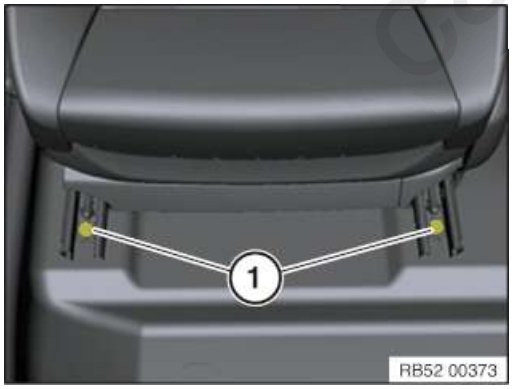
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▹ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

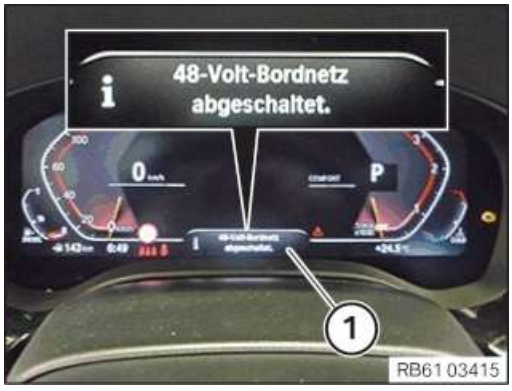
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.

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WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

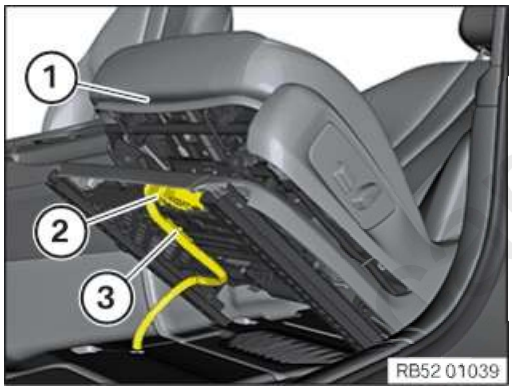
◁

▷ **Disconnecting all battery earth leads**



- See additional information.

◁



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

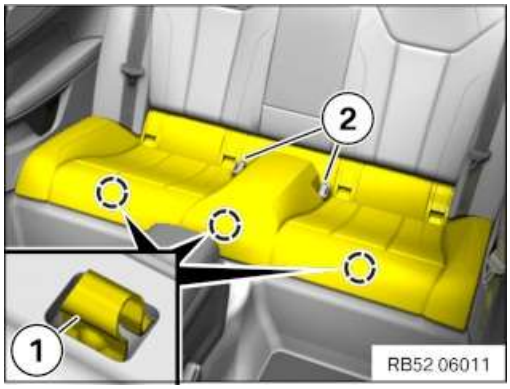
Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

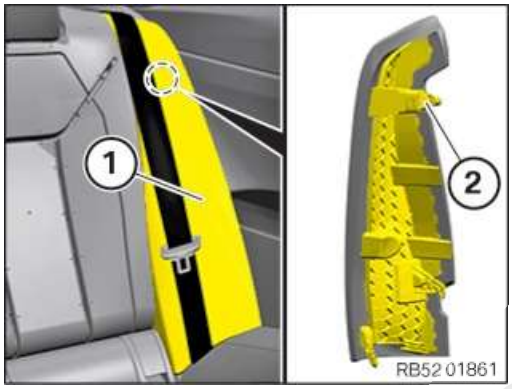
3 – Remove backrest side section on left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove armrest side section**

▹ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◃

4 – Removing the C-pillar trim panel on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

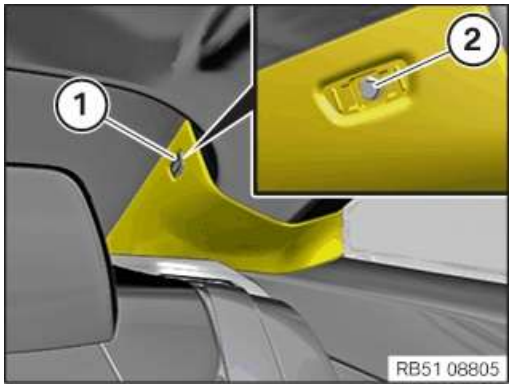
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RISK OF DAMAGE

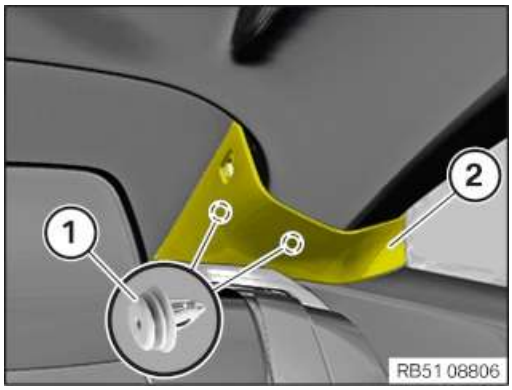
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.



- Unclip cover (1) of the C-pillar trim panel.
- Release the screw (2).



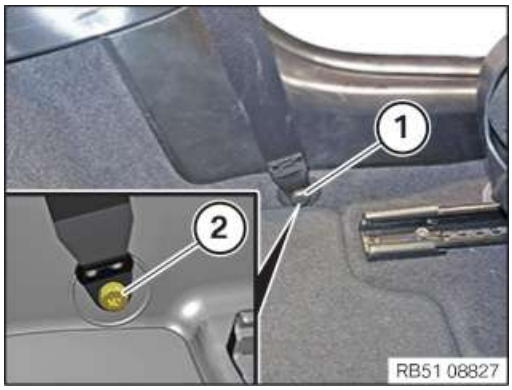
- Unclip C-pillar trim panel (2) from clips (1) and guide it out.

5 – Remove side trim panel, rear left and right

NOTICE

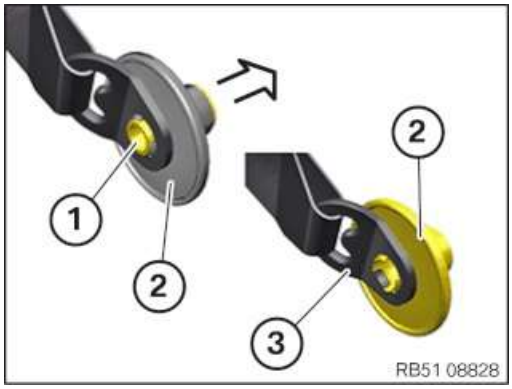
Description is for left component only. Procedure on the right side is identical.

▸ **Remove rear side trim panel**

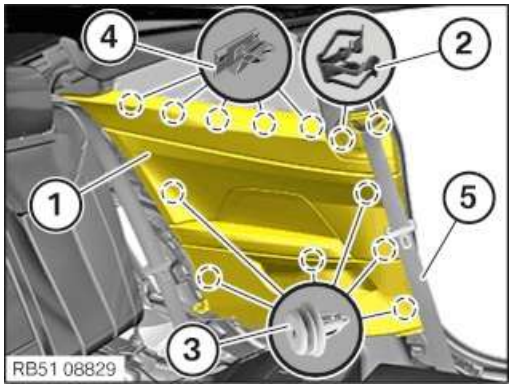


- Unclip the cover cap (1).
- Release the screw (2).

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- Pull out the sleeve (1) from the cover (2) of the end fitting (3).
- Unclip the cover (2) of the end fitting (3) from the end fitting (3).



- Unclip the rear side trim panel (1) with a suitable tool at the clamps (2).
- Unclip the rear side trim panel (1) with a suitable tool at the clips (3).
- Release the rear side trim panel (1) at the clamps (4) and feed out at the edge protection.
- Unlock and disconnect all the plug connections at the rear side trim panel (1) of the wiring harness.
- Feed out the upper seat belt (5).

6 – Removing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the inner door sill cover strip**

RISK OF DAMAGE

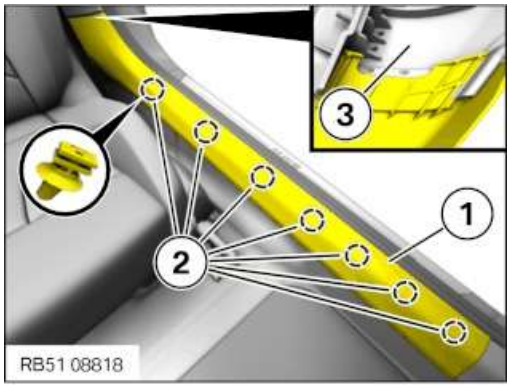
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

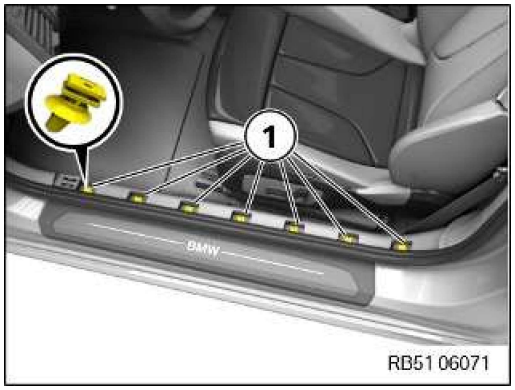
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .

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- If necessary, remove clips (1) and connect them to the door sill cover strip.

7 – Remove cupholder

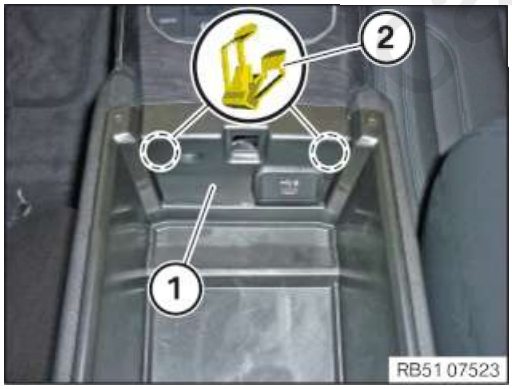


- Remove the insert (1).

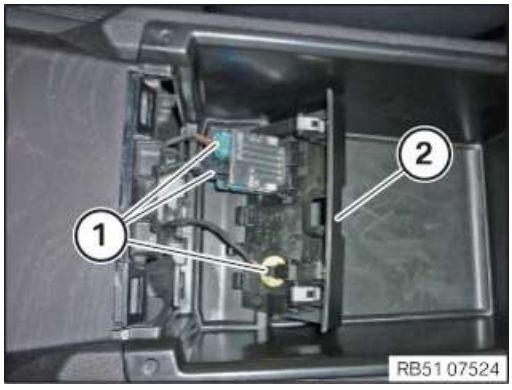


- Loosen screws (1).
- Feed the cup holder (2) out to the top.
- Unlock associated plug connections and disconnect.

8 – Removing the trim in the storage compartment on the centre armrest



- Lever out the trim (1) with the special tool (2) toward the rear from the clamps 2 298 505.



- Unlock and disconnect the plug connections (1) and remove the trim (2) .

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9 – Remove the centre console trim

RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



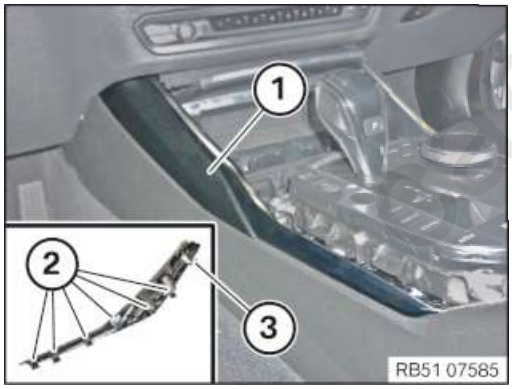
- Release and remove the centre console trim upwards (1) as shown using the special tool 2 298 505 from the latch mechanisms.

10 – Removing the decorative trim on the centre console on the left and right

▸ **Remove the decorative trim from the centre console**

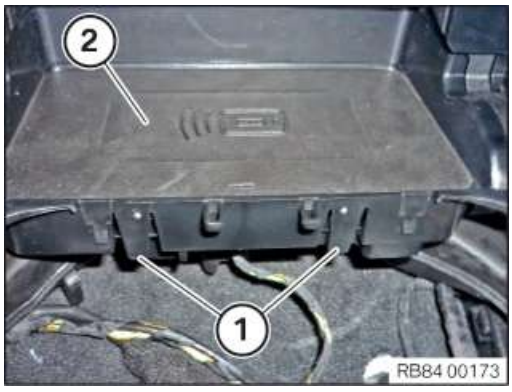
NOTICE

Description is for left component only. Procedure on the right side is identical.

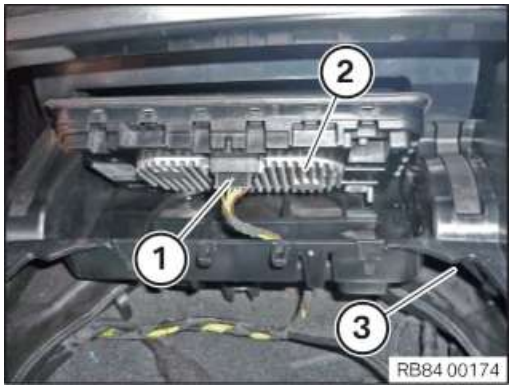


- Lever out the rear decorative trim (1) from the latch mechanisms (2) starting from the top.
- Feed out the decorative trim (1) backwards out of the guide (3) and remove.

11 – Removing the wireless charging station

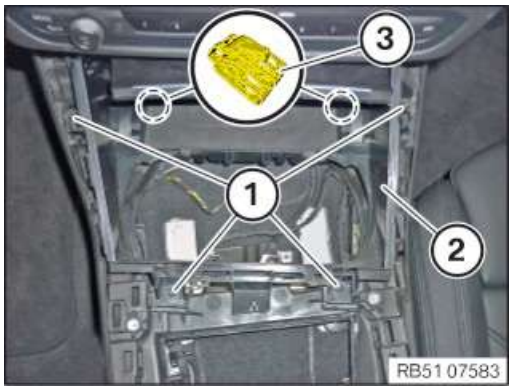


- Loosen the latch mechanisms (1) and push out the wireless charging station (2) upwards.

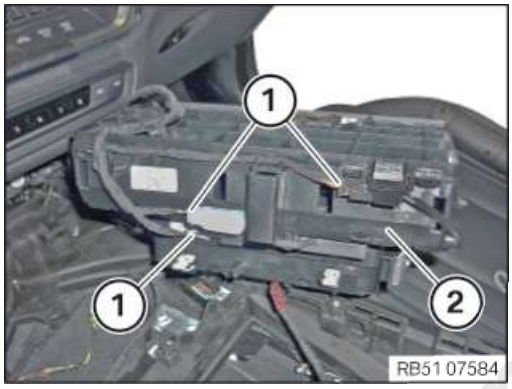


- Unlock and disconnect the plug connection (1) and remove the wireless charging tray (2) from the centre console (3).

12 – Removing the storage compartment in the front centre console



- Loosen screws (1).
- Pull the storage compartment in front centre console (2) backwards from the clamps (3).



- Unlock and disconnect the plug connections (1) and remove the storage compartment in centre console (2).

13 – Remove the operating facility in the centre console

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▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

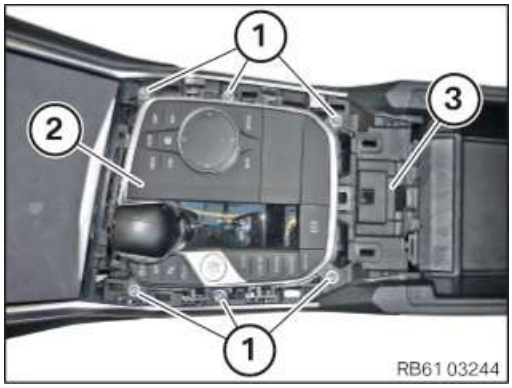
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



- Loosen screws (1).
- Remove the operating facility in the centre console (2) from the centre console (3).

14 – Removing the rear centre console trim

RISK OF DAMAGE

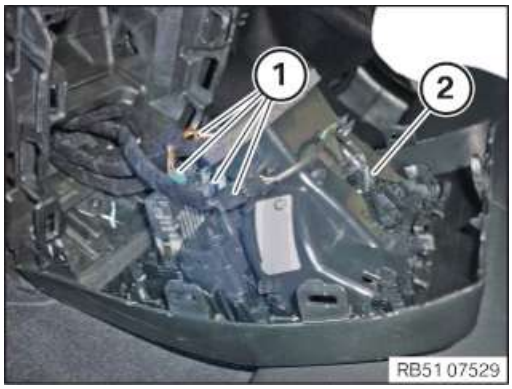
Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.



- Release centre console trim (1) backwards from the latch mechanisms at the side and remove it slightly at the back.

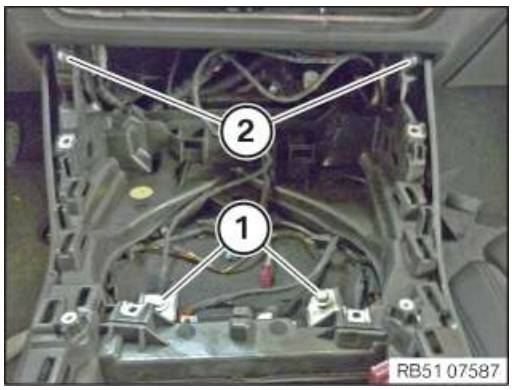


- Unlock and disconnect plug connections (1).
- Remove the centre console trim (2).

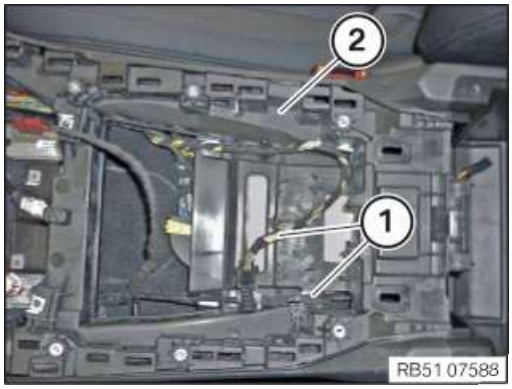
15 – Removing the centre console



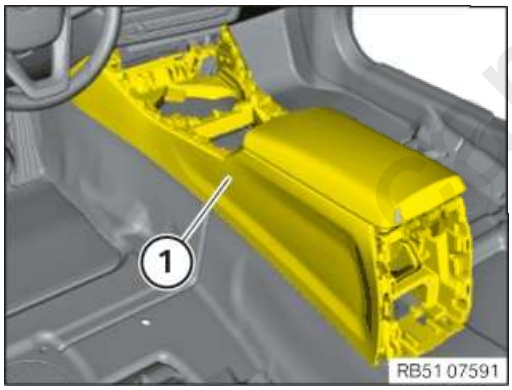
- Loosen screws (1).



- Loosen screws (1) and (2).



- Release the wiring harness (1) from the centre console (2).



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Carefully raise rear centre console (1).
- Feed out wiring harness from the centre console (1) and unlock and disconnect existing plug connections, if required.
- Feed out and remove the centre console (1) on the instrument panel .

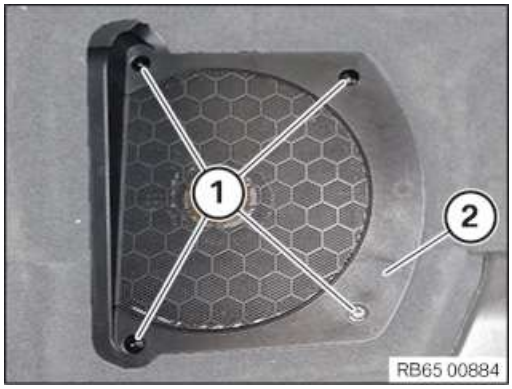
16 – Removing the speaker trim for the left and right central bass

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the speaker trim for the central bass**

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- Loosen screws (1).
- Remove the speaker trim for the central bass (2).

17 – Removing the airbag control unit

WARNING

Airbag unit.

Danger! Life-threatening injuries!

- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

RISK OF DAMAGE

Electrostatic discharge.

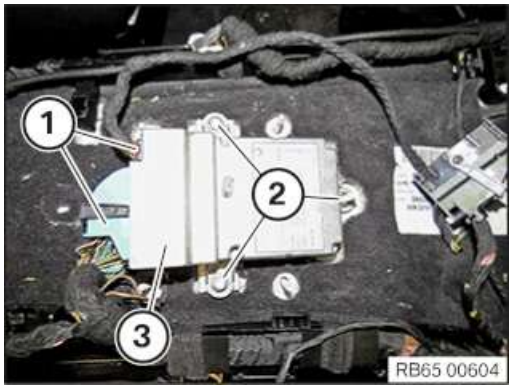
Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)



- Release insulation (1) from airbag control unit (2) and fold to one side.

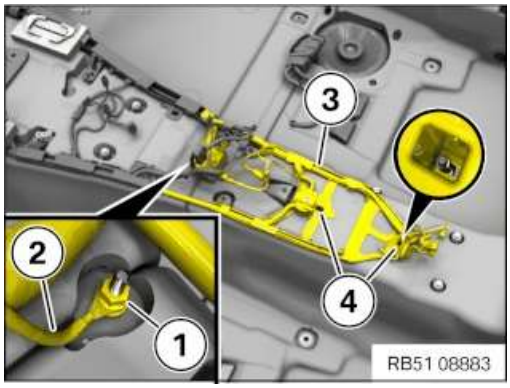
carmagn.com



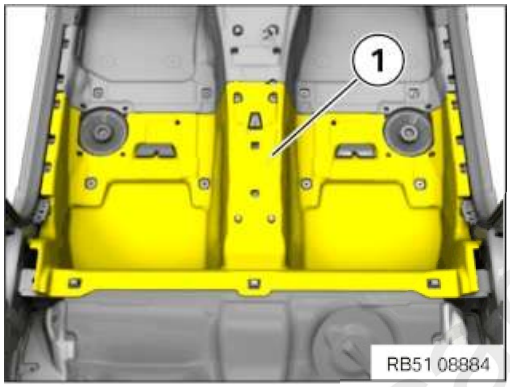
- Unlock plug connection (1) and disconnect.
- Loosen nuts (2).
- Remove airbag control unit (3).

MAIN WORK

18 – Remove the rear carpet

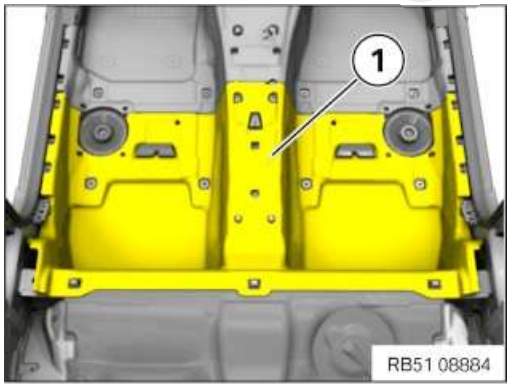


- Release nut (1) and set ground cable (2) aside.
- Release cable clip (3) with latch mechanisms (4) and set it aside with the wiring harness.



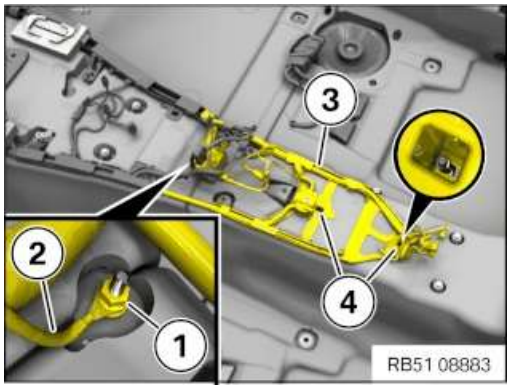
- Guide out carpet (1) and remove it from the vehicle.

19 – Install the rear carpet



- Place the carpet (1) in the vehicle and insert it.

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- Position the cable clip (3) and clip in with the latch mechanisms (4).
- Correctly position the ground cable (2) and tighten the nut (1).

Ground cable to body

Hexagon nut		Tightening torque	8,0 Nm

POSTPROCESSES

20 – Installing the airbag control unit

WARNING

Airbag unit.

Danger! Life-threatening injuries!

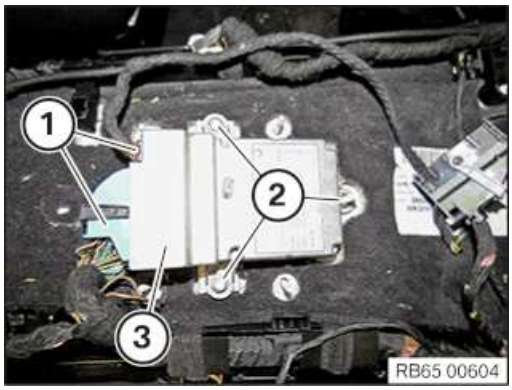
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

RISK OF DAMAGE

Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 ... Notes for ESD protection (electrostatic discharge)



- Position airbag control unit (3) correctly.
- Tighten nuts (2).

Airbag control unit to body

Screw		Tightening torque	8 Nm

- Connect connectors (1) and lock.

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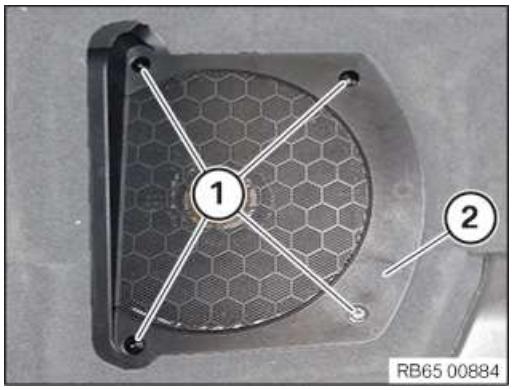


- Position the insulation (1) correctly and secure on the airbag control unit (2).

21 – Installing the speaker trim for the left and right central bass

NOTICE

Description is for left component only. Procedure on the right side is identical.



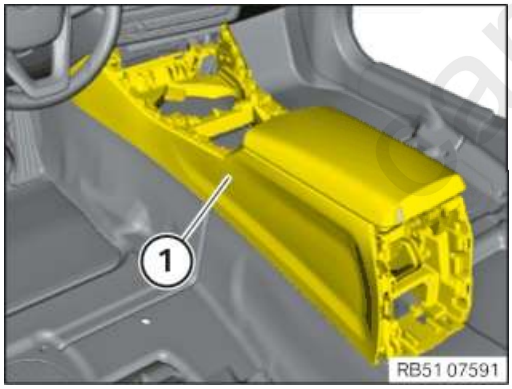
▸ **Install the speaker trim for the central bass**

- Position the speaker trim for the central bass (2).
- Tighten the screws (1).

Central bass speaker trim

Screw		Tightening torque	2 Nm

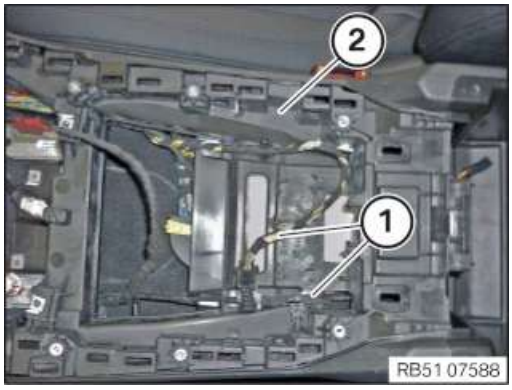
22 – Installing the centre console



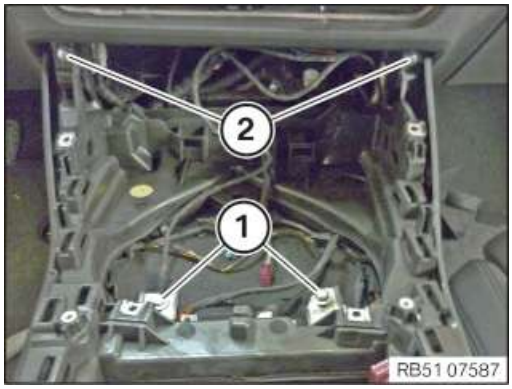
NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

- Install centre console (1) and thereby feed in the wiring harness.
- Feed in the centre console (1) to the instrument panel and position correctly.



- Secure the wiring harness to the centre console (1) and connect and lock the existing plug connections.



- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

- Tighten the screws (2).

Centre console to instrument panel

Oval-head screw		Tightening torque	1,8 Nm

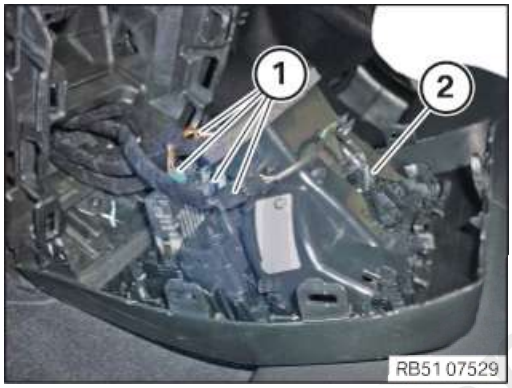


- Tighten the screws (1).

Centre console on tunnel

M6x18 Hexagon screw		Tightening torque	4,6 Nm

23 – Installing the rear centre console trim

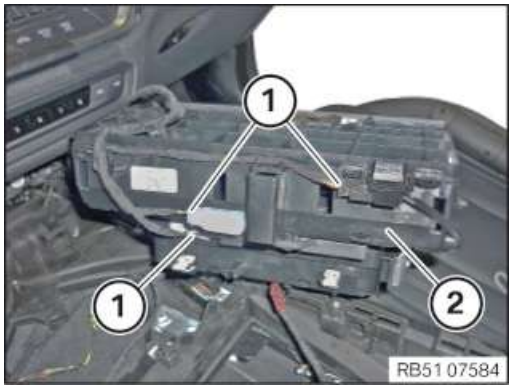


- Install the centre console trim (2).
- Connect connectors (1) and lock.

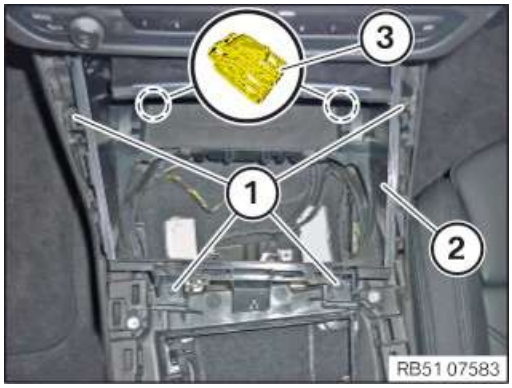


- Position centre console trim (1) and engage at the latch mechanisms at the side.

24 – Installing the storage compartment in the centre console in the front



- Mount the storage compartment in the centre console in the front (2) and connect and lock connectors (1).

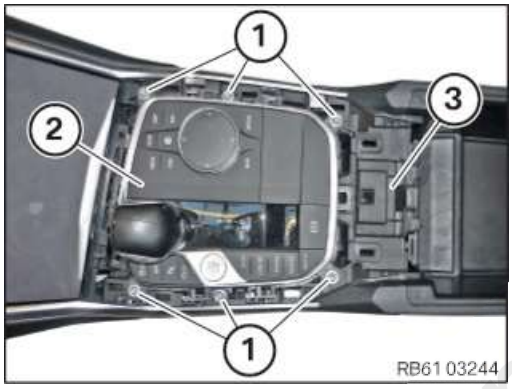


- Engage the storage compartment in the centre console in the front (2) into clamps (3) in the rear.
- Tighten the screws (1).

Storage compartment in centre console

Oval-head screw		Tightening torque	1,8 Nm

25 – Install the operating facility in the centre console



- Position the operating facility (2) in the centre console (3).
- Tighten the screws (1).

Gear selector switch to centre console trim

Screw		Tightening torque	1,8 Nm

▸ **Connecting all battery earth leads**



- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

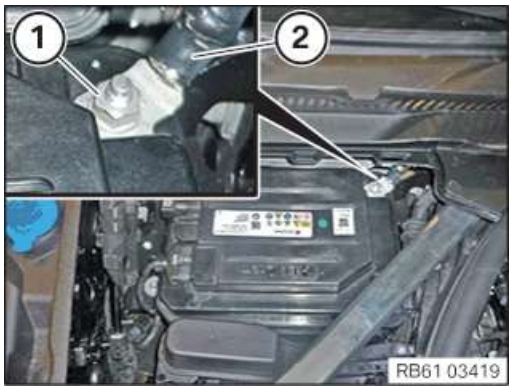
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



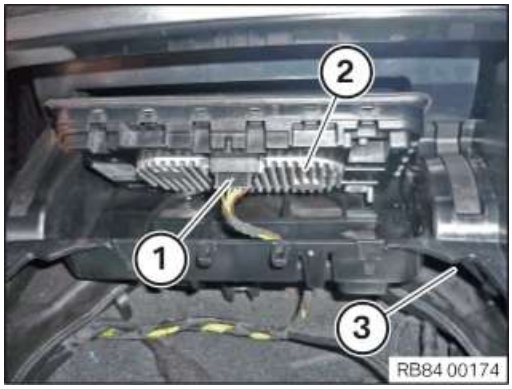
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



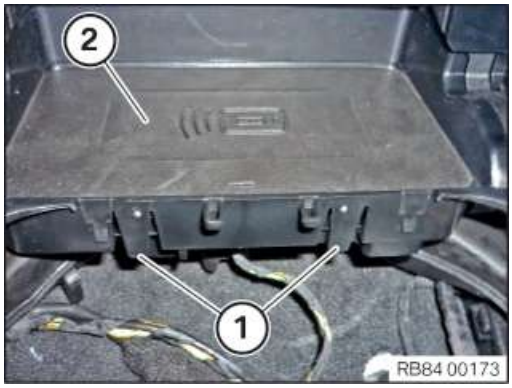
- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

26 – Installing the wireless charging station



- Connect connectors (1) and lock.
- Position the wireless charging station (2) in the centre console (3).



- Push the wireless charging tray (2) down.

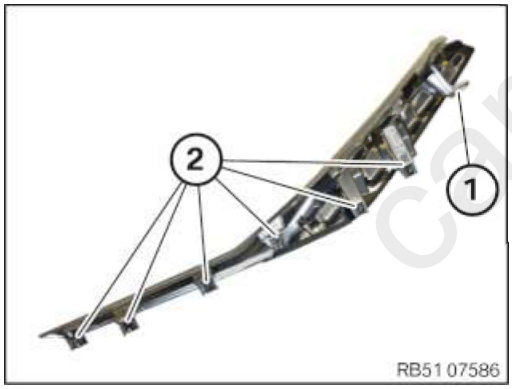
  The latch mechanisms (1) must engage correctly.

27 – Installing the decorative trim on the centre console on the left and right

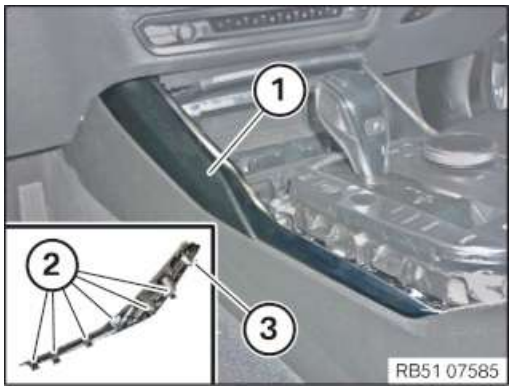
▸ **Installing the decorative trim on the centre console**

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the guide (1) and the latch mechanisms (2) for damage, renew the decorative trim if necessary.



- Feed in the decorative trim (1) forward in the guide (3).
- Engage decorative trim (1) in latch mechanisms (2).

28 – Installing the centre console trim

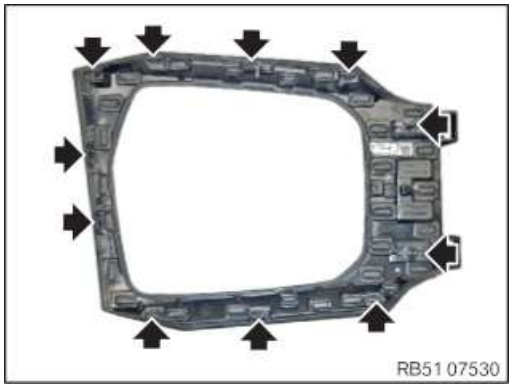
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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

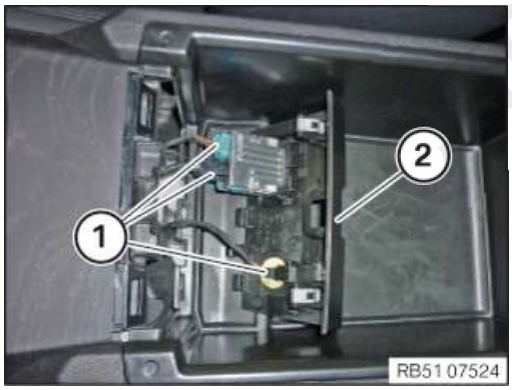


- Check all the latch mechanisms or clamps (arrows).
- In case the latch mechanisms or the clamps (arrows) are faulty, renew the centre console trim .

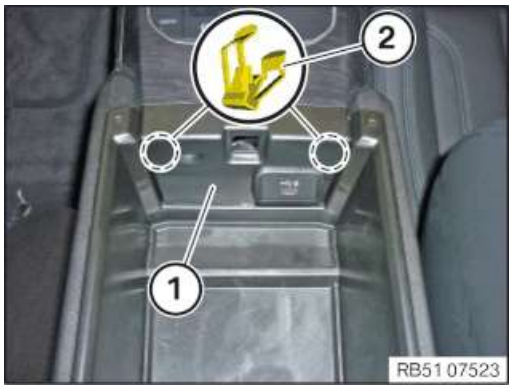


- Correctly position the centre console trim (1) and engage at the latch mechanisms.

29 – Installing the trim in the storage compartment of the centre armrest



- Mount the trim (2) and connect connector (1) and lock.



- Correctly position trim (1) and snap into the clamps (2).

30 – Install the cup holder

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- Fix the cup holder (2) and the belonging connectors.
- Correctly position the cup holder (2).
- Tighten the screws (1).

Cup holder to centre console

Oval-head screw		Tightening torque	1,8 Nm



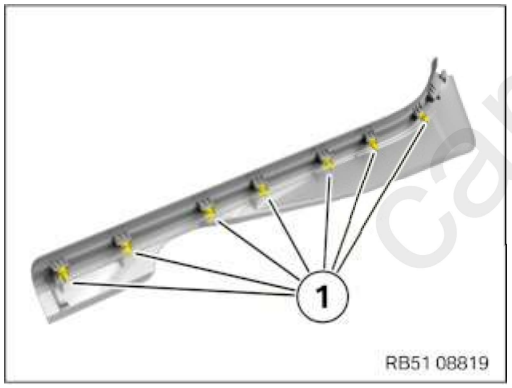
- Insert the insert (1).

31 – Installing the inner door sill cover strip on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

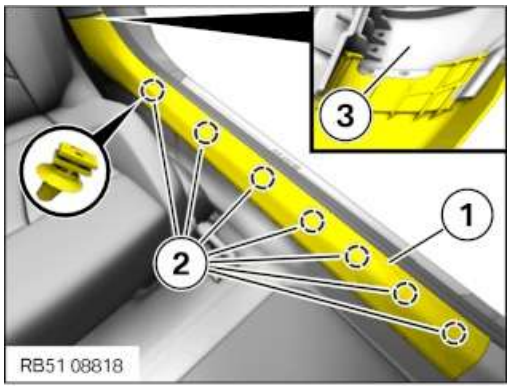
▸ **Installing the inner door sill cover strip**



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

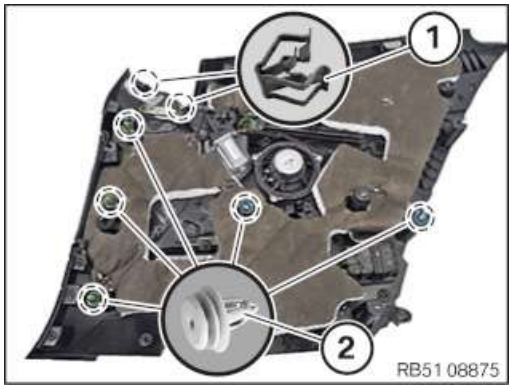
32 – Install side trim panel, rear left and right

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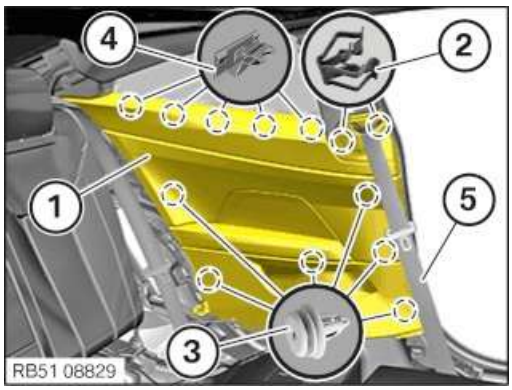
NOTICE

Description is for left component only. Procedure on the right side is identical.

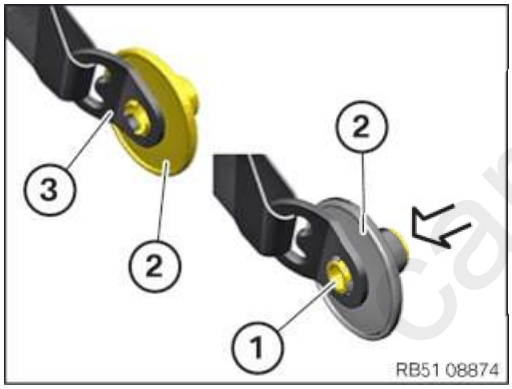
▸ Install rear side trim panel



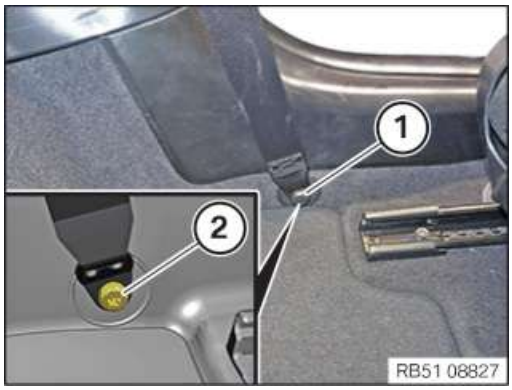
- Check clamps (1) for damage; renew them if necessary.
- Check clips (2) for damage, replace if necessary.



- Connect all the connectors to rear side trim panel (1) of the wiring harness and lock and disconnect them.
- Guide in upper seat belt (5).
- Position rear side trim panel (1) and clip it into clamps (4).
- Clip rear side trim panel (1) into clips (3).
- Clip rear side trim panel (1) into clamps (2).



- Clip cover (2) of end fitting (3) into end fitting (3).
- Slide sleeve (1) into cover (2) of end fitting (3).



- Correctly position the seat belt end fitting.
- Tighten down screw (2).

End fitting to body

M10		Tightening torque	42 Nm

- Clip in cover cap (1).

33 – Installing the C-pillar trim panel on the left and right

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NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing C-pillar trim panel**

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

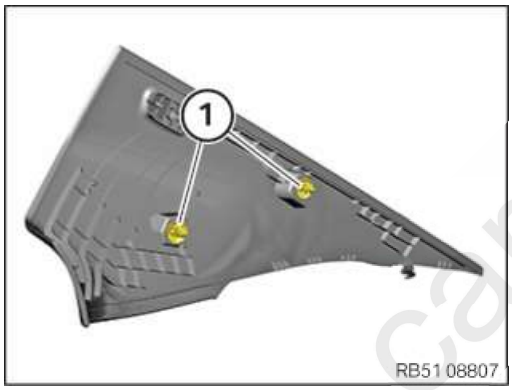
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

RISK OF DAMAGE

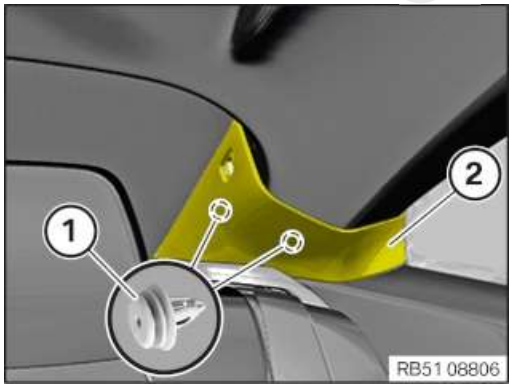
Damage to the head airbag.

Improper use of a tool when removing the trim panel may damage the head airbag.

- Do not use sharp-edged tools when removing the trim panel.

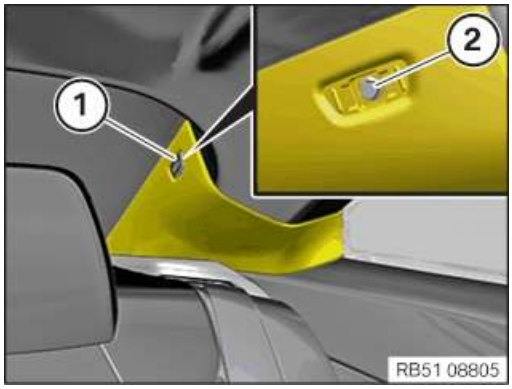


- Check clips (1) for damage and, if necessary, renew them.



- Position C-pillar trim panel (2) and clip it onto clips (1).

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- Tighten down screw (2).

C-pillar trim panel to body

Screw		Tightening torque	2,6 Nm

- Clip in cover (1) of the C-pillar trim panel.

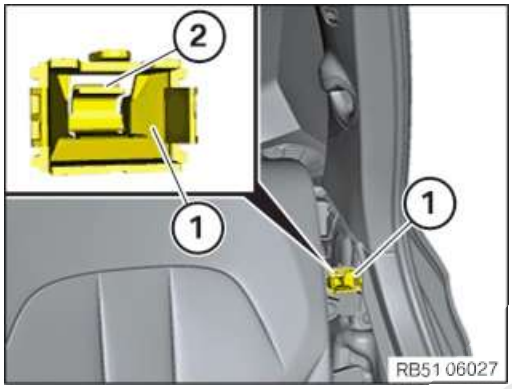
34 – Install the backrest side section on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

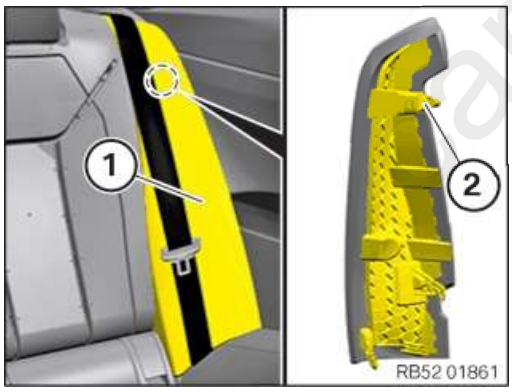
▶ **Installing backrest side section**

▷ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.

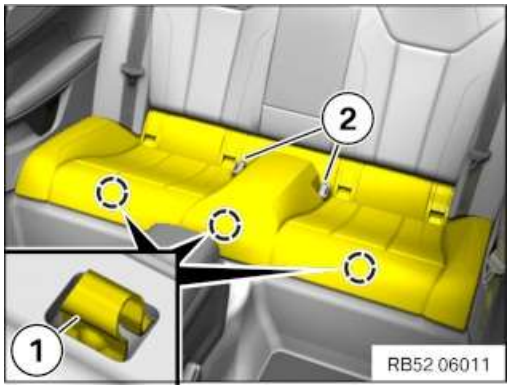


- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

35 – Installing the rear seat bench

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- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

36 – Install the front seat on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install front seat**

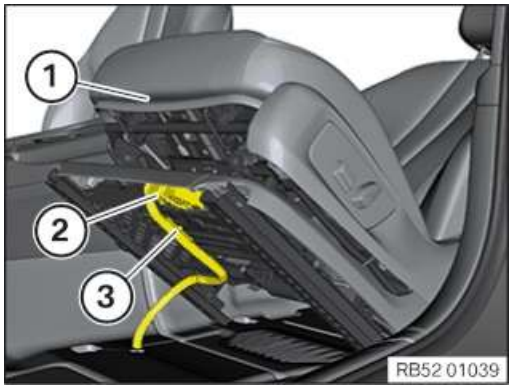
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▷ **Connecting all battery earth leads**



- See additional information.

◁

▷ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



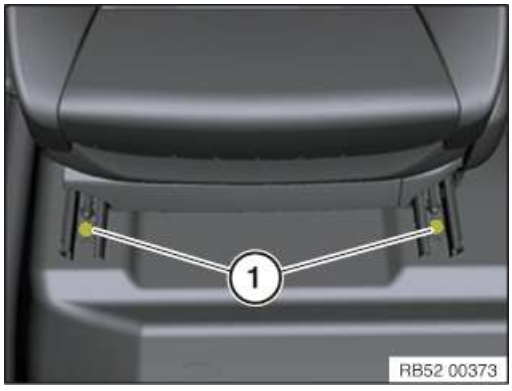
- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

◁



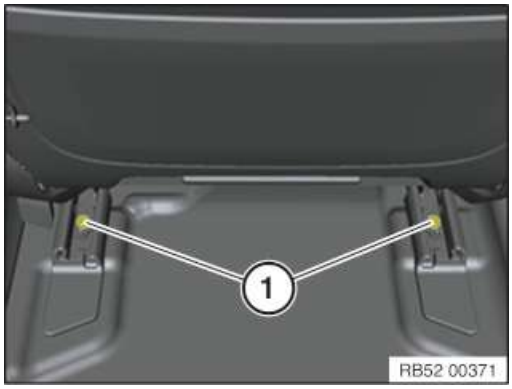
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

37 – Adjusting the sensors for the driving dynamics

- Connect diagnosis system.
- Carry out the service function for adjustment of the sensors for driving dynamics.
  - Chassis and suspension
  - Traction control system
  - Adjustment of the driving dynamics sensors

Additional Information

Overview of Tightening Torques

Ground cable to body — Used in step 19

Hexagon nut		Tightening torque	8,0 Nm

Airbag control unit to body — Used in step 20

Screw		Tightening torque	8 Nm

Central bass speaker trim — Used in step 21

Screw		Tightening torque	2 Nm

Centre console on tunnel — Used in step 22

M6x18 Hexagon screw		Tightening torque	4,6 Nm

Centre console to instrument panel — Used in step 22

Oval-head screw		Tightening torque	1,8 Nm

Storage compartment in centre console — Used in step 24

Oval-head screw		Tightening torque	1,8 Nm

Gear selector switch to centre console trim — Used in step 25

Screw		Tightening torque	1,8 Nm

Negative battery cable to 48-V battery — Used in step 253436

Nut M8		Tightening torque	19 Nm

Cup holder to centre console — Used in step 30

Oval-head screw		Tightening torque	1,8 Nm

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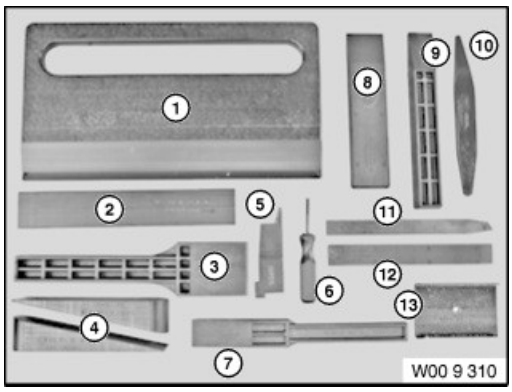
End fitting to body			Used in step 32
M10		Tightening torque	42 Nm

C-pillar trim panel to body			Used in step 33
Screw		Tightening torque	2,6 Nm

Seat to body			Used in step 36
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

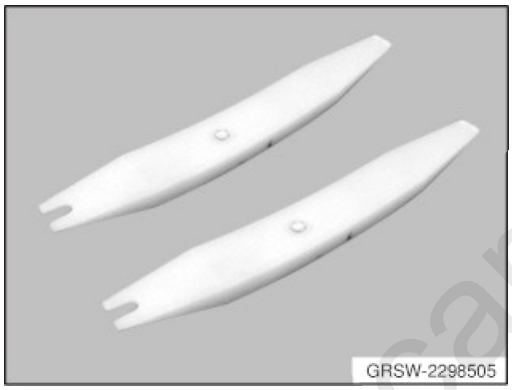
Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 6
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

2 298 505 Wedge



Common	Used in step 89
Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	1313253436

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	1317203436

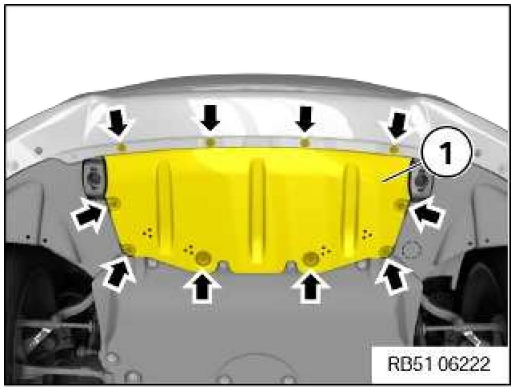
Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1313253436
61 20 900 Disconnecting and connecting battery earth lead	1313253436
61 20 900 Disconnecting and connecting battery earth lead	1313253436
61 20 900 Disconnecting and connecting battery earth lead	1313253436
61 20 900 Disconnecting and connecting battery earth lead	1313253436
61 20 900 Disconnecting and connecting battery earth lead	1313253436

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61 20 900 Disconnecting and connecting battery earth lead	1313253436
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1313253436
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1313253436
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61 20 900 Disconnecting and connecting battery earth lead	1313253436
61 20 900 Disconnecting and connecting battery earth lead	1313253436
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1313253436
61 20 900 Disconnecting and connecting battery earth lead	1313253436
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61 20 900 Disconnecting and connecting battery earth lead	1313253436
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1313253436
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1313253436
61 20 900 Disconnecting and connecting battery earth lead	1313253436
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	1313253436
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	1313253436
61 20 900 Disconnecting and connecting battery earth lead

51 47 490 Removing and installing/replacing underbody protection (front)

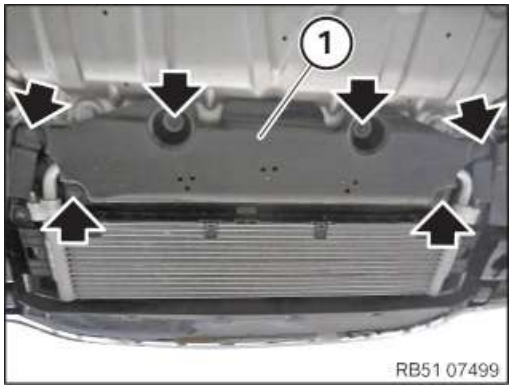
1 – Removing the front underbody protection



- **Version A:**

  Remove screws (arrows).

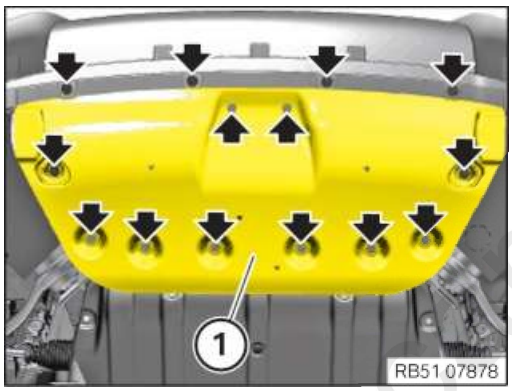
  Feed front underbody protection (1) backwards out of the bumper panel.



- **Version B:**

  Remove screws (arrows).

  Guide out front underbody protection (1) and remove it.

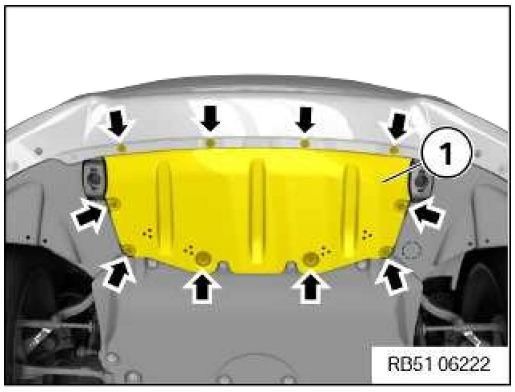


- **Version C:**

  Remove screws (arrows).

  Guide out front underbody protection (1) and remove it.

2 – Installing the front underbody protection



- **Version A:**

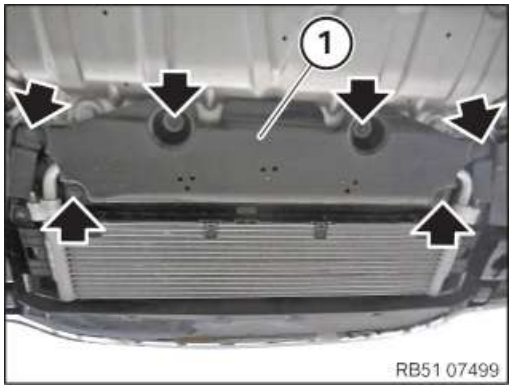
  Feed in the front underbody protection (1) towards the front under the bumper panel and position.

  Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

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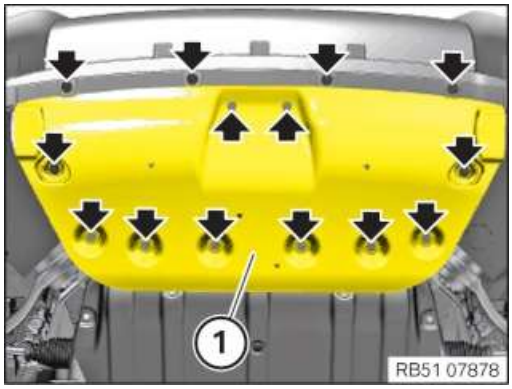
- **Version B:**

  Feed in and position the front underbody protection (1).

  Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm



- **Version C:**

  Feed in and install front underbody protection (1).

  Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

Additional Information

Overview of Tightening Torques

Underbody protection front Used in step 2

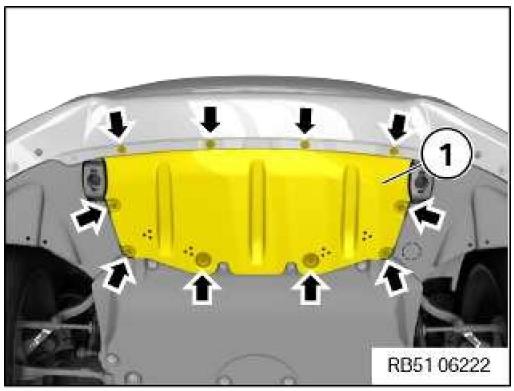
Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

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51 47 493 Removing and installing/replacing underbody protection, steering gear

PRELIMINARY WORK

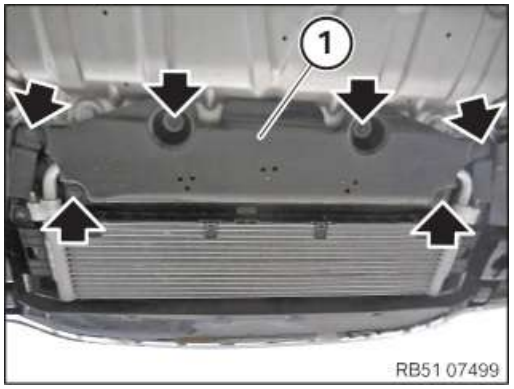
1 – Removing the front underbody protection



- **Version A:**

  Remove screws (arrows).

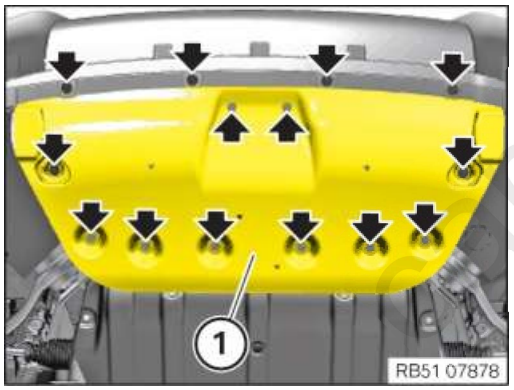
  Feed front underbody protection (1) backwards out of the bumper panel.



- **Version B:**

  Remove screws (arrows).

  Guide out front underbody protection (1) and remove it.



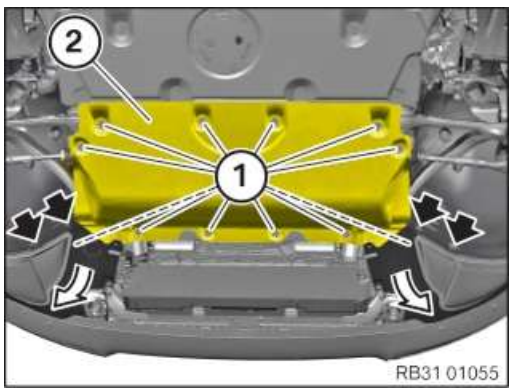
- **Version C:**

  Remove screws (arrows).

  Guide out front underbody protection (1) and remove it.

MAIN WORK

2 – Remove the underbody protection of the steering gear



- **Version A:**

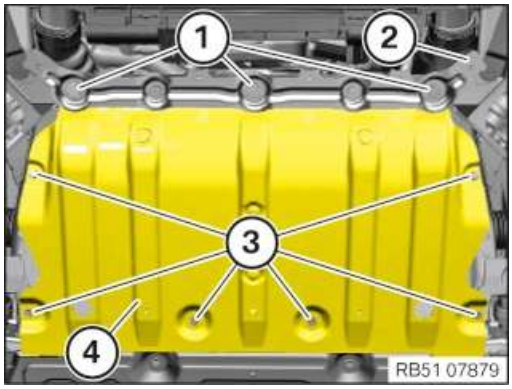
  Unscrew the screws (arrows) of the wheel arch cover on the wheel arch cover.

  Fold the bottom wheel arch cover to the side.

  Loosen screws (1).

  Remove the underbody protection (2) of the steering gear.

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- **Version B:**

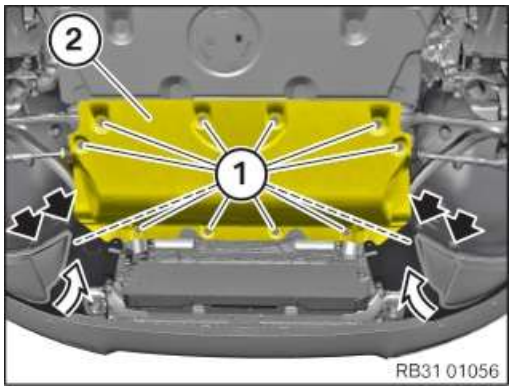
  Loosen screws (1).

  Remove the holder (2) for the underride protection.

  Loosen screws (3).

  Feed out and remove the underbody protection (4) of the steering gear.

3 – Install the underbody protection of the steering gear



- **Version A:**

  Position the underbody protection (2) of the steering gear.

  Tighten the screws (1).

Underbody protection of the steering gear

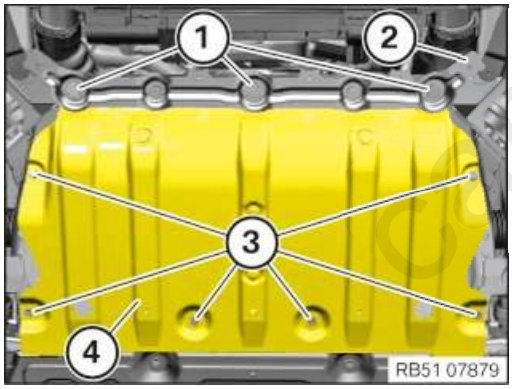
Hexagon screw for thermoplastic		Tightening torque	2.6 Nm
Hexagon bolt M6x20		Tightening torque	8 Nm

- Position the bottom wheel arch cover.

  Tighten the screws (arrows) of the lower wheel arch cover on the wheel arch cover.

Wheel arch trim panel, front

Thermoplastic hexagon screw	Tightening torque	2,6 Nm



- **Version B:**

  Feed in the underbody protection (4) of steering gear and install it.

  Tighten the screws (3).

Underbody protection of the steering gear

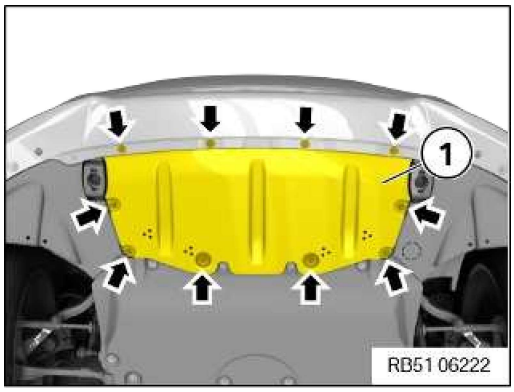
Hexagon screw for thermoplastic		Tightening torque	2.6 Nm
Hexagon bolt M6x20		Tightening torque	8 Nm

- Position the holder (2) for the underride protection.

  Tighten the screws (1).

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4 – Installing the front underbody protection



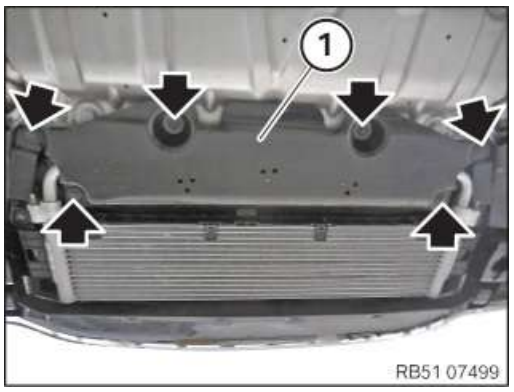
- **Version A:**

  Feed in the front underbody protection (1) towards the front under the bumper panel and position.

  Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm



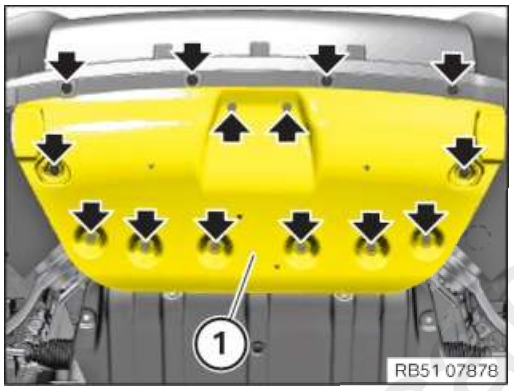
- **Version B:**

  Feed in and position the front underbody protection (1).

  Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm



- **Version C:**

  Feed in and install front underbody protection (1).

  Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

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Additional Information

Overview of Tightening Torques

Underbody protection of the steering gear — Used in step 3

Hexagon screw for thermoplastic		Tightening torque	2.6 Nm
Hexagon bolt M6x20		Tightening torque	8 Nm

Wheel arch trim panel, front Used in step 3

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

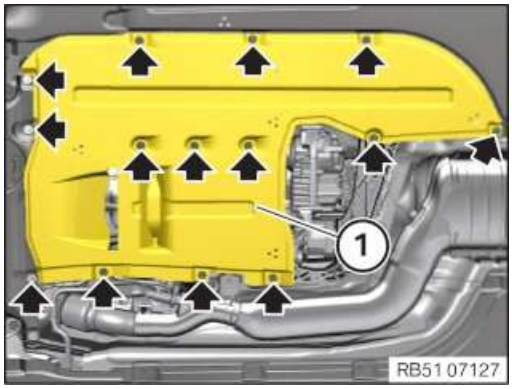
Underbody protection front Used in step 4

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

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51 47 491 Removing refitting/replacing rear engine undercover

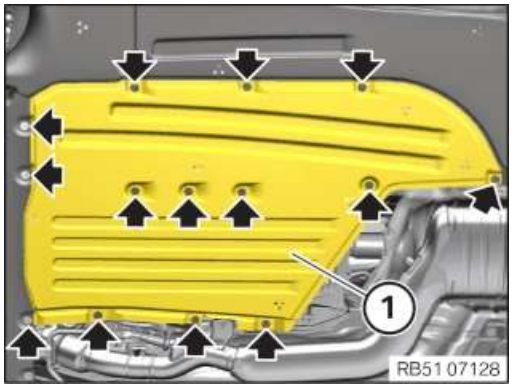
1 – Remove rear underbody protection



- **Version A:**

  Remove screws (arrows).

  Feed out the rear underbody protection (1).

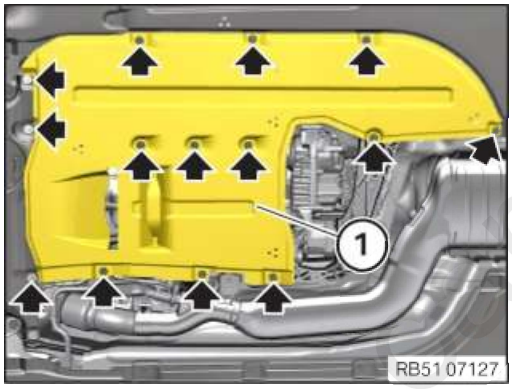


- **Version B:**

  Remove screws (arrows).

  Guide out rear underbody protection (1) and remove it.

2 – Installing underbody protection at rear



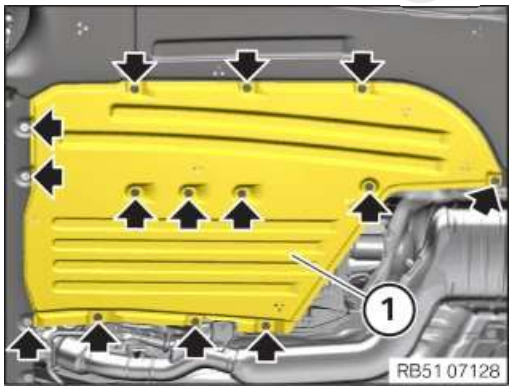
- **Version A:**

  Insert and install the rear underbody protection (1).

  Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm



- **Version B:**

  Insert and install the rear underbody protection (1).

  Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm

Additional Information

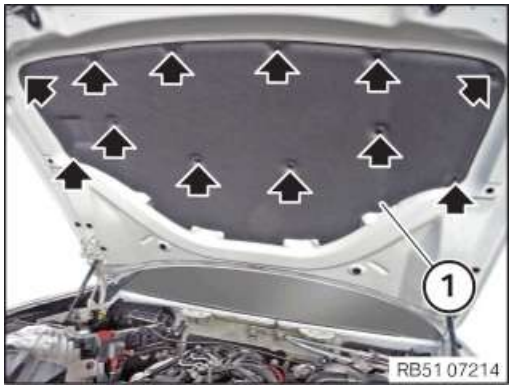
Overview of Tightening Torques

Underbody protection Used in step 2

Hexagon screw		Tightening torque		3 Nm

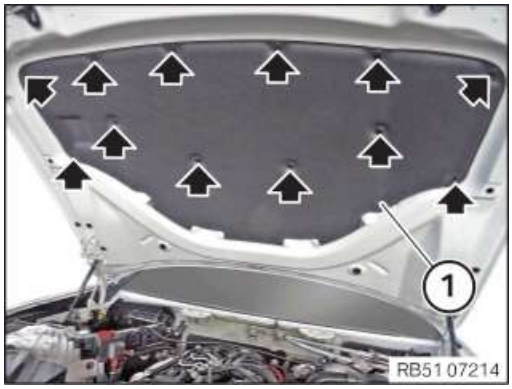
51 48 001 Removing and installing/replacing insulation lining on engine hood/bonnet

1 – Remove the damping material on the bonnet



- Release all clips (arrows) using the special tool 2 298 505.
- Remove damping material (1).

2 – Install the damping material on the bonnet

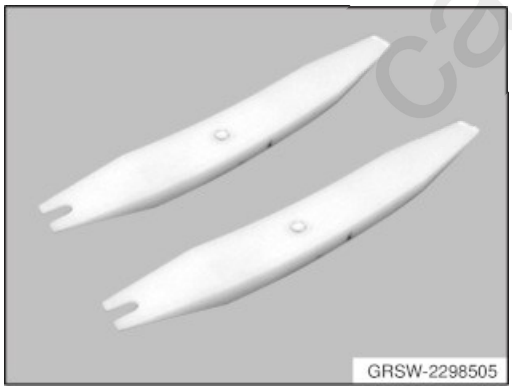


- Fit damping material (1).
- Fit all clips (arrows).

Additional Information

Overview of Special Tools

2 298 505 Wedge

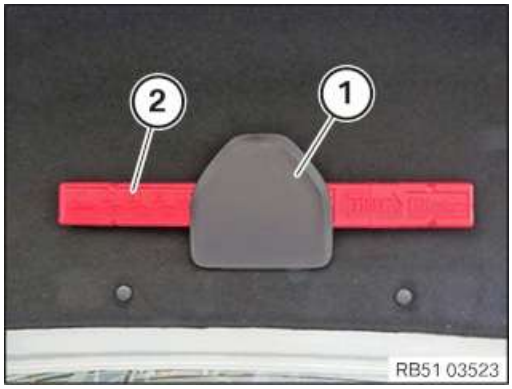


Common	Used in step 1
Usage	Set (delivery of 2 pieces)
Included in the tool or work	
Storage location	C34
Replaced by	
In connection with	
SI-Number	01 03 12 (792)

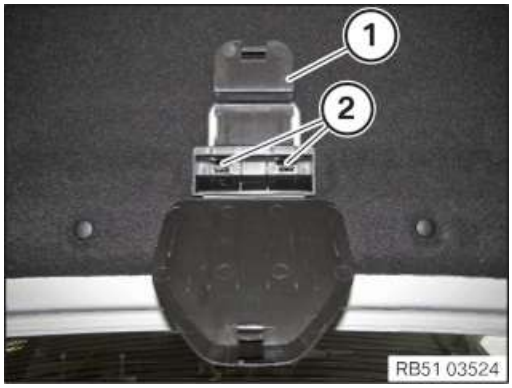
cardiagn.com

51 49 000 Removing and installing/replacing the tailgate trim panel

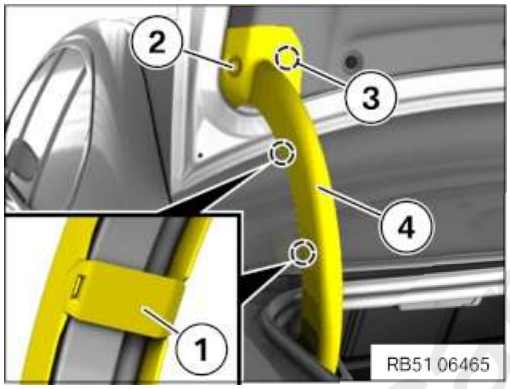
1 – Remove tailgate trim panel



- Fold the cover (1) towards the bottom.
- Remove the warning triangle (2).



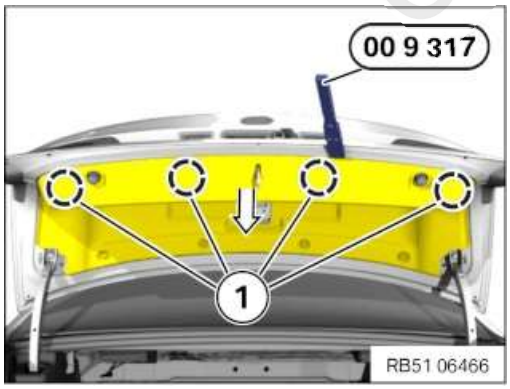
- Detach the warning triangle holder (1) from the latch mechanisms (2) and slide downwards.



NOTICE

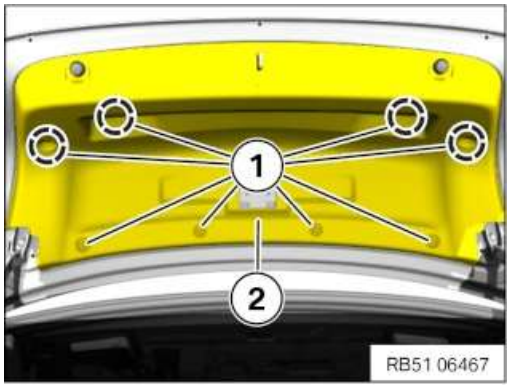
Description is for left component only. Procedure on the right side is identical.

- Unclip the tabs (1).
- Loosen expanding rivet (2).
- To avoid damage, release the trim panel for the hinge of the tailgate (4) without using a tool by jerking it along the hinge bracket and out of the clip fastening (3).



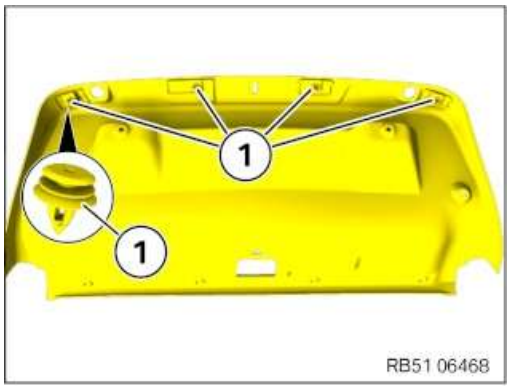
- Unclip clips (1) with special tool 0 490 534 (00 9 317) in the direction of arrow.

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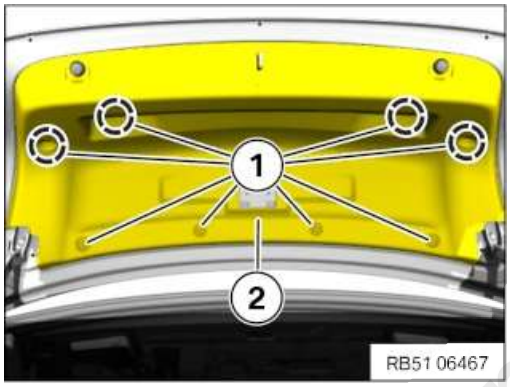


- Release expanding rivet (1) on the tailgate trim panel (2).
- Remove tailgate trim panel (2).
- **If installed**: Unlock plug connection of the switch for the tailgate lift and disconnect.

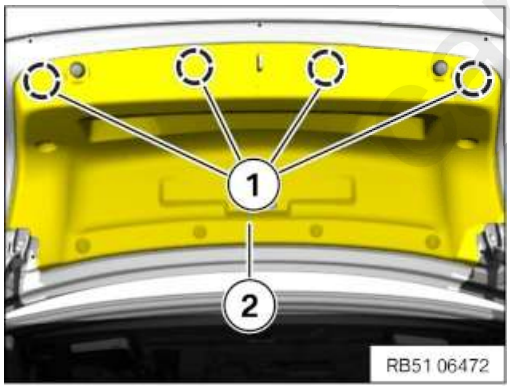
2 – Installing the tailgate trim panel



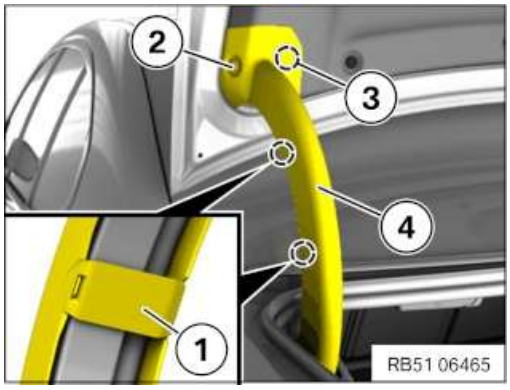
- Check the clips (1) for damage and renew if necessary.



- Fit the tailgate trim panel (2) and fasten in place with the expanding rivets (1).
- **If installed**: Connect and lock plug connection on the switch for the tailgate lift.



- Clip in the tailgate trim panel (2) with the clips (1).

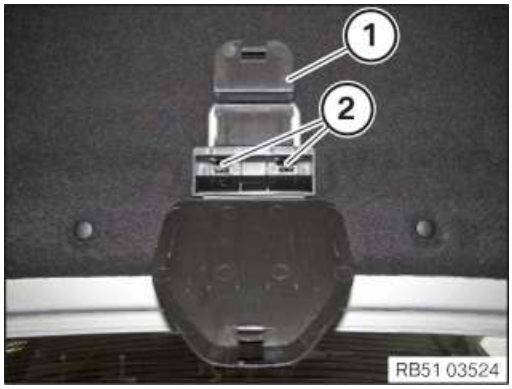


NOTICE

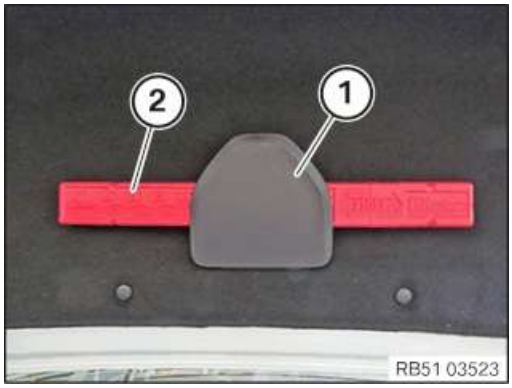
Description is for left component only. Procedure on the right side is identical.

- Clip in the trim panel for the hinge of the tailgate (4) to the clip fastening (3).
- Fasten expanding rivet (2).
- Clip in tabs (1).

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- Position the warning triangle holder (1) and snap into the latch mechanisms (2).

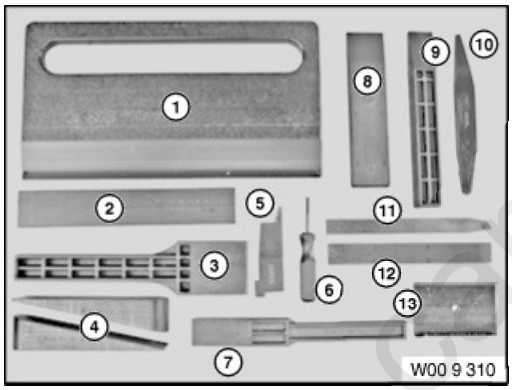


- Install the warning triangle (2).
- Clip in the cover (1).

Additional Information

Overview of Special Tools

0 490 534 (00 9 317) Wedge



Common	Used in step 1
Usage	(Trim wedge) Replaced by special tool 00 9 325 from 11/2008 (quality improvement due to new material) Replaced by 00 9 325 (0 496 569)
Included in the tool or work	0 490 527
Storage location	
Replaced by	
In connection with	
SI-Number	

ondiagn.com

51 64 012 Remove and install / replace V support

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

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RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads

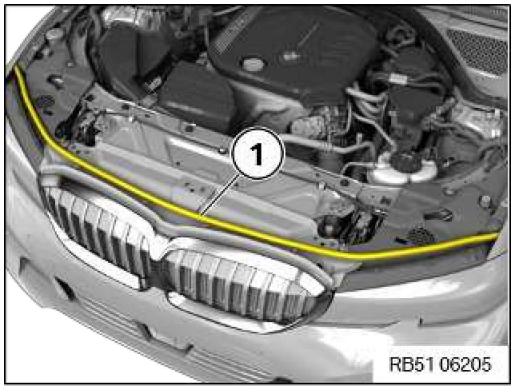


- See additional information.

3 – Remove the seal for the bonnet in front

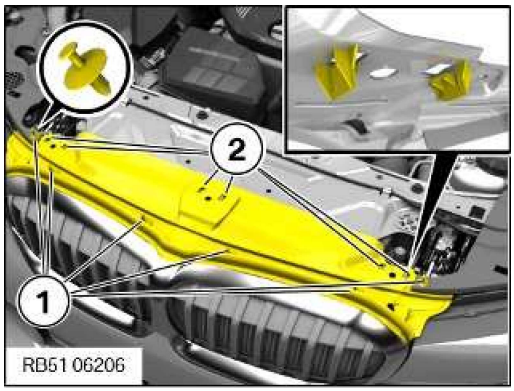
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

4 – Removing the centre engine compartment cover



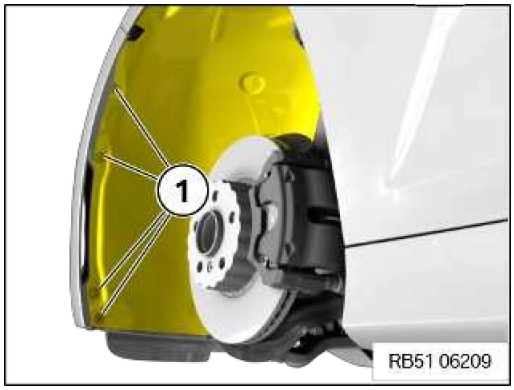
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

5 – Partially releasing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially removing front wheel arch trim panel**



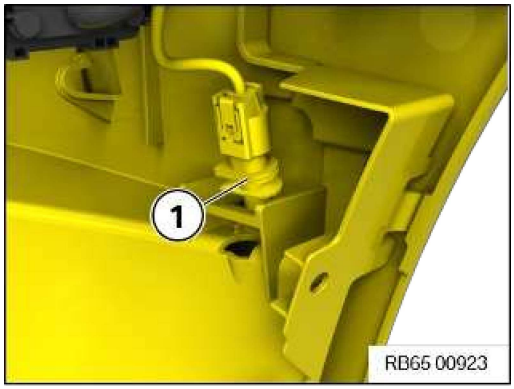
NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

6 – Partially removing the temperature sensor

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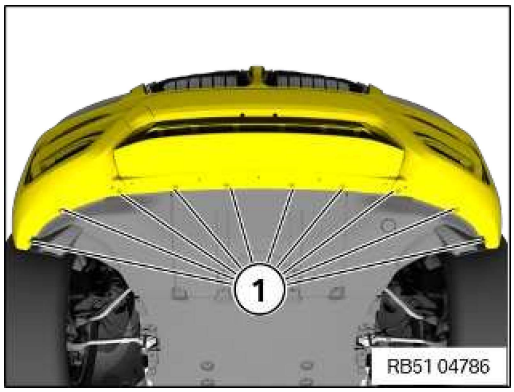


- Unclip temperature sensor (1) from the front bumper panel to the top.

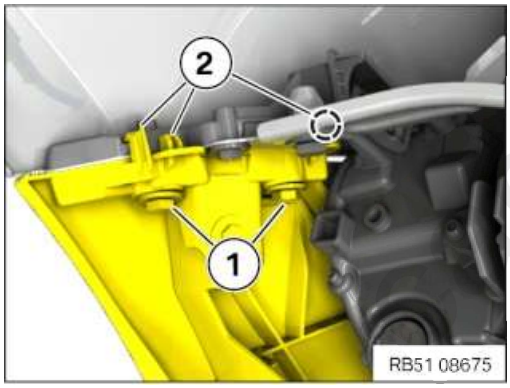
7 – Remove front bumper panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



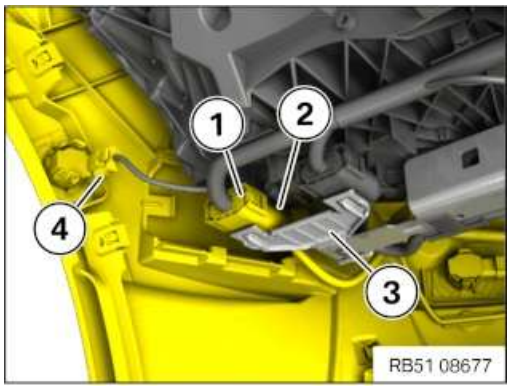
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

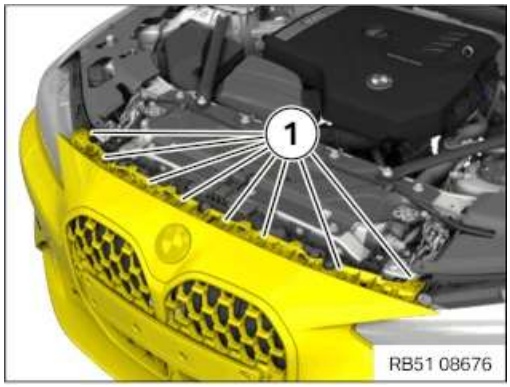
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

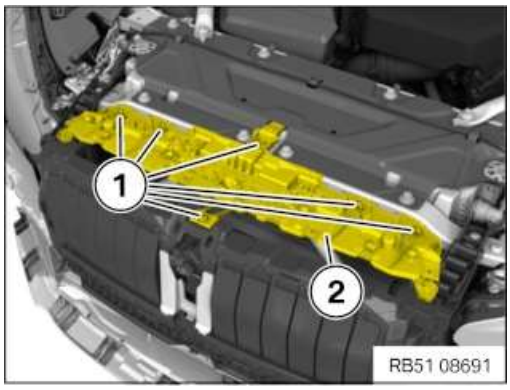
Perform the operations on the left and right side.

- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



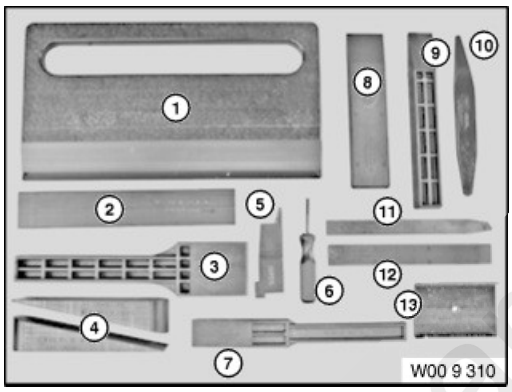
- Loosen screws (1).
- Remove the bumper panel towards the front.

8 – Remove top adapter for bumper panel

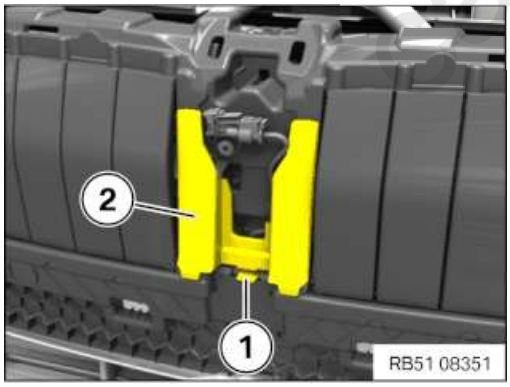


- Loosen screws (1).
- Remove adapter (2).

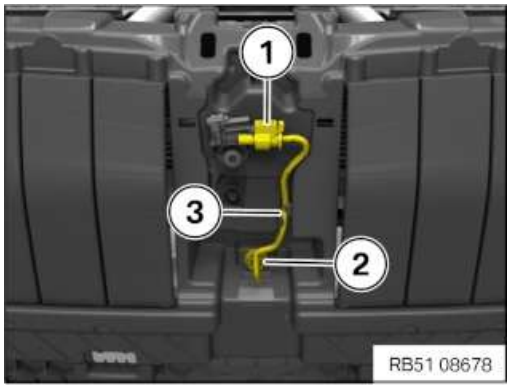
9 – Remove top automatic air flap control



- Have the set of special tools 0 493 752 (00 9 329) ready.

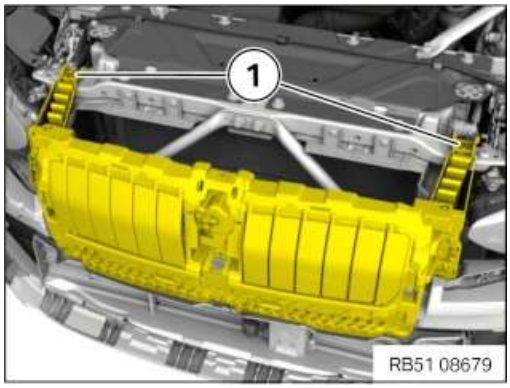


- Release latch mechanism (1) and guide down cover (2).

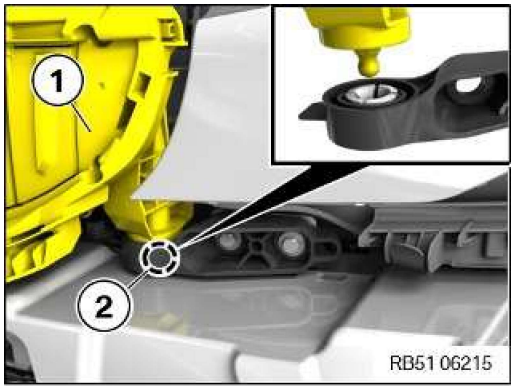


- Unlock plug connection (1) and disconnect.
- Unclip the cable for the acceleration sensor with holder (2) and remove it from guide (3).

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- Loosen screws (1).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

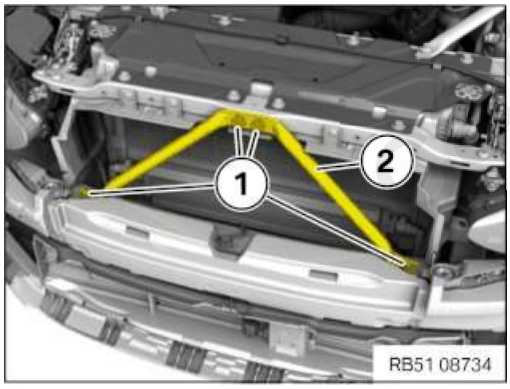
The operations shown only for one side must be carried out on both sides.

- Release air flap control at the top (1) using a suitable special tool.

  Lever out ball head (2) to the top.
- Guide out air flap control at the top (1) to the top.
- Unlock associated plug connections and disconnect.

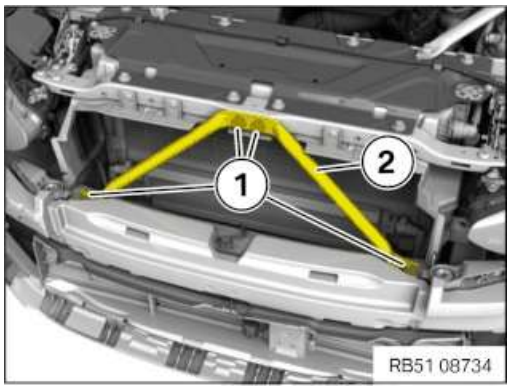
MAIN WORK

10 – Remove stiffening strut



- Loosen screws (1).
- Remove bracing strut (2).

11 – Install bracing strut

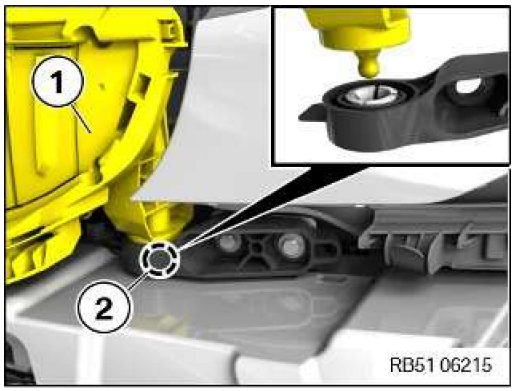


- Position the reinforcement strut (2).
- Tighten the screws (1).

Bracing strut on cross connection and bumper support

Hexagon screw M8		Tightening torque	28 Nm

12 – Insert top automatic air flap control



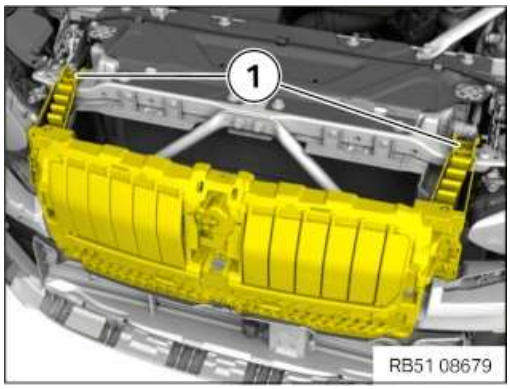
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The operations shown only for one side must be carried out on both sides.

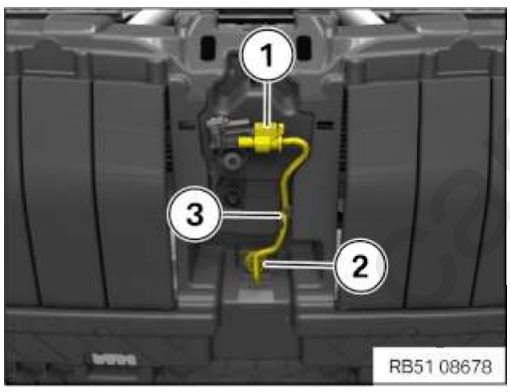
- Position the top air flap control (1).
- Connect and lock the associated connectors.
- Feed in the air flap control (1) at the top and connect with the ball head (2).



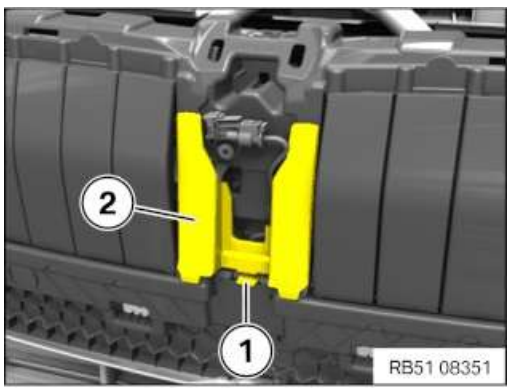
- Tighten the screws (1).

Air flap control to front end

Oval-head screw with spring washer		Tightening torque	4 Nm

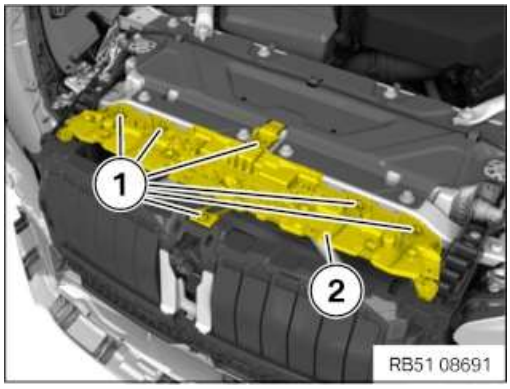


- Clip in the cable for the acceleration sensor with the holder (2) and feed it in the guide (3).
- Connect connectors (1) and lock.



- Feed in the cover (2) from below and clip it in with the latch mechanism (1) .

13 – Installing top adapter for panel support



- Position the adapter (2).
- Tighten the screws (1).

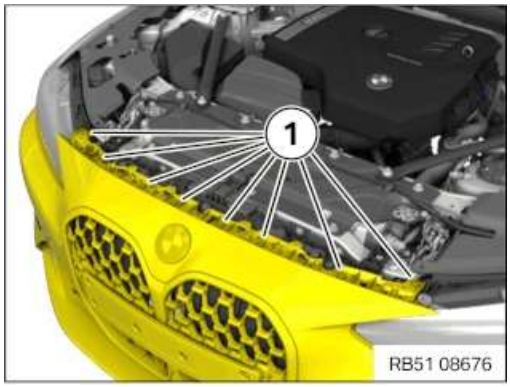
Adapter to the front panel

Oval-head screw with spring washer		Tightening torque	4 Nm

14 – Install bumper panel, front

NOTICE

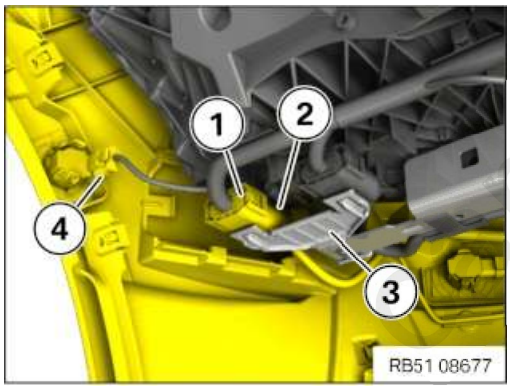
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

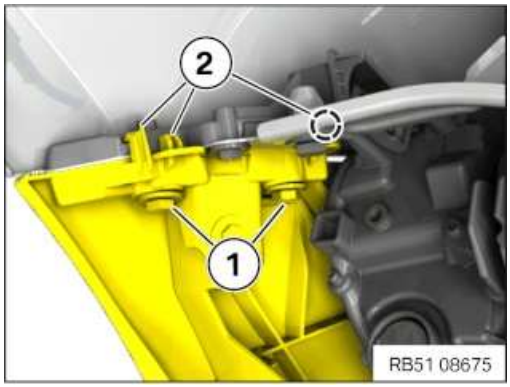
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

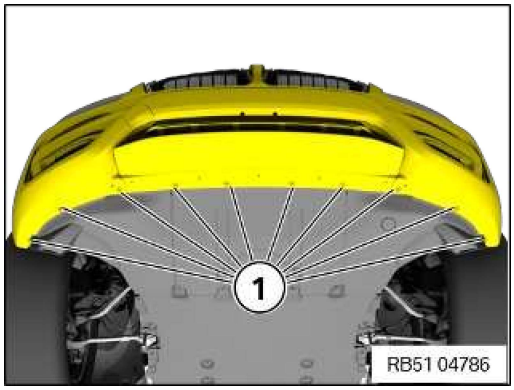
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

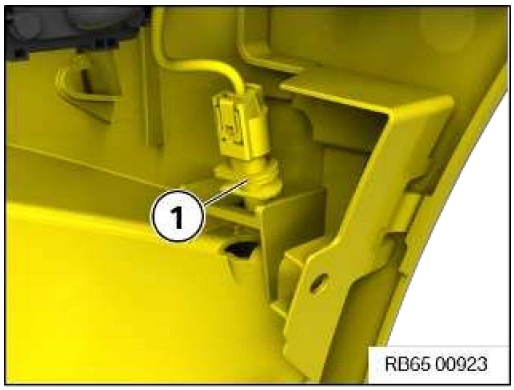


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

15 – Partially installing the temperature sensor



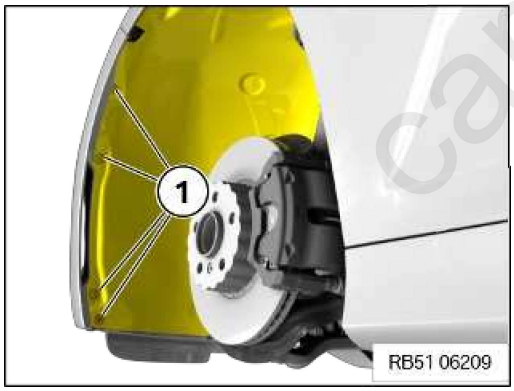
- Clip the temperature sensor (1) downwards into the front bumper panel.

16 – Partially installing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially installing front wheel arch trim panel**



NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

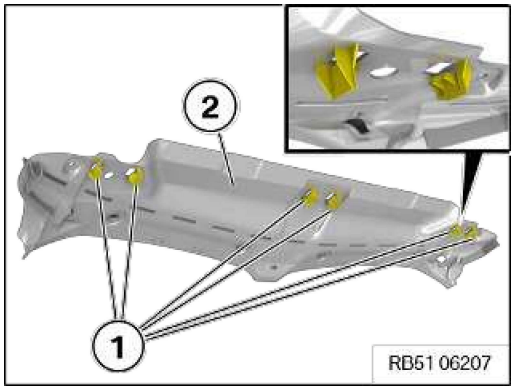
Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

17 – Installing the cover for the centre engine compartment

Check

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- Check the latch mechanisms (1) of the cover (2) for damage.

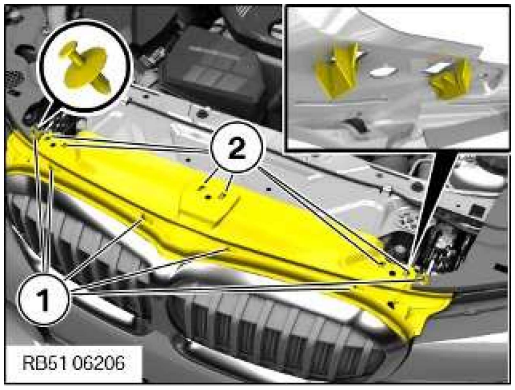
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

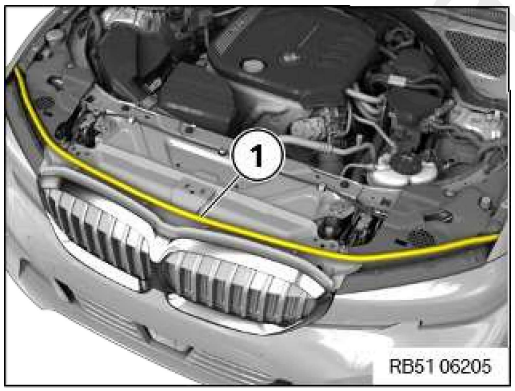


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

18 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

19 – Connecting all battery earth leads



- See additional information.

20 – Activating the 48 V electrical system

Prerequisite

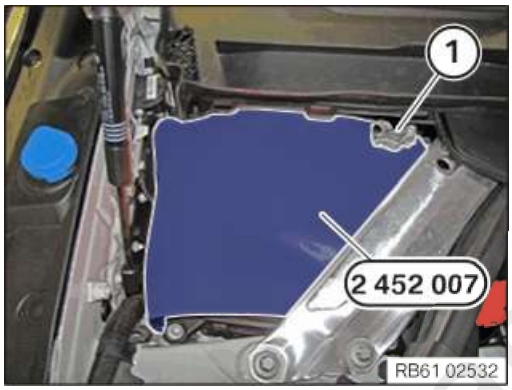
Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.
  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

Bracing strut on cross connection and bumper support			Used in step 11
Hexagon screw M8		Tightening torque	28 Nm

Air flap control to front end			Used in step 12
Oval-head screw with spring washer		Tightening torque	4 Nm

Adapter to the front panel			Used in step 13
Oval-head screw with spring washer		Tightening torque	4 Nm

Bumper panel, front top			Used in step 14
Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel			Used in step 14
Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection			Used in step 14
Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

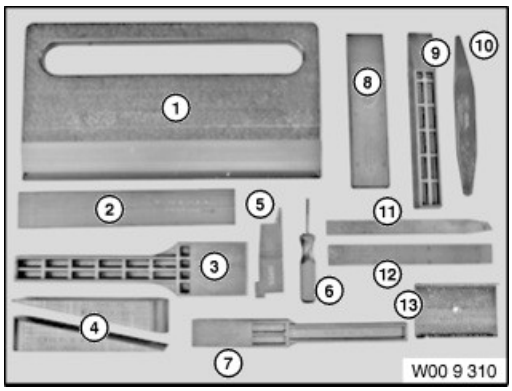
Wheel arch trim panel, front			Used in step 16
Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Negative battery cable to 48-V battery			Used in step 20
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

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0 493 752 (00 9 329) Case



Common	Used in step 9
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	120

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	219
61 20 900 Disconnecting and connecting battery earth lead	219
61 20 900 Disconnecting and connecting battery earth lead	219
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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle) 219
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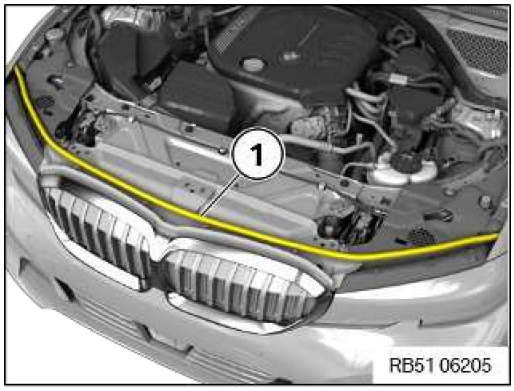
51 64 020 Remove and install top rear connection

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

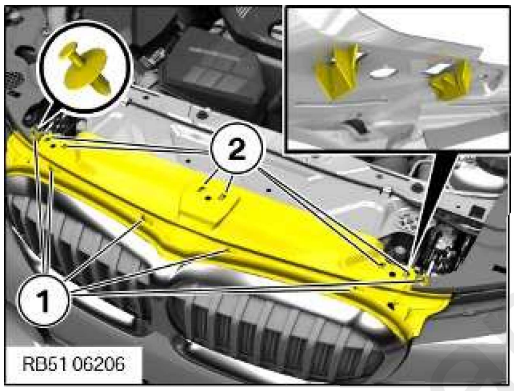
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover



- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

3 – Removing left and right front-end strut

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the front-end strut**

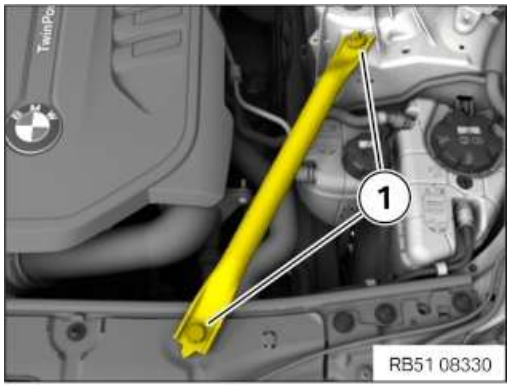
TECHNICAL INFORMATION

Driving without the strut brace/front-end strut or tension strut is not permitted.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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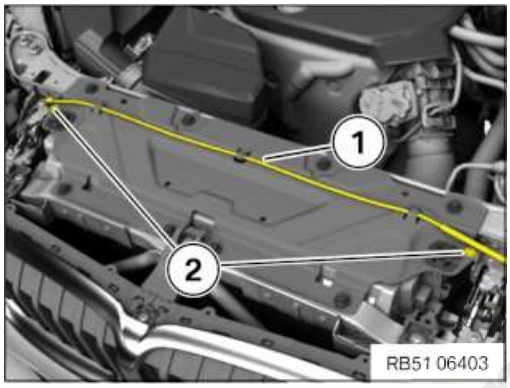


- Loosen screws (1).
- Remove the front-end strut.

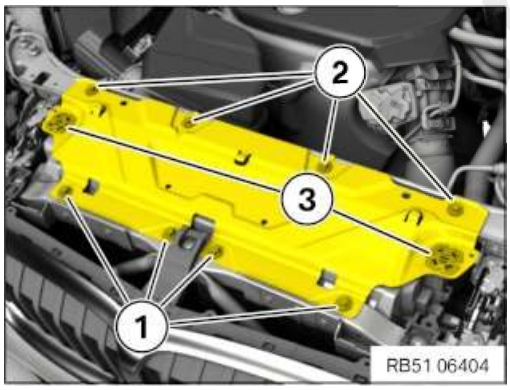
4 – Removing the top cross connection



- Release housing (1) for the coupling of the Bowden cables from the body.

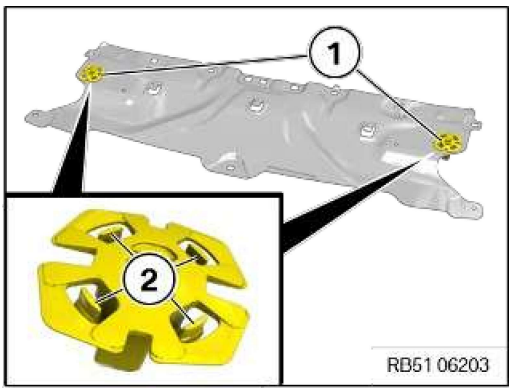


- Detach Bowden cable (1) at the top cross connection.
- Loosen screws (2).

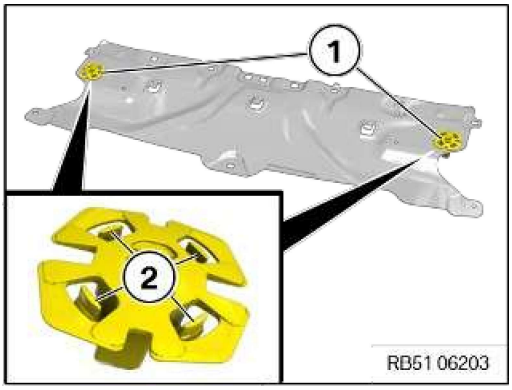


- Loosen screws (1) and (2).
- Remove the top cross connection with holders (3) to the top.

5 – Replacement: Remounting the bracket



- Release and remove the holder (1) with the latch mechanisms (2) from the upper cross connection.

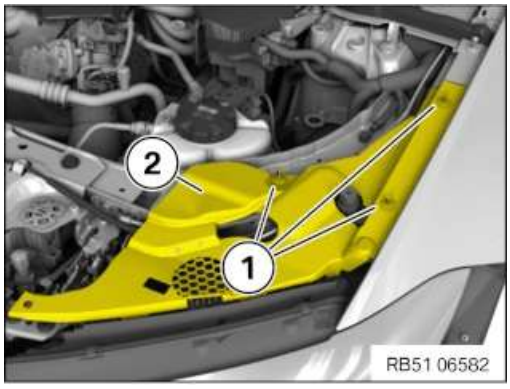


- Check the latch mechanisms (2) of the holder (1) for damage and, if necessary, renew the holder (1).
- Clip the holder (1) with the latch mechanisms (2) into the new upper cross connection.

6 – If installed: Partially remove the top left and right cover in the engine compartment

NOTICE

Description is for left component only. Procedure on the right side is identical.

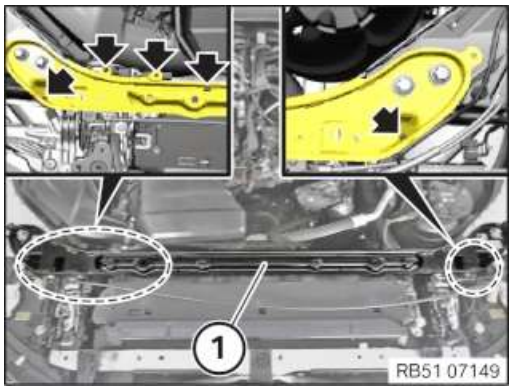


▸ **Removing the cover in the engine compartment on top partially**

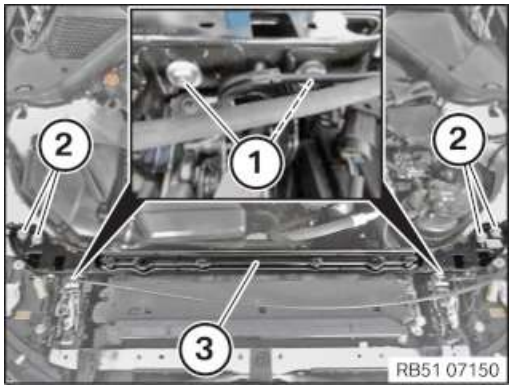
- Loosen the expanding rivet (1).
- Remove cover (2) at the top of the engine compartment.

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7 – Remove the rear top cross connection

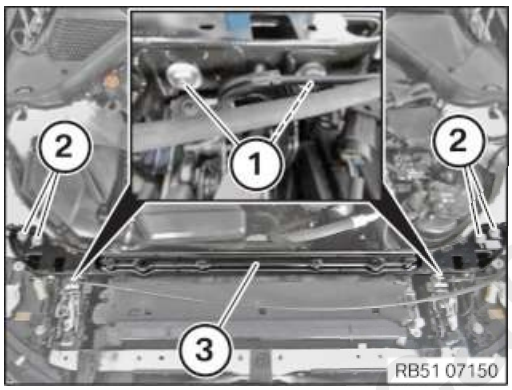


- Release the clips (arrows) in the marked areas from the cross connection (1) at the rear top.



- Loosen screws (1).
- Loosen screws (2).
- Guide out and remove top rear cross connection (3).

8 – Install the rear top cross connection



- Guide in and position the top rear cross connection (3).
- Tighten the screws (1).

Top rear cross connection to bonnet catch support

Flat-head screw M6x20		Tightening torque	11,8 Nm

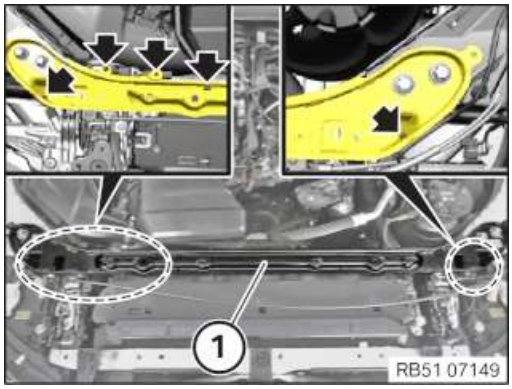
- Renew screws (2).

  Parts: Bolts

- Tighten the screws (2).

Rear top cross connection to wheel arch carrier support

M10x20 screw	Renew screw.	Jointing torque	56 Nm
		Angle of rotation	90 °



- Secure the clips (arrows) in the marked areas to the top rear cross connection (1).

POSTPROCESSES

9 – If installed: Install the cover in the engine compartment at top left and right (partially removed)

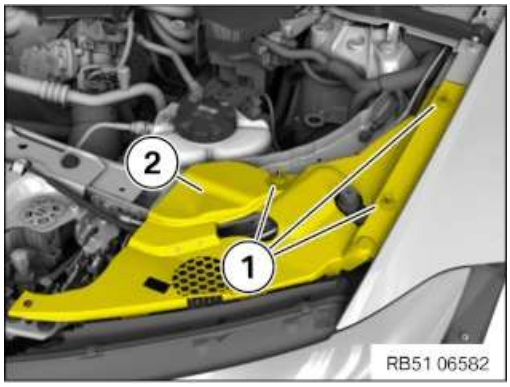
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9 – If installed: Install the cover in the engine compartment at top left and right (partially removed

NOTICE

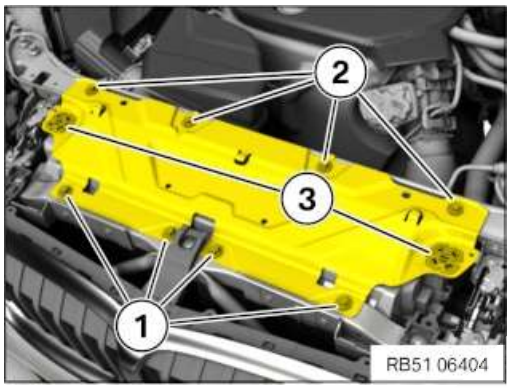
Description is for left component only. Procedure on the right side is identical.

▶ Installing the cover in the top engine compartment (partially removed)



- Install the cover (2) in the engine compartment on top.
- Secure expanding rivet (1).

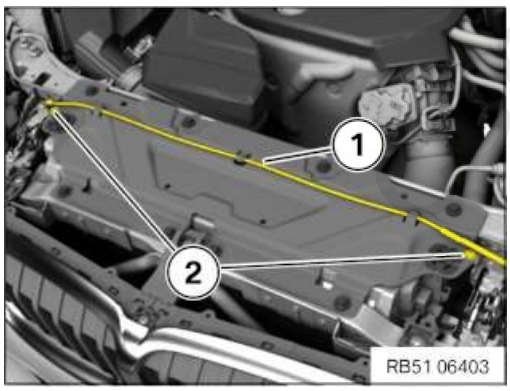
10 – Installing the top cross connection



- Set and position the upper cross connection with holders (3) from above.
- Tighten screws (1) and (2).

Cross connection, top

M8x20		Tightening torque	28 Nm



- Tighten the screws (2).

Cross connection, top

M6x20		Tightening torque	11,8 Nm

- Attach Bowden cable (1) on the upper cross connection.



- Clip in the housing (1) for the coupling of the Bowden cables.

11 – Installing front-end strut on left and right

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TECHNICAL INFORMATION

Driving without the strut brace/front-end strut or tension strut is not permitted.

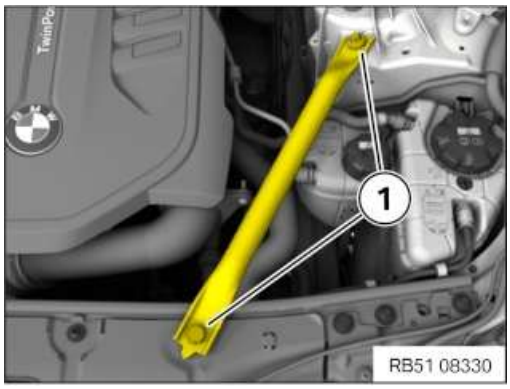
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the front-end strut**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

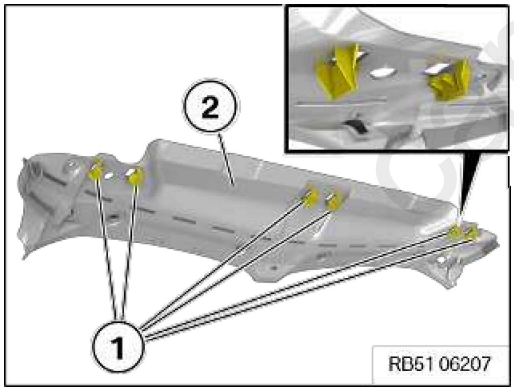


- Position the front-end strut.
- Tighten the screws (1).

Front end strut

Screw		Tightening torque	56 Nm

12 – Installing the cover for the centre engine compartment



Check

- Check the latch mechanisms (1) of the cover (2) for damage.

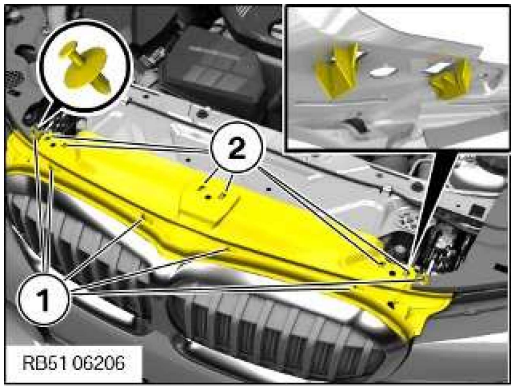
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

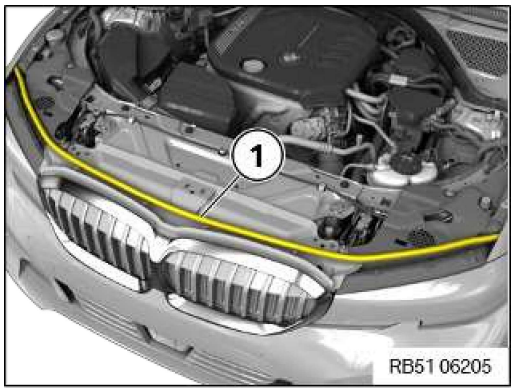


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

13 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

Additional Information

Overview of Tightening Torques

Top rear cross connection to bonnet catch support — Used in step 8

Flat-head screw M6x20		Tightening torque	11,8 Nm

Rear top cross connection to wheel arch carrier support — Used in step 8

M10x20 screw	Renew screw.	Jointing torque	56 Nm
		Angle of rotation	90 °

Cross connection, top — Used in step 10

M8x20		Tightening torque	28 Nm

Cross connection, top — Used in step 10

M6x20		Tightening torque	11,8 Nm

Front end strut — Used in step 11

Screw		Tightening torque	56 Nm

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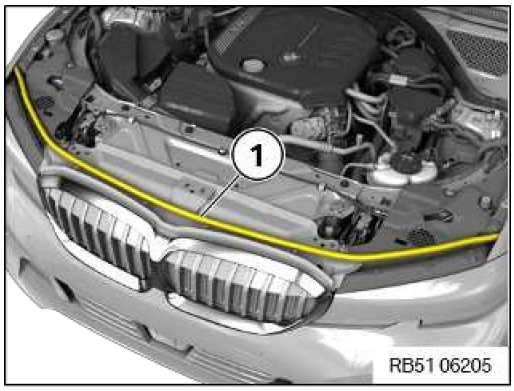
51 64 035 Removing and installing/replacing the upper section cross connection

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

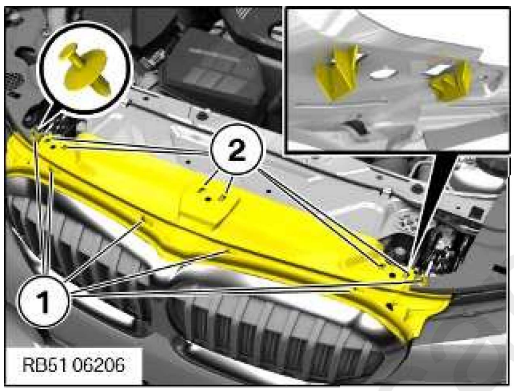
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover



- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

3 – Removing left and right front-end strut

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the front-end strut**

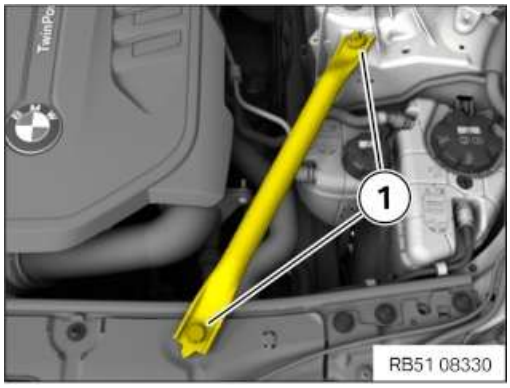
TECHNICAL INFORMATION

Driving without the strut brace/front-end strut or tension strut is not permitted.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

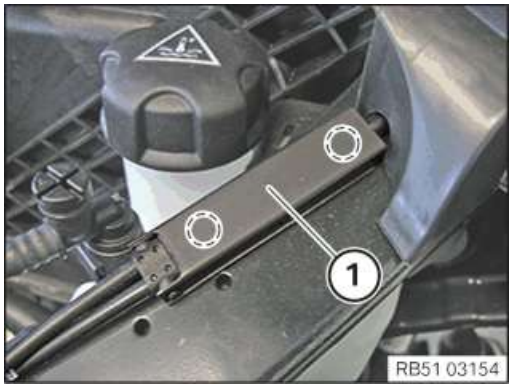
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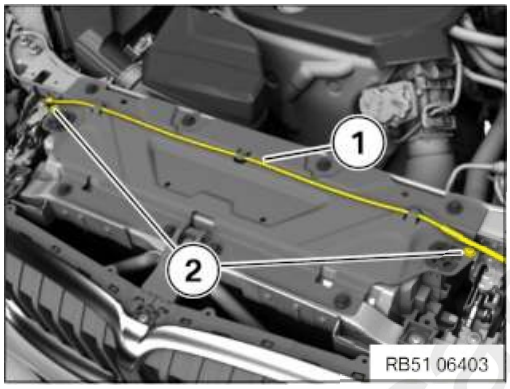
- Loosen screws (1).
- Remove the front-end strut.

MAIN WORK

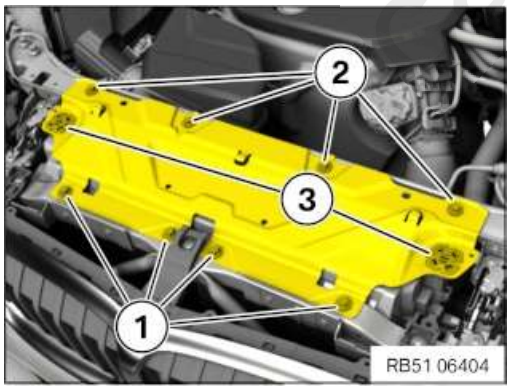
4 – Removing the top cross connection



- Release housing (1) for the coupling of the Bowden cables from the body.

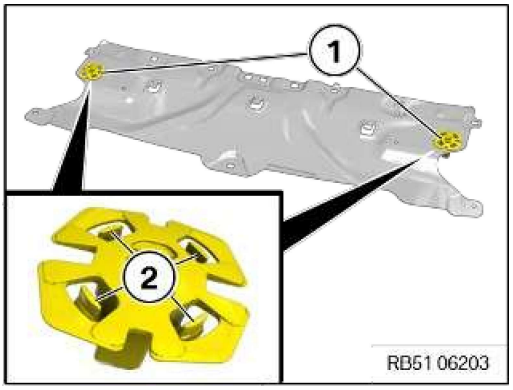


- Detach Bowden cable (1) at the top cross connection.
- Loosen screws (2).

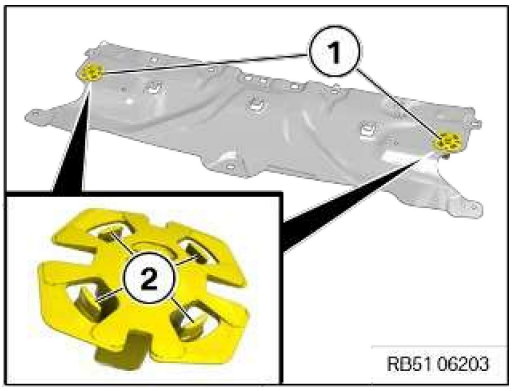


- Loosen screws (1) and (2).
- Remove the top cross connection with holders (3) to the top.

5 – Replacement: Remounting the bracket

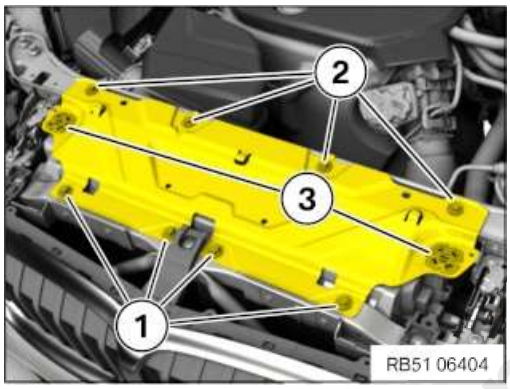


- Release and remove the holder (1) with the latch mechanisms (2) from the upper cross connection.



- Check the latch mechanisms (2) of the holder (1) for damage and, if necessary, renew the holder (1).
- Clip the holder (1) with the latch mechanisms (2) into the new upper cross connection.

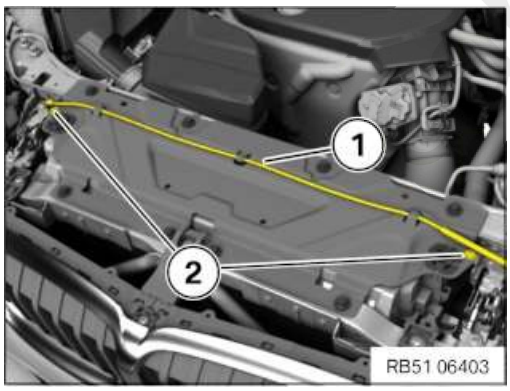
6 – Installing the top cross connection



- Set and position the upper cross connection with holders (3) from above.
- Tighten screws (1) and (2).

Cross connection, top

M8x20		Tightening torque	28 Nm

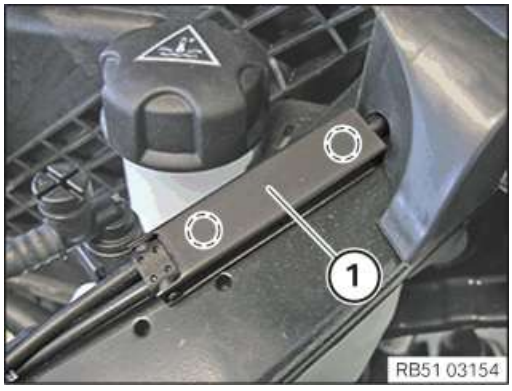


- Tighten the screws (2).

Cross connection, top

M6x20		Tightening torque	11,8 Nm

- Attach Bowden cable (1) on the upper cross connection.



- Clip in the housing (1) for the coupling of the Bowden cables.

7 – Installing front-end strut on left and right

TECHNICAL INFORMATION

Driving without the strut brace/front-end strut or tension strut is not permitted.

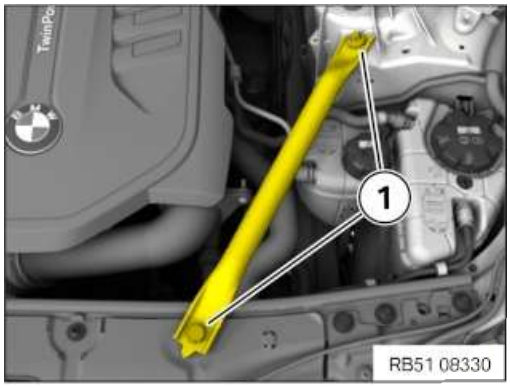
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the front-end strut**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

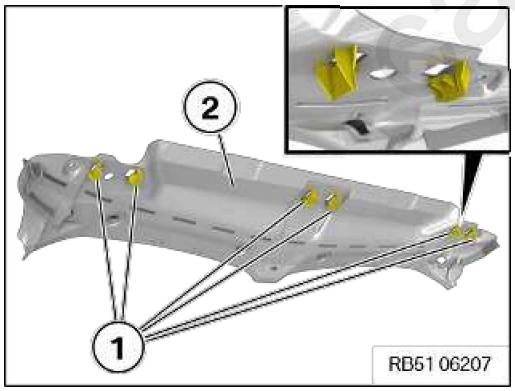


- Position the front-end strut.
- Tighten the screws (1).

Front end strut

Screw		Tightening torque	56 Nm

8 – Installing the cover for the centre engine compartment



Check

- Check the latch mechanisms (1) of the cover (2) for damage.

Result

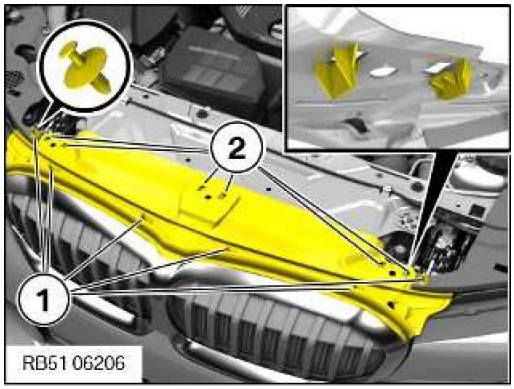
» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

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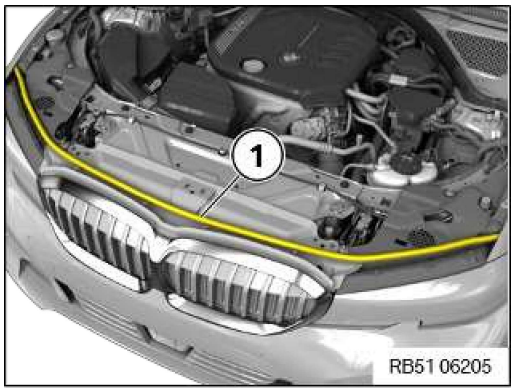


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

9 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

Additional Information

Overview of Tightening Torques

Cross connection, top			Used in step 6
M8x20		Tightening torque	28 Nm

Cross connection, top			Used in step 6
M6x20		Tightening torque	11,8 Nm

Front end strut			Used in step 7
Screw		Tightening torque	56 Nm

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51 64 025 Removing and installing/replacing upper front connection

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

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RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.



Check

TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads

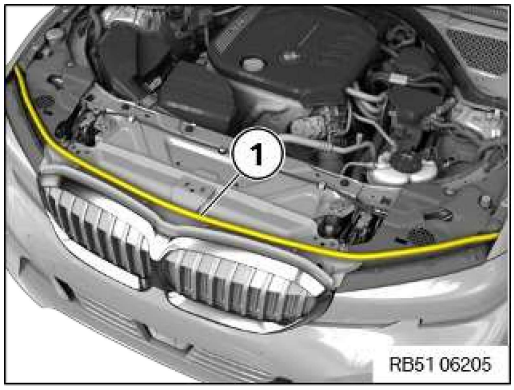


- See additional information.

3 – Remove the seal for the bonnet in front

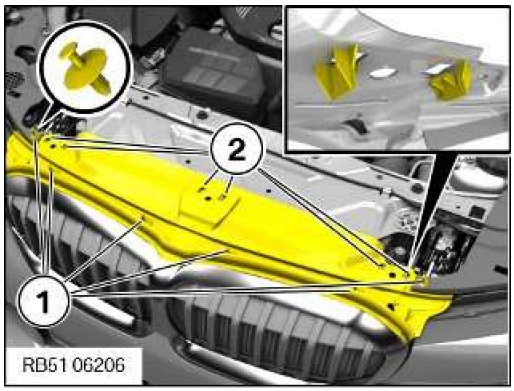
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

4 – Removing the centre engine compartment cover



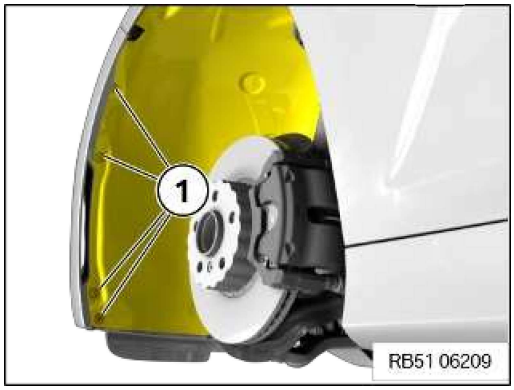
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

5 – Partially releasing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially removing front wheel arch trim panel**



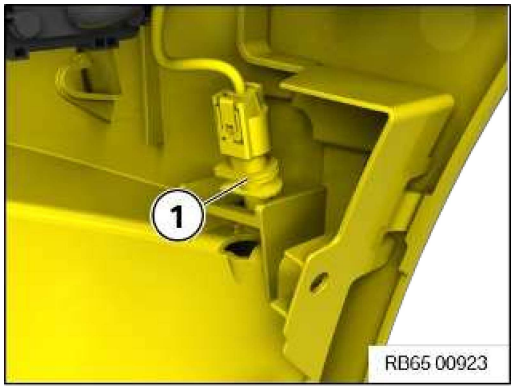
NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

6 – Partially removing the temperature sensor

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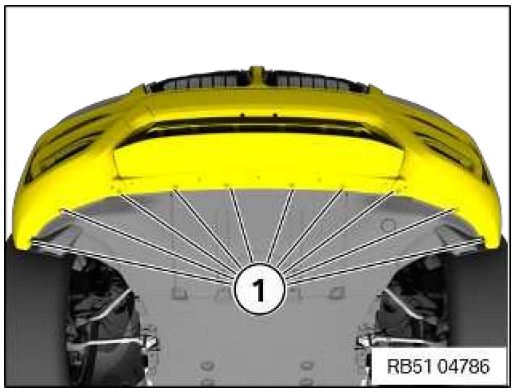


- Unclip temperature sensor (1) from the front bumper panel to the top.

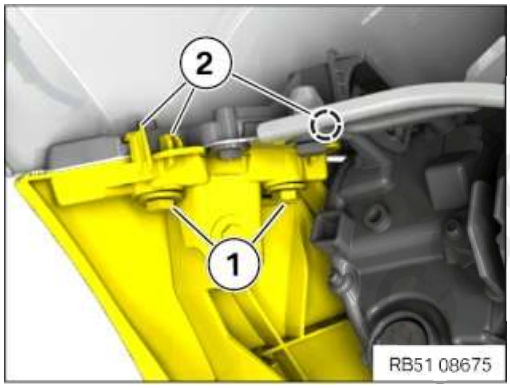
7 – Remove front bumper panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



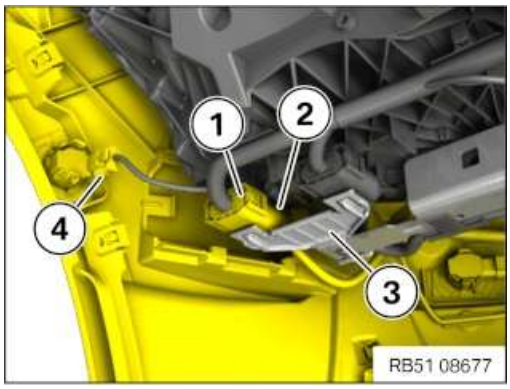
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

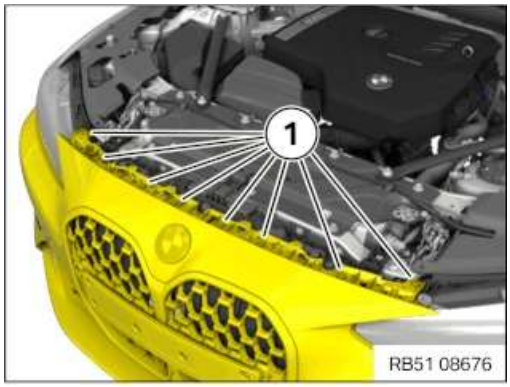
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

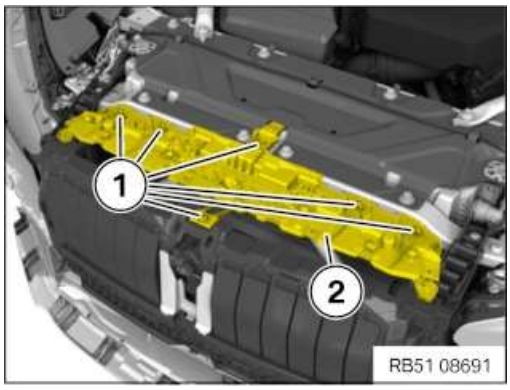
Perform the operations on the left and right side.

- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



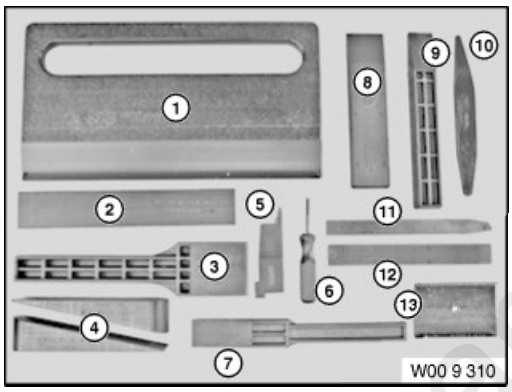
- Loosen screws (1).
- Remove the bumper panel towards the front.

8 – Remove top adapter for bumper panel

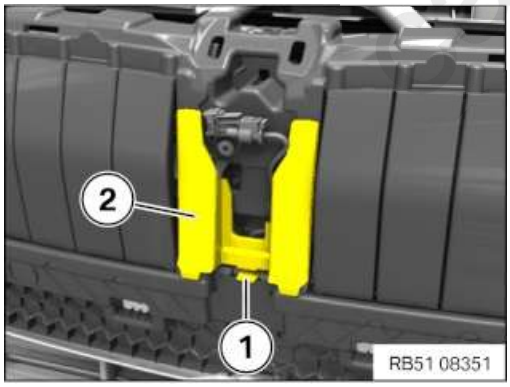


- Loosen screws (1).
- Remove adapter (2).

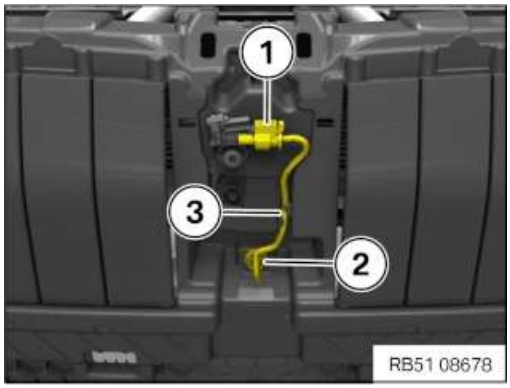
9 – Remove top automatic air flap control



- Have the set of special tools 0 493 752 (00 9 329) ready.

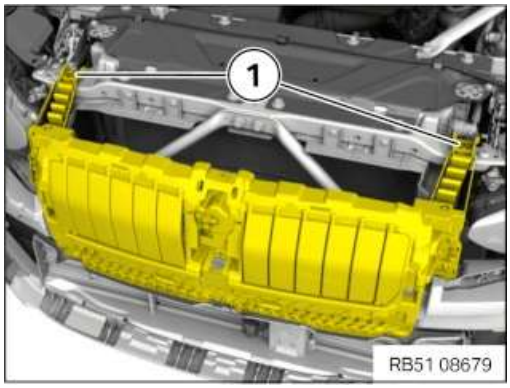


- Release latch mechanism (1) and guide down cover (2).

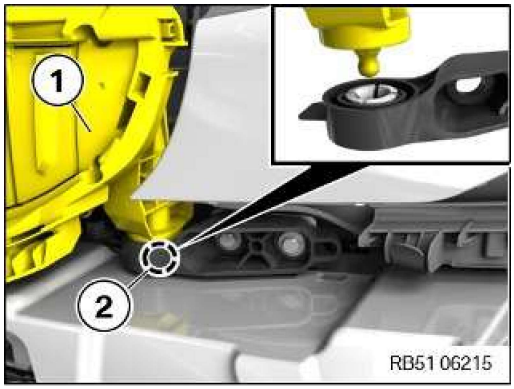


- Unlock plug connection (1) and disconnect.
- Unclip the cable for the acceleration sensor with holder (2) and remove it from guide (3).

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- Loosen screws (1).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The operations shown only for one side must be carried out on both sides.

- Release air flap control at the top (1) using a suitable special tool.

  Lever out ball head (2) to the top.
- Guide out air flap control at the top (1) to the top.
- Unlock associated plug connections and disconnect.

10 – Removing left and right front-end strut

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the front-end strut**

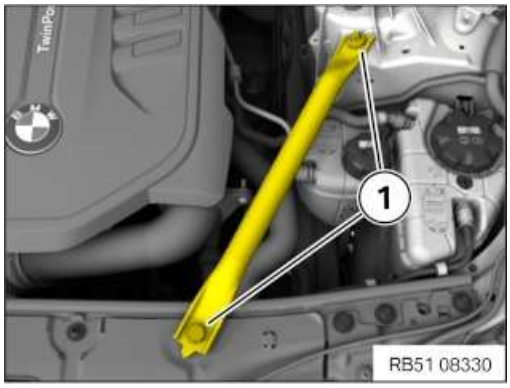
TECHNICAL INFORMATION

Driving without the strut brace/front-end strut or tension strut is not permitted.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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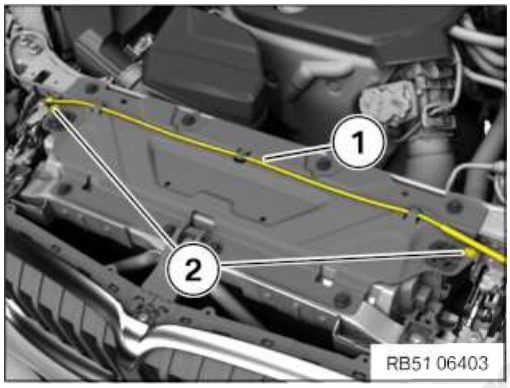


- Loosen screws (1).
- Remove the front-end strut.

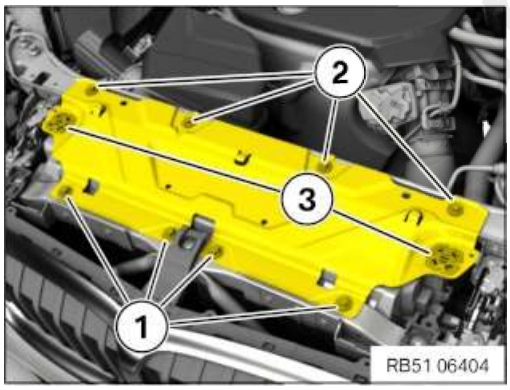
11 – Removing the top cross connection



- Release housing (1) for the coupling of the Bowden cables from the body.



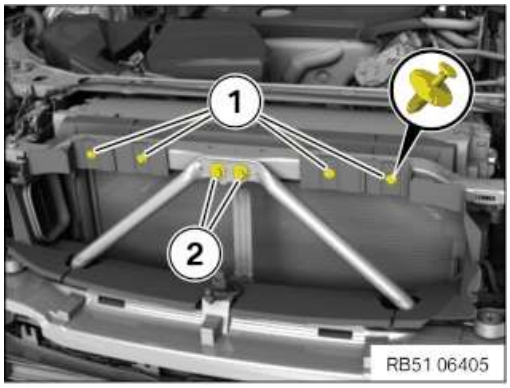
- Detach Bowden cable (1) at the top cross connection.
- Loosen screws (2).



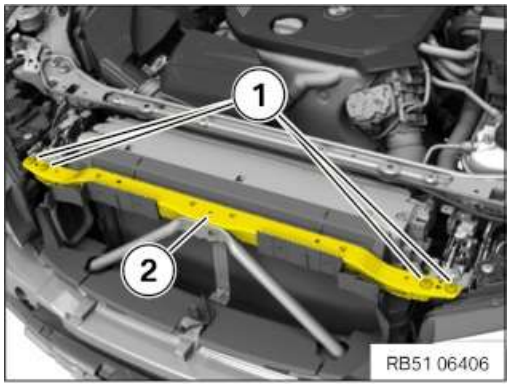
- Loosen screws (1) and (2).
- Remove the top cross connection with holders (3) to the top.

MAIN WORK

12 – Remove front cross connection

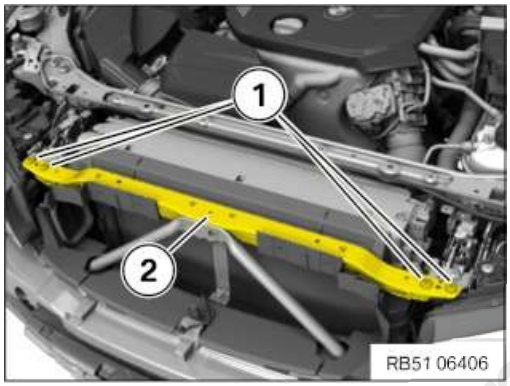


- Loosen the expanding rivet (1).
- Loosen screws (2).



- Loosen screws (1).
- Feed out front cross connection (2) towards top and remove.

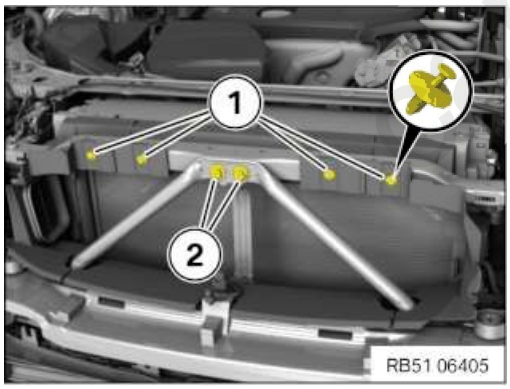
13 – Install front cross connection



- Feed in the front cross connection (2) from the top and position it.
- Tighten the screws (1).

Front cross connection on the tailgate lock support

Combination oval-head machine screw		Tightening torque	28 Nm



- Tighten the screws (2).

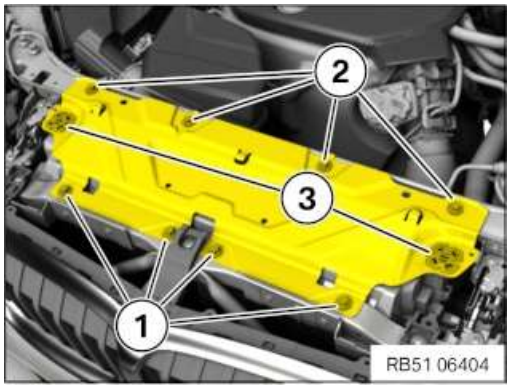
Strut on front end

Hexagon screw		Tightening torque	28 Nm

- Secure expanding rivet (1).

POSTPROCESSES

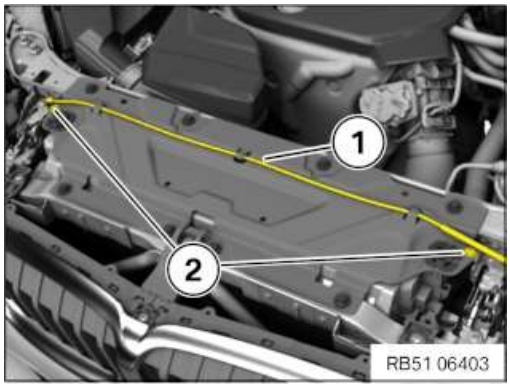
14 – Installing the top cross connection



- Set and position the upper cross connection with holders (3) from above.
- Tighten screws (1) and (2).

Cross connection, top

M8x20		Tightening torque	28 Nm



- Tighten the screws (2).

Cross connection, top

M6x20		Tightening torque	11,8 Nm

- Attach Bowden cable (1) on the upper cross connection.



- Clip in the housing (1) for the coupling of the Bowden cables.

15 – Installing front-end strut on left and right

TECHNICAL INFORMATION

Driving without the strut brace/front-end strut or tension strut is not permitted.

NOTICE

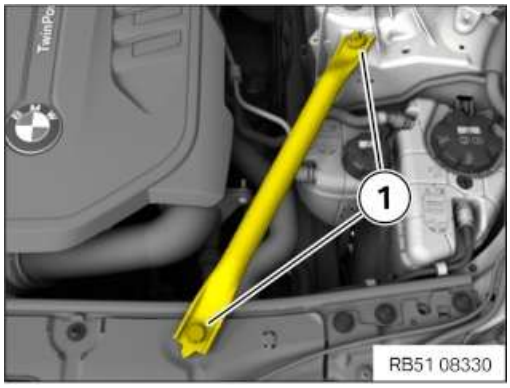
Description is for left component only. Procedure on the right side is identical.

▸ **Installing the front-end strut**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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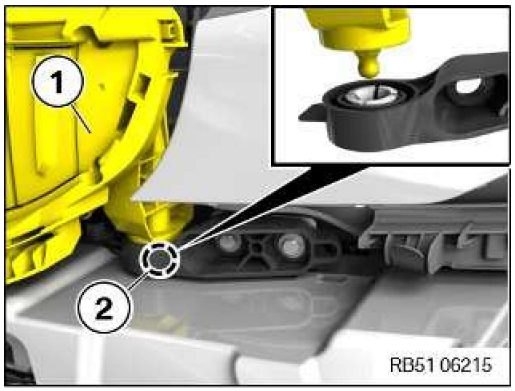


- Position the front-end strut.
- Tighten the screws (1).

Front end strut

Screw		Tightening torque	56 Nm

16 – Insert top automatic air flap control



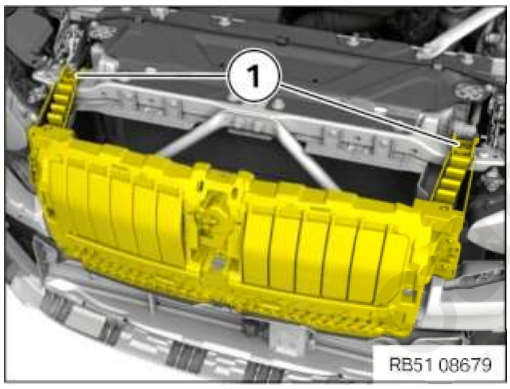
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The operations shown only for one side must be carried out on both sides.

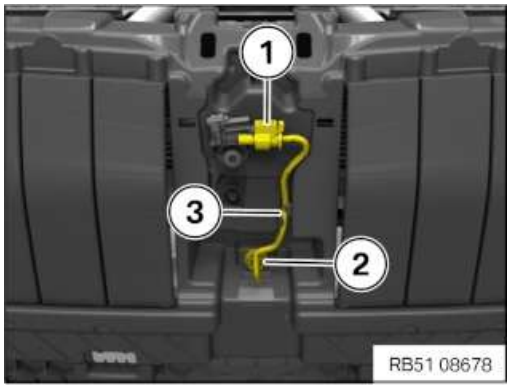
- Position the top air flap control (1).
- Connect and lock the associated connectors.
- Feed in the air flap control (1) at the top and connect with the ball head (2).



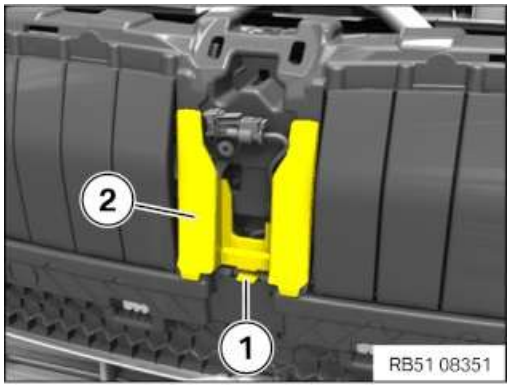
- Tighten the screws (1).

Air flap control to front end

Oval-head screw with spring washer		Tightening torque	4 Nm

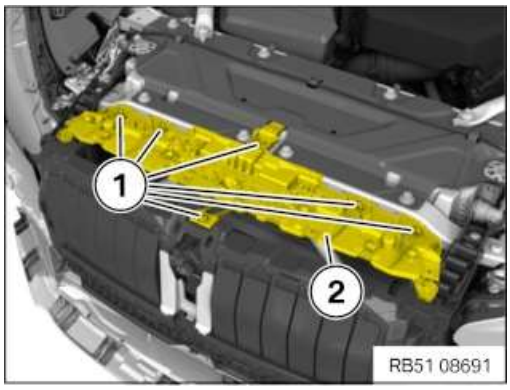


- Clip in the cable for the acceleration sensor with the holder (2) and feed it in the guide (3).
- Connect connectors (1) and lock.



- Feed in the cover (2) from below and clip it in with the latch mechanism (1) .

17 – Installing top adapter for panel support



- Position the adapter (2).
- Tighten the screws (1).

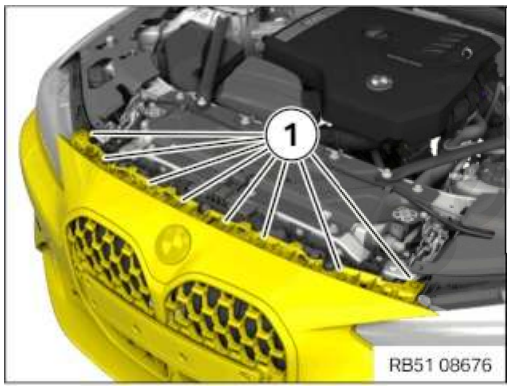
Adapter to the front panel

Oval-head screw with spring washer		Tightening torque	4 Nm

18 – Install bumper panel, front

NOTICE

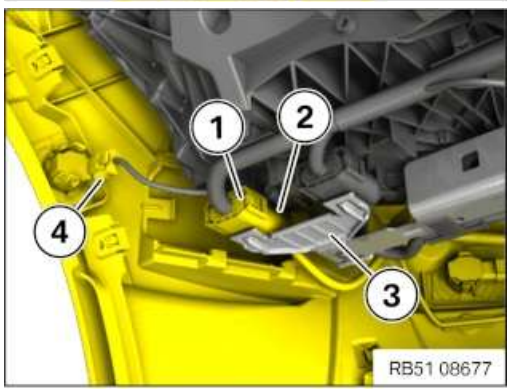
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

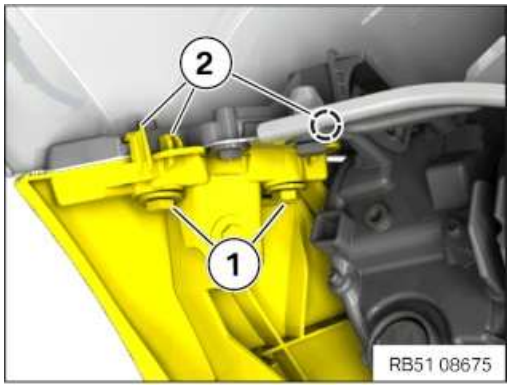
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

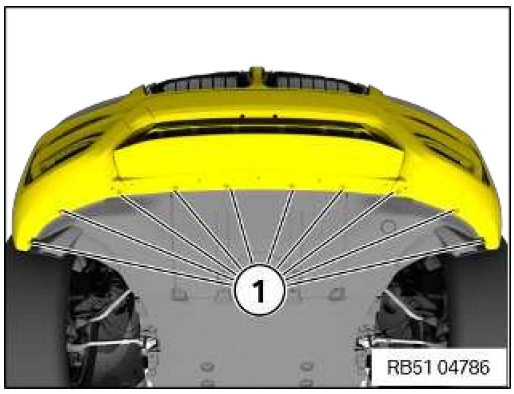
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

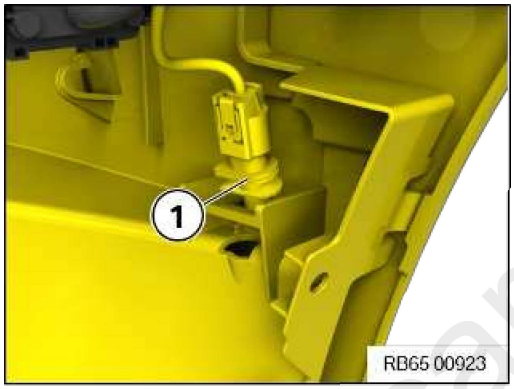


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

19 – Partially installing the temperature sensor



- Clip the temperature sensor (1) downwards into the front bumper panel.

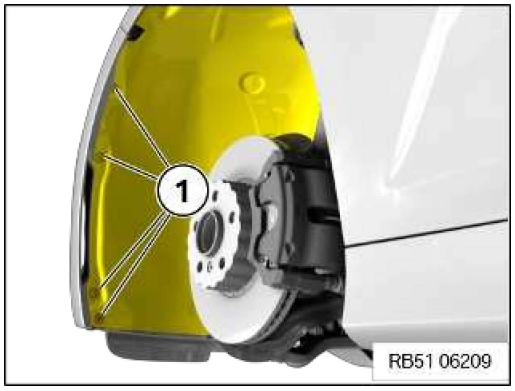
20 – Partially installing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially installing front wheel arch trim panel**

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NOTICE

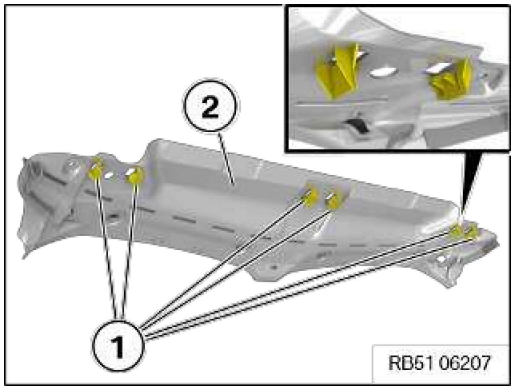
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

21 – Installing the cover for the centre engine compartment



Check

- Check the latch mechanisms (1) of the cover (2) for damage.

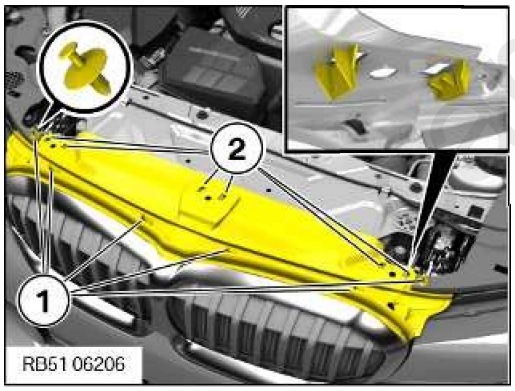
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

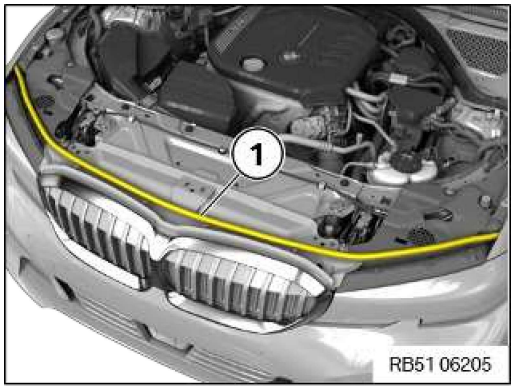


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

22 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

23 – Connecting all battery earth leads



- See additional information.

24 – Activating the 48 V electrical system

Prerequisite

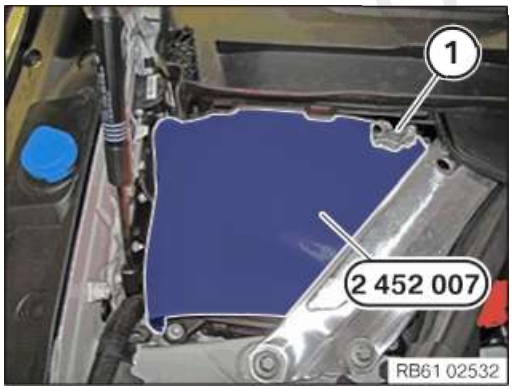
Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .

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- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

Front cross connection on the tailgate lock support — Used in step 13

Combination oval-head machine screw		Tightening torque	28 Nm

Strut on front end — Used in step 13

Hexagon screw		Tightening torque	28 Nm

Cross connection, top — Used in step 14

M8x20		Tightening torque	28 Nm

Cross connection, top — Used in step 14

M6x20		Tightening torque	11,8 Nm

Front end strut — Used in step 15

Screw		Tightening torque	56 Nm

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Air flap control to front end			Used in step 16
Oval-head screw with spring washer		Tightening torque	4 Nm

Adapter to the front panel			Used in step 17
Oval-head screw with spring washer		Tightening torque	4 Nm

Bumper panel, front top			Used in step 18
Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel			Used in step 18
Torx screw 5x35		Tightening torque	3 Nm

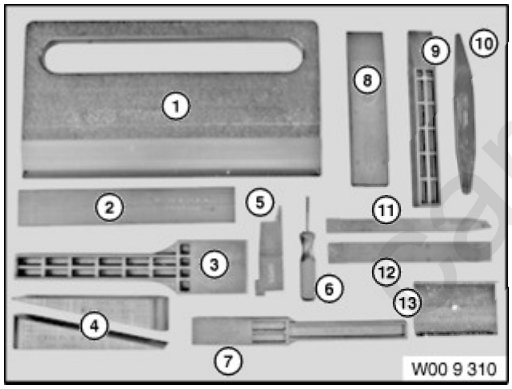
Front bumper panel to underbody protection			Used in step 18
Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front			Used in step 20
Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Negative battery cable to 48-V battery			Used in step 24
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 9
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	124

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	223
61 20 900 Disconnecting and connecting battery earth lead	223
61 20 900 Disconnecting and connecting battery earth lead	223
61 20 900 Disconnecting and connecting battery earth lead	223
61 20 900 Disconnecting and connecting battery earth lead	223
61 20 900 Disconnecting and connecting battery earth lead	223

61 20 900 Disconnecting and connecting battery earth lead	223
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	223
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	223
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	223
61 20 900 Disconnecting and connecting battery earth lead	223
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	223
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	223
61 20 900 Disconnecting and connecting battery earth lead

51 64 060 Removing and refitting/replacing left or right front end strut

NOTICE

Description is for left component only. Procedure on the right side is identical.

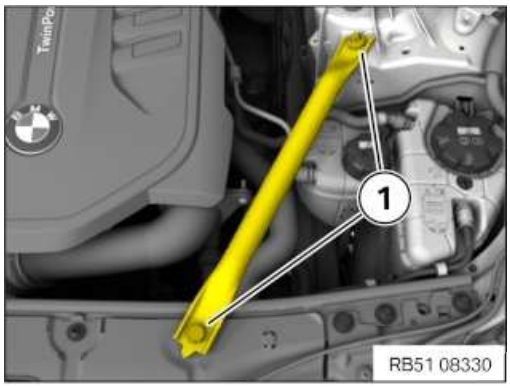
1 – Removing the front-end strut

TECHNICAL INFORMATION

Driving without the strut brace/front-end strut or tension strut is not permitted.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

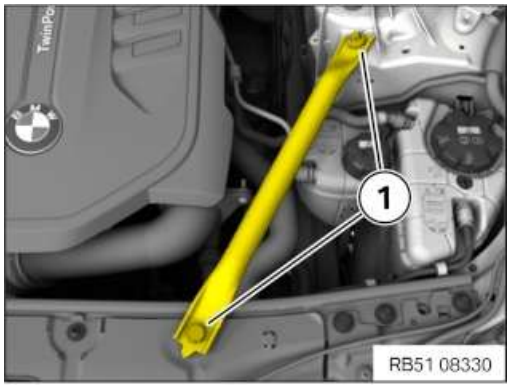


- Loosen screws (1).
- Remove the front-end strut.

2 – Installing the front-end strut

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the front-end strut.
- Tighten the screws (1).

Front end strut

Screw		Tightening torque	56 Nm

Additional Information

Overview of Tightening Torques

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Front end strut Used in step 2

Screw		Tightening torque	56 Nm

cardiagn.com

51 64 705 Rep. bottom automatic air flap control

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

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PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

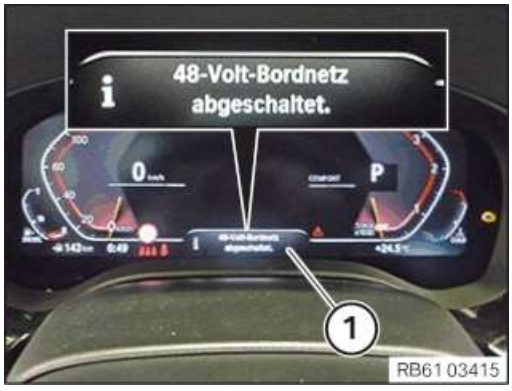
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.

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WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads

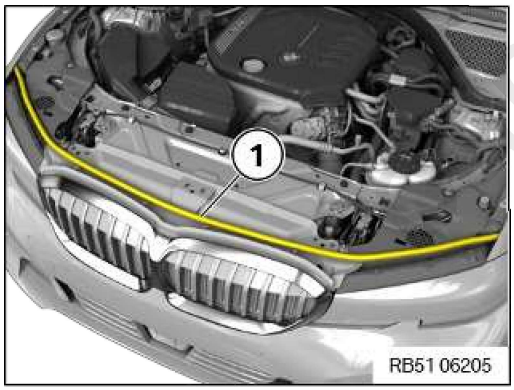


- See additional information.

3 – Remove the seal for the bonnet in front

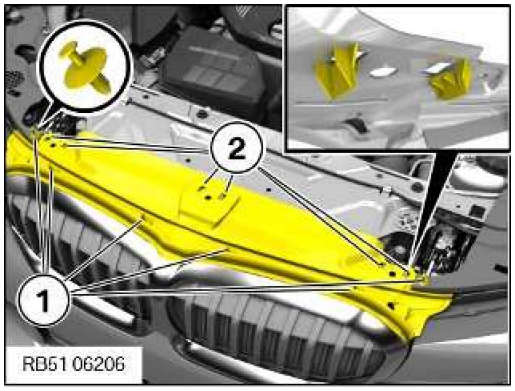
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

4 – Removing the centre engine compartment cover



- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

5 – Partially releasing the front left and right wheel arch trim panels

carsdiag.com

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially removing front wheel arch trim panel**

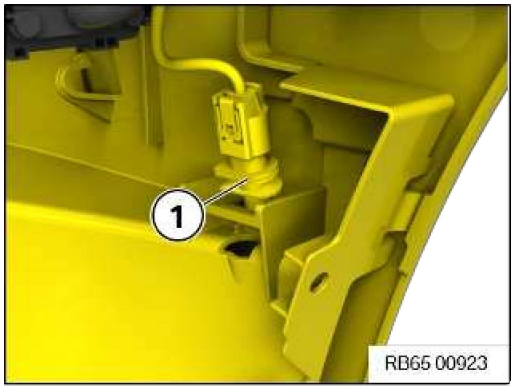


NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

6 – Partially removing the temperature sensor

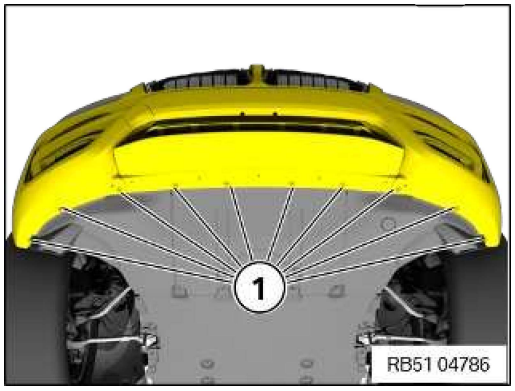


- Unclip temperature sensor (1) from the front bumper panel to the top.

7 – Remove front bumper panel

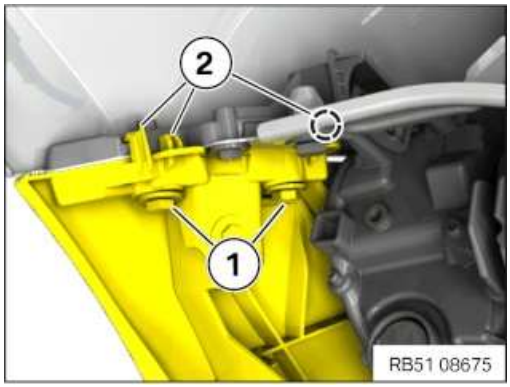
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen screws (1).

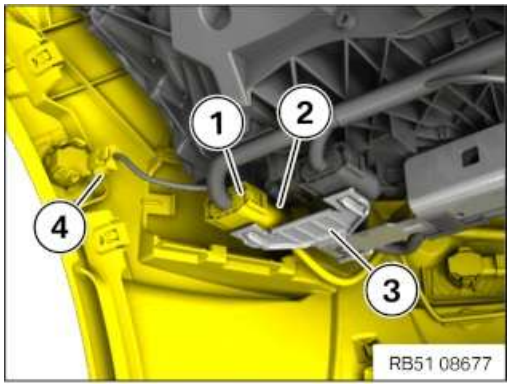
cardiagn.com



NOTICE

Perform the operations on the left and right side.

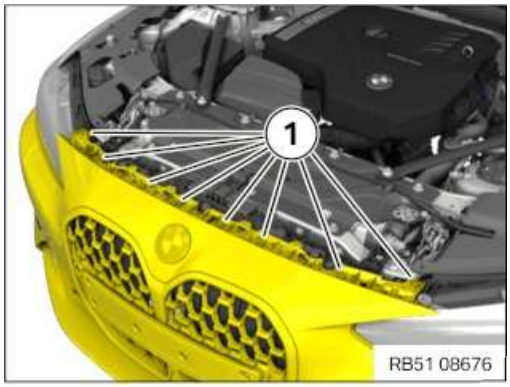
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

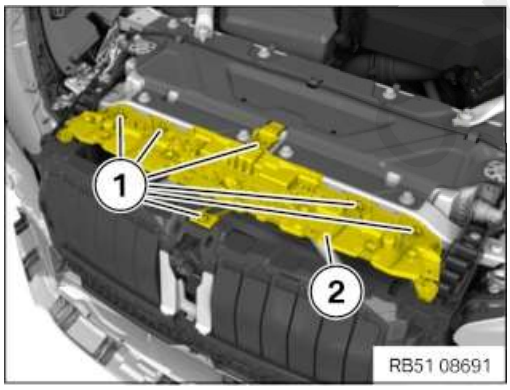
Perform the operations on the left and right side.

- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



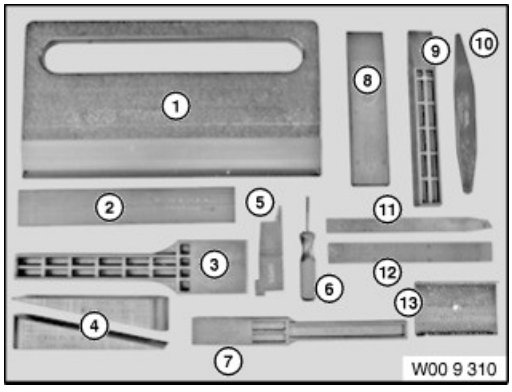
- Loosen screws (1).
- Remove the bumper panel towards the front.

8 – Remove top adapter for bumper panel



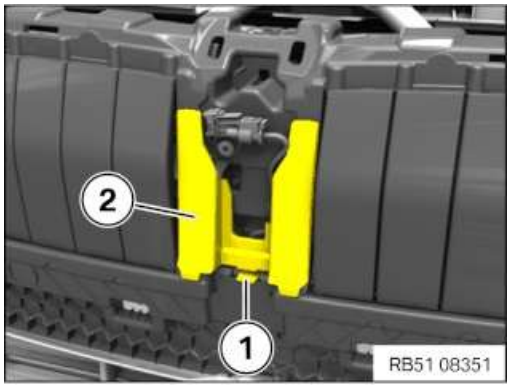
- Loosen screws (1).
- Remove adapter (2).

9 – Remove top automatic air flap control

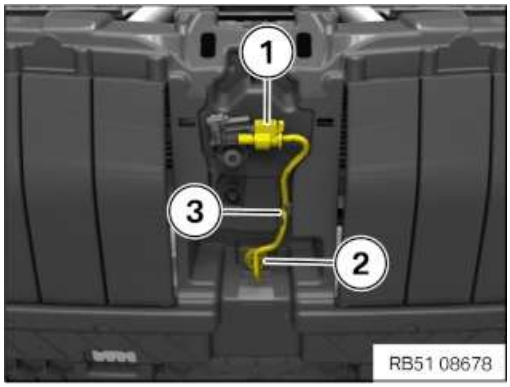


- Have the set of special tools 0 493 752 (00 9 329) ready.

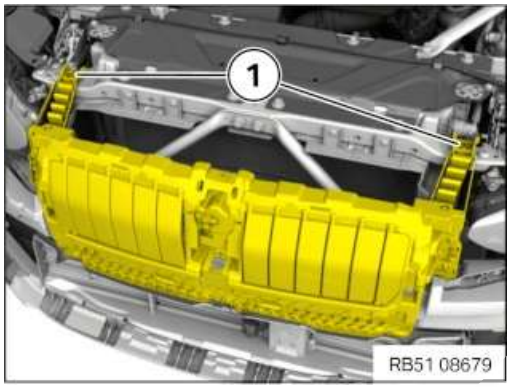
rdiagn.com



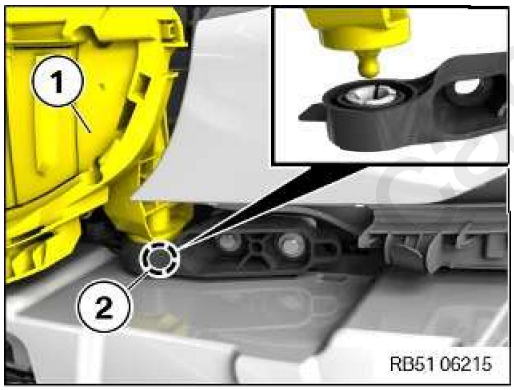
- Release latch mechanism (1) and guide down cover (2).



- Unlock plug connection (1) and disconnect.
- Unclip the cable for the acceleration sensor with holder (2) and remove it from guide (3).



- Loosen screws (1).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The operations shown only for one side must be carried out on both sides.

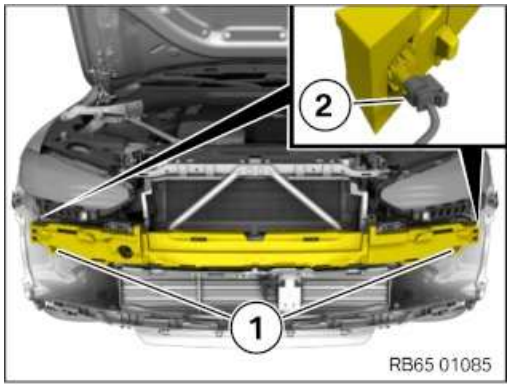
- Release air flap control at the top (1) using a suitable special tool.

  Lever out ball head (2) to the top.
- Guide out air flap control at the top (1) to the top.
- Unlock associated plug connections and disconnect.

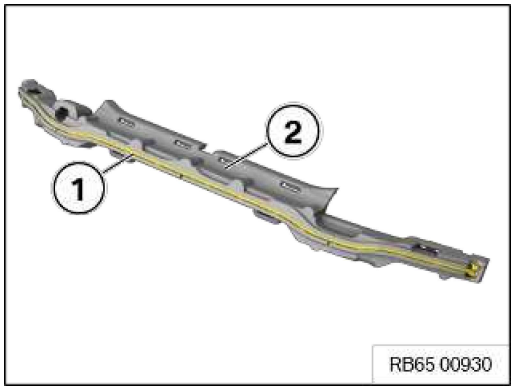
10 – Removing pedestrian protection sensor

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Release the expanding rivet (1).
- Unlock plug connections (2) and disconnect.
- Feed out and remove the impact absorber on support.

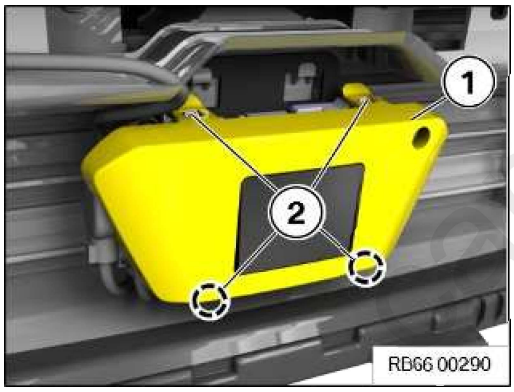


- Remove the pedestrian protection sensor (1) from the impact absorber (2).

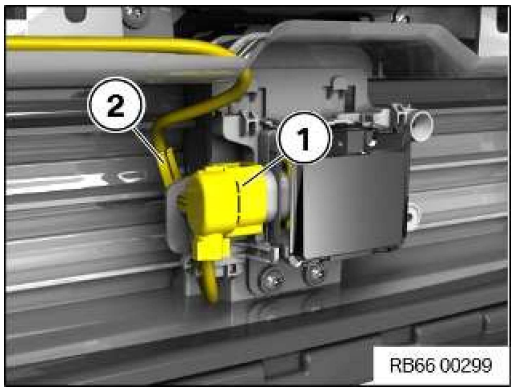
11 – If installed: Remove front radar sensor (FRS) with the holder

NOTICE

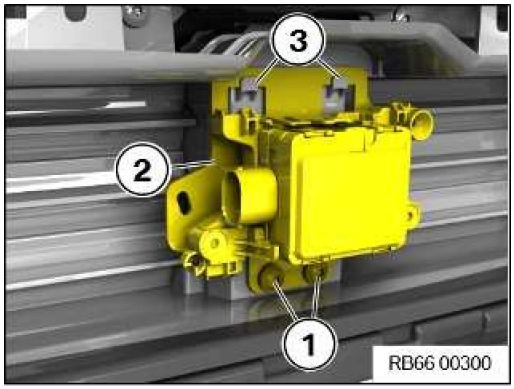
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Release cover (1) from the latch mechanisms (2) and remove it to the front.



- Unlock plug connection (1) and disconnect.
- Unclip the vehicle wiring harness with the bracket (2) and place aside.



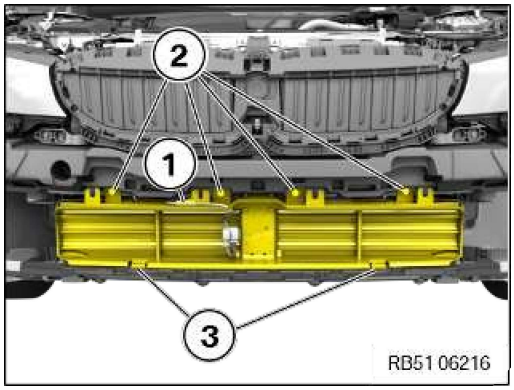
- Mark the position of the holder (2) for the front radar sensor (FRS).
- Loosen screws (1).
- Guide out and remove the front radar sensor (FRS) with holder (2) out of tabs (3) .

MAIN WORK

12 – Removing the bottom automatic air flap control

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

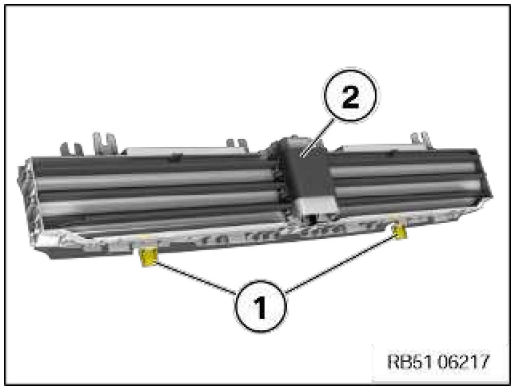


- If necessary, release the wiring harness from the holder (1) .
- Loosen screws (2).
- Guide out the bottom air flap control with the guides (3) in a forwards direction.
- Unlock associated plug connection and disconnect.

13 – Installing the bottom automatic air flap control

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



Check

- Check the guides (1) on the bottom air flap control (2) for damage.

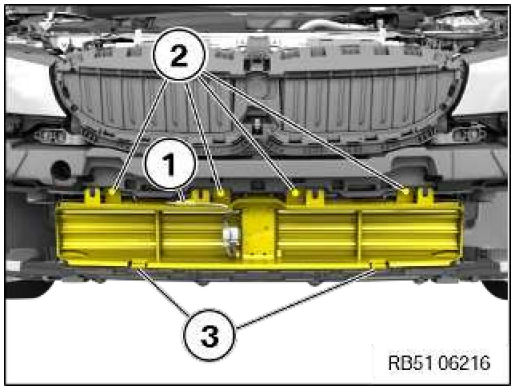
Result

» Guide is damaged.

Measure

- Renew the bottom air flap control.

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- Connect and lock corresponding connectors.
- Position the bottom air flap control and feed in with the guides (3) .
- Tighten the screws (2).

Bottom air flap control on top bumper panel support

Oval-head screw		Tightening torque	4,6 Nm

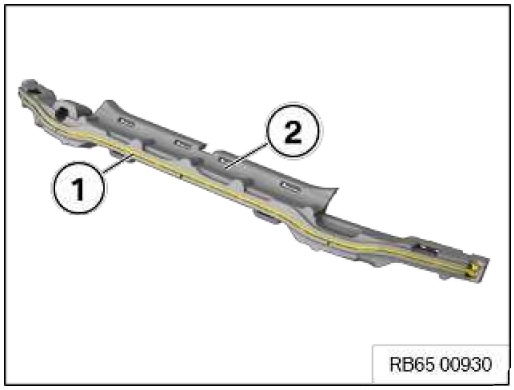
- If applicable, clip in the vehicle wiring harness with the holder (1).

POSTPROCESSES

14 – Installing the pedestrian protection sensor

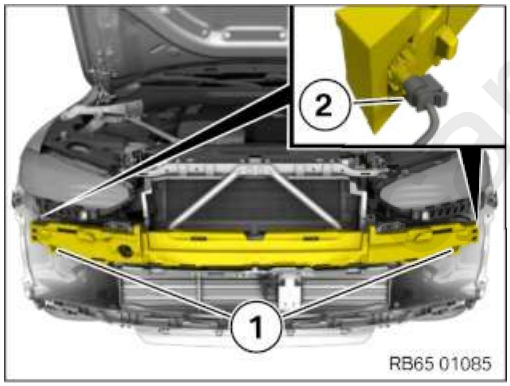
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check the impact absorber (2) for damage.

  Renew the damaged impact absorber (2).
- Carefully insert the pedestrian protection sensor (1) in the impact absorber (2).



- Connect connectors (2) and lock.
- Hook the impact absorber at the bottom and then press it upwards.
- Secure expanding rivet (1).

15 – Connecting all battery earth leads

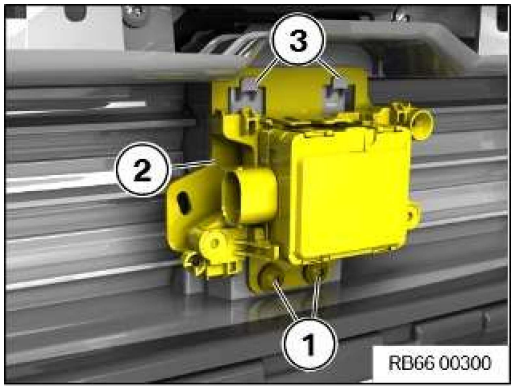


- See additional information.

16 – If installed: Installing front radar sensor (FRS) with bracket

NOTICE

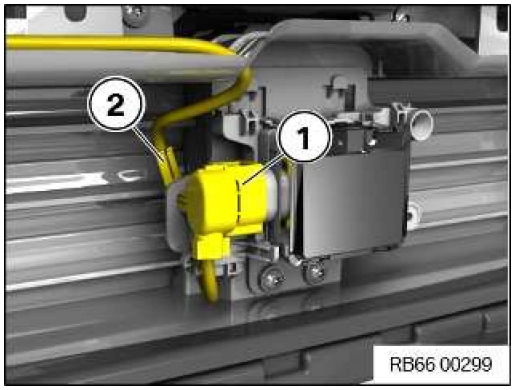
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the front radar sensor (FRS) with the holder (2) in the tabs (3) .
- Position the holder (2) at the mark made during removal.
- Tighten the screws (1).

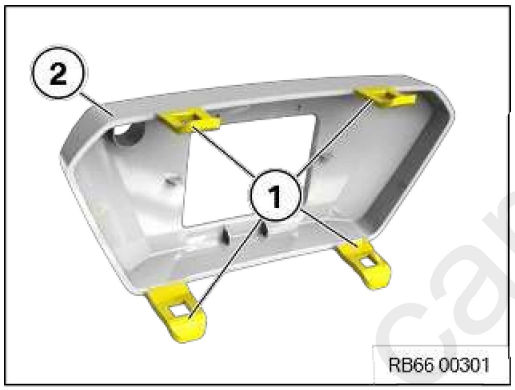
Front radar sensor (FRS) / (FRSF) holder to support

Combination oval-head machine screw		Tightening torque	8 Nm



- Clip in the vehicle wiring harness including bracket. (2)
- Connect connectors (1) and lock.

Check



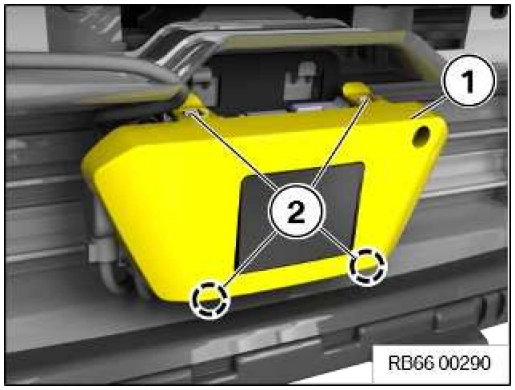
- Check tabs (1) on cover(2) for damage.

Result

» Tabs (2) are damaged.

Measure

- Renew the cover.



- Position the cover (1) and clip it in the latch mechanisms (2) .

▸ **Adjusting front radar sensor (FRS)**

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TECHNICAL INFORMATION

Notes on adjusting the ACC sensor are a fundamental requirement for these repair instructions and must be complied with at all times.

For additional information see: 66 31 ... Notes on adjusting the ACC sensor

TECHNICAL INFORMATION

If there is a "Sensor misaligned" fault memory entry and the sensor cannot be aligned correctly using the adjusting screw, a front impact damage may be suspected.

In this case, the vehicle must be inspected thoroughly for damage. Damaged parts must be renewed if necessary. Then adjust the ACC sensor again.

A damaged/bent holder indicates mechanical misuse of the vehicle and must not be charged as a warranty case.

▷ **Checking vehicle and components for damage**

Check

- In the visible areas, visually check for:
  - damage
  - Deformation

Result

» Damage or deformation.

Measure

- Identify and renew damaged, deformed vehicle parts.

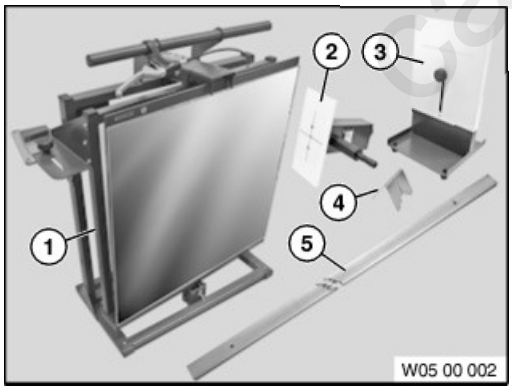
Result

» No damage or deformation

Measure

- Adjust the front radar sensor (FRS).

◁



- Stage special tools 0 442 898 and 2 338 466.
- Set up special tool as per enclosed operating instructions.



- Connect diagnosis system.
  - Service functions
  - Driver assistance
  - Front radar sensor (FRS)
  - Front radar sensor start-up (FRS)

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NOTICE

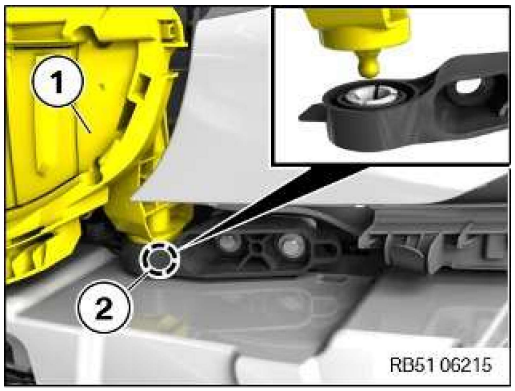
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Turn the screw (1) with the standard tool to adjust the front radar sensor (FRS).

  Standard tools:

  (Shaft length > 90 mm)

17 – Insert top automatic air flap control



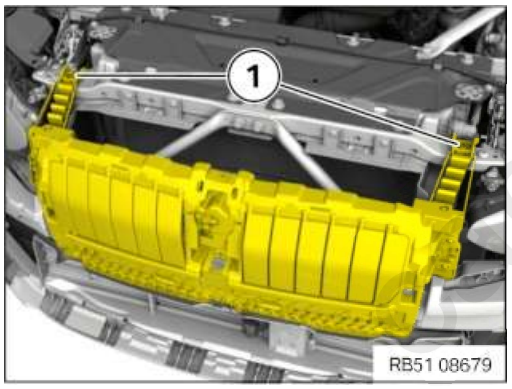
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The operations shown only for one side must be carried out on both sides.

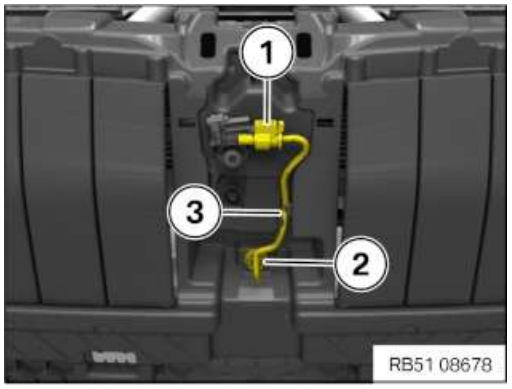
- Position the top air flap control (1).
- Connect and lock the associated connectors.
- Feed in the air flap control (1) at the top and connect with the ball head (2).



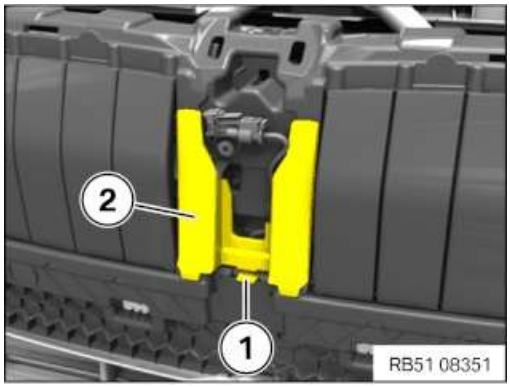
- Tighten the screws (1).

Air flap control to front end

Oval-head screw with spring washer		Tightening torque	4 Nm

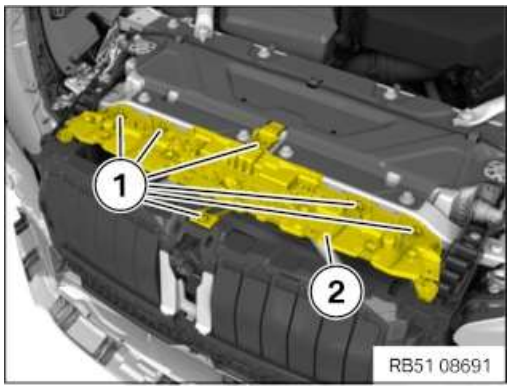


- Clip in the cable for the acceleration sensor with the holder (2) and feed it in the guide (3).
- Connect connectors (1) and lock.



- Feed in the cover (2) from below and clip it in with the latch mechanism (1) .

18 – Installing top adapter for panel support



- Position the adapter (2).
- Tighten the screws (1).

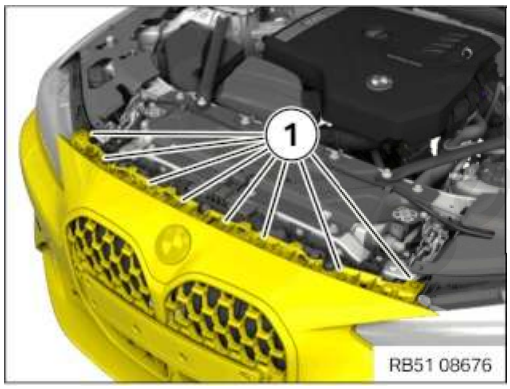
Adapter to the front panel

Oval-head screw with spring washer		Tightening torque	4 Nm

19 – Install bumper panel, front

NOTICE

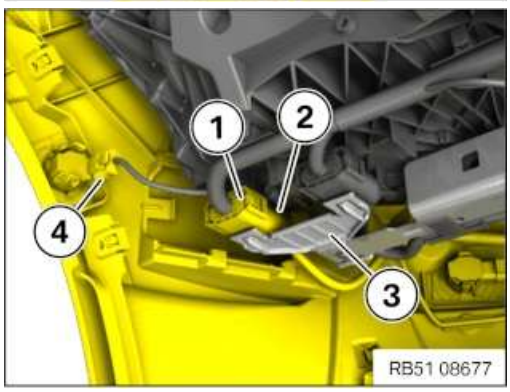
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

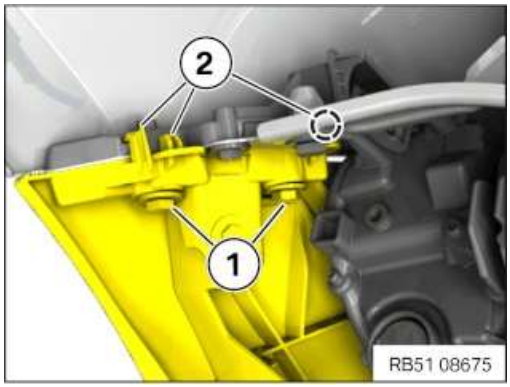
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

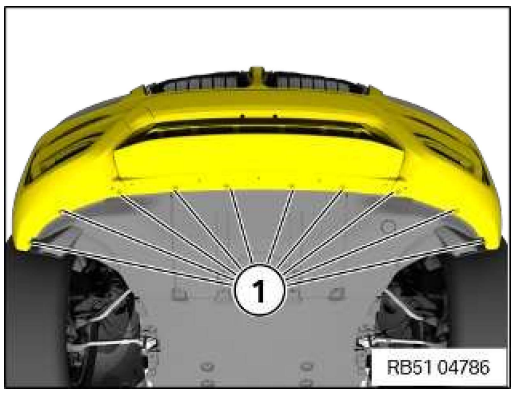
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

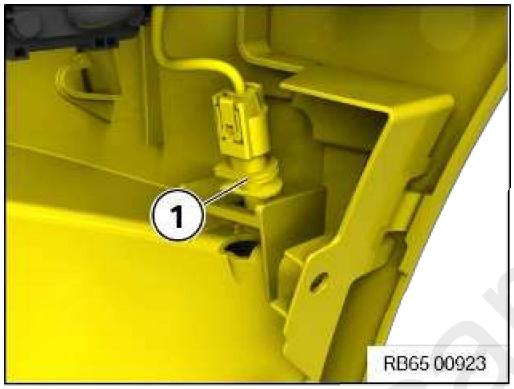


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

20 – Partially installing the temperature sensor



- Clip the temperature sensor (1) downwards into the front bumper panel.

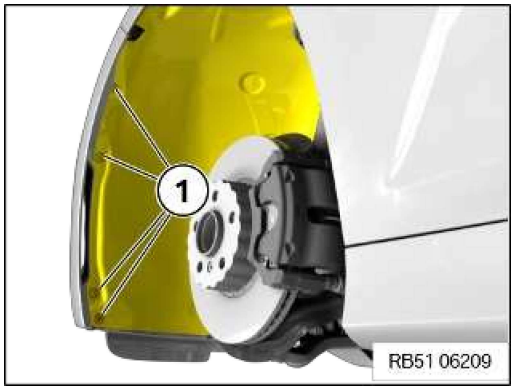
21 – Partially installing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially installing front wheel arch trim panel**

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NOTICE

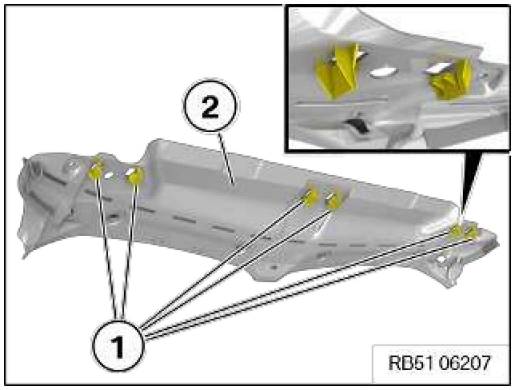
To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

22 – Installing the cover for the centre engine compartment



Check

- Check the latch mechanisms (1) of the cover (2) for damage.

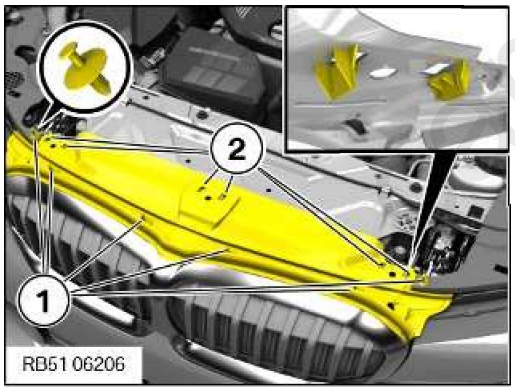
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

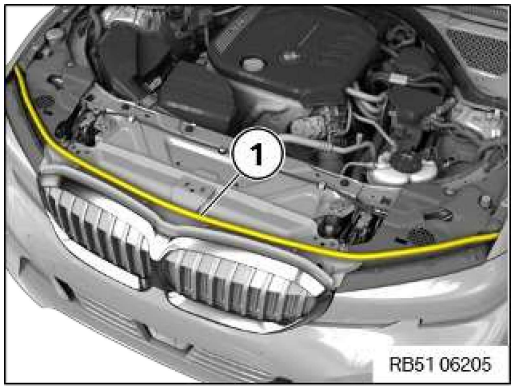


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

23 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

24 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).

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- Activate the 48V electrical system by closing the bonnet.
  The activation takes place automatically.

Additional Information

Overview of Tightening Torques

Bottom air flap control on top bumper panel support			Used in step 13
Oval-head screw		Tightening torque	4,6 Nm

Front radar sensor (FRS) / (FRSF) holder to support			Used in step 16
Combination oval-head machine screw		Tightening torque	8 Nm

Air flap control to front end			Used in step 17
Oval-head screw with spring washer		Tightening torque	4 Nm

Adapter to the front panel			Used in step 18
Oval-head screw with spring washer		Tightening torque	4 Nm

Bumper panel, front top			Used in step 19
Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel			Used in step 19
Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection			Used in step 19
Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

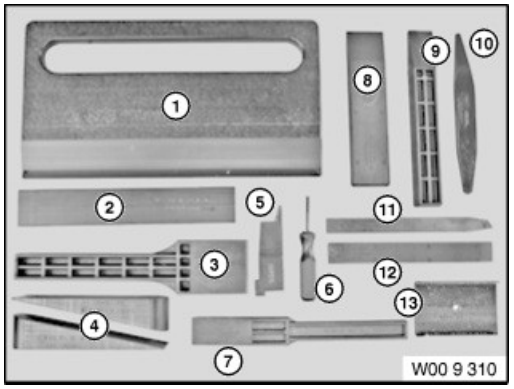
Wheel arch trim panel, front			Used in step 21
Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Negative battery cable to 48-V battery			Used in step 24
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

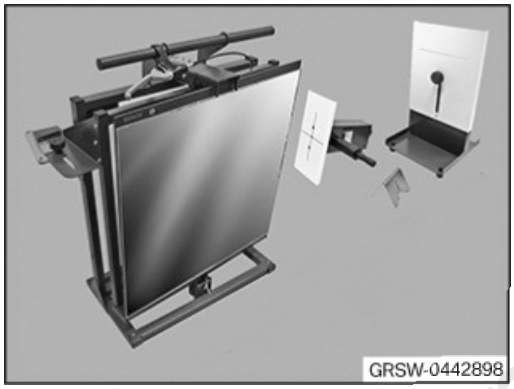
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0 493 752 (00 9 329) Case



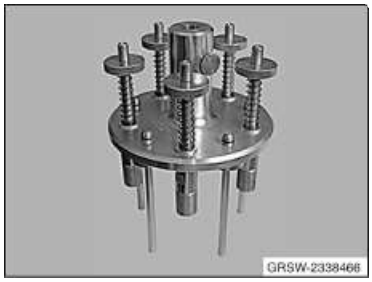
Common	Used in step 9
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 442 898 Measuring device



Common	Used in step 16
Usage	ACC adjusting device. Using this adjusting device, an ACC sensor built into the vehicle can be adjusted in the workshop. Is replaced from 11/2021 by 83 30 5 A40 812.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	02 04 05 (208)

2 338 466 Holder



Common	Used in step 16
Usage	Replacement for holder 36 1 100 (0493771). Holder has longer guide pins and lengthened magnetic guides.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	

Links

Functional descriptions	Used in step
Mirror adjustment for start-up of the front radar sensor	16
Mirror adjustment for start-up of the front radar sensor	16
Mirror adjustment to start up the front radar sensor long range	16

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Repair instructions (PRE)	Used in step
Notes on 48-V battery	124

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	215
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting battery earth lead	215
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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	215
61 20 900 Disconnecting and connecting battery earth lead	215
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61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting battery earth lead	215
66 31 010 Instructions for ACC adjusting device	16

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51 64 700 Replace top automatic air flap control

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

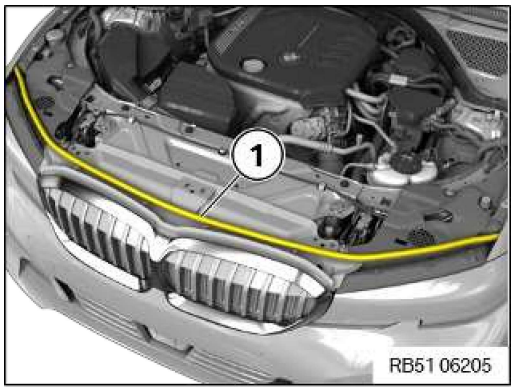
Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

NOTICE

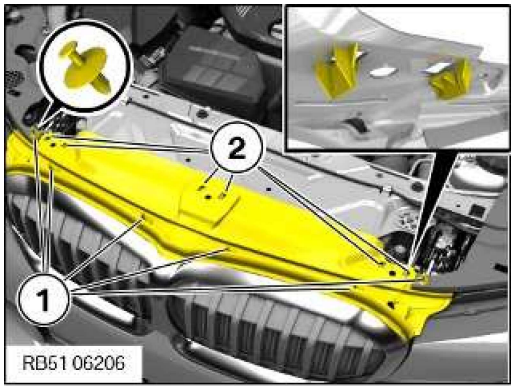
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

2 – Removing the centre engine compartment cover

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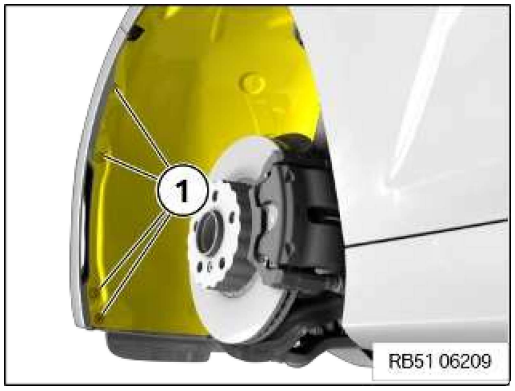
- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

3 – Partially releasing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially removing front wheel arch trim panel**

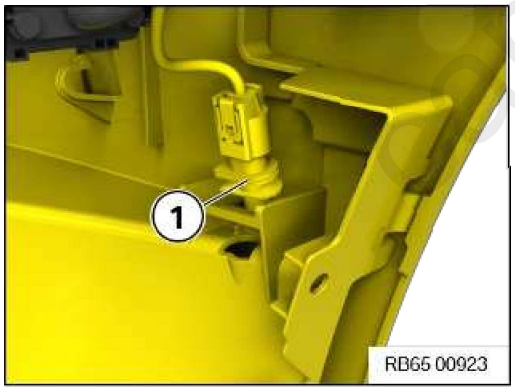


NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

4 – Partially removing the temperature sensor

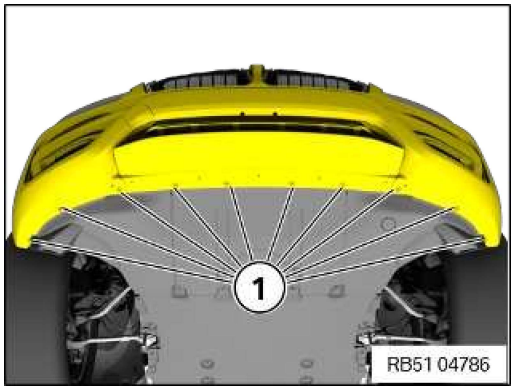


- Unclip temperature sensor (1) from the front bumper panel to the top.

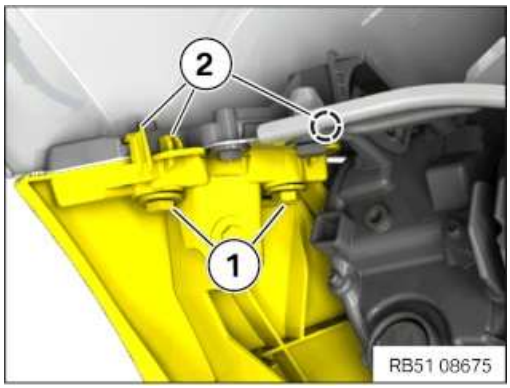
5 – Remove front bumper panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



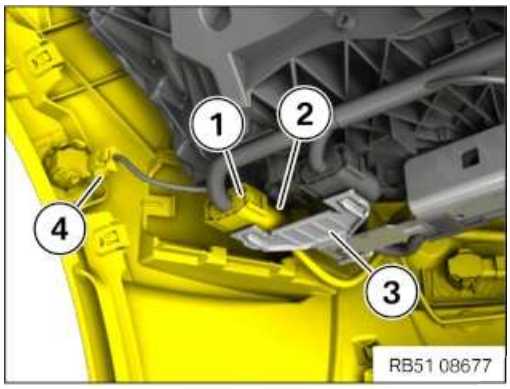
- Loosen screws (1).



NOTICE

Perform the operations on the left and right side.

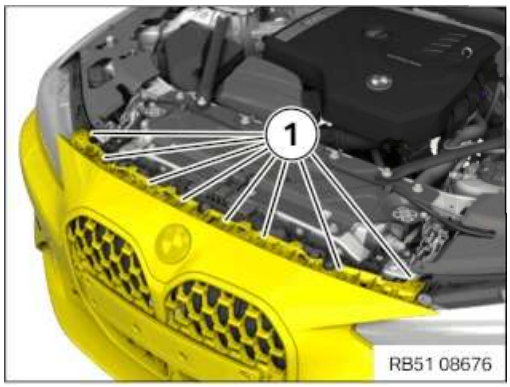
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

Perform the operations on the left and right side.

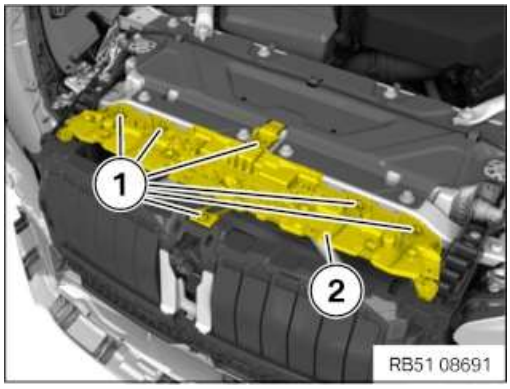
- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



- Loosen screws (1).
- Remove the bumper panel towards the front.

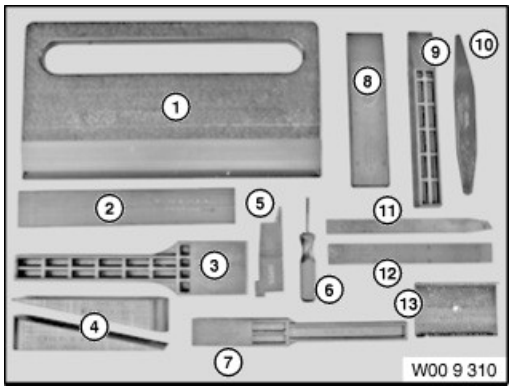
MAIN WORK

6 – Remove top adapter for bumper panel

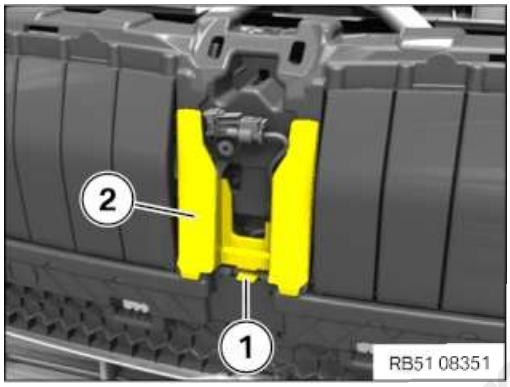


- Loosen screws (1).
- Remove adapter (2).

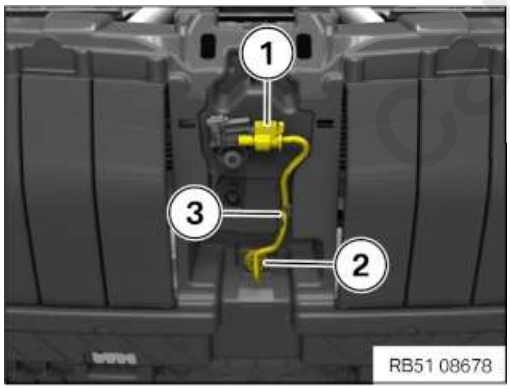
7 – Remove top automatic air flap control



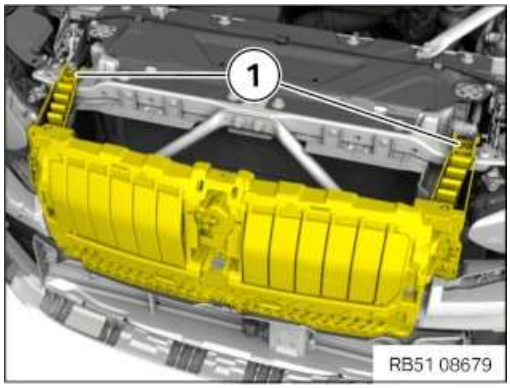
- Have the set of special tools 0 493 752 (00 9 329) ready.



- Release latch mechanism (1) and guide down cover (2).

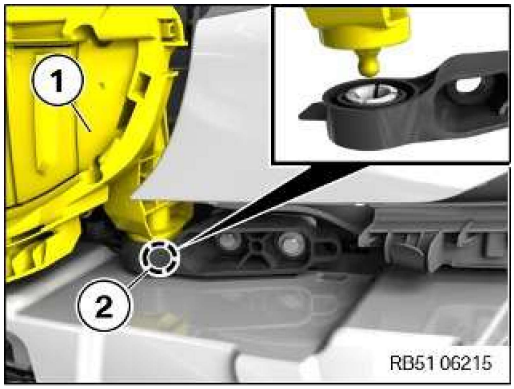


- Unlock plug connection (1) and disconnect.
- Unclip the cable for the acceleration sensor with holder (2) and remove it from guide (3).



- Loosen screws (1).

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The operations shown only for one side must be carried out on both sides.

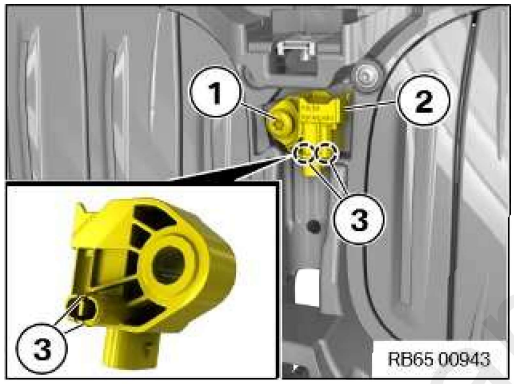
- Release air flap control at the top (1) using a suitable special tool.

  Lever out ball head (2) to the top.
- Guide out air flap control at the top (1) to the top.
- Unlock associated plug connections and disconnect.

8 – Replace top automatic air flap control

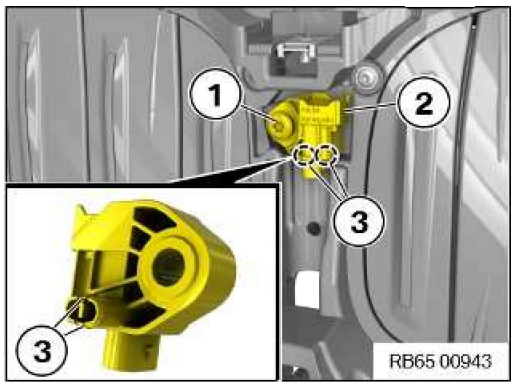
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen screw (1).
- Release and remove the acceleration sensor (2) towards the front with the latch mechanisms (3).
- Renew the air flap control.

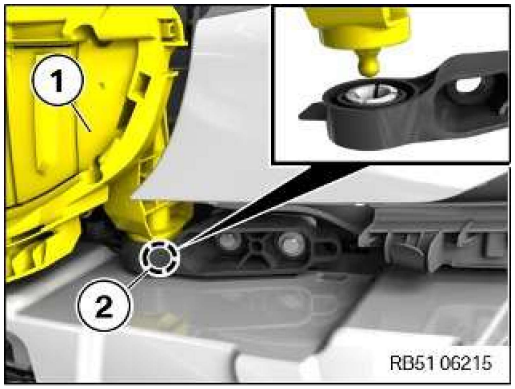
  Parts: Automatic air flap control



- Position the acceleration sensor (2) at the new air flap control at the top and clip into the latch mechanisms (3).
- Tighten down screw (1).

9 – Insert top automatic air flap control

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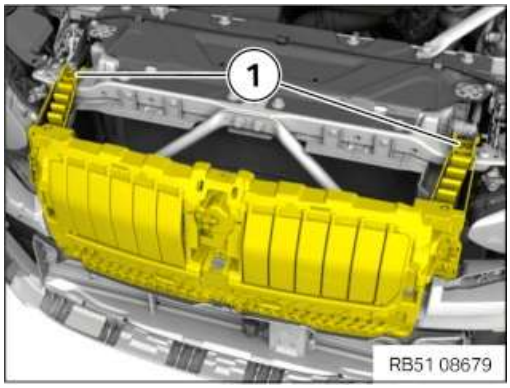
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The operations shown only for one side must be carried out on both sides.

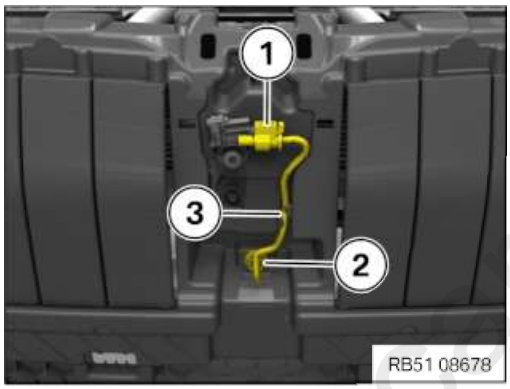
- Position the top air flap control (1).
- Connect and lock the associated connectors.
- Feed in the air flap control (1) at the top and connect with the ball head (2).



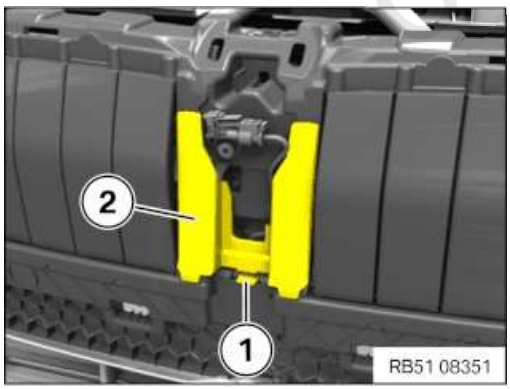
- Tighten the screws (1).

Air flap control to front end

Oval-head screw with spring washer		Tightening torque	4 Nm

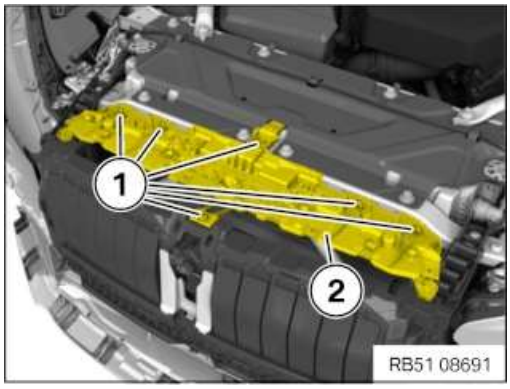


- Clip in the cable for the acceleration sensor with the holder (2) and feed it in the guide (3).
- Connect connectors (1) and lock.



- Feed in the cover (2) from below and clip it in with the latch mechanism (1) .

10 – Installing top adapter for panel support



- Position the adapter (2).
- Tighten the screws (1).

Adapter to the front panel

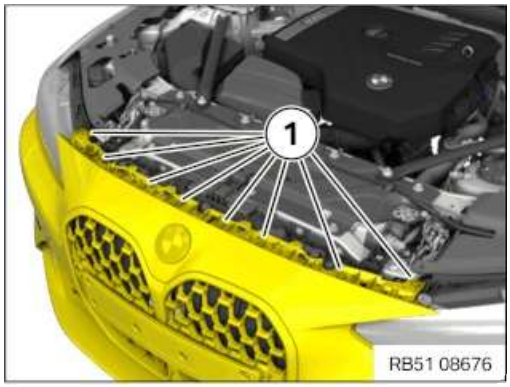
Oval-head screw with spring washer		Tightening torque	4 Nm

POSTPROCESSES

11 – Install bumper panel, front

NOTICE

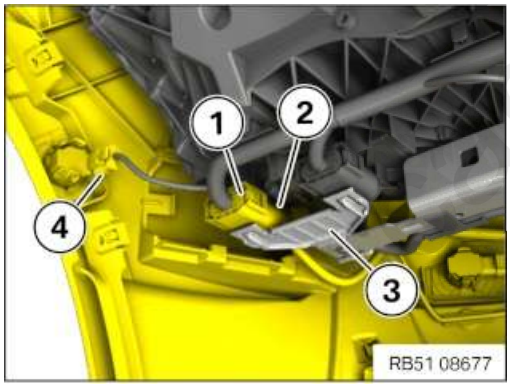
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

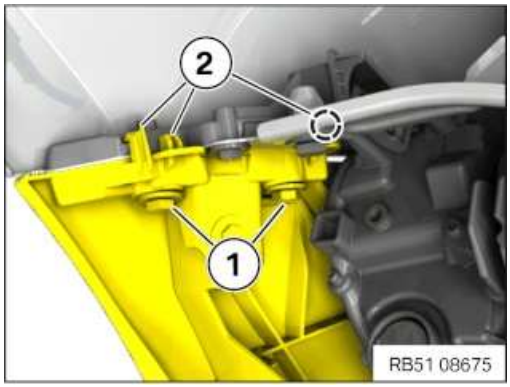
Oval-head screwM6		Tightening torque	4,6 Nm



NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

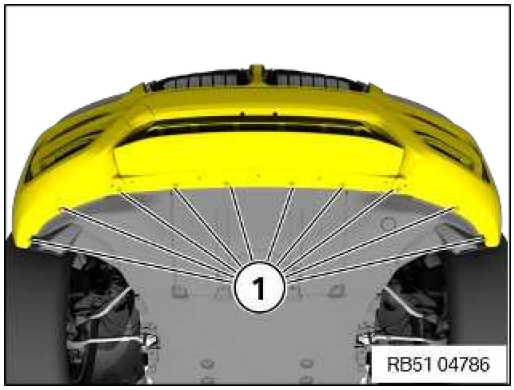
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

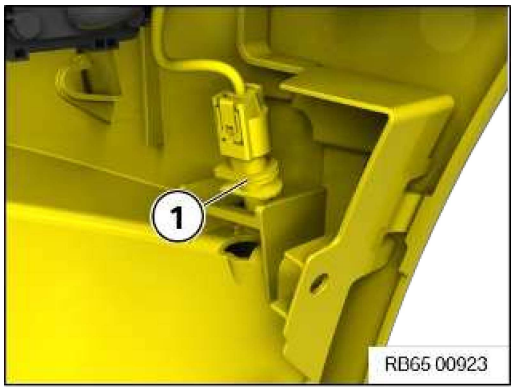


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

12 – Partially installing the temperature sensor



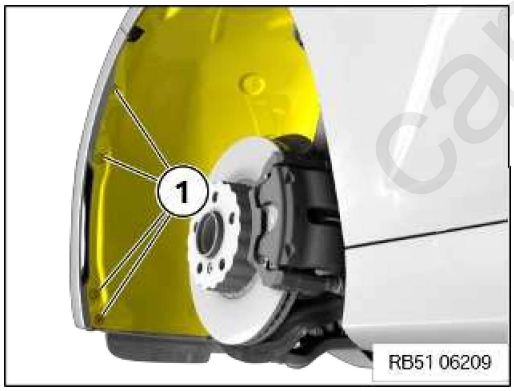
- Clip the temperature sensor (1) downwards into the front bumper panel.

13 – Partially installing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially installing front wheel arch trim panel**



NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

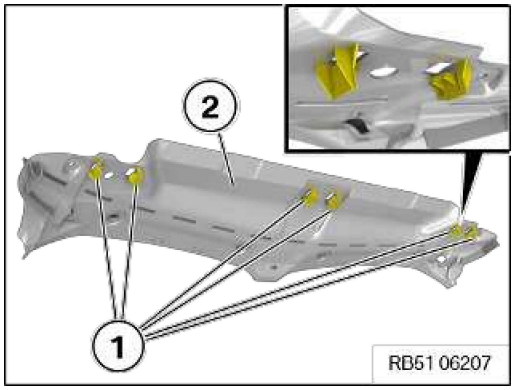
Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

14 – Installing the cover for the centre engine compartment

Check

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- Check the latch mechanisms (1) of the cover (2) for damage.

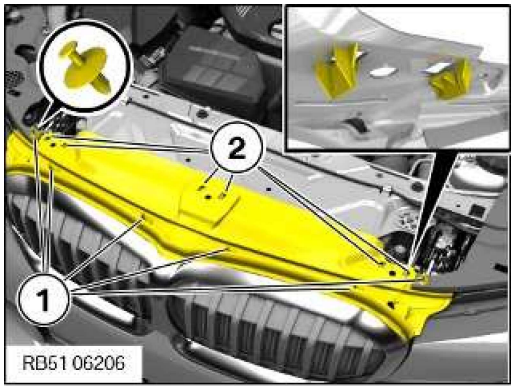
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

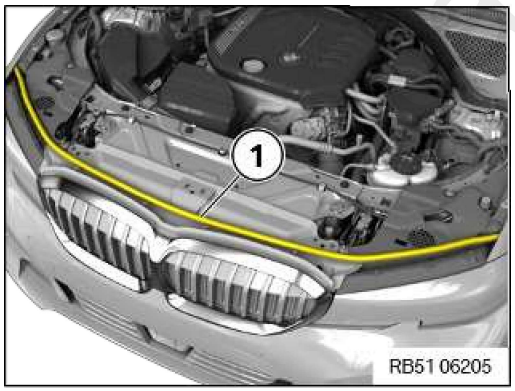


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

15 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

Additional Information

Overview of Tightening Torques

Air flap control to front end Used in step 9

Oval-head screw with spring washer		Tightening torque	4 Nm

Adapter to the front panel Used in step 10

Oval-head screw with spring washer		Tightening torque	4 Nm

Bumper panel, front top Used in step 11

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel Used in step 11

Torx screw 5x35		Tightening torque	3 Nm

Front bumper panel to underbody protection Used in step 11

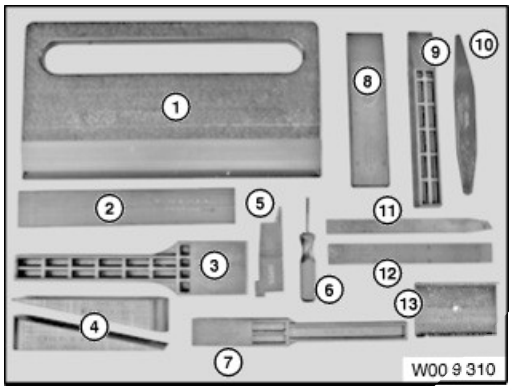
Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front Used in step 13

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common Used in step 7

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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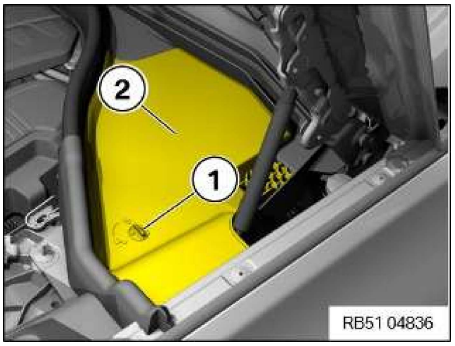
51 71 341 Remove & install/replace strut brace

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Remove the cover of the engine compartment at the rear left



- Loosen the lock (1).
- Remove the cover (2) of the rear left engine compartment.

2 – Removing the wiper arm on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

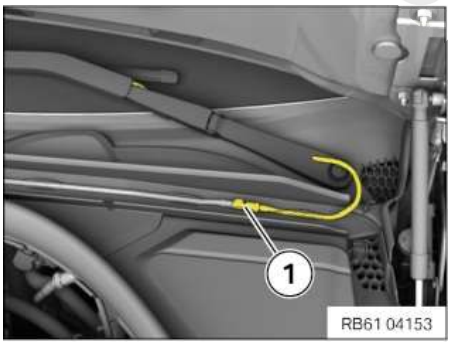
▸ **Remove the wiper arm**

RISK OF DAMAGE

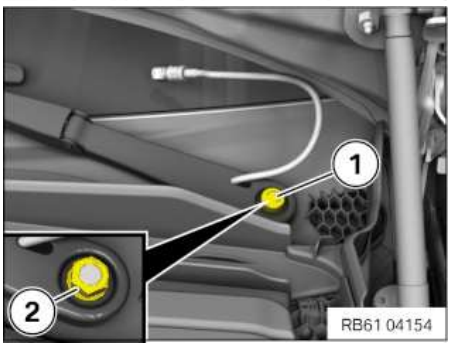
Damage to wiper console.

While removing the wiper arms without using special tool, the wiper console can break.

- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.

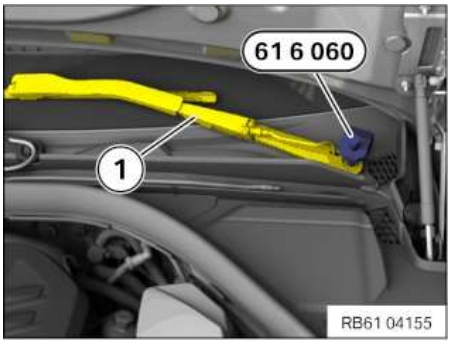


- Disconnect the washer fluid hose (1) at the separation point and feed out from the cowl panel guide.



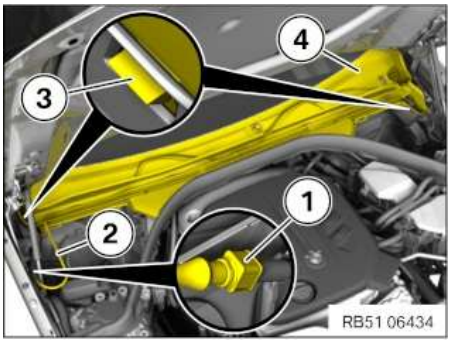
- Remove the protective cap (1).
- Loosen nut (2).

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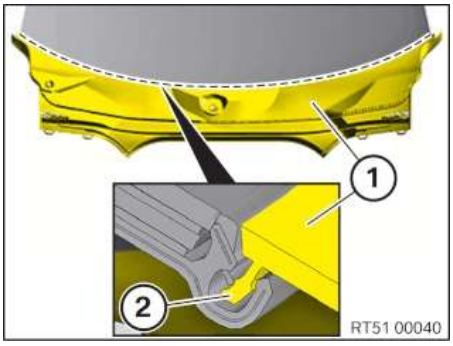


- Pull off the wiper arm (1) using special tool .

3 – Remove cowl panel cover



- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).



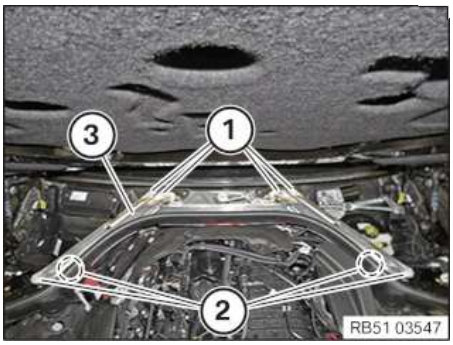
- Pull the cowl panel cover (1) upward out of the latch mechanism (2) beginning on the side.

MAIN WORK

4 – Removing trailing link at spring strut dome

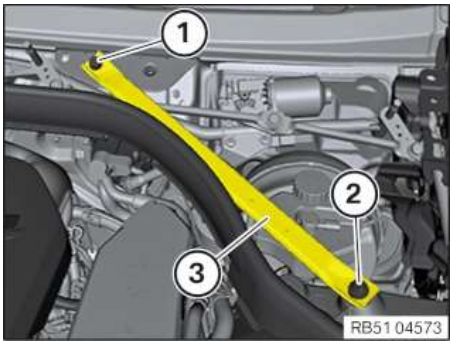
TECHNICAL INFORMATION

Driving without the strut brace/front-end strut or tension strut is not permitted.



- **Version A:**
- Loosen screws (1) and (2).
- Remove tension strut (3) in the spring strut dome upwards.

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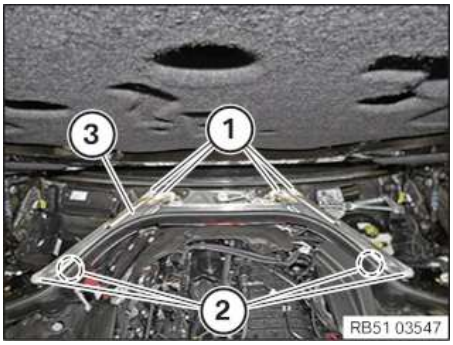


- **Version B:**
- Loosen screws (1) and (2).
- Remove tension strut (3) in the spring strut dome upwards.

5 – Install tension strut on spring strut dome.

TECHNICAL INFORMATION

Driving without the strut brace/front-end strut or tension strut is not permitted.



- **Version A:**
- Install the tension strut (3) on the spring strut dome.
- Tighten the screws (1).

Tension strut on bulkhead

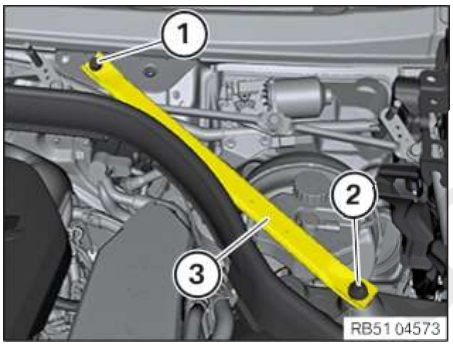
M10x25 screw		Tightening torque	56 Nm

- Renew screws (2).

  Parts: Screws
- Tighten the screws (2).

Tension strut to spring strut dome

Screw	Renew screws.	Jointing torque	56 Nm
		Angle of rotation	90 °



- **Version B:**
- Install tension strut on spring strut dome (3).
- Tighten down screw (1).

Tension strut on bulkhead

M10x25 screw		Tightening torque	56 Nm

- Renew the screw (2).

  Parts: Screw
- Tighten down screw (2).

Tension strut to spring strut dome

Screw	Renew screws.	Jointing torque	56 Nm
		Angle of rotation	90 °

POSTPROCESSES

6 – Installing cowl panel cover

RISK OF DAMAGE

Damage caused by water ingress into the vehicle.

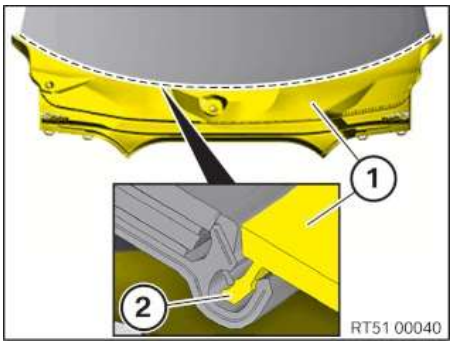
Water ingress into the vehicle may result in damage to components, malfunctions and corrosion.

- Ensure correct installation of the components.
- Only use undamaged components.

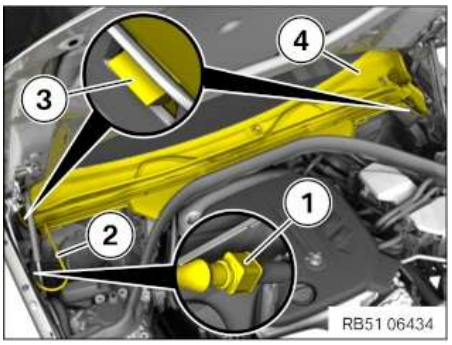
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TECHNICAL INFORMATION

Before installing the cowl panel cover it is **mandatory** to check that the 48 V line is routed correctly and fitted tightly.
An incorrectly laid or attached 48 V line can be damaged by the wiper kinematics.



- Push the cowl panel cover (1) into the latch mechanism (2) beginning on the side.



- Clip cowl panel cover (4)in by means of the latch mechanisms (3).
- Position windscreen wash hose (2) and connect windscreen wash hose (1)quick lock.

7 – Install left and right wiper arm

NOTICE

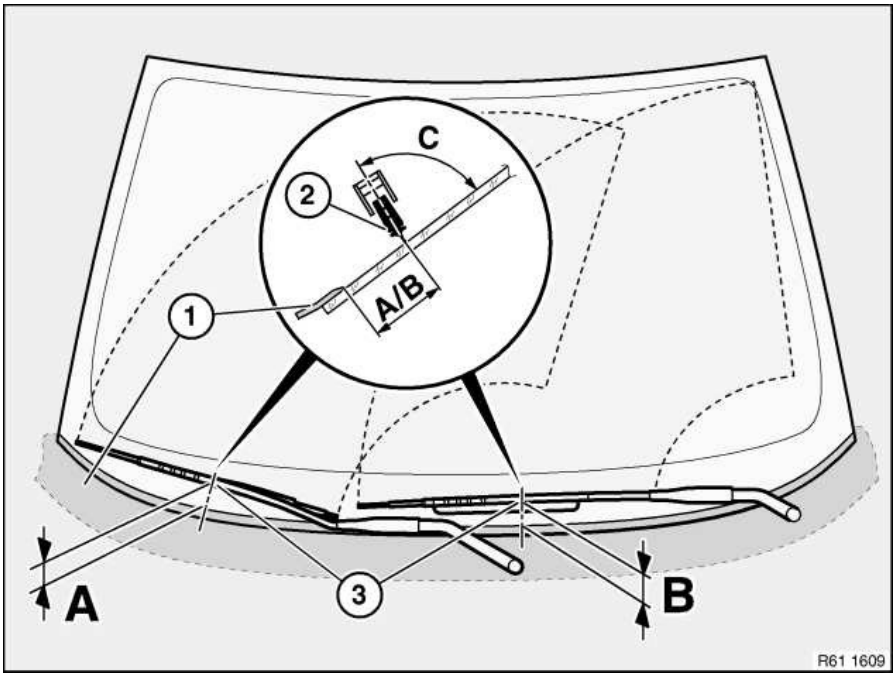
Description is for left component only. Procedure on the right side is identical.

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

The wiper system must be in zero position.
After installing the cowl panel cover and before fitting the wiper arm:
Activate the wiper system once to ensure that it has the correct installation position.

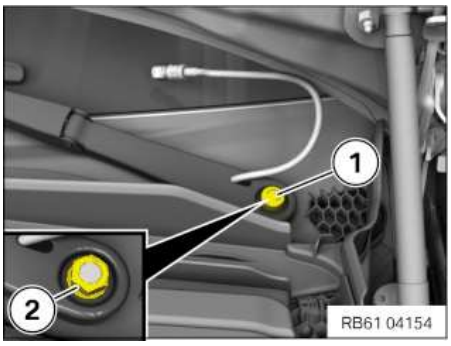
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- Connect the wiper arm (3).
- Correctly position the wiper arm (2) in relation to the window edge (1).

Distance from window pane edge to wiper blade

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

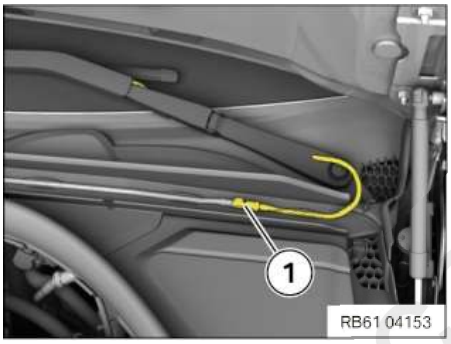


- Tighten nut (2).

Windscreen wiper arm

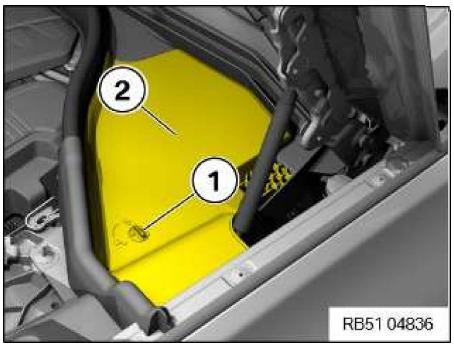
Combination hexagon nut		Tightening torque	35 Nm

- Connect the protective cap (1).



- Feed washer fluid hose (1) into the cowl panel guide and connect at the separation point.

8 – Install the cover of the engine compartment on the rear left



- Position the engine compartment cover at the rear left (2) .
- Close lock (1).

Additional Information

Overview of Tightening Torques

Tension strut on bulkhead Used in step 5

M10x25 screw		Tightening torque	56 Nm

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Tension strut to spring strut dome — Used in step 5

Screw	Renew screws.	Jointing torque	56 Nm
		Angle of rotation	90 °

Windscreen wiper arm — Used in step 7

Combination hexagon nut		Tightening torque	35 Nm

Overview of Special Tools

Overview Technical Data

Distance from window pane edge to wiper blade — Used in step 7

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

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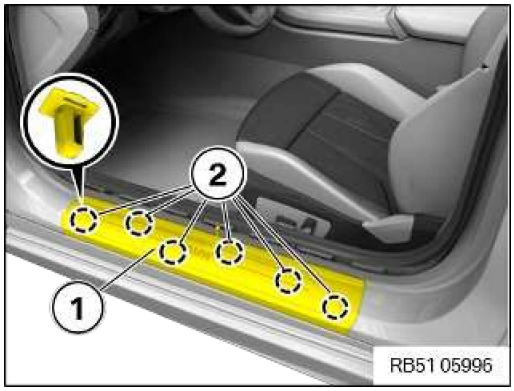
51 71 447 Remove and install/replace left or right side sill trim panel

PRELIMINARY WORK

1 – Remove the front sill trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



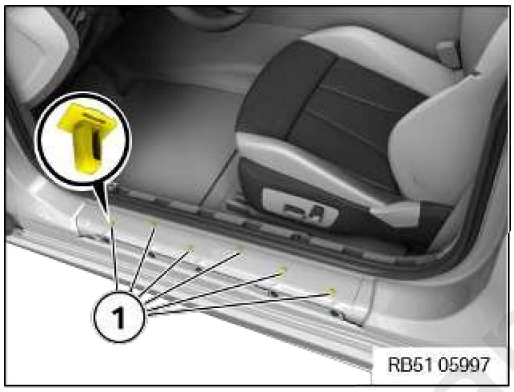
RISK OF DAMAGE

Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

- Release and remove the front sill trim (1) using special tool 0 496 569 (00 9 325) from clips (2).



- Remove clips (1) if necessary and connect them on the front sill trim.

MAIN WORK

2 – Removing the side sill trim panel

RISK OF DAMAGE

Mechanical effects.

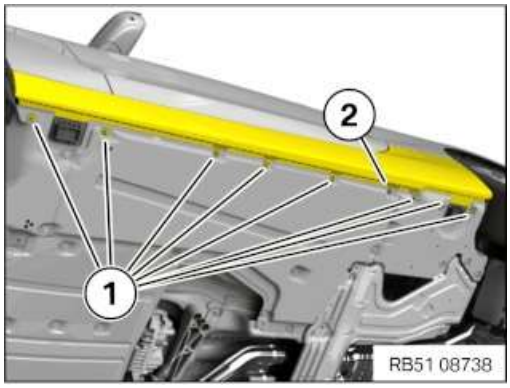
Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

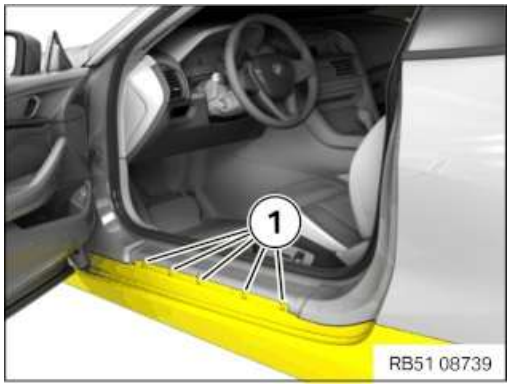
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

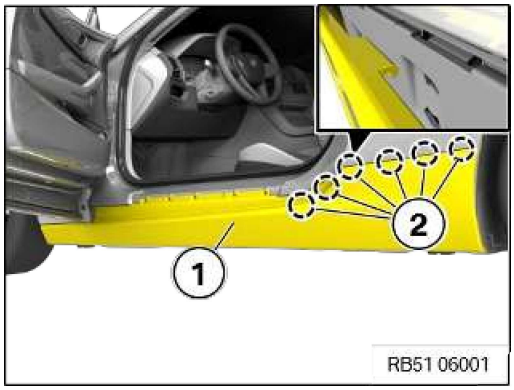
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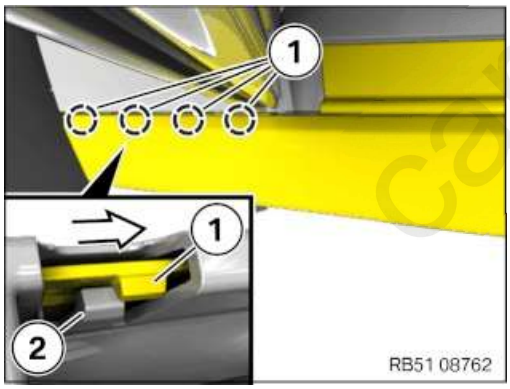
- Loosen screws (1).
- Release nut (2).



- Release the expanding rivet (1).



- Release side sill trim panel (1) from latch mechanisms (2) using a suitable tool, starting from the rear.



- Slide the side sill trim panel to the front in the direction of the arrow to release latch mechanisms (1) from supporting strip (2).
- Release the side sill trim panel with latch mechanisms (1) from supporting strip (2) and remove it with the help of another person.

3 – Installing the side sill trim panel

RISK OF DAMAGE

Mechanical effects.

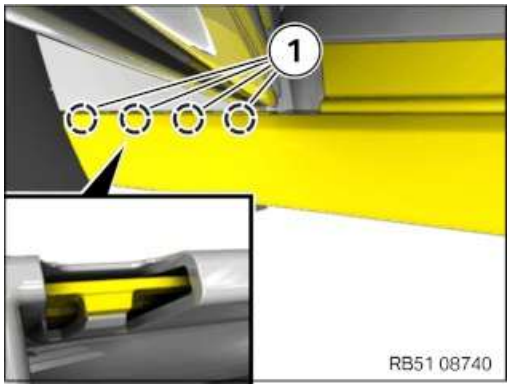
Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

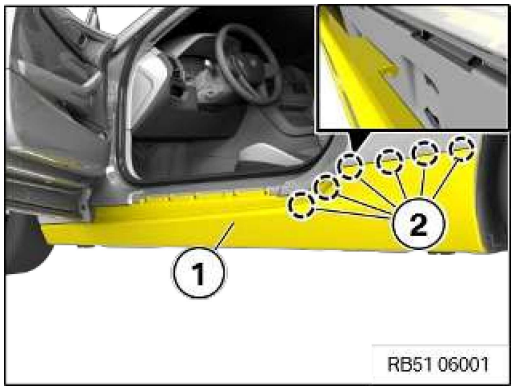
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NOTICE

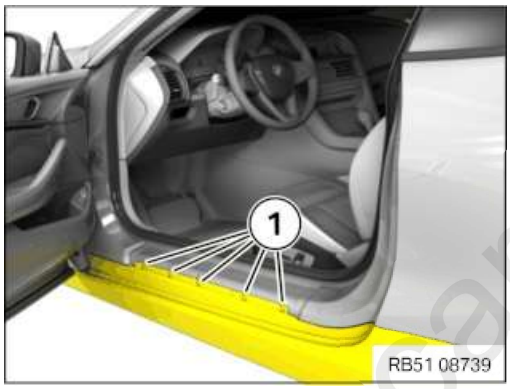
Schematic diagram is for example purposes. Some parts may differ in certain details.



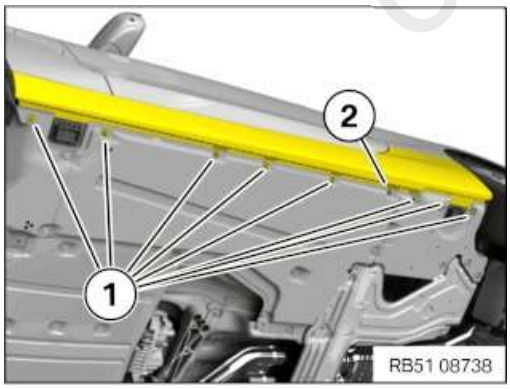
- Position the side sill trim panel.
- Clip in the front side sill trim panel at the latch mechanisms (1).



- Clip in the side sill trim panel (1) at the rear into the latch mechanisms (2).



- Secure expanding rivet (1).



- Tighten the screws (1) and nuts (2).

Underbody panelling, side

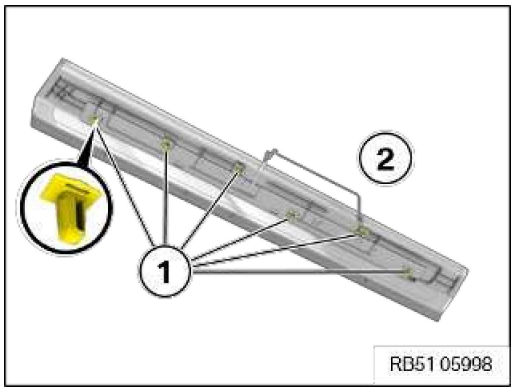
Hexagon screw		Tightening torque	2.6 Nm
Plastic nut		Tightening torque	2.6 Nm

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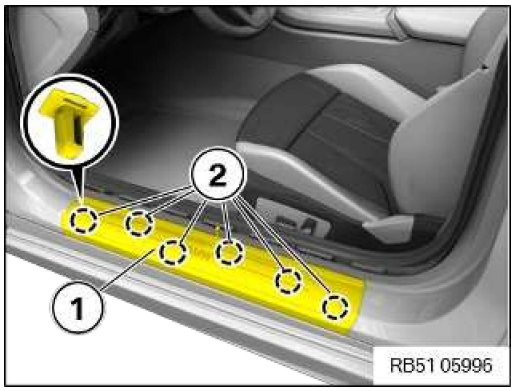
4 – Installing the front sill trim

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check if clips (1) on the front sill trim (2) are missing or damaged and renew them if necessary.



- Position the front sill trim (1) correctly.
- Clip in the front sill trim (1) with the clips (2).

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Additional Information

Overview of Tightening Torques

Underbody panelling, side — Used in step 3

Hexagon screw		Tightening torque	2.6 Nm
Plastic nut		Tightening torque	2.6 Nm

Overview of Special Tools

0 496 569 (00 9 325) Wedge



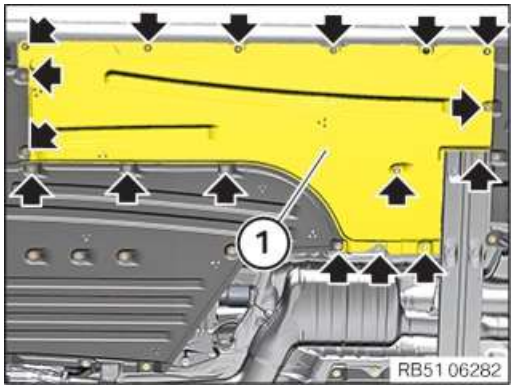
Common Used in step 1

Usage	(Panel wedge) From 11/2008 this special tool replaces panel wedge 00 9 317 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	41 01 09 (507)

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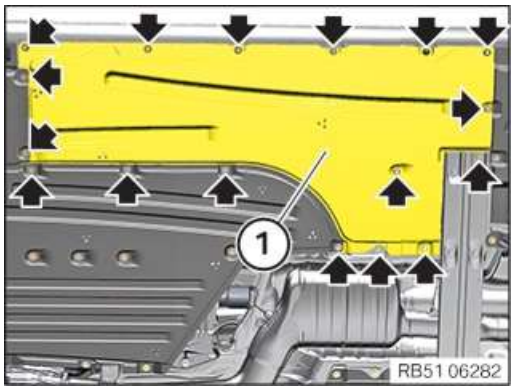
51 71 017 Remove and install/replace left underbody panelling

1 – Remove side underbody panelling



- Unscrew all bolts and nuts (arrows).
- Remove the underbody panelling (1).

2 – Installing the underbody panelling on the sides



- Insert the underbody panelling (1).
- Tighten all bolts and nuts (arrows).

Underbody panelling, side

Hexagon screw		Tightening torque	2.6 Nm
Plastic nut		Tightening torque	2.6 Nm

Additional Information

Overview of Tightening Torques

Underbody panelling, side Used in step 2

Hexagon screw		Tightening torque	2.6 Nm
Plastic nut		Tightening torque	2.6 Nm

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51 71 072 Remove and install/replace lower bulkhead cover

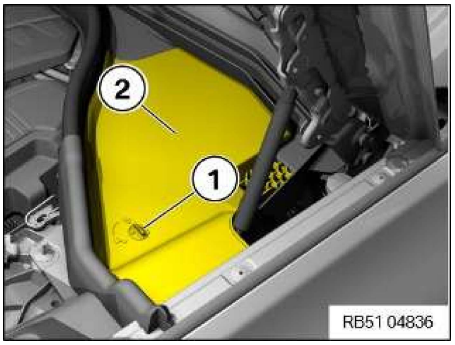
PRELIMINARY WORK

1 – Remove the seal for the rear bonnet



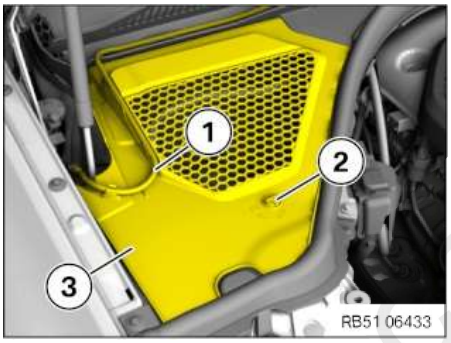
- Feed the cable (1) out of the brackets toward the front.
- Remove the rear bonnet seal (2) from the guide toward the inside.

2 – Remove the cover of the engine compartment at the rear left



- Loosen the lock (1).
- Remove the cover (2) of the rear left engine compartment.

3 – Remove the cover of the rear right engine compartment



- Release washer fluid hose (1) from the guides.
- Loosen the lock (2).
- Remove the cover (3) of the rear right engine compartment.

4 – Removing the wiper arm on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the wiper arm**

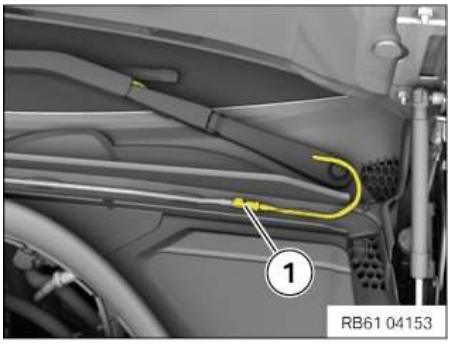
RISK OF DAMAGE

Damage to wiper console.

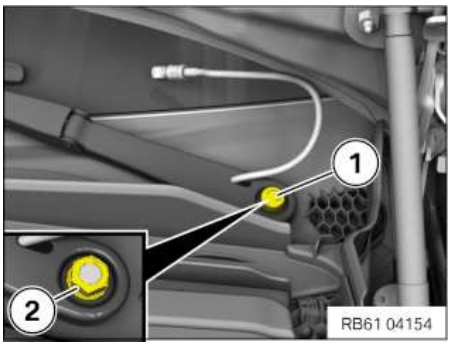
While removing the wiper arms without using special tool, the wiper console can break.

- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.

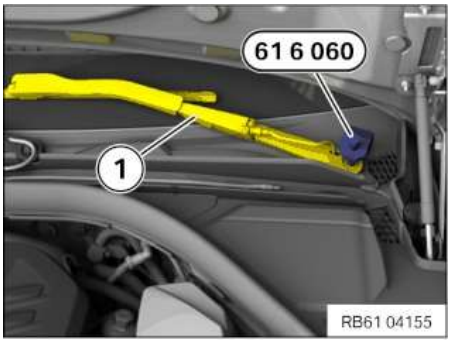
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- Disconnect the washer fluid hose (1) at the separation point and feed out from the cowl panel guide.

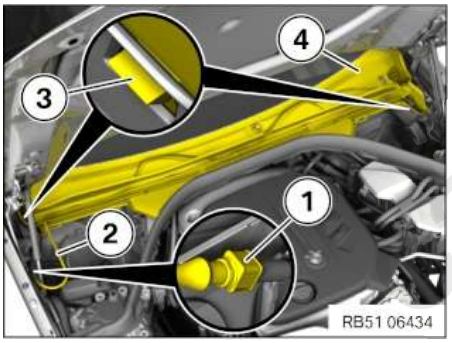


- Remove the protective cap (1).
- Loosen nut (2).

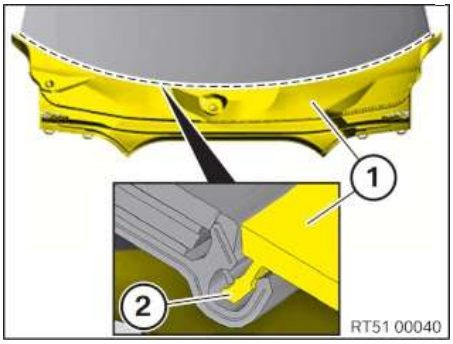


- Pull off the wiper arm (1) using special tool .

5 – Remove cowl panel cover



- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).



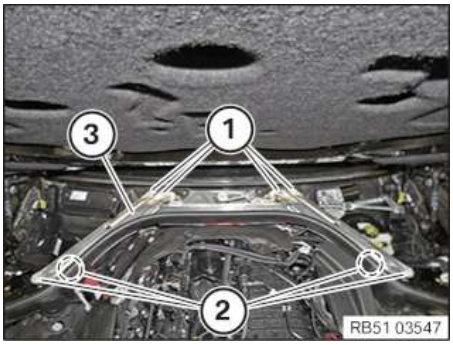
- Pull the cowl panel cover (1) upward out of the latch mechanism (2) beginning on the side.

6 – Removing the centre bulkhead upper part

TECHNICAL INFORMATION

Driving without the strut brace/front-end strut or tension strut is not permitted.

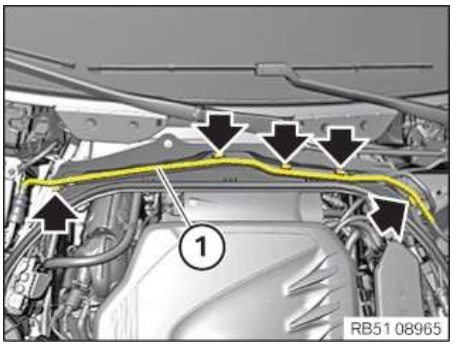
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NOTICE

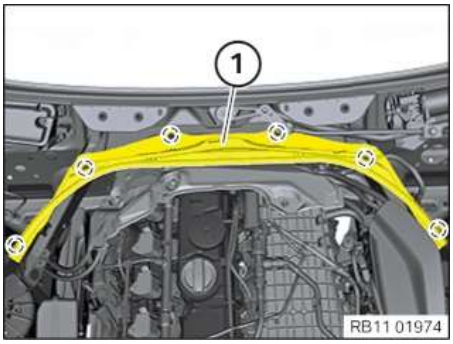
The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Loosen screws (1) and (2).
- Remove tension strut (3) in the spring strut dome upwards.



- **Version with mild hybrid technology:**

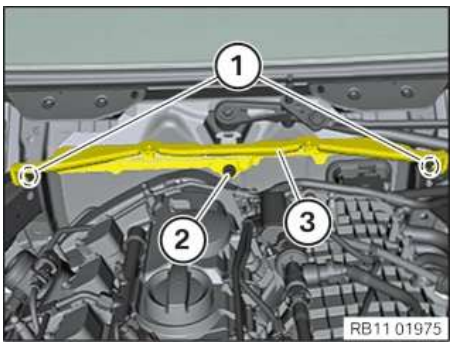
  Unclip the wire (1) at the holders (arrows).



- Unscrew the bolts in the marked areas.
- Remove the centre bulkhead upper part (1).

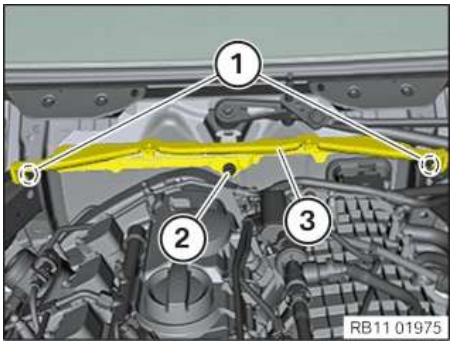
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7 – Removing the centre bulkhead lower section



- Loosen screws (1).
- Loosen nut (2).
- Remove the centre bulkhead lower part (3).

8 – Installing centre bulkhead lower section

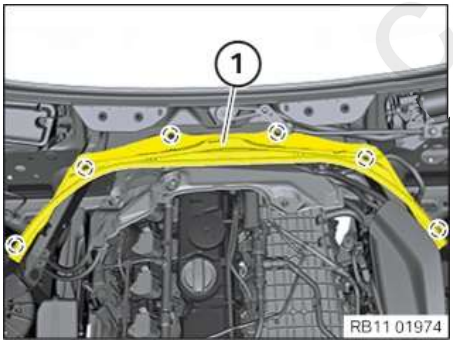


- Position the centre bulkhead lower part (3).
- Tighten nut (2) and screws (1).

Bulkhead lower part to body

Screw		Tightening torque	2,6 Nm
Plastic nut		Tightening torque	2,6 Nm

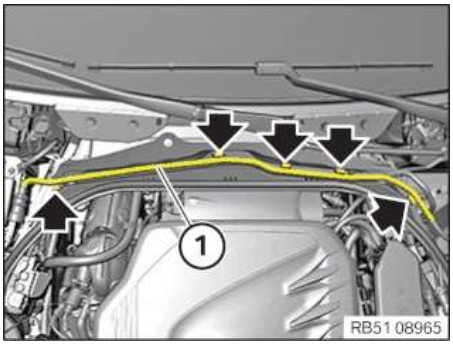
9 – Installing the centre bulkhead upper part



- Position the centre bulkhead upper part (1).
- Tighten the bolts in the marked areas.

Bulkhead upper part to bottom bulkhead

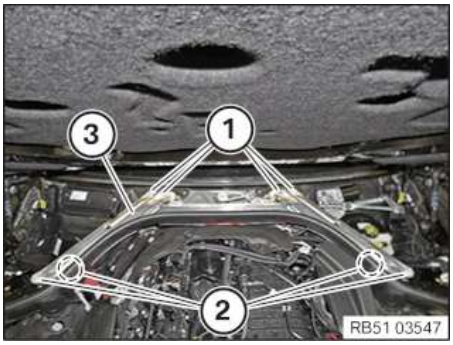
	Tightening torque	3 Nm



- **Version with mild hybrid technology:**

  Clip in the wire (1) into the holders (arrows).

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NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Install the tension strut (3) on the spring strut dome.
- Tighten the screws (1).

Tension strut on bulkhead

M10x25 screw		Tightening torque	56 Nm

- Renew screws (2).

  Parts: Screws
- Tighten the screws (2).

Tension strut to spring strut dome

Screw	Renew screws.	Jointing torque	56 Nm
		Angle of rotation	90 °

10 – Installing cowl panel cover

RISK OF DAMAGE

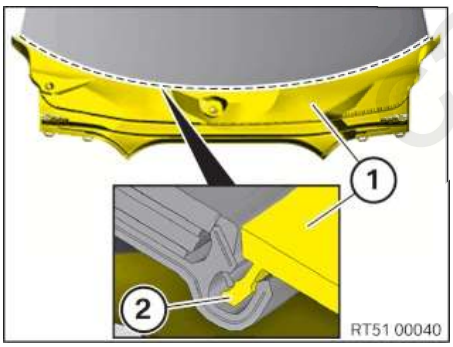
Damage caused by water ingress into the vehicle.

Water ingress into the vehicle may result in damage to components, malfunctions and corrosion.

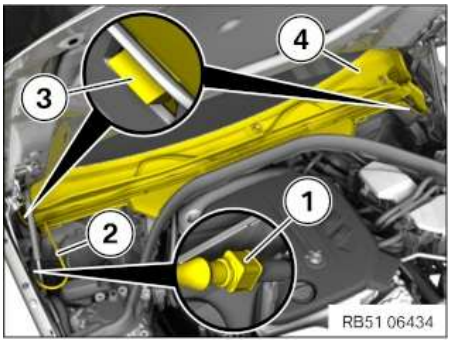
- Ensure correct installation of the components.
- Only use undamaged components.

TECHNICAL INFORMATION

Before installing the cowl panel cover it is **mandatory** to check that the 48 V line is routed correctly and fitted tightly.
An incorrectly laid or attached 48 V line can be damaged by the wiper kinematics.



- Push the cowl panel cover (1) into the latch mechanism (2) beginning on the side.



- Clip cowl panel cover (4)in by means of the latch mechanisms (3).
- Position windscreen wash hose (2) and connect windscreen wash hose (1)quick lock.

11 – Install left and right wiper arm

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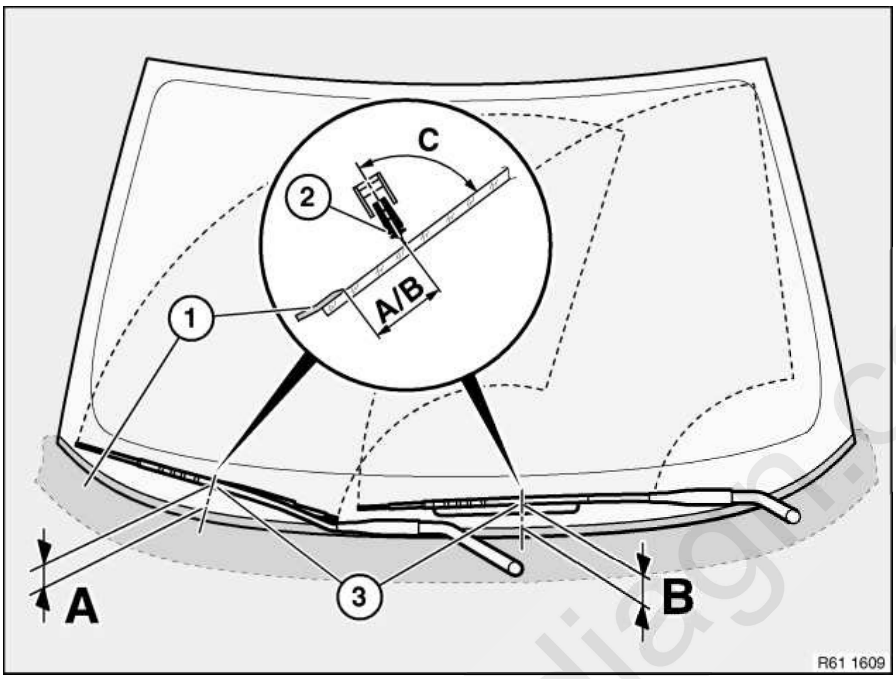
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

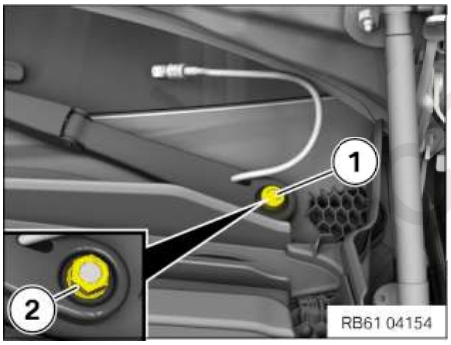
The wiper system must be in zero position.
After installing the cowl panel cover and before fitting the wiper arm:
Activate the wiper system once to ensure that it has the correct installation position.



- Connect the wiper arm (3).
- Correctly position the wiper arm (2) in relation to the window edge (1).

Distance from window pane edge to wiper blade

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

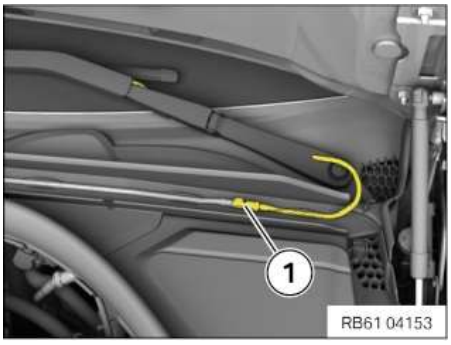


- Tighten nut (2).

Windscreen wiper arm

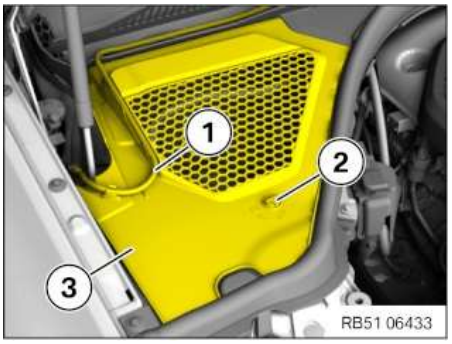
Combination hexagon nut		Tightening torque	35 Nm

- Connect the protective cap (1).



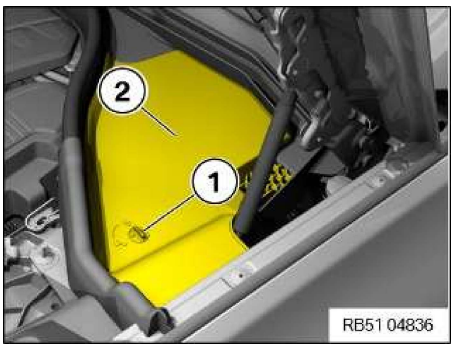
- Feed washer fluid hose (1) into the cowl panel guide and connect at the separation point.

12 – Install the rear right engine compartment cover



- Position the cover of the engine compartment on the rear right (3).
- Close lock (2).
- Insert washer fluid hose (1) into the guides.

13 – Install the cover of the engine compartment on the rear left



- Position the engine compartment cover at the rear left (2) .
- Close lock (1).

14 – Install the seal for the bonnet



- Press the rear bonnet seal (2) into the guide.
- Feed in cable (1) into the brackets.
- Check that the rear bonnet seal (2) and the cable (1) are seated correctly.

Additional Information

Overview of Tightening Torques

Bulkhead lower part to body			Used in step 8
Screw		Tightening torque	2,6 Nm
Plastic nut		Tightening torque	2,6 Nm

Bulkhead upper part to bottom bulkhead			Used in step 9
		Tightening torque	3 Nm

Tension strut on bulkhead			Used in step 9
M10x25 screw		Tightening torque	56 Nm

Tension strut to spring strut dome			Used in step 9
Screw	Renew screws.	Jointing torque	56 Nm
		Angle of rotation	90 °

Windscreen wiper arm			Used in step 11
Combination hexagon nut		Tightening torque	35 Nm

Overview of Special Tools

Overview Technical Data

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Distance from window pane edge to wiper blade Used in step 11

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

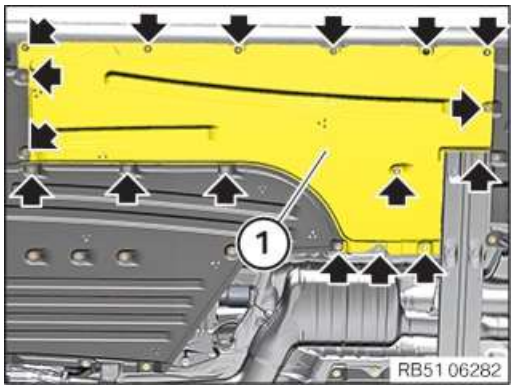
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51 71 018 Remove and install/replace right underbody panelling

1 – Remove side right underbody panelling

NOTICE

Description is for left component only. Procedure on the right side is identical.



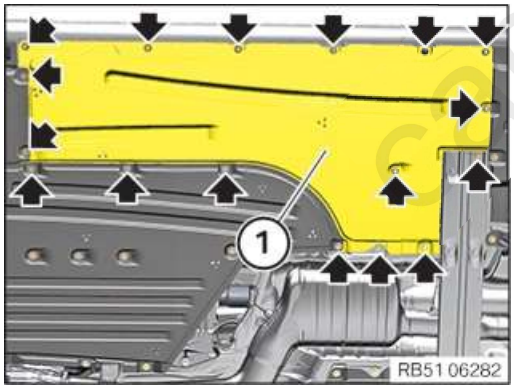
▸ **Remove side underbody panelling**

- Unscrew all bolts and nuts (arrows).
- Remove the underbody panelling (1).

2 – Installing the underbody panelling on the right side

NOTICE

Description is for left component only. Procedure on the right side is identical.



▸ **Installing the underbody panelling on the sides**

- Insert the underbody panelling (1).
- Tighten all bolts and nuts (arrows).

Underbody panelling, side

Hexagon screw		Tightening torque	2.6 Nm
Plastic nut		Tightening torque	2.6 Nm

Additional Information

Overview of Tightening Torques

Underbody panelling, side Used in step 2

Hexagon screw		Tightening torque	2.6 Nm
Plastic nut		Tightening torque	2.6 Nm

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51 71 412 Removing and installing the rear spoiler

TECHNICAL INFORMATION

Notes on component bonding using adhesive tape form the basis for these repair instructions and must be observed without fail.

For more information see: 51 00 ... Notes on component bonding with adhesive tape

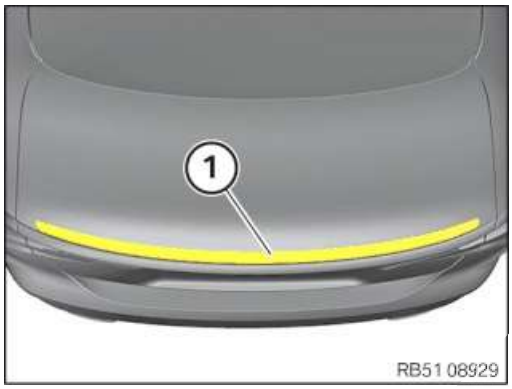
1 – Remove rear spoiler

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.



- Feed in the separating cord (approx. 50 cm) from the special tool 2 357 248 in the special tools 2 326 501.
- Carefully feed in the separating cord from the side below the rear spoiler (1).
- Carefully release the rear spoiler (1) from the tailgate with the special tool 2 326 501 by means of tensile movements and remove it in an upwards direction.
- Remove the adhesive residue from the tailgate.

2 – Preparing the rear spoiler



- Carefully remove the adhesive residue from the rear spoiler.

Expendable materials

Adhesive remover	1 l, Can	83110009712

Air drying time after cleaning

Cleaning agent R2	2 min

- Check the rear spoiler.

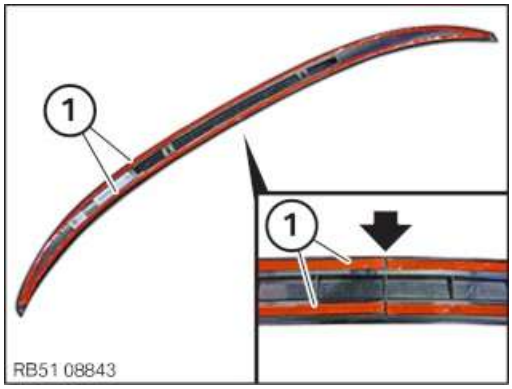
  Do not install rear spoilers with poor fitting accuracy.

  A rear spoiler loosely placed on the tailgate must not protrude, especially at the corners.
- Clean the bonding surface on the rear spoiler.

Expendable materials

Cleaning agent R2	500 ml	83190417324

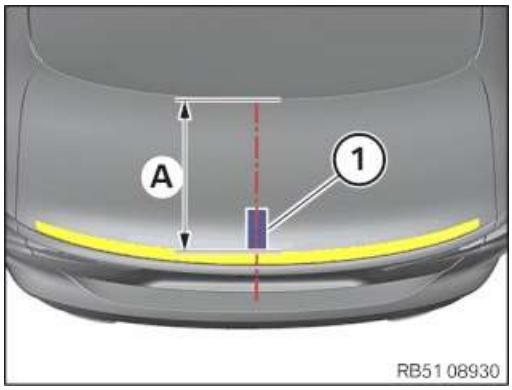
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- Place adhesive strip (1) on the rear spoiler and align it.

  In the centre of the spoiler (arrow), leave approx. 2 mm blank on adhesive strip (1).
- Pull off the protective film for the bonding surface from adhesive strip (1) and stick it on the rear spoiler.
- Press on the adhesive strip (1) with the thumb or back of the hand over the entire surface, since the adhesion of the adhesive tape builds up significantly via the contact pressure.

3 – Determining the current position of rear spoiler



- Affix adhesive tape (1) according to the dimension (A) in the centre on the tailgate.

  Dimension (A) = 390 mm

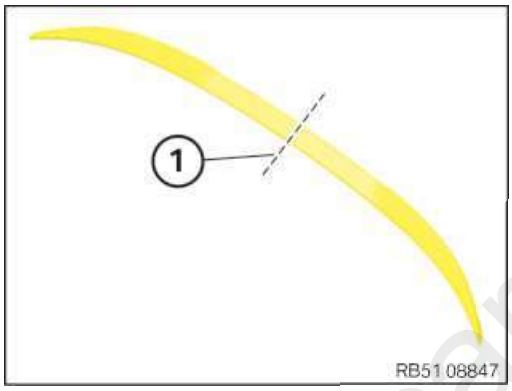
  Adhesive tape (1) must not be located on the bonding surface of the rear spoiler.

Expendable materials

Yellow plastic adhesive tape		83199410979

- Mark the centre of the tailgate on the adhesive tape (1).

4 – Install rear spoiler



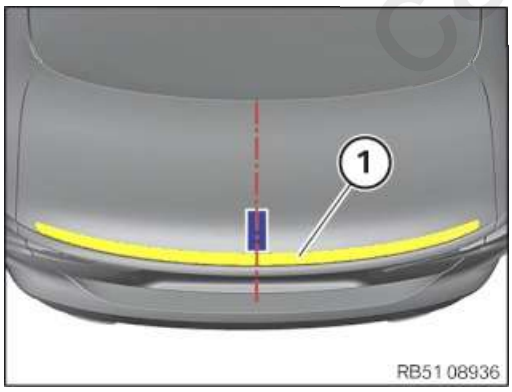
- Check the rear spoiler.

  Do not install rear spoilers with poor fitting accuracy.

  A rear spoiler loosely placed on the tailgate must not protrude, especially at the corners.
- Move the centre (1) of the tailgate to the outer side of the rear spoiler with adhesive tape.

Expendable materials

Yellow plastic adhesive tape		83199410979



- Place the rear spoiler (1) on the tailgate and align it centrally on the adhesive tape and the tailgate edge.

  Check whether the rear spoiler (1) fits correctly and is in the centre.
- Clean the bonding surface of the tailgate.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Pull off the protective film (2) of the bonding surface, align the rear spoiler (1) as shown and bond to the tailgate.
- Press down on the rear spoiler (1) with force using the hands over the entire area, in particular at the edges.
- Press with thumb or the back of the hand over the entire surface, since the adhesion of the adhesive tape is built up mainly by the contact pressure.
- Remove the adhesive tape.

Additional Information

Overview of Special Tools

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Overview of Special Tools

2 357 248 Removal and installation kit



Common Used in step 1

Usage	Removal system for removing glued windshields, side and rear windows without causing damage. The windows are cut out using an ultra-strong cord made from braided polyethylene fibres.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	05 06 13 (934)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
2	2 357 312		**Fitting aid** The tool for placing string (81 43 2357312) is a part of the disassembly system “Spider” (81 43 2357248).	
1	2 344 272		**Nylon string** The nylon string (81 43 2344272) is a part of the disassembly system “Spider” (81 43 2357248).	

2 326 501 Handle



Common Used in step 1

Usage	(Pull handles) Cutting wire pull handles for removing rear, quarter light and side windows. Replaces tool 513270.
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	

Overview Technical Data

Air drying time after cleaning Used in step 2

Cleaning agent R2	2 min

Links

General repair instructions	Used in step
51 00 ... Notes on component bonding with adhesive tape	

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51 71 040 Removing and installing/replacing front left or right wheel arch cover

WARNING

Vehicle may slip off the vehicle hoist if the vehicle hoist is handled incorrectly.

Danger! Life-threatening injuries!

- Observe safety information on raising the vehicle using a vehicle hoist.
- For additional information see: 00 ... Raise the vehicle using a vehicle lift.

PRELIMINARY WORK

1 – Removing the wheel



TECHNICAL INFORMATION

A wheel lift is recommended for easier wheel removal and installation without exertion (see Retailer Equipment Catalogue).

- **In vehicles with M Carbon ceramic brake: The wheel lift must be used to remove the wheel.**

  This process is intended to prevent damage to the brake disc.



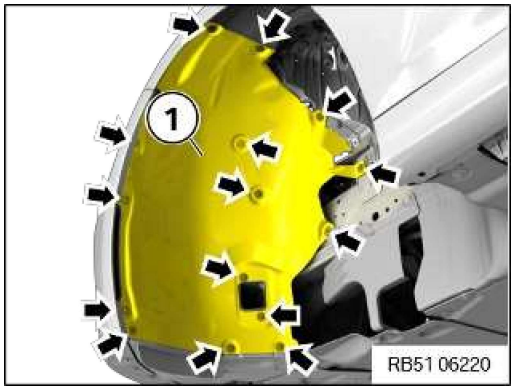
- If several wheels are removed at the same time: Use a piece of chalk to mark on each tyre the axle and side on which the corresponding wheel is fitted.
- Release the wheel bolts (arrows) crosswise and remove the wheel.
- To release and tighten wheel bolts with a security code: Use the correct adapter from the set of special tools .

MAIN WORK

2 – Removing the front section of the front wheel arch cover

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

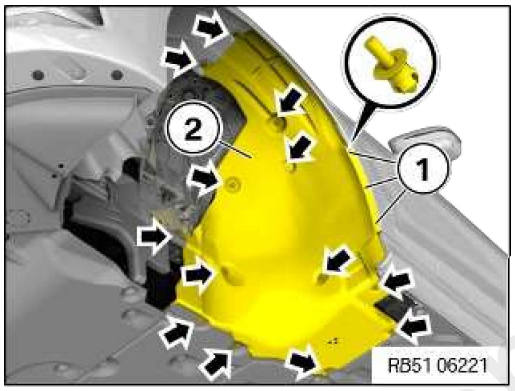


- Remove screws (arrows).
- Remove front section of the front wheel arch cover (1).

3 – Removing the rear section of the front wheel arch cover front

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

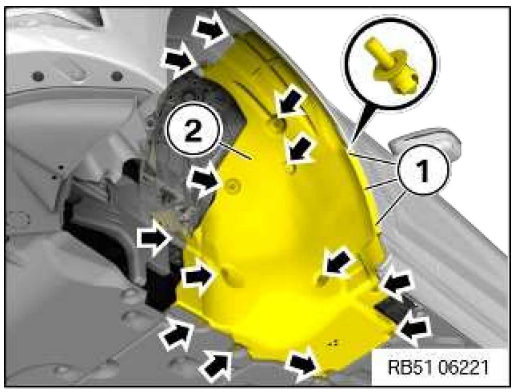


- Loosen the expanding rivet (1).
- Remove screws (arrows).
- Remove the rear section of the front wheel arch cover (2).

4 – Install the rear section of the front wheel arch cover

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.



- Install the rear section of the front wheel arch cover(2) .
- Tighten screws (arrows).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

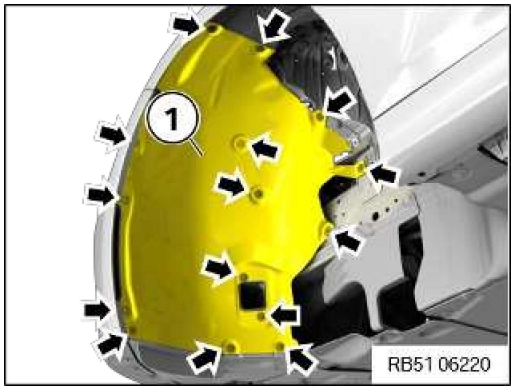
- Secure expanding rivet (1).

5 – Install the front section of the front wheel arch cover

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NOTICE

To provide a better overview: Schematic diagram with partially hidden components.



- Install the front section of the front wheel arch cover (1).
- Tighten screws (arrows).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

POSTPROCESSES

6 – Mounting the wheel



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.

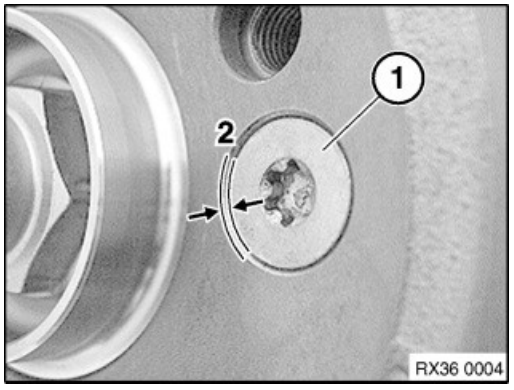
- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool 2 344 011.

  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).



- Check that the mounting bolt (1) for the brake disc is securely seated.

  The mounting bolt (1) for the brake disc **may not** protrude on the contact surface (2) between the brake disc and the wheel rim.

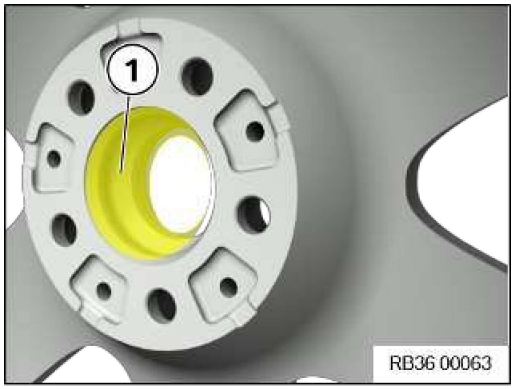
Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to rear wheel hub

M8	Renew screw.	Tightening torque	16 Nm

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TECHNICAL INFORMATION

Wheel hubs and wheel centering on the models G80, G82 and G83 **must not** be greased.

- Thinly grease the wheel centring (1) in the wheel rim.

Expendable materials

Brake block paste * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	3 g, Bag	83192158851
	100 g, Tube	83192158852
	5 g, TU*	83230140233



TECHNICAL INFORMATION

Wheel hubs and wheel centering on the models G80, G82 and G83 **must not** be greased.

- Apply a thin layer of grease to the front and rear wheel hubs (1) to protect against corrosion.

Expendable materials

Brake block paste * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	3 g, Bag	83192158851
	100 g, Tube	83192158852
	5 g, TU*	83230140233



TECHNICAL INFORMATION

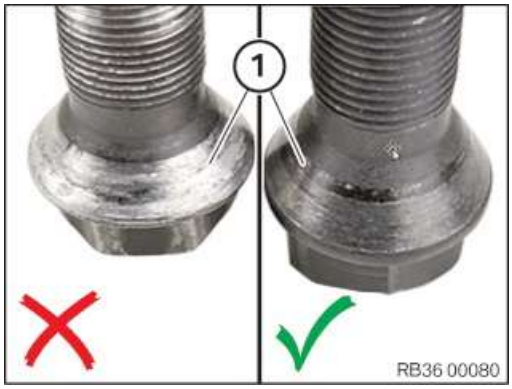
A wheel lift is recommended for easier wheel removal and installation without exertion (see Retailer Equipment Catalogue).

- **In vehicles with M Carbon ceramic brake: The wheel lift must be used to install the wheel.**

  This process is intended to prevent damage to the brake disc.

Check

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- **Check wheel bolts for wear.**

Result

» Places (> 30%) of the bearing surfaces (1) of the taper on the screw head show a silver wear.

Measure

- Replace wheel bolts.

  Parts: Wheel bolts



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 the corroded wheel bolts (arrows).

  Parts: Wheel bolts

- Clean the wheel bolts (arrows).
- Check the wheel bolts (arrows) and threads for damage, renew the wheel bolts (arrows) if necessary.
- Join and tighten the wheel bolts (arrows).

Wheel bolts

M14 / SW17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim.	Tightening torque	140 Nm
	Tighten wheel bolts to the prescribed tightening torque with a calibrated torque wrench in a crosswise sequence.	Check	140 Nm
	Check all the wheel bolts in the same order or retighten to the prescribed tightening torque again.		

Additional Information

Overview of Tightening Torques

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Wheel arch trim panel, front — Used in step 45

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Brake disc to front wheel hub — Used in step 6

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to rear wheel hub — Used in step 6

M8	Renew screw.	Tightening torque	16 Nm

Wheel bolts — Used in step 6

M14 / SW17	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 6

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 1

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 1
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 1
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 1
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 1
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 1
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 1
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	

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0 495 230 (36 1 333) Wheel stud



Common	Used in step 1
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

Repair instructions	Used in step
00 02 001 Raising the vehicle using a vehicle lift	16

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51 71 038 Removing and installing/replacing front left or right wheel arch cover

WARNING

Vehicle may slip off the vehicle hoist if the vehicle hoist is handled incorrectly.

Danger! Life-threatening injuries!

- Observe safety information on raising the vehicle using a vehicle hoist.
- For additional information see: 00 ... Raise the vehicle using a vehicle lift.

PRELIMINARY WORK

1 – Removing the wheel



TECHNICAL INFORMATION

A wheel lift is recommended for easier wheel removal and installation without exertion (see Retailer Equipment Catalogue).

- **In vehicles with M Carbon ceramic brake: The wheel lift must be used to remove the wheel.**

  This process is intended to prevent damage to the brake disc.



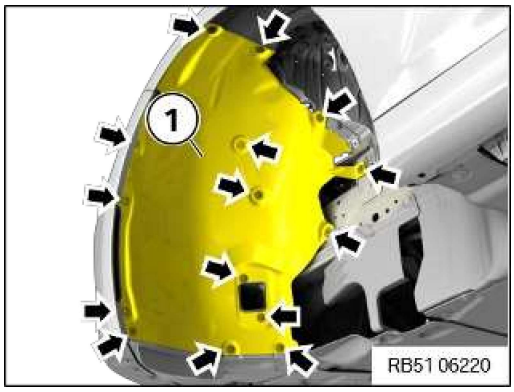
- If several wheels are removed at the same time: Use a piece of chalk to mark on each tyre the axle and side on which the corresponding wheel is fitted.
- Release the wheel bolts (arrows) crosswise and remove the wheel.
- To release and tighten wheel bolts with a security code: Use the correct adapter from the set of special tools .

MAIN WORK

2 – Removing the front section of the front wheel arch cover

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

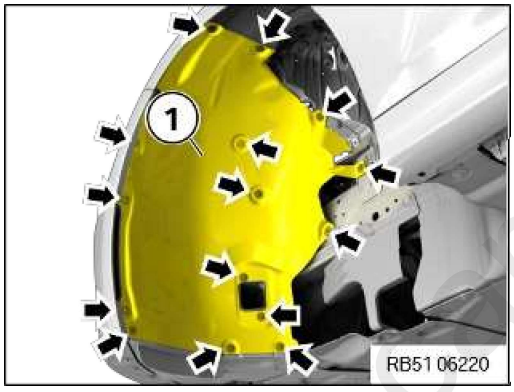


- Remove screws (arrows).
- Remove front section of the front wheel arch cover (1).

3 – Install the front section of the front wheel arch cover

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.



- Install the front section of the front wheel arch cover (1).
- Tighten screws (arrows).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

POSTPROCESSES

4 – Mounting the wheel



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.

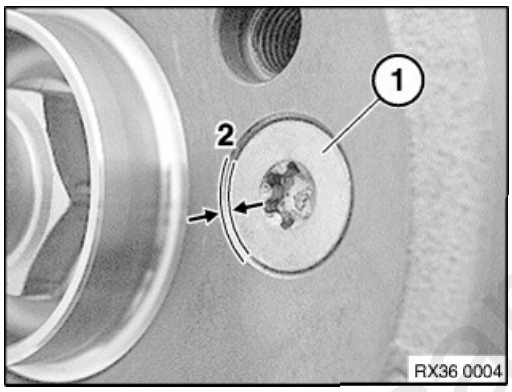
- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool 2 344 011.

  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).



- Check that the mounting bolt (1) for the brake disc is securely seated.

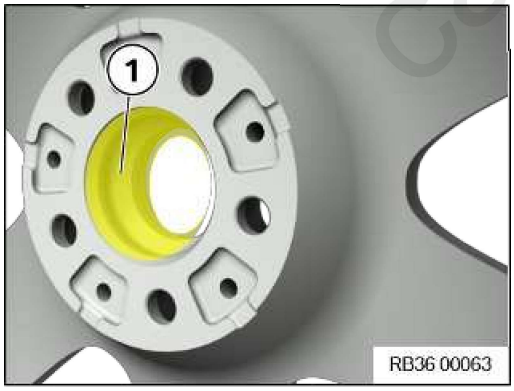
  The mounting bolt (1) for the brake disc **may not** protrude on the contact surface (2) between the brake disc and the wheel rim.

Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to rear wheel hub

M8	Renew screw.	Tightening torque	16 Nm



TECHNICAL INFORMATION

Wheel hubs and wheel centering on the models G80, G82 and G83 **must not** be greased.

- Thinly grease the wheel centring (1) in the wheel rim.

Expendable materials

Brake block paste * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	3 g, Bag	83192158851
	100 g, Tube	83192158852
	5 g, TU*	83230140233

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TECHNICAL INFORMATION

Wheel hubs and wheel centering on the models G80, G82 and G83 **must not** be greased.

- Apply a thin layer of grease to the front and rear wheel hubs (1) to protect against corrosion.

Expendable materials

Brake block paste * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	3 g, Bag	83192158851
	100 g, Tube	83192158852
	5 g, TU*	83230140233



TECHNICAL INFORMATION

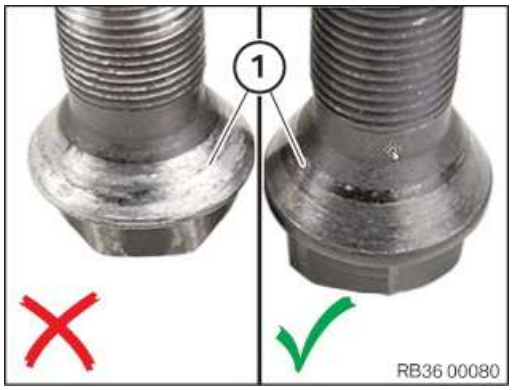
A wheel lift is recommended for easier wheel removal and installation without exertion (see Retailer Equipment Catalogue).

- **In vehicles with M Carbon ceramic brake: The wheel lift must be used to install the wheel.**

  This process is intended to prevent damage to the brake disc.

Check

- **Check wheel bolts for wear.**



Result

» Places (> 30%) of the bearing surfaces (1) of the taper on the screw head show a silver wear.

Measure

- Replace wheel bolts.

  Parts: Wheel bolts



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 the corroded wheel bolts (arrows).

  Parts: Wheel bolts
- Clean the wheel bolts (arrows).
- Check the wheel bolts (arrows) and threads for damage, renew the wheel bolts (arrows) if necessary.
- Join and tighten the wheel bolts (arrows).

Wheel bolts

M14 / SW17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim.	Tightening torque	140 Nm
	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.	Check	140 Nm

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Additional Information

Overview of Tightening Torques

Wheel arch trim panel, front — Used in step 3

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Brake disc to front wheel hub — Used in step 4

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to rear wheel hub — Used in step 4

M8	Renew screw.	Tightening torque	16 Nm

Wheel bolts			Used in step 4
M14 / SW17	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 4
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 1
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 1
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 1
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 1
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 1
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 1
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	

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0 495 229 (36 1 332) Wheel stud



Common	Used in step 1
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 1
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

Repair instructions	Used in step
00 02 001 Raising the vehicle using a vehicle lift	14

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51 71 039 Removing and installing/replacing front left or right wheel arch cover

WARNING

Vehicle may slip off the vehicle hoist if the vehicle hoist is handled incorrectly.

Danger! Life-threatening injuries!

- Observe safety information on raising the vehicle using a vehicle hoist.
- For additional information see: 00 ... Raise the vehicle using a vehicle lift.

PRELIMINARY WORK

1 – Removing the wheel



TECHNICAL INFORMATION

A wheel lift is recommended for easier wheel removal and installation without exertion (see Retailer Equipment Catalogue).

- **In vehicles with M Carbon ceramic brake: The wheel lift must be used to remove the wheel.**

  This process is intended to prevent damage to the brake disc.



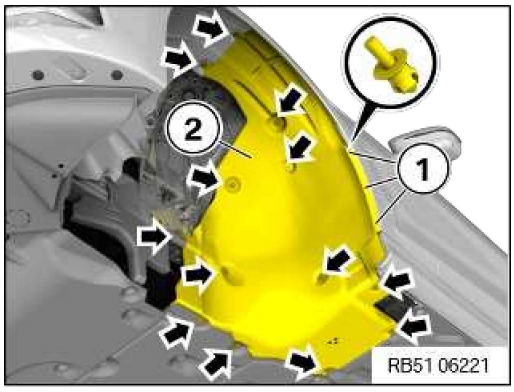
- If several wheels are removed at the same time: Use a piece of chalk to mark on each tyre the axle and side on which the corresponding wheel is fitted.
- Release the wheel bolts (arrows) crosswise and remove the wheel.
- To release and tighten wheel bolts with a security code: Use the correct adapter from the set of special tools .

MAIN WORK

2 – Removing the rear section of the front wheel arch cover front

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

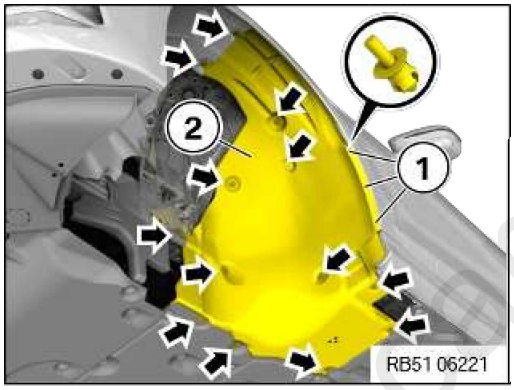


- Loosen the expanding rivet (1).
- Remove screws (arrows).
- Remove the rear section of the front wheel arch cover (2).

3 – Install the rear section of the front wheel arch cover

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.



- Install the rear section of the front wheel arch cover(2) .
- Tighten screws (arrows).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

- Secure expanding rivet (1).

POSTPROCESSES

4 – Mounting the wheel



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.

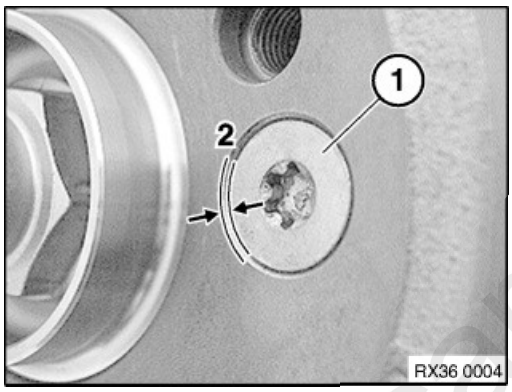
- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool 2 344 011.

  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).



- Check that the mounting bolt (1) for the brake disc is securely seated.

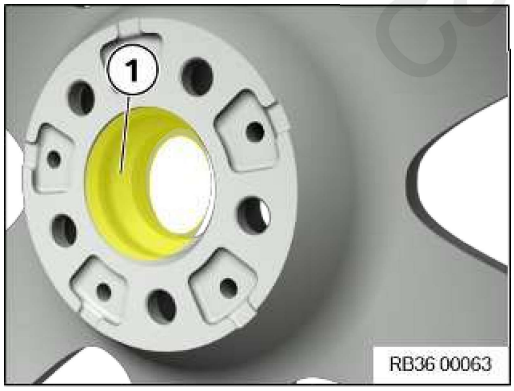
  The mounting bolt (1) for the brake disc **may not** protrude on the contact surface (2) between the brake disc and the wheel rim.

Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to rear wheel hub

M8	Renew screw.	Tightening torque	16 Nm



TECHNICAL INFORMATION

Wheel hubs and wheel centering on the models G80, G82 and G83 **must not** be greased.

- Thinly grease the wheel centring (1) in the wheel rim.

Expendable materials

Brake block paste * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	3 g, Bag	83192158851
	100 g, Tube	83192158852
	5 g, TU*	83230140233

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TECHNICAL INFORMATION

Wheel hubs and wheel centering on the models G80, G82 and G83 **must not** be greased.

- Apply a thin layer of grease to the front and rear wheel hubs (1) to protect against corrosion.

Expendable materials

Brake block paste * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	3 g, Bag	83192158851
	100 g, Tube	83192158852
	5 g, TU*	83230140233



TECHNICAL INFORMATION

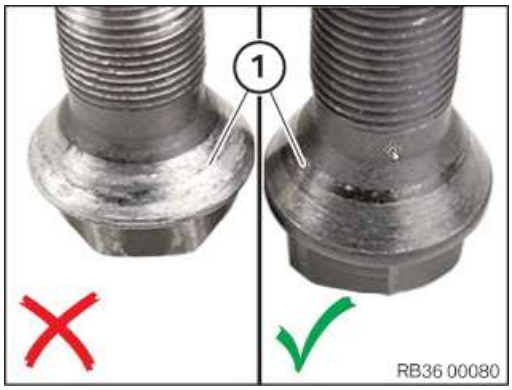
A wheel lift is recommended for easier wheel removal and installation without exertion (see Retailer Equipment Catalogue).

- **In vehicles with M Carbon ceramic brake: The wheel lift must be used to install the wheel.**

  This process is intended to prevent damage to the brake disc.

Check

- **Check wheel bolts for wear.**



Result

» Places (> 30%) of the bearing surfaces (1) of the taper on the screw head show a silver wear.

Measure

- Replace wheel bolts.

  Parts: Wheel bolts



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 the corroded wheel bolts (arrows).

  Parts: Wheel bolts
- Clean the wheel bolts (arrows).
- Check the wheel bolts (arrows) and threads for damage, renew the wheel bolts (arrows) if necessary.
- Join and tighten the wheel bolts (arrows).

Wheel bolts

M14 / SW17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim.	Tightening torque	140 Nm
	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.	Check	140 Nm

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Additional Information

Overview of Tightening Torques

Wheel arch trim panel, front — Used in step 3

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Brake disc to front wheel hub — Used in step 4

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to rear wheel hub — Used in step 4

M8	Renew screw.	Tightening torque	16 Nm

Wheel bolts			Used in step 4
M14 / SW17	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 4
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 1
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 1
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 1
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 1
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 1
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 1
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	

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0 495 229 (36 1 332) Wheel stud



Common	Used in step 1
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 1
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

Repair instructions	Used in step
00 02 001 Raising the vehicle using a vehicle lift	14

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51 71 041 Removing and installing/replacing rear left or right wheel arch cover

WARNING

Vehicle may slip off the vehicle hoist if the vehicle hoist is handled incorrectly.

Danger! Life-threatening injuries!

- Observe safety information on raising the vehicle using a vehicle hoist.
- For additional information see: 00 ... Raise the vehicle using a vehicle lift.

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Removing the wheel



TECHNICAL INFORMATION

A wheel lift is recommended for easier wheel removal and installation without exertion (see Retailer Equipment Catalogue).

- **In vehicles with M Carbon ceramic brake: The wheel lift must be used to remove the wheel.**

  This process is intended to prevent damage to the brake disc.



- If several wheels are removed at the same time: Use a piece of chalk to mark on each tyre the axle and side on which the corresponding wheel is fitted.
- Release the wheel bolts (arrows) crosswise and remove the wheel.
- To release and tighten wheel bolts with a security code: Use the correct adapter from the set of special tools .

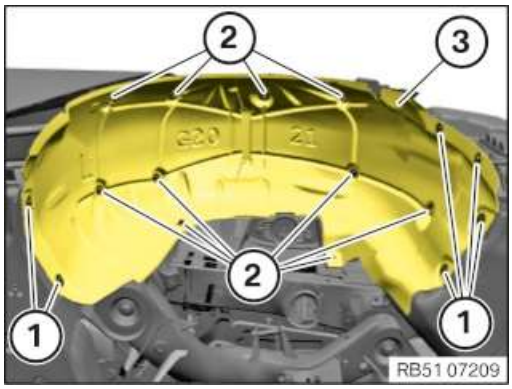
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MAIN WORK

2 – Removing rear wheel arch cover

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.

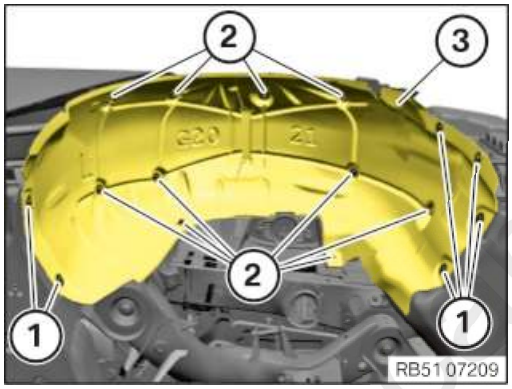


- Loosen screws (1).
- Loosen nuts (2).
- Guide the wheel arch cover (3) out.

3 – Removing the rear wheel arch cover

NOTICE

To provide a better overview: Schematic diagram with partially hidden components.



- Guide the wheel arch cover (3) in.
- Tighten the screws (1).
- Tighten nuts (2).

Wheel arch cover

Screw	3 Nm
Plastic nut	2,6 Nm

POSTPROCESSES

4 – Mounting the wheel



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.

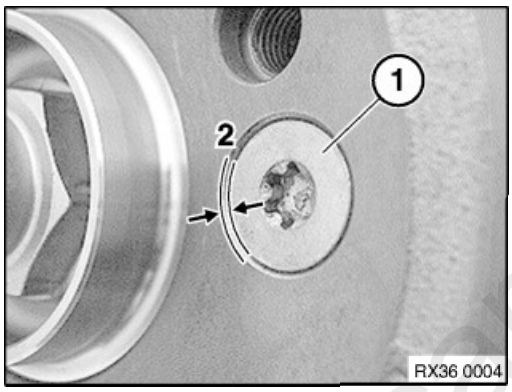
- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool 2 344 011.

  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).



- Check that the mounting bolt (1) for the brake disc is securely seated.

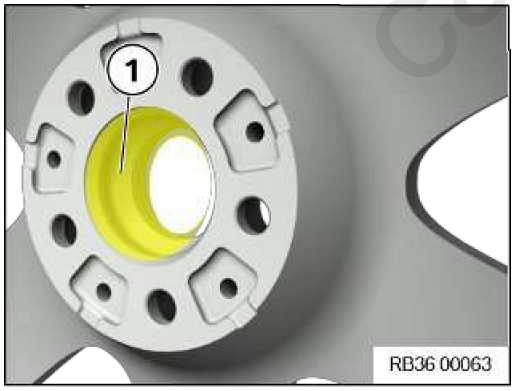
  The mounting bolt (1) for the brake disc **may not** protrude on the contact surface (2) between the brake disc and the wheel rim.

Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to rear wheel hub

M8	Renew screw.	Tightening torque	16 Nm



TECHNICAL INFORMATION

Wheel hubs and wheel centering on the models G80, G82 and G83 **must not** be greased.

- Thinly grease the wheel centring (1) in the wheel rim.

Expendable materials

Brake block paste * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	3 g, Bag	83192158851
	100 g, Tube	83192158852
	5 g, TU*	83230140233

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TECHNICAL INFORMATION

Wheel hubs and wheel centering on the models G80, G82 and G83 **must not** be greased.

- Apply a thin layer of grease to the front and rear wheel hubs (1) to protect against corrosion.

Expendable materials

Brake block paste * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	3 g, Bag	83192158851
	100 g, Tube	83192158852
	5 g, TU*	83230140233



TECHNICAL INFORMATION

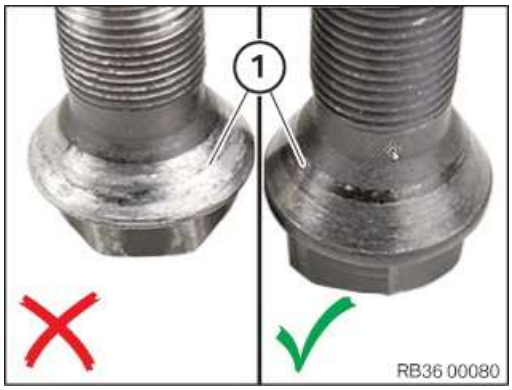
A wheel lift is recommended for easier wheel removal and installation without exertion (see Retailer Equipment Catalogue).

- **In vehicles with M Carbon ceramic brake: The wheel lift must be used to install the wheel.**

  This process is intended to prevent damage to the brake disc.

Check

- **Check wheel bolts for wear.**



Result

» Places (> 30%) of the bearing surfaces (1) of the taper on the screw head show a silver wear.

Measure

- Replace wheel bolts.

  Parts: Wheel bolts



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 the corroded wheel bolts (arrows).

  Parts: Wheel bolts
- Clean the wheel bolts (arrows).
- Check the wheel bolts (arrows) and threads for damage, renew the wheel bolts (arrows) if necessary.
- Join and tighten the wheel bolts (arrows).

Wheel bolts

M14 / SW17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim.	Tightening torque	140 Nm
	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.	Check	140 Nm

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Additional Information

Overview of Tightening Torques

Wheel arch cover — Used in step 3

Screw			3 Nm
Plastic nut			2,6 Nm

Brake disc to front wheel hub — Used in step 4

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to rear wheel hub — Used in step 4

M8	Renew screw.	Tightening torque	16 Nm

Wheel bolts			Used in step 4
M14 / SW17	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 4
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 1
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 1
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 1
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 1
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 1
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 1
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	

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0 495 229 (36 1 332) Wheel stud



Common	Used in step 1
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 1
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

Repair instructions	Used in step
00 02 001 Raising the vehicle using a vehicle lift	14

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51 71 099 Removing and installing/replacing the air duct for the coolant radiator

WARNING

Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.
- Detach battery earth lead from battery.
- With auxiliary batteries: Detach all battery earth leads from additional batteries.

RISK OF DAMAGE

Mechanical effects.

Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.

TECHNICAL INFORMATION

To guarantee the quality of the driver assistance functions in vehicles with concealed radar sensors installed, the component may only be repainted by observing the repair specifications described in the document "Standards for repair painting with sensor systems".

Sourcing reference:

https://colorsystem-paint.com/

Aftersales Information Research (AIR) - Repair and service messages - HG99 - ColorSystem

ISTA - HG99 - ColorSystem

No stickers or foils (transparent or coloured) may be attached in the radiation areas of the radar sensors.

The component may be painted if no radar sensors have been installed.

The following features can be used to identify whether radar sensors are installed on the vehicle:

Radar sensors are installed at the rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame).

Radar sensors are installed at the front and rear if the triangular warning light is located on the exterior mirror (in the mirror glass or on the mirror frame) in conjunction with the optional equipment S5ATA or S5AUA.

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.

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WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

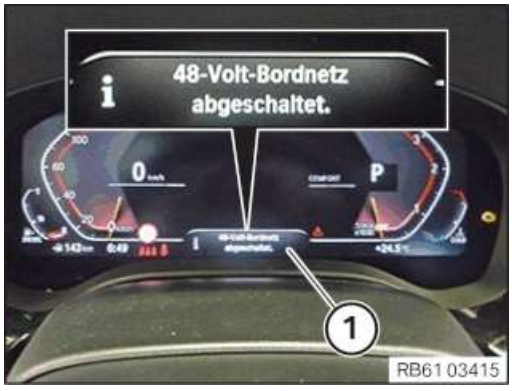
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.

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WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

2 – Disconnecting all battery earth leads

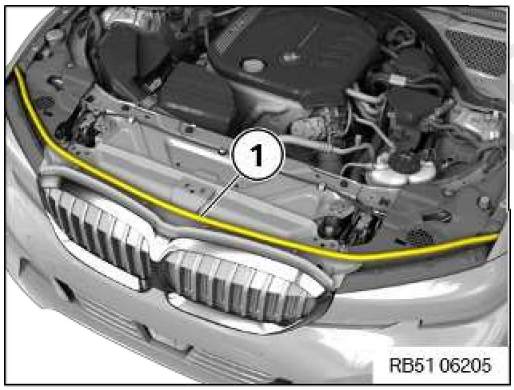


- See additional information.

3 – Remove the seal for the bonnet in front

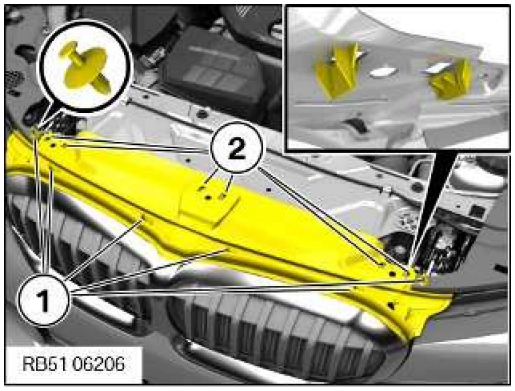
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

4 – Removing the centre engine compartment cover



- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

5 – Partially releasing the front left and right wheel arch trim panels

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NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially removing front wheel arch trim panel**

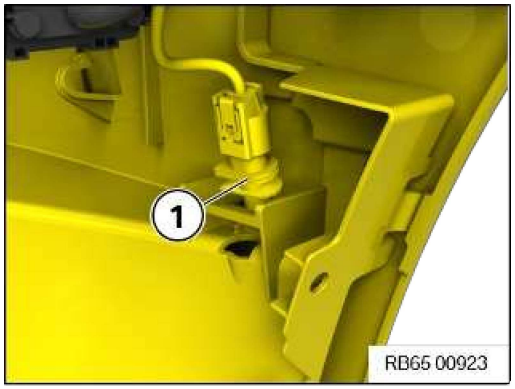


NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).
- Fold the front wheel arch trim panel to one side.

6 – Partially removing the temperature sensor



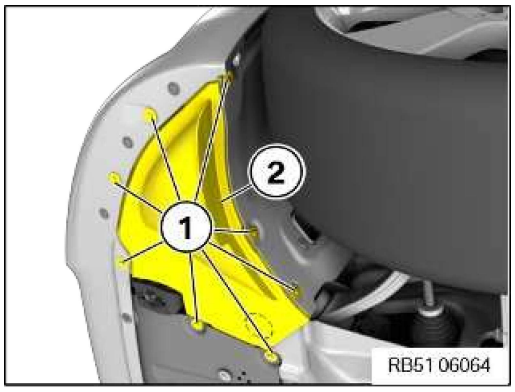
- Unclip temperature sensor (1) from the front bumper panel to the top.

7 – Remove the lower front cover at the left and right side

NOTICE

Description is for left component only. Procedure on the right side is identical.

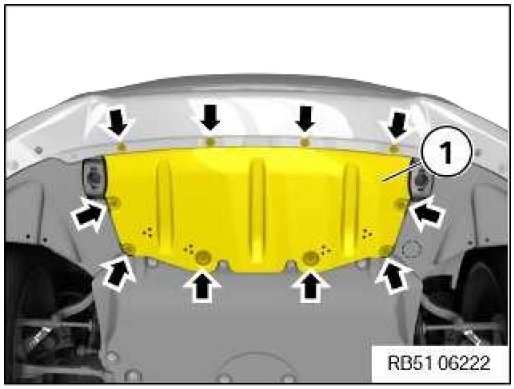
▸ **Removing the lower front cover at the side**



- Loosen screws (1).
- Removing the lower front cover at the side (2).

8 – Removing the front underbody protection

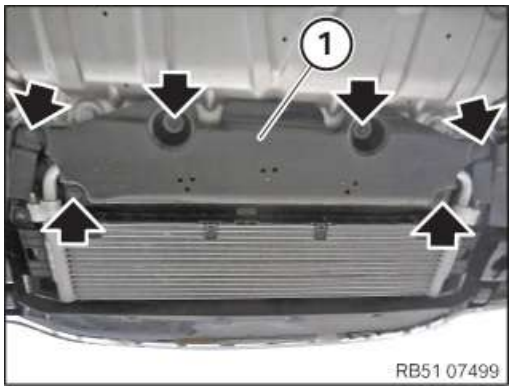
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- **Version A:**

  Remove screws (arrows).

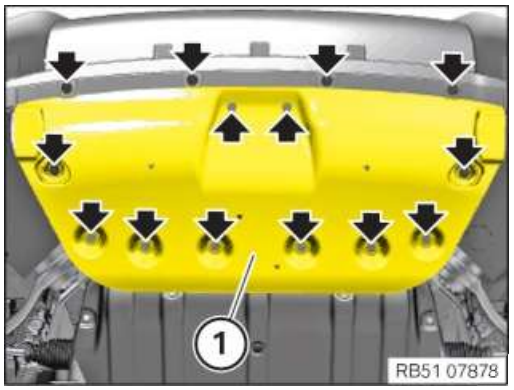
  Feed front underbody protection (1) backwards out of the bumper panel.



- **Version B:**

  Remove screws (arrows).

  Guide out front underbody protection (1) and remove it.



- **Version C:**

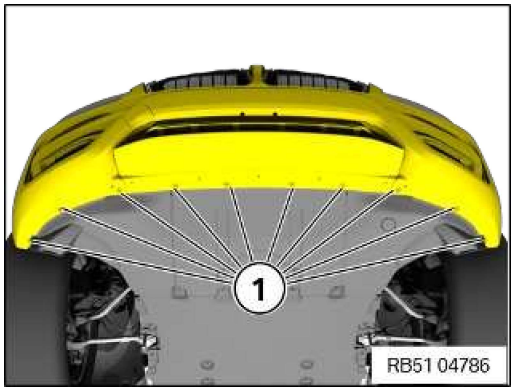
  Remove screws (arrows).

  Guide out front underbody protection (1) and remove it.

9 – Remove front bumper panel

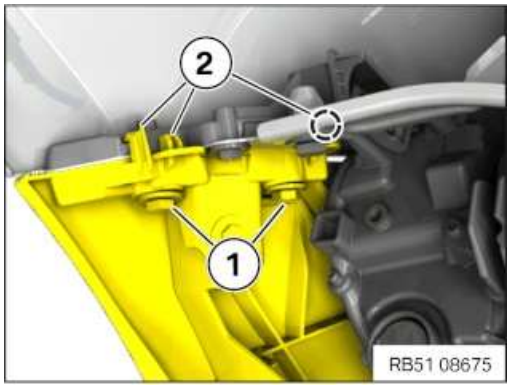
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Loosen screws (1).

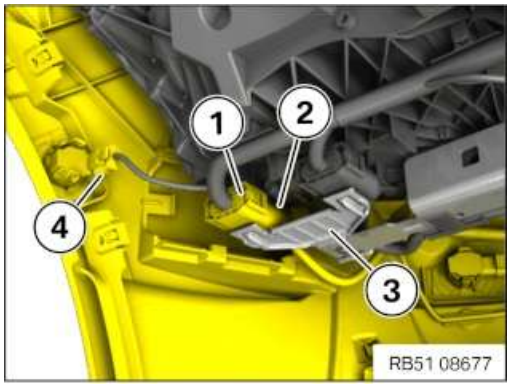
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NOTICE

Perform the operations on the left and right side.

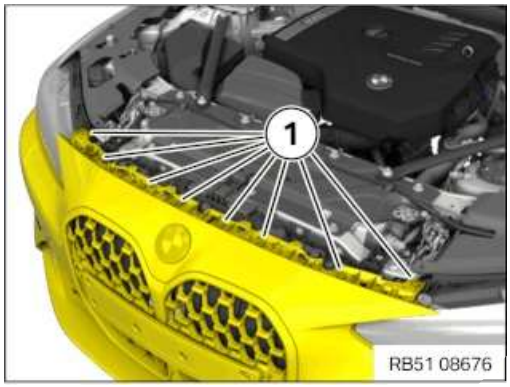
- Loosen screws (1).
- The bumper panel with the latch mechanisms (2) is to be released and removed from the guide.



NOTICE

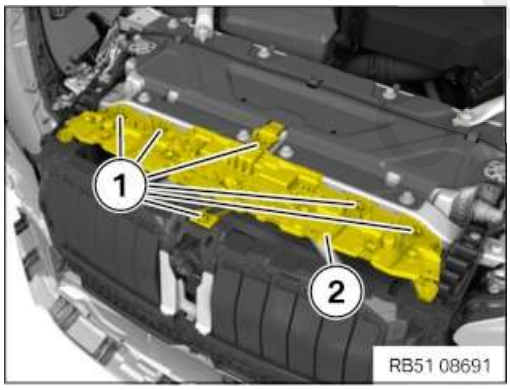
Perform the operations on the left and right side.

- Unlock plug connection (1) and disconnect.
- Unclip the connector (2) from the holder (3).
- If necessary, unlock and disconnect the plug connection (4).



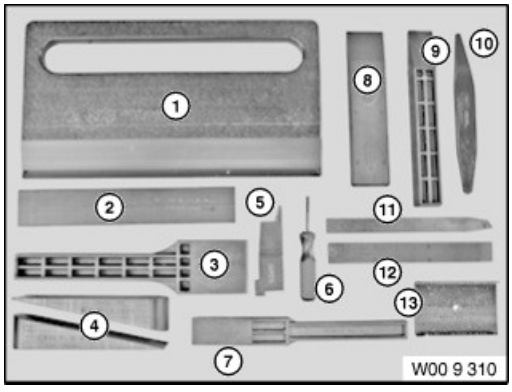
- Loosen screws (1).
- Remove the bumper panel towards the front.

10 – Remove top adapter for bumper panel



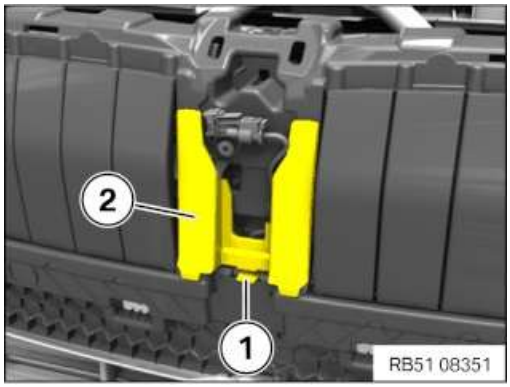
- Loosen screws (1).
- Remove adapter (2).

11 – Remove top automatic air flap control

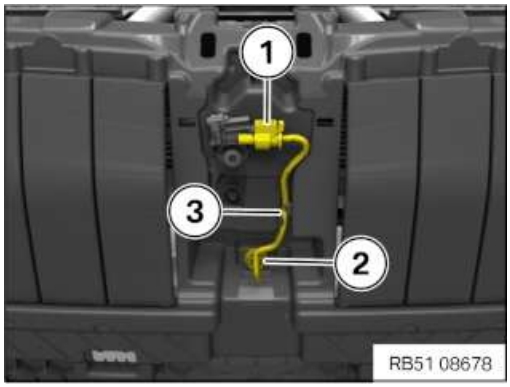


- Have the set of special tools 0 493 752 (00 9 329) ready.

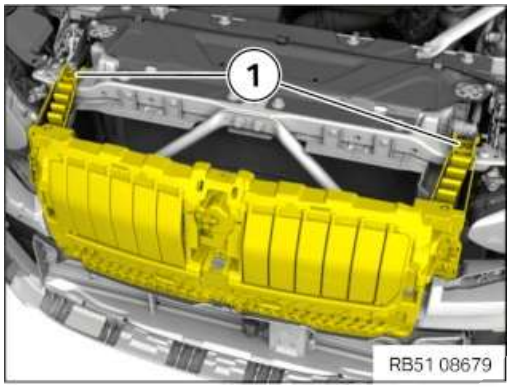
rdiagn.com



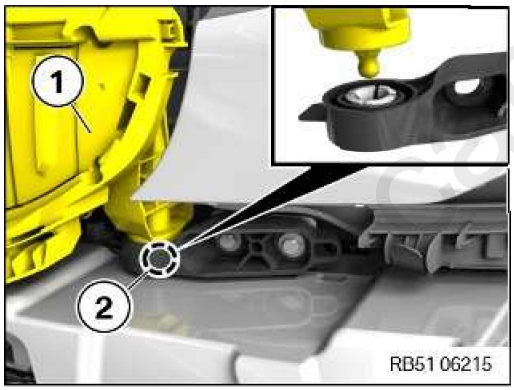
- Release latch mechanism (1) and guide down cover (2).



- Unlock plug connection (1) and disconnect.
- Unclip the cable for the acceleration sensor with holder (2) and remove it from guide (3).



- Loosen screws (1).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The operations shown only for one side must be carried out on both sides.

- Release air flap control at the top (1) using a suitable special tool.

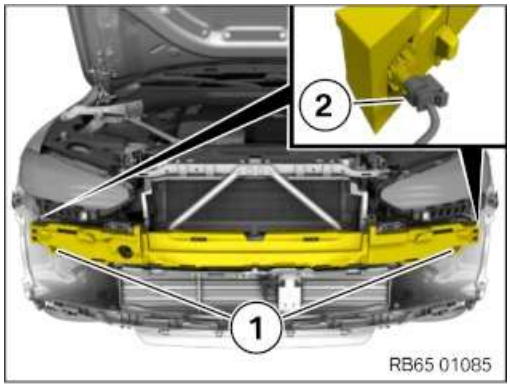
  Lever out ball head (2) to the top.
- Guide out air flap control at the top (1) to the top.
- Unlock associated plug connections and disconnect.

12 – Removing pedestrian protection sensor

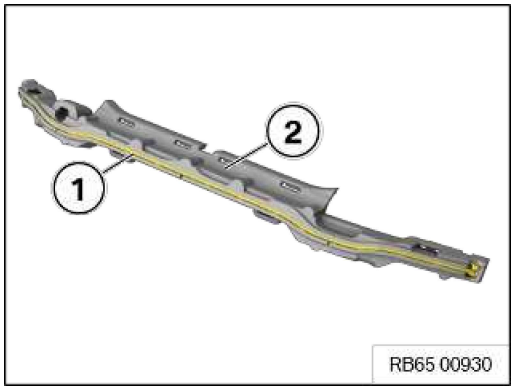
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- Release the expanding rivet (1).
- Unlock plug connections (2) and disconnect.
- Feed out and remove the impact absorber on support.

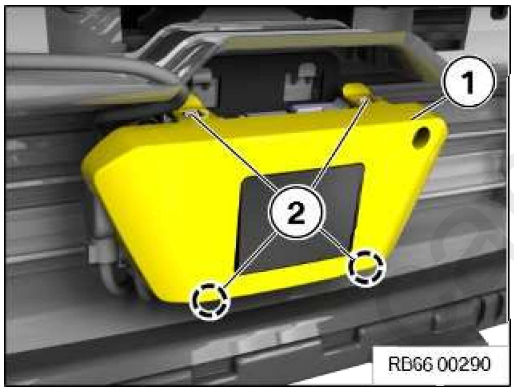


- Remove the pedestrian protection sensor (1) from the impact absorber (2).

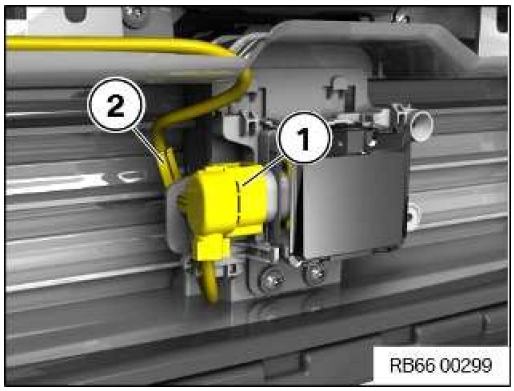
13 – If installed: Remove front radar sensor (FRS) with the holder

NOTICE

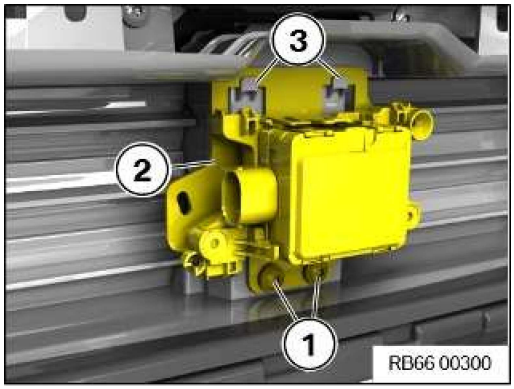
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Release cover (1) from the latch mechanisms (2) and remove it to the front.



- Unlock plug connection (1) and disconnect.
- Unclip the vehicle wiring harness with the bracket (2) and place aside.

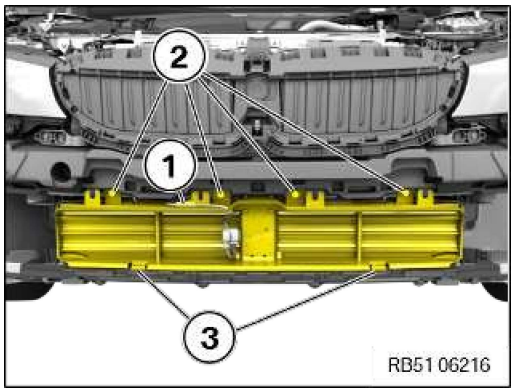


- Mark the position of the holder (2) for the front radar sensor (FRS).
- Loosen screws (1).
- Guide out and remove the front radar sensor (FRS) with holder (2) out of tabs (3) .

14 – Removing the bottom automatic air flap control

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- If necessary, release the wiring harness from the holder (1) .
- Loosen screws (2).
- Guide out the bottom air flap control with the guides (3) in a forwards direction.
- Unlock associated plug connection and disconnect.

15 – Removing the left and right fanfare

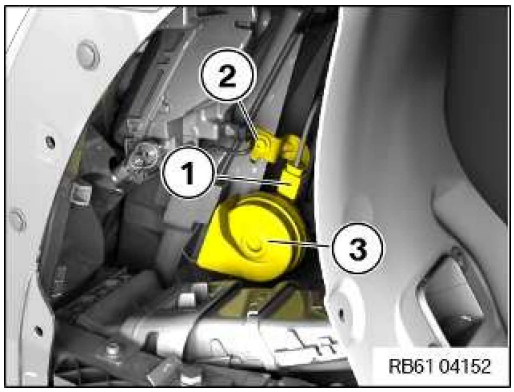
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the fanfare**

TECHNICAL INFORMATION

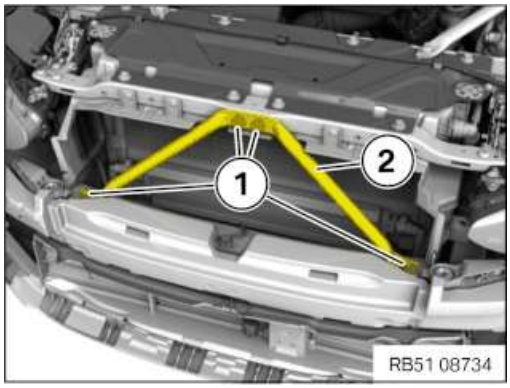
Replace the fanfare only complete with the holder.



- Unlock plug connection (1) and disconnect.
- Release the screw (2) and remove the fanfare (3) with the holder.

16 – Remove stiffening strut

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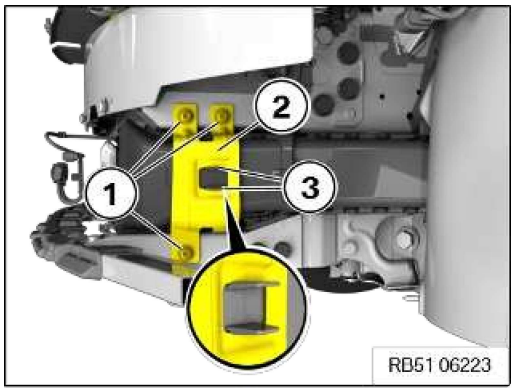
- Loosen screws (1).
- Remove bracing strut (2).

17 – Removing left and right brake air duct

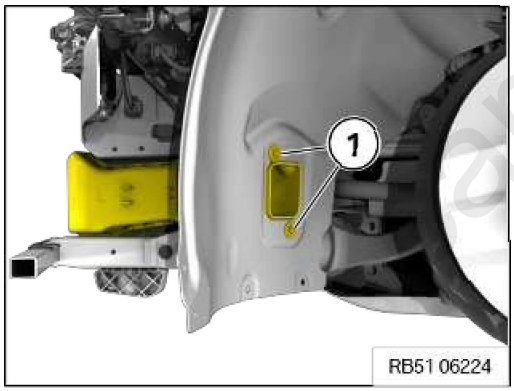
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Removing the brake air duct**



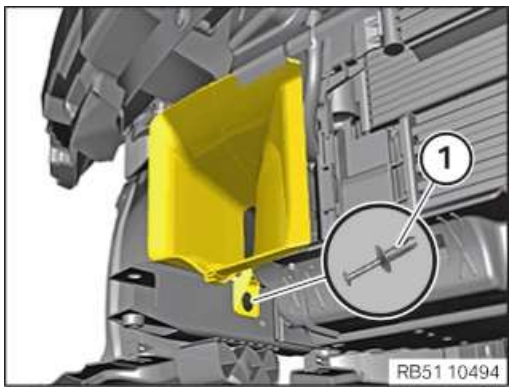
- Loosen screws (1).
- Release and remove vertical connection (2) from latch mechanisms (3) .



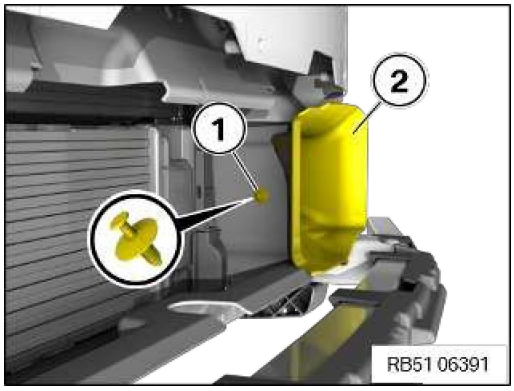
NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Loosen screws (1).



- Release expanding rivet (1).

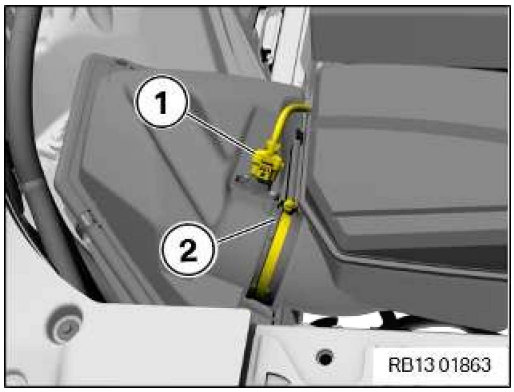


- Loosen expanding rivet (1).
- Feed out the brake air duct (2) toward the front.

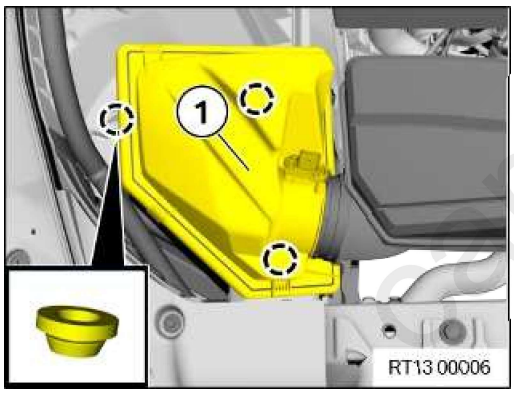
18 – Removing intake silencer housing

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

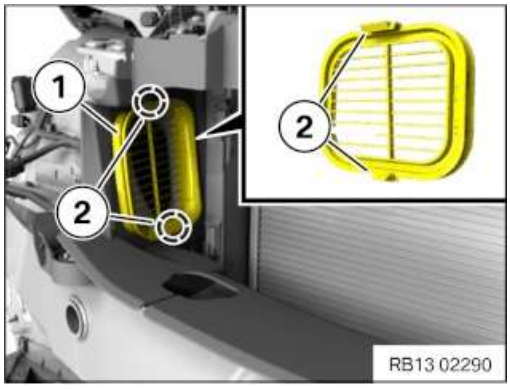


- Unlock plug connection (1) and disconnect.
- Unfasten clamp (2).

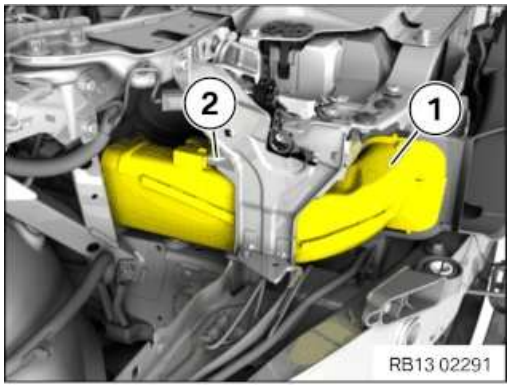


- Detach the intake filter housing (1) from the rubber mounts (marks) toward the top.

19 – Removing intake port



- Release and remove the grille (1) with the latch mechanisms (2).

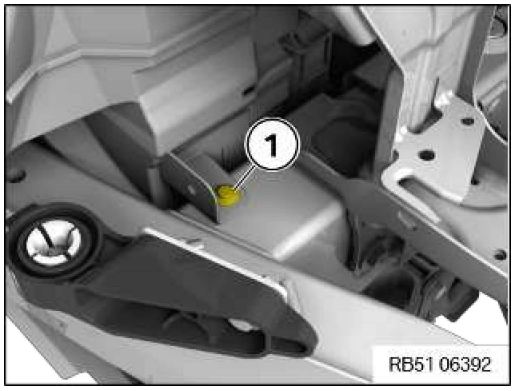


- Feed intake port (1) backward out of the guide (2) on the lock support.
- Remove the intake port (1) to the rear.

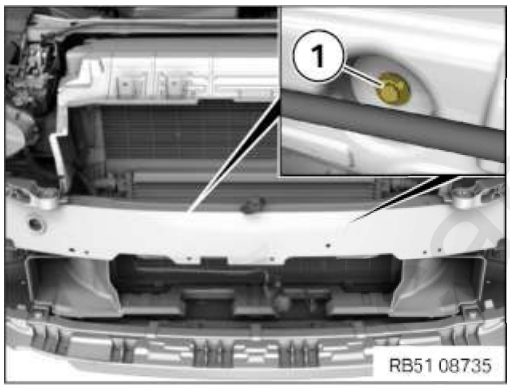
20 – Loosening the air duct for the coolant radiator on the support for the bumper panel

NOTICE

The operations shown only for one side must be carried out on both sides.



- Release expanding rivet (1).



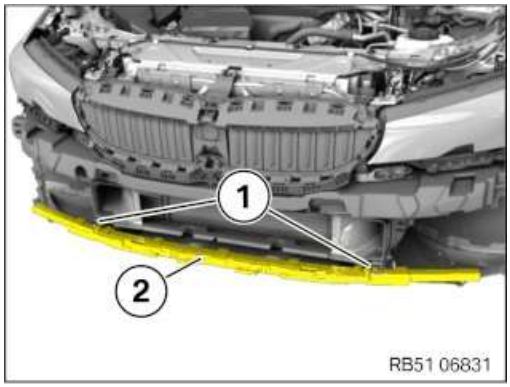
- Release the expanding rivet (1).

21 – Remove support for bumper panel at front bottom

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

ardiagn.com

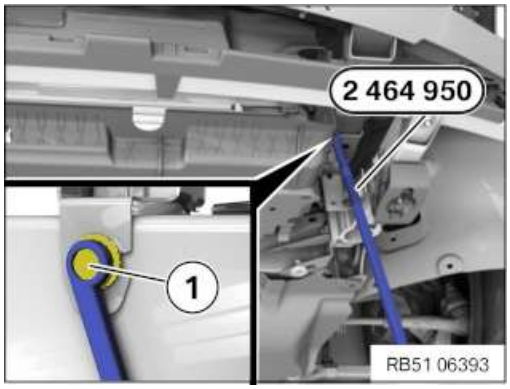


- Loosen screws (1).
- Work the support for front bottom bumper panel(2) out and remove it.

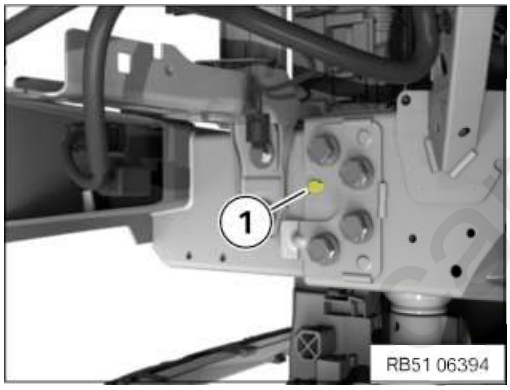
22 – Removing the support for bumper panel

NOTICE

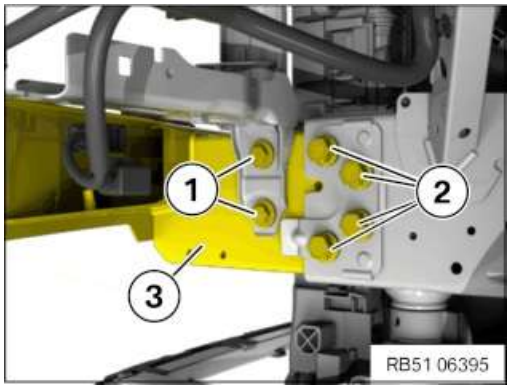
The operations shown only for one side must be carried out on both sides.



- Release the screw (1) using the special tool .



- Drill out the guide pin (1).
  - Ø = 8 mm



- Loosen screws (1) and (2).
- Remove the support for the bumper panel (3)towards the front.

23 – Removing left and right front-end strut

NOTICE

Description is for left component only. Procedure on the right side is identical.

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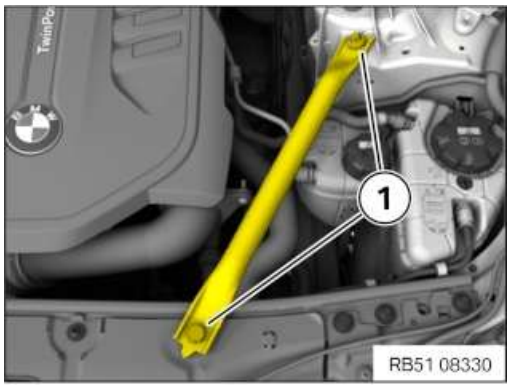
▸ **Removing the front-end strut**

TECHNICAL INFORMATION

Driving without the strut brace/front-end strut or tension strut is not permitted.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

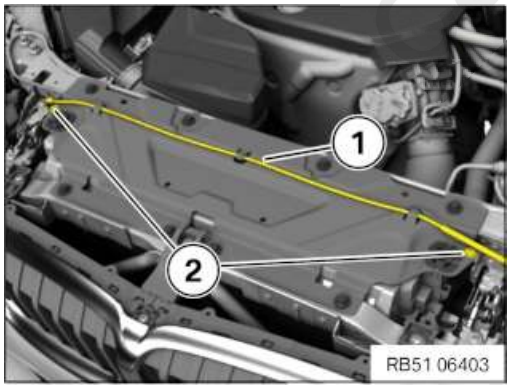


- Loosen screws (1).
- Remove the front-end strut.

24 – Removing the top cross connection

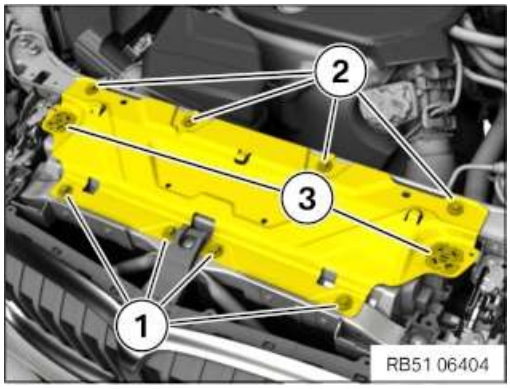


- Release housing (1) for the coupling of the Bowden cables from the body.



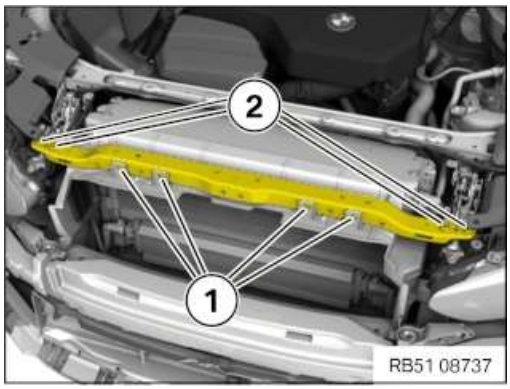
- Detach Bowden cable (1) at the top cross connection.
- Loosen screws (2).

diagn.com



- Loosen screws (1) and (2).
- Remove the top cross connection with holders (3) to the top.

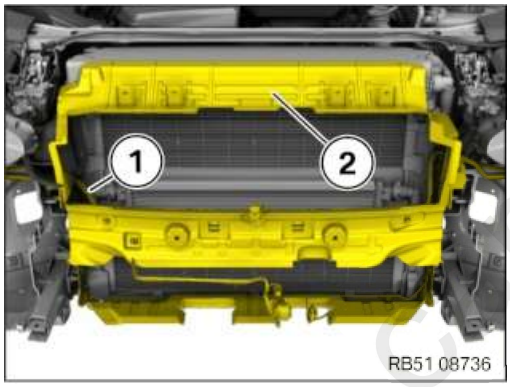
25 – Remove front cross connection



- Release the expanding rivet (1).
- Loosen screws (2).
- Feed out the front cross connection upwards and remove.

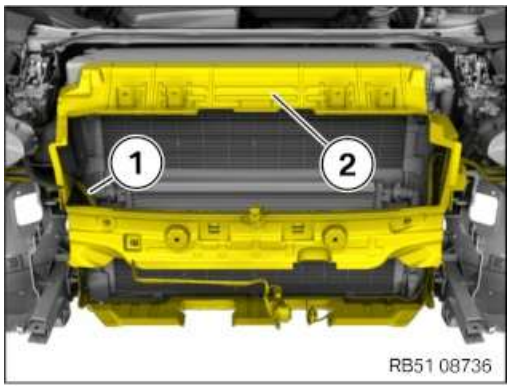
MAIN WORK

26 – Removing the air duct for the coolant radiator



- Release the wiring harness (1) with all the holders from the air duct (2).
- Detach the wiring harness (1) from the holders of the air duct (2).
- Remove the air duct (2).

27 – Installing the air duct for the coolant radiator

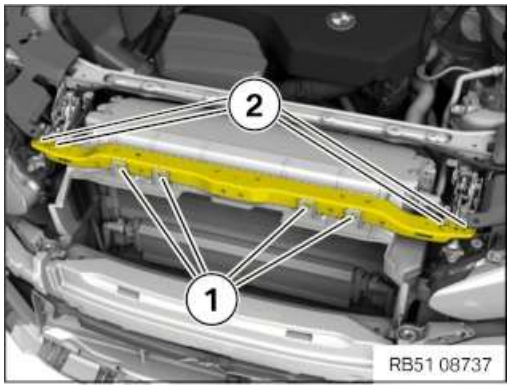


- Position the air duct (2).
- Hook the wiring harness (1) in all the holders of the air duct (2).
- Clip in the wiring harness (1) with the holder in the air duct (2).

POSTPROCESSES

28 – Install front cross connection

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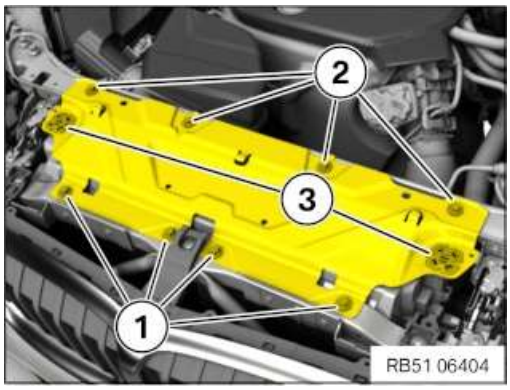
- Feed in the front cross connection from the top and position it.
- Tighten the screws (2).

Front cross connection on the tailgate lock support

Combination oval-head machine screw		Tightening torque	28 Nm

- Secure expanding rivet (1).

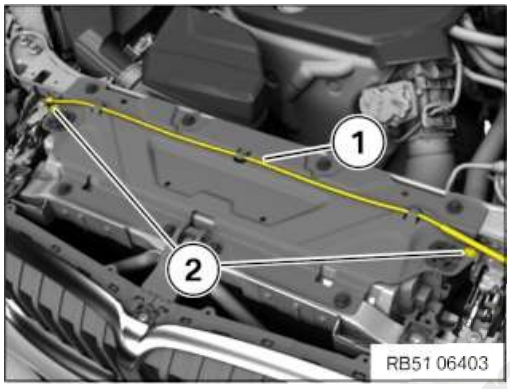
29 – Installing the top cross connection



- Set and position the upper cross connection with holders (3) from above.
- Tighten screws (1) and (2).

Cross connection, top

M8x20		Tightening torque	28 Nm



- Tighten the screws (2).

Cross connection, top

M6x20		Tightening torque	11,8 Nm

- Attach Bowden cable (1) on the upper cross connection.



- Clip in the housing (1) for the coupling of the Bowden cables.

30 – Installing front-end strut on left and right

TECHNICAL INFORMATION

Driving without the strut brace/front-end strut or tension strut is not permitted.

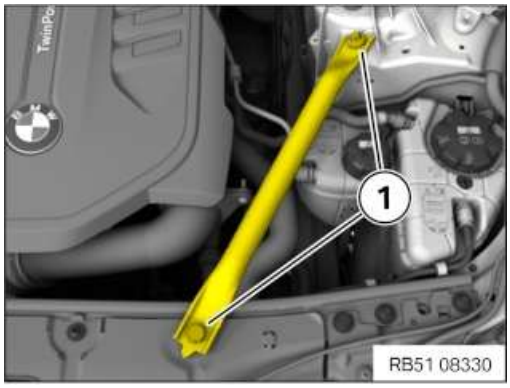
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the front-end strut**

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

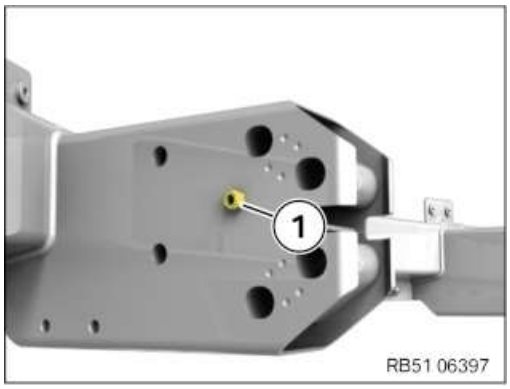


- Position the front-end strut.
- Tighten the screws (1).

Front end strut

Screw		Tightening torque	56 Nm

31 – Preparing support for the bumper panel



NOTICE

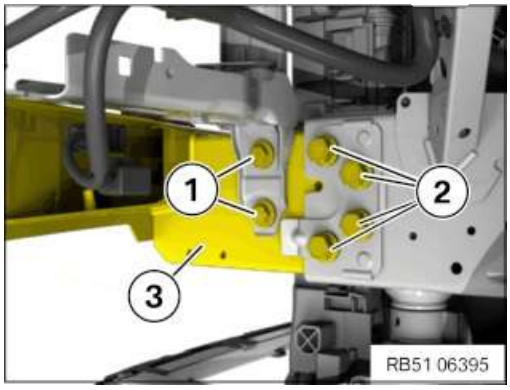
The operations shown only for one side must be carried out on both sides.

- Drill out guide pin (1) on the new part.
  - Ø = 8 mm

32 – Installing the support for the bumper panel

NOTICE

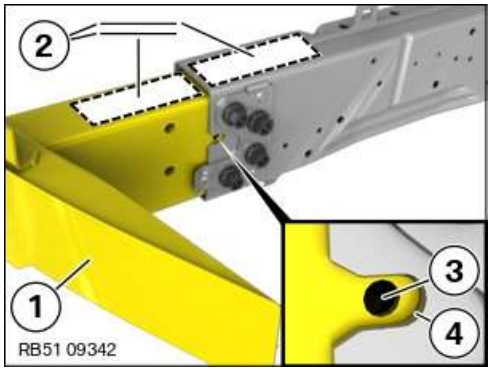
The operations shown only for one side must be carried out on both sides.



- Feed in the support for the bumper panel (3)from the front.
- Renew screws (2).

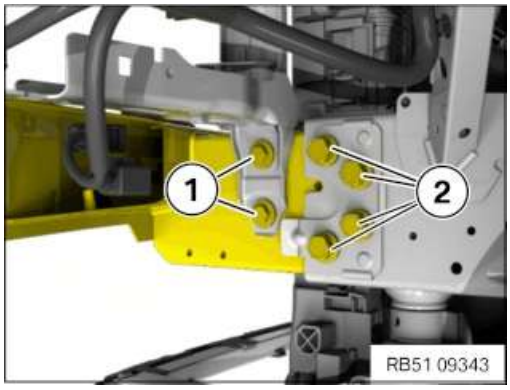
  Parts: Screws
- Position the screws (2) and hand-tighten them.
- Position the screws (1) and hand-tighten them.

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- Position the support (1) such that the bore hole (3) is centrally aligned with recess (4) .

  Thus, surfaces(2) must be parallel to one another.
- Position the support (1) such that the surfaces (2) are parallel to one another.



- Tighten the screws (2).

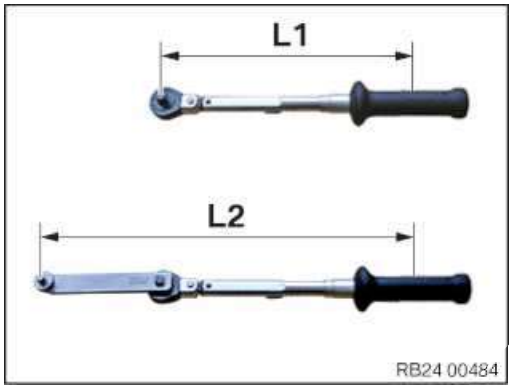
Front bumper support to engine support

Hexagon screw with flange	Renew screw	Tightening torque Angle of rotation	100 Nm 180 °

- Tighten the screws (1).

Vertical connection to deformation element

Hexagon screw		Tightening torque	21 Nm



TECHNICAL INFORMATION

The setpoint torque deviates from the torque to be set when using special tool 2 464 950.

NOTICE

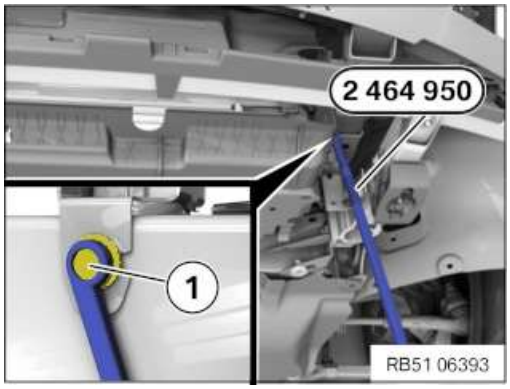
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Converting the setpoint torque into the torque to be set:

  (Setpoint torque * L1) / L2 = Torque to be set

  L1 = Length from the centre of the handle to the reversible ratchet head

  L2 = Length from the centre of the handle to the centre of the ring on the special tool



- Tighten bolt (1) with special tool and the torque wrench.

  While doing so, the special tool and the torque wrench must align while tightening.

Vertical connection to deformation element

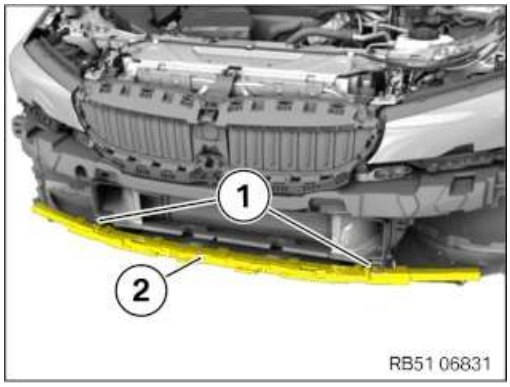
Hexagon screw		Setpoint torque	21 Nm

33 – Install support for bumper panel at front bottom

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NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull in support for bumper panel at front bottom (2) and position.
- Tighten the screws (1).

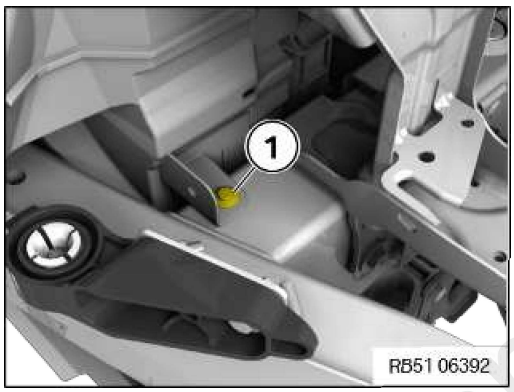
Support for bumper panel, bottom front on deformation element

Combination oval-head machine screw		Tightening torque	10 Nm

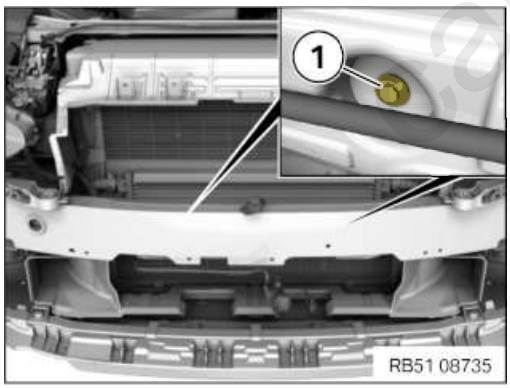
34 – Fastening the air duct for the coolant radiator to the support for the bumper panel

NOTICE

The operations shown only for one side must be carried out on both sides.



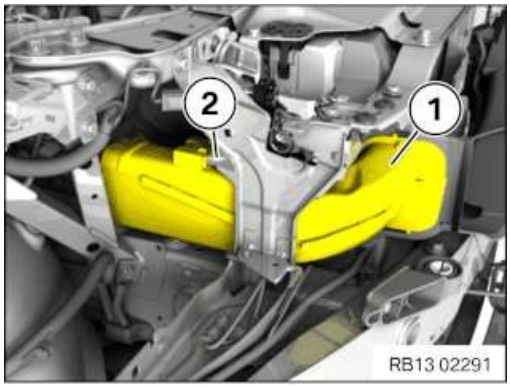
- Secure expanding rivet (1).



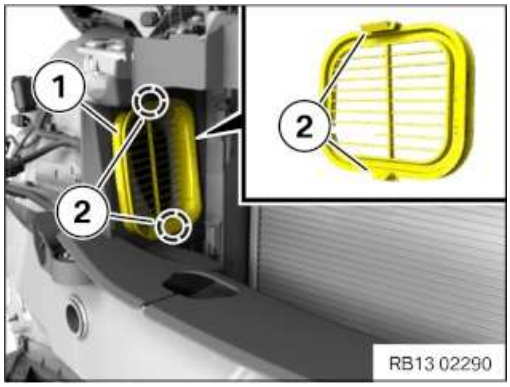
- Fasten the expanding rivet (1).

35 – Installing intake port

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- Guide in intake port (1) from the rear.
- Slide intake port (1) onto guide (2) on the lock support.

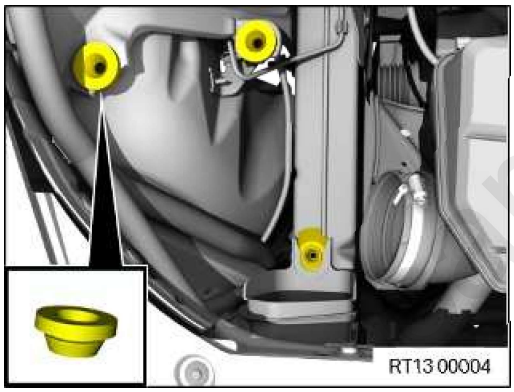


- Check latch mechanisms (2) for damage and, if necessary, renew them.
- Position grille (1) and clip it into latch mechanisms (2) .

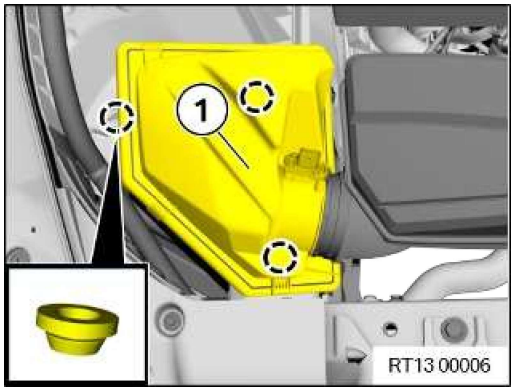
36 – Installing intake silencer housing

NOTICE

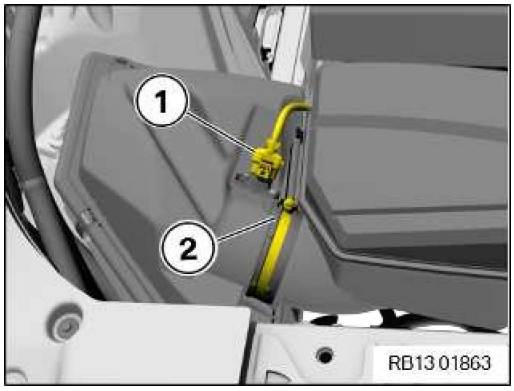
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check that the rubber mount is at the right position.



- Feed the intake filter housing (1) in and engage it in the rubber mounts (marks).



- Connect connectors (1) and lock.

TECHNICAL INFORMATION

- Note the installation position of the component. The component may be installed in various installation positions.

- Tighten clamp (2).

Resonator to intake filter housing

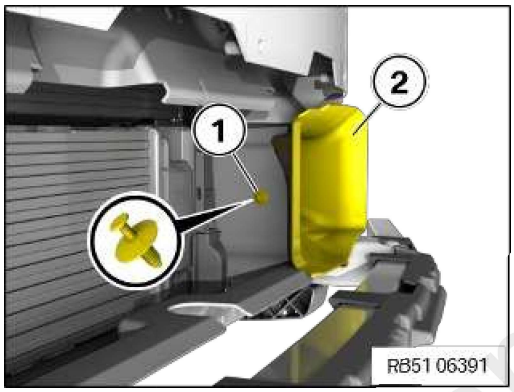
Clamp		Tightening torque	3 Nm

37 – Installing the left and right brake air duct

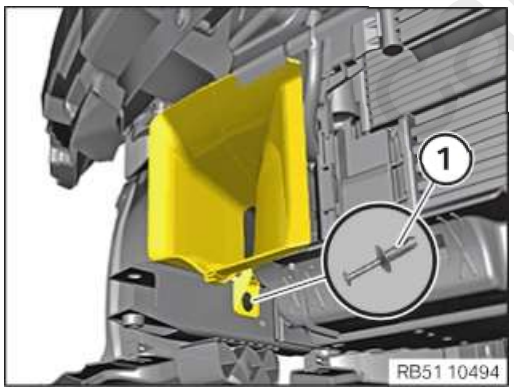
NOTICE

Description is for left component only. Procedure on the right side is identical.

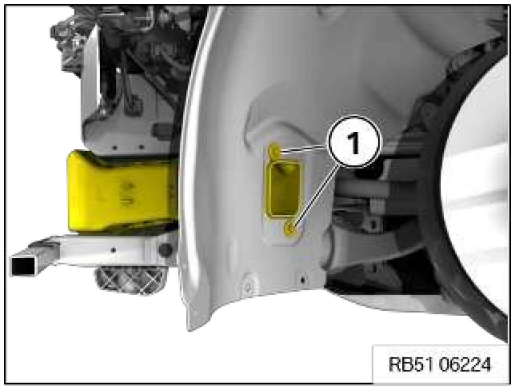
▸ **Installing the brake air duct**



- Guide in and position brake air duct (2).
- Fasten expanding rivet (1).



- Secure expanding rivet (1).



NOTICE

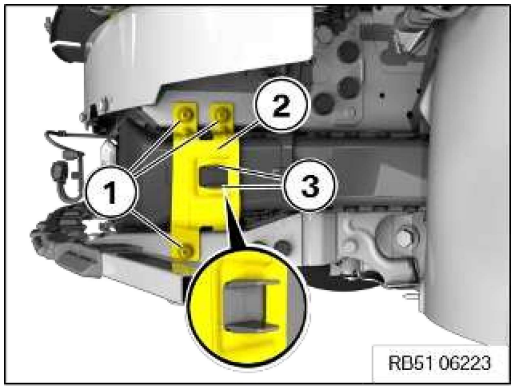
To provide a better overview: Schematic diagram without front wheel.

- Tighten the screws (1).

Brake air duct to front wheel arch cover of front section

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

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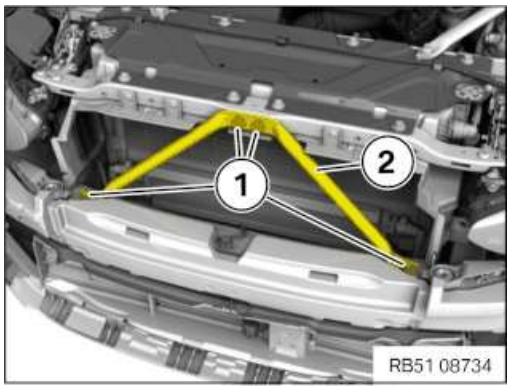


- Position the vertical connection (2) and clip it in the latch mechanisms (3) .
- Tighten the screws (1).

Vertical connection to deformation element

Flat-head screw M6x20		Tightening torque	11,8 Nm

38 – Install bracing strut



- Position the reinforcement strut (2).
- Tighten the screws (1).

Bracing strut on cross connection and bumper support

Hexagon screw M8		Tightening torque	28 Nm

39 – Installing the left and right fanfare

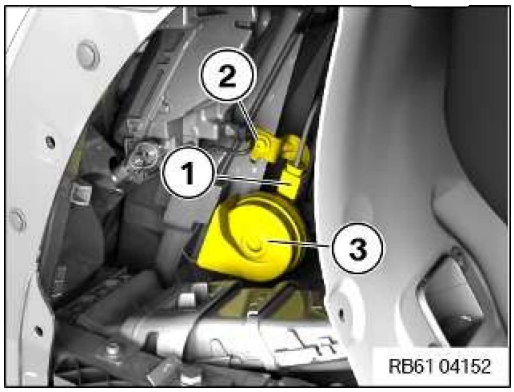
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing the fanfare**

TECHNICAL INFORMATION

Replace the fanfare only complete with the holder.



- Position the fanfare (3) correctly and tighten the screw (2) .

Fanfare to support for bumper panel

M6x20 screw		Tightening torque	8,8 Nm

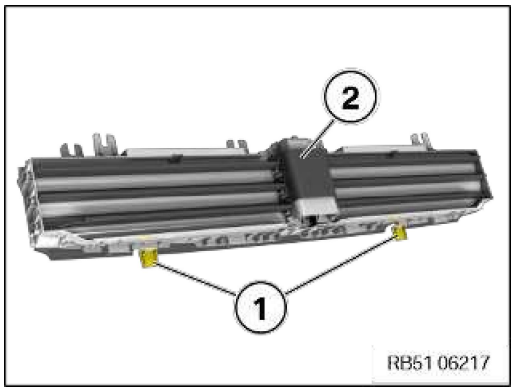
- Connect connectors (1) and lock.

40 – Installing the bottom automatic air flap control

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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Check

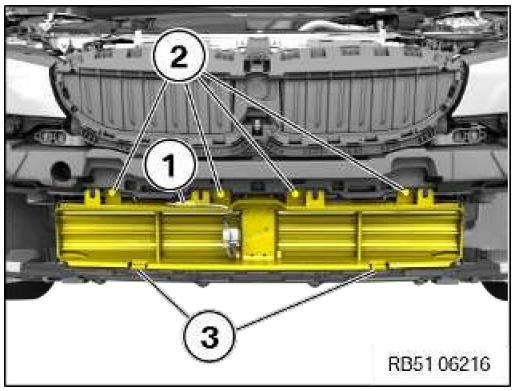
- Check the guides (1) on the bottom air flap control (2) for damage.

Result

» Guide is damaged.

Measure

- Renew the bottom air flap control.



- Connect and lock corresponding connectors.
- Position the bottom air flap control and feed in with the guides (3) .
- Tighten the screws (2).

Bottom air flap control on top bumper panel support

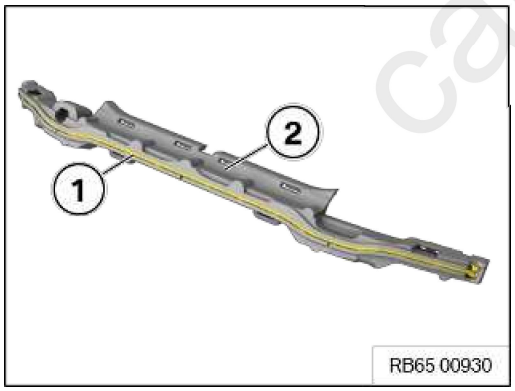
Oval-head screw		Tightening torque	4,6 Nm

- If applicable, clip in the vehicle wiring harness with the holder (1).

41 – Installing the pedestrian protection sensor

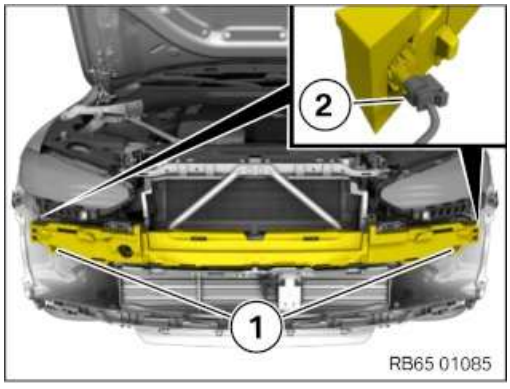
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Check the impact absorber (2) for damage.

  Renew the damaged impact absorber (2).
- Carefully insert the pedestrian protection sensor (1) in the impact absorber (2).



- Connect connectors (2) and lock.
- Hook the impact absorber at the bottom and then press it upwards.
- Secure expanding rivet (1).

42 – Connecting all battery earth leads

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42 – Connecting all battery earth leads

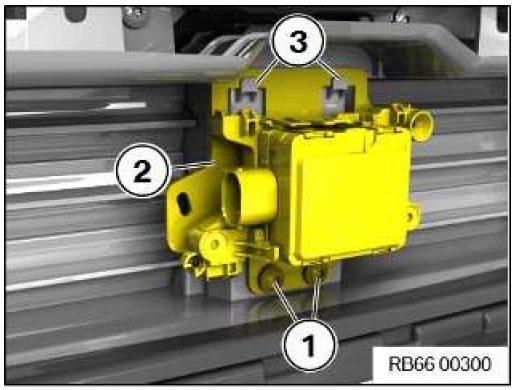


- See additional information.

43 – If installed: Installing front radar sensor (FRS) with bracket

NOTICE

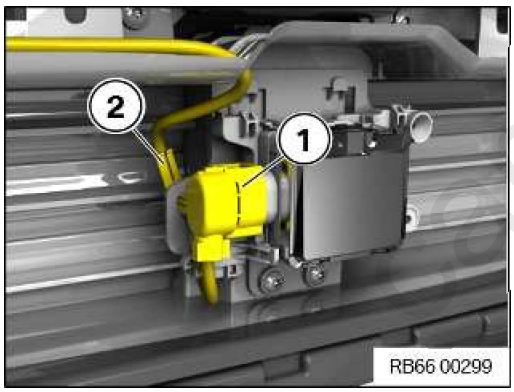
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Fit the front radar sensor (FRS) with the holder (2) in the tabs (3) .
- Position the holder (2) at the mark made during removal.
- Tighten the screws (1).

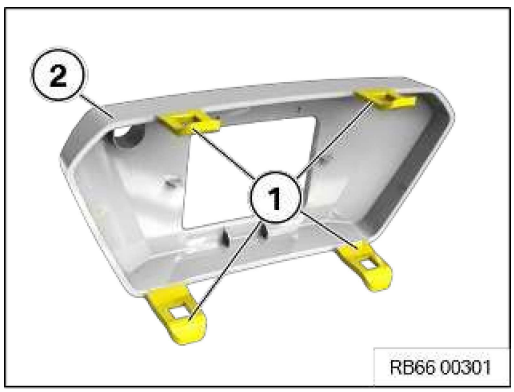
Front radar sensor (FRS) / (FRSF) holder to support

Combination oval-head machine screw		Tightening torque	8 Nm



- Clip in the vehicle wiring harness including bracket. (2)
- Connect connectors (1) and lock.

Check



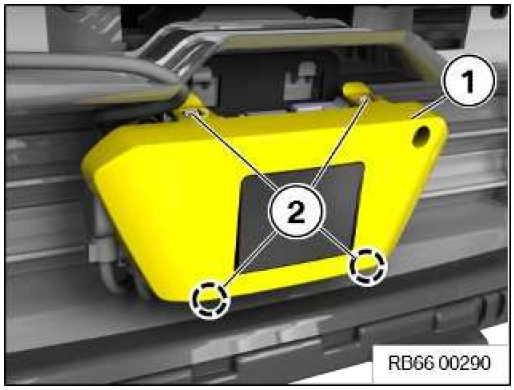
- Check tabs (1) on cover(2) for damage.

Result

» Tabs (2) are damaged.

Measure

- Renew the cover.



- Position the cover (1) and clip it in the latch mechanisms (2) .

▸ **Adjusting front radar sensor (FRS)**

TECHNICAL INFORMATION

Notes on adjusting the ACC sensor are a fundamental requirement for these repair instructions and must be complied with at all times.

For additional information see: 66 31 ... Notes on adjusting the ACC sensor

TECHNICAL INFORMATION

If there is a "Sensor misaligned" fault memory entry and the sensor cannot be aligned correctly using the adjusting screw, a front impact damage may be suspected.

In this case, the vehicle must be inspected thoroughly for damage. Damaged parts must be renewed if necessary. Then adjust the ACC sensor again.

A damaged/bent holder indicates mechanical misuse of the vehicle and must not be charged as a warranty case.

▹ **Checking vehicle and components for damage**

Check

- In the visible areas, visually check for:
  - damage
  - Deformation

Result

» Damage or deformation.

Measure

- Identify and renew damaged, deformed vehicle parts.

Result

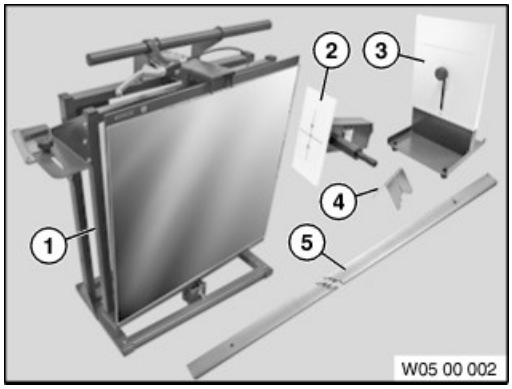
» No damage or deformation

Measure

- Adjust the front radar sensor (FRS).

◃

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- Stage special tools 0 442 898 and 2 338 466.
- Set up special tool as per enclosed operating instructions.



- Connect diagnosis system.
  - Service functions
  - Driver assistance
  - Front radar sensor (FRS)
  - Front radar sensor start-up (FRS)



NOTICE

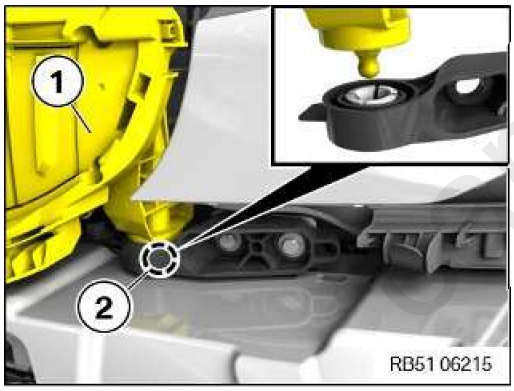
Schematic diagram is for example purposes. Some parts may differ in certain details.

- Turn the screw (1) with the standard tool to adjust the front radar sensor (FRS).

  Standard tools:

  (Shaft length > 90 mm)

44 – Insert top automatic air flap control



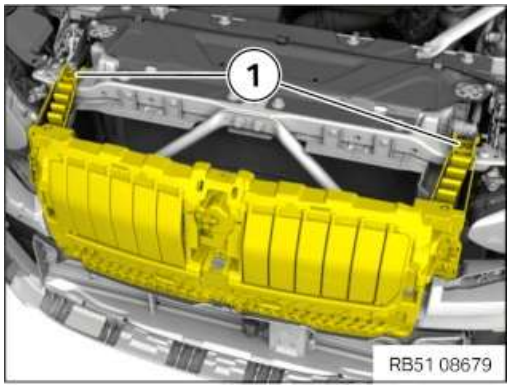
NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

NOTICE

The operations shown only for one side must be carried out on both sides.

- Position the top air flap control (1).
- Connect and lock the associated connectors.
- Feed in the air flap control (1) at the top and connect with the ball head (2).

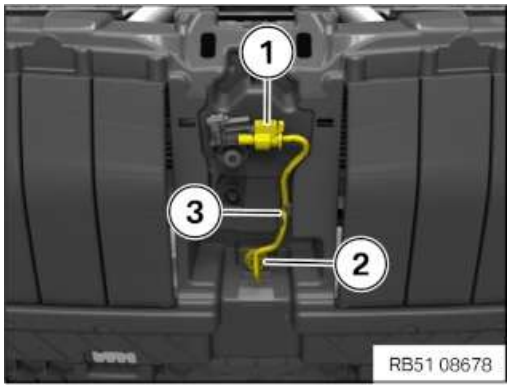


- Tighten the screws (1).

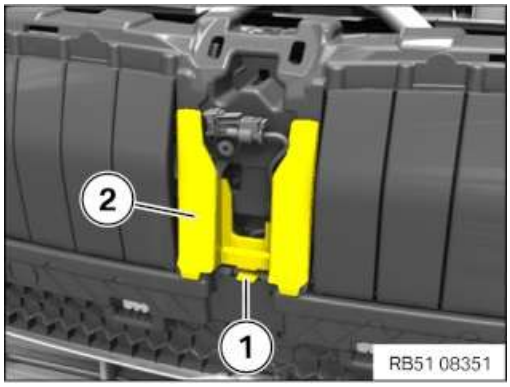
Air flap control to front end

Oval-head screw with spring washer		Tightening torque	4 Nm

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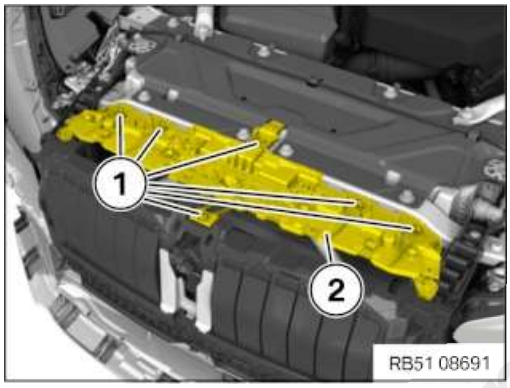


- Clip in the cable for the acceleration sensor with the holder (2) and feed it in the guide (3).
- Connect connectors (1) and lock.



- Feed in the cover (2) from below and clip it in with the latch mechanism (1) .

45 – Installing top adapter for panel support



- Position the adapter (2).
- Tighten the screws (1).

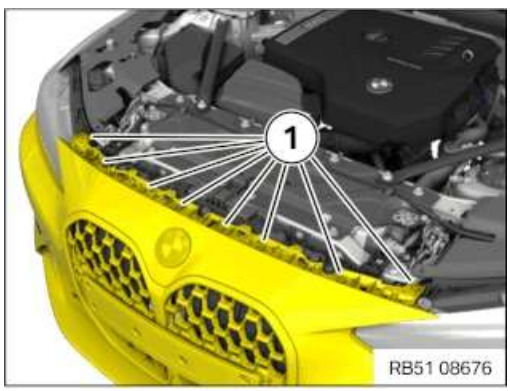
Adapter to the front panel

Oval-head screw with spring washer		Tightening torque	4 Nm

46 – Install bumper panel, front

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

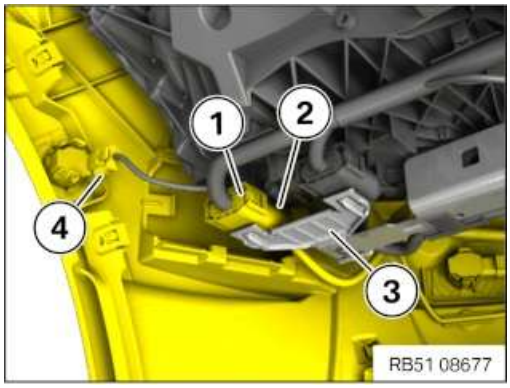


- Fit the bumper panel from the front and position it.
- Tighten the screws (1).

Bumper panel, front top

Oval-head screwM6		Tightening torque	4,6 Nm

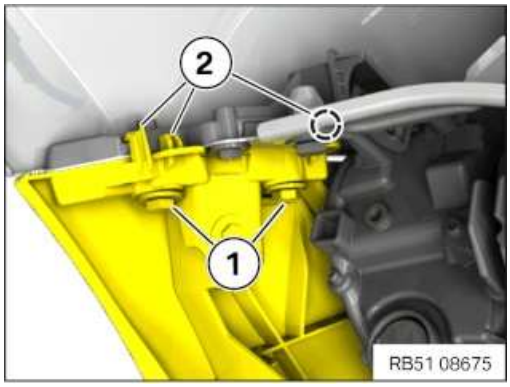
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NOTICE

Perform the operations on the left and right side.

- Clip in the connector (2) in the holder (3).
- Connect connectors (1) and lock.
- If necessary, connect and lock the connector (4).



- Feed in the bumper panel in the guide and clip in with the latch mechanisms (2).

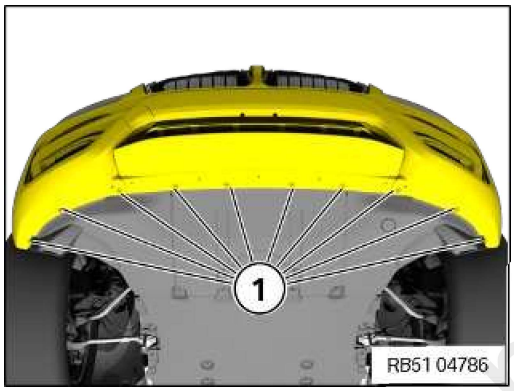
NOTICE

Perform the operations on the left and right side.

- Tighten the screws (1).

Front bumper panel to front side panel

Torx screw 5x35		Tightening torque	3 Nm

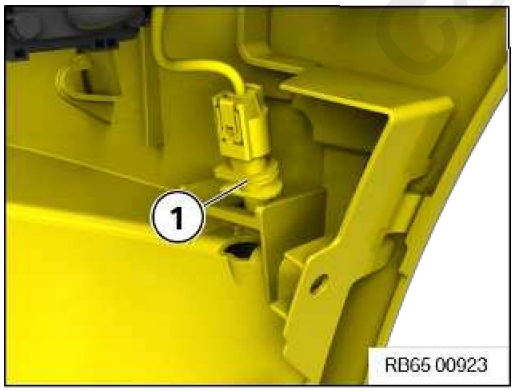


- Tighten the screws (1).

Front bumper panel to underbody protection

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

47 – Partially installing the temperature sensor



- Clip the temperature sensor (1) downwards into the front bumper panel.

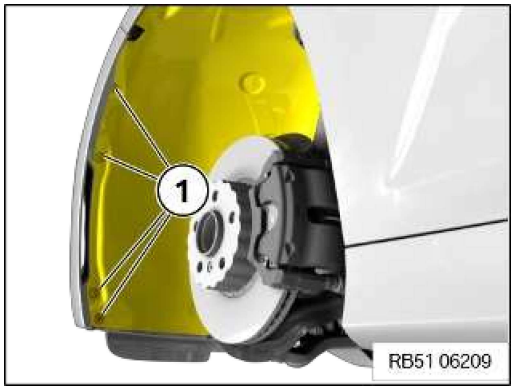
48 – Partially installing the front left and right wheel arch trim panels

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Partially installing front wheel arch trim panel**

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NOTICE

To provide a better overview: Schematic diagram without front wheel.

- Fold back the front wheel arch trim panel.
- Tighten the screws (1).

Wheel arch trim panel, front

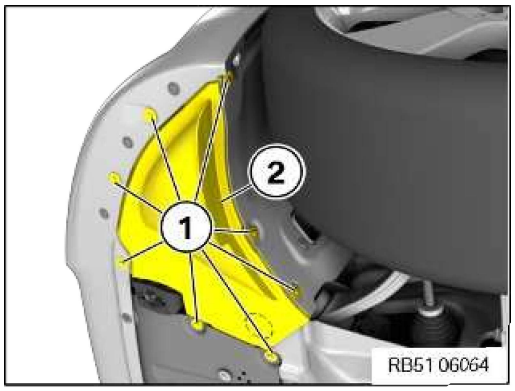
Thermoplastic hexagon screw		Tightening torque	2,6 Nm

49 – Install the lower front cover at the left and right side

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Install the lower front cover at the side**

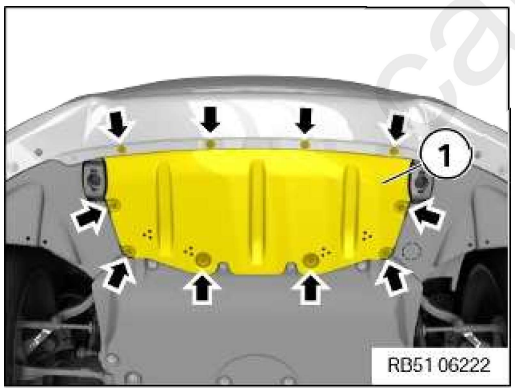


- Install front bottom side cover(2).
- Tighten the screws (1).

Cover, front bottom on side

Hexagon screw for thermoplastic		Tightening torque	3 Nm

50 – Installing the front underbody protection



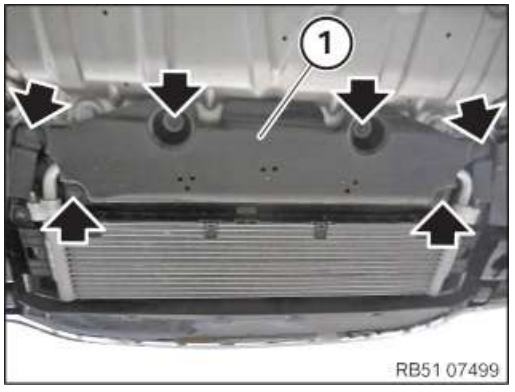
- **Version A:**

  Feed in the front underbody protection (1) towards the front under the bumper panel and position.

  Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm



- **Version B:**

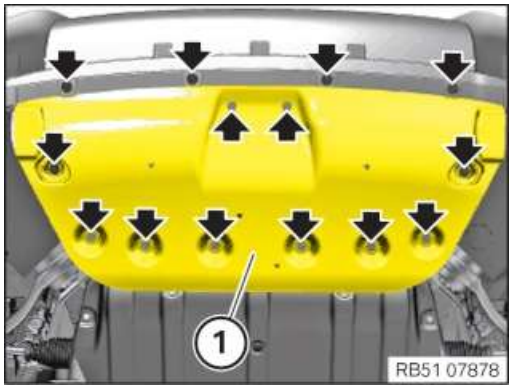
  Feed in and position the front underbody protection (1).

  Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

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- **Version C:**

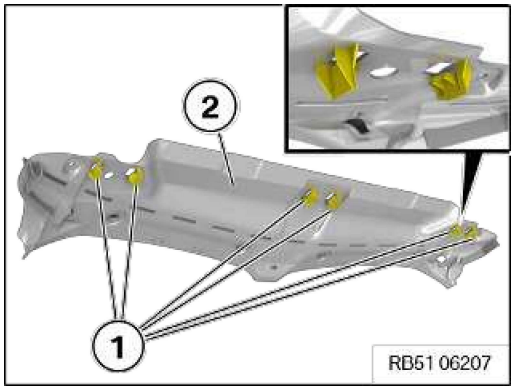
  Feed in and install front underbody protection (1).

  Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

51 – Installing the cover for the centre engine compartment



Check

- Check the latch mechanisms (1) of the cover (2) for damage.

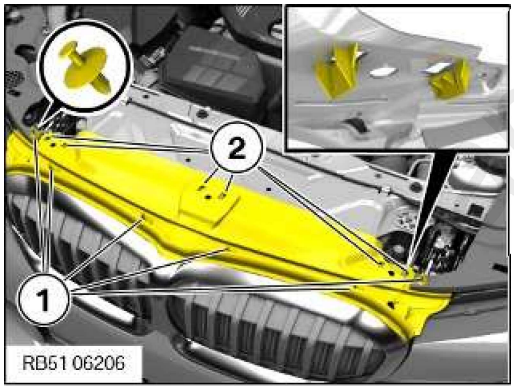
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover

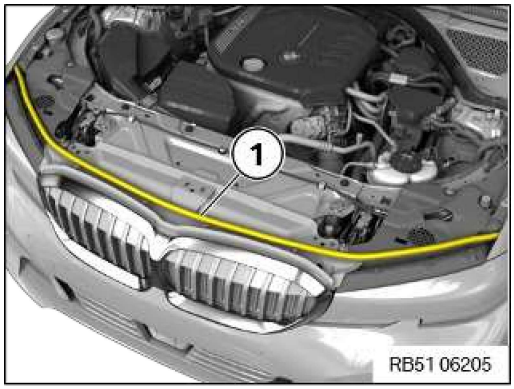


- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

52 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

53 – Activating the 48 V electrical system

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm



- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).

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- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

54 – 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

NOTICE

Description is for left component only. Procedure on the right side is identical.



- If necessary, remove the cover over the adjusting screws for headlight 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.

  Remove damaged plug if necessary (refer to additional information).
- Turn adjusting screw (2) for a correct lateral adjustment.
- **US version:** If the lateral adjustment has been checked or corrected: Renew plugs and push into the adjusting screw for the lateral adjustment **without damaging it** (see additional information).
- If necessary, fit a cover over the adjusting screws for headlight adjustment.

Additional Information

Overview of Tightening Torques

Front cross connection on the tailgate lock support — Used in step 28

Combination oval-head machine screw		Tightening torque	28 Nm

Cross connection, top — Used in step 29

M8x20		Tightening torque	28 Nm

Cross connection, top — Used in step 29

M6x20		Tightening torque	11,8 Nm

Front end strut — Used in step 30

Screw		Tightening torque	56 Nm

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Front bumper support to engine support — Used in step 32

Hexagon screw with flange	Renew screw	Tightening torque	100 Nm
		Angle of rotation	180 °

Vertical connection to deformation element — Used in step 32

Hexagon screw		Tightening torque	21 Nm

Vertical connection to deformation element — Used in step 32

Hexagon screw		Setpoint torque	21 Nm

Support for bumper panel, bottom front on deformation element — Used in step 33

Combination oval-head machine screw		Tightening torque	10 Nm

Resonator to intake filter housing — Used in step 36

Clamp		Tightening torque	3 Nm

Brake air duct to front wheel arch cover of front section — Used in step 37

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Vertical connection to deformation element — Used in step 37

Flat-head screw M6x20		Tightening torque	11,8 Nm

Bracing strut on cross connection and bumper support — Used in step 38

Hexagon screw M8		Tightening torque	28 Nm

Fanfare to support for bumper panel — Used in step 39

M6x20 screw		Tightening torque	8,8 Nm

Bottom air flap control on top bumper panel support — Used in step 40

Oval-head screw		Tightening torque	4,6 Nm

Front radar sensor (FRS) / (FRSF) holder to support — Used in step 43

Combination oval-head machine screw		Tightening torque	8 Nm

Air flap control to front end — Used in step 44

Oval-head screw with spring washer		Tightening torque	4 Nm

Adapter to the front panel — Used in step 45

Oval-head screw with spring washer		Tightening torque	4 Nm

Bumper panel, front top — Used in step 46

Oval-head screwM6		Tightening torque	4,6 Nm

Front bumper panel to front side panel — Used in step 46

Torx screw 5x35		Tightening torque	3 Nm

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Front bumper panel to underbody protection Used in step 46

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm

Wheel arch trim panel, front Used in step 48

Thermoplastic hexagon screw		Tightening torque	2,6 Nm

Cover, front bottom on side Used in step 49

Hexagon screw for thermoplastic		Tightening torque	3 Nm

Underbody protection front Used in step 50

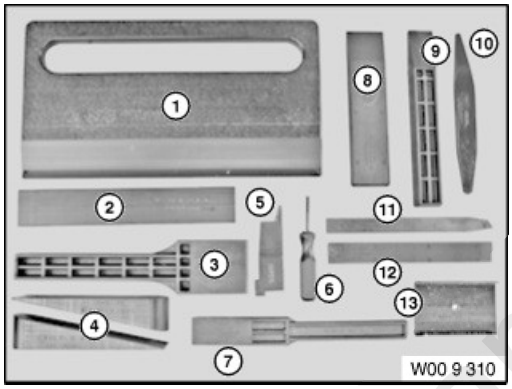
Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

Negative battery cable to 48-V battery Used in step 53

Nut M8		Tightening torque	19 Nm

Overview of Special Tools

0 493 752 (00 9 329) Case



Common Used in step 11

Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

0 442 898 Measuring device

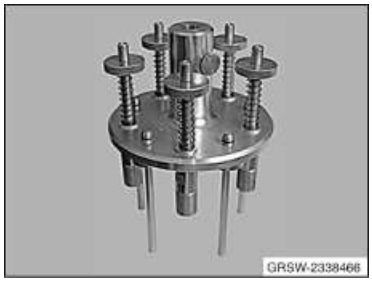


Common Used in step 43

Usage	ACC adjusting device. Using this adjusting device, an ACC sensor built into the vehicle can be adjusted in the workshop. Is replaced from 11/2021 by 83 30 5 A40 812.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	02 04 05 (208)

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2 338 466 Holder



Common	Used in step 43
Usage	Replacement for holder 36 1 100 (0493771). Holder has longer guide pins and lengthened magnetic guides.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	

Links

Functional descriptions	Used in step
Mirror adjustment for start-up of the front radar sensor	43
Mirror adjustment for start-up of the front radar sensor	43
Mirror adjustment to start up the front radar sensor long range	43
Mirror adjustment to start up the front radar sensor long range	43

Repair instructions (PRE)	Used in step
Notes on 48-V battery	153

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	242
61 20 900 Disconnecting and connecting battery earth lead	242
61 20 900 Disconnecting and connecting battery earth lead	242
61 20 900 Disconnecting and connecting battery earth lead	242
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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle) 242
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66 31 010 Instructions for ACC adjusting device 43
63 10 ... Test requirements for headlights vertical aim adjustment 54

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51 71 071 Removing and installing/replacing upper bulkhead cover

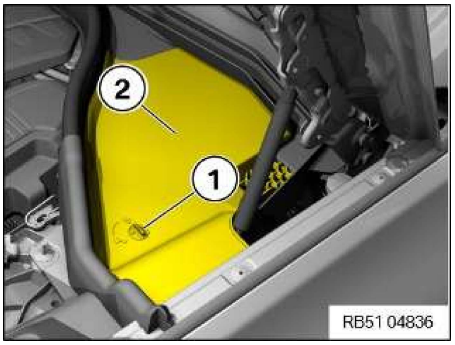
PRELIMINARY WORK

1 – Remove the seal for the rear bonnet



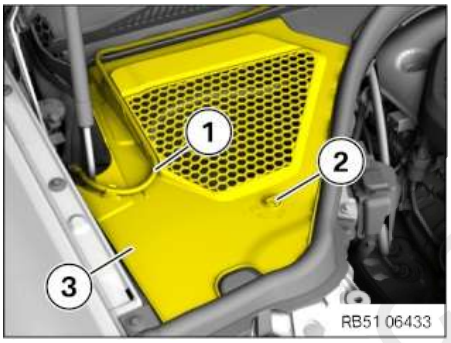
- Feed the cable (1) out of the brackets toward the front.
- Remove the rear bonnet seal (2) from the guide toward the inside.

2 – Remove the cover of the engine compartment at the rear left



- Loosen the lock (1).
- Remove the cover (2) of the rear left engine compartment.

3 – Remove the cover of the rear right engine compartment



- Release washer fluid hose (1) from the guides.
- Loosen the lock (2).
- Remove the cover (3) of the rear right engine compartment.

4 – Removing the wiper arm on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Remove the wiper arm**

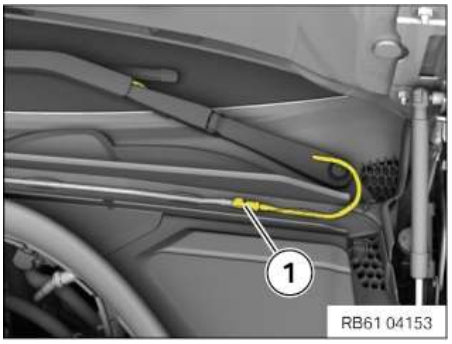
RISK OF DAMAGE

Damage to wiper console.

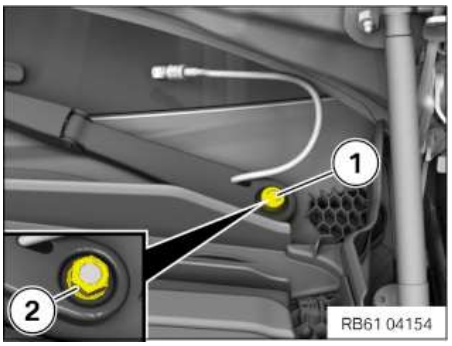
While removing the wiper arms without using special tool, the wiper console can break.

- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do **not** lever off the wiper arm because otherwise the wiper console may break at the predetermined breaking point for active pedestrian protection.

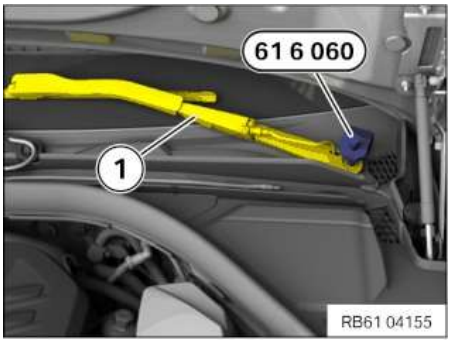
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- Disconnect the washer fluid hose (1) at the separation point and feed out from the cowl panel guide.

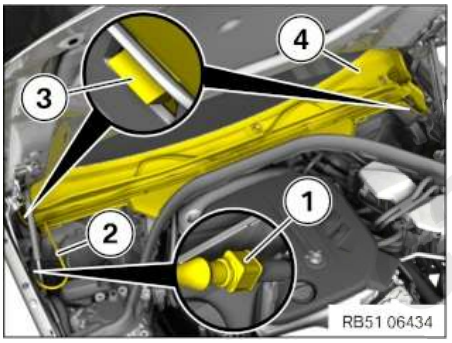


- Remove the protective cap (1).
- Loosen nut (2).

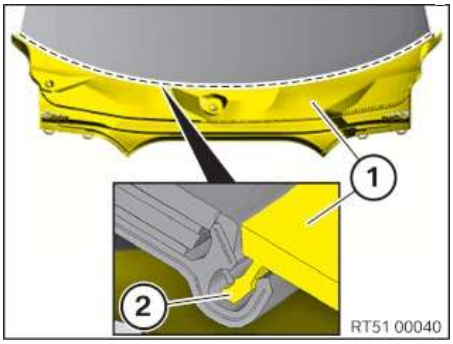


- Pull off the wiper arm (1) using special tool .

5 – Remove cowl panel cover



- Release snap fastener (1) of the washer fluid hose (2) and put the washer fluid hose (2) to one side.
- Unclip clips (3) on the cowl panel cover (4).



- Pull the cowl panel cover (1) upward out of the latch mechanism (2) beginning on the side.

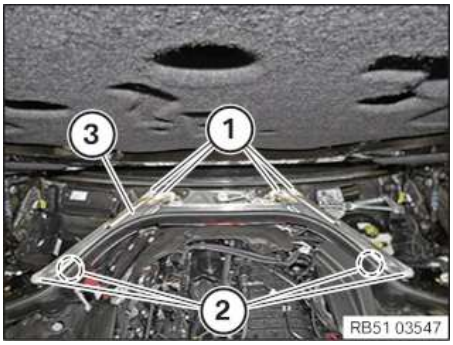
MAIN WORK

6 – Removing the centre bulkhead upper part

TECHNICAL INFORMATION

Driving without the strut brace/front-end strut or tension strut is not permitted.

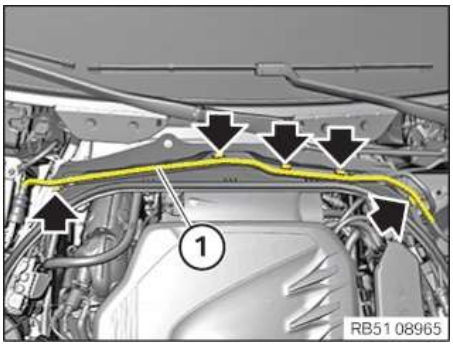
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NOTICE

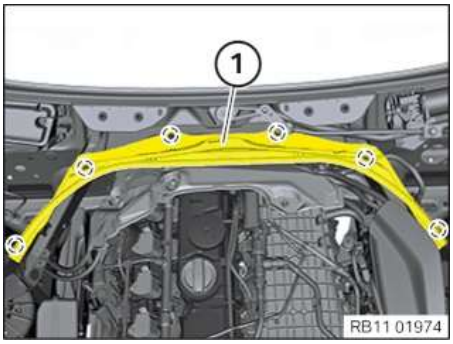
The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Loosen screws (1) and (2).
- Remove tension strut (3) in the spring strut dome upwards.



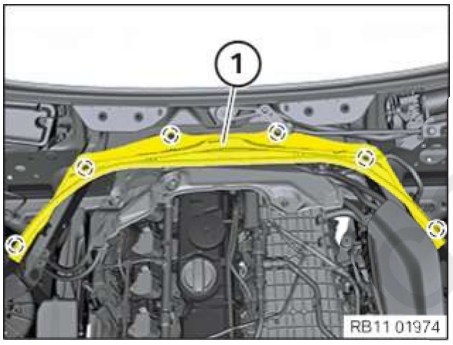
- **Version with mild hybrid technology:**

  Unclip the wire (1) at the holders (arrows).



- Unscrew the bolts in the marked areas.
- Remove the centre bulkhead upper part (1).

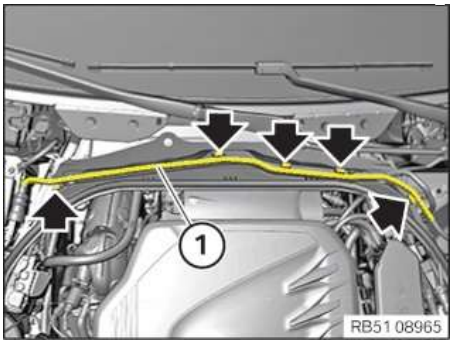
7 – Installing the centre bulkhead upper part



- Position the centre bulkhead upper part (1).
- Tighten the bolts in the marked areas.

Bulkhead upper part to bottom bulkhead

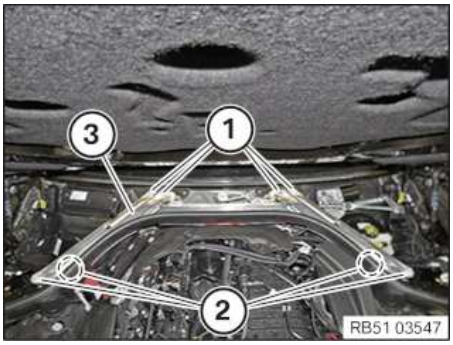
	Tightening torque	3 Nm



- **Version with mild hybrid technology:**

  Clip in the wire (1) into the holders (arrows).

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NOTICE

The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Install the tension strut (3) on the spring strut dome.
- Tighten the screws (1).

Tension strut on bulkhead

M10x25 screw		Tightening torque	56 Nm

- Renew screws (2).

  Parts: Screws
- Tighten the screws (2).

Tension strut to spring strut dome

Screw	Renew screws.	Jointing torque	56 Nm
		Angle of rotation	90 °

POSTPROCESSES

8 – Installing cowl panel cover

RISK OF DAMAGE

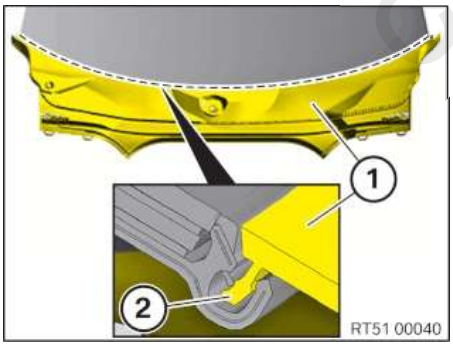
Damage caused by water ingress into the vehicle.

Water ingress into the vehicle may result in damage to components, malfunctions and corrosion.

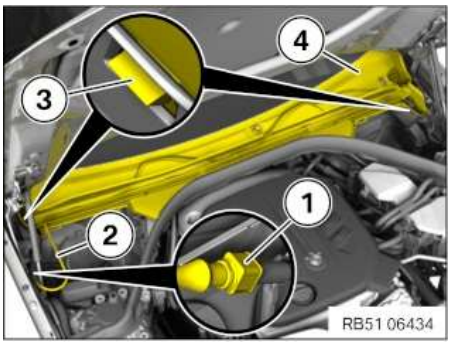
- Ensure correct installation of the components.
- Only use undamaged components.

TECHNICAL INFORMATION

Before installing the cowl panel cover it is **mandatory** to check that the 48 V line is routed correctly and fitted tightly.
An incorrectly laid or attached 48 V line can be damaged by the wiper kinematics.



- Push the cowl panel cover (1) into the latch mechanism (2) beginning on the side.



- Clip cowl panel cover (4)in by means of the latch mechanisms (3).
- Position windscreen wash hose (2) and connect windscreen wash hose (1)quick lock.

9 – Install left and right wiper arm

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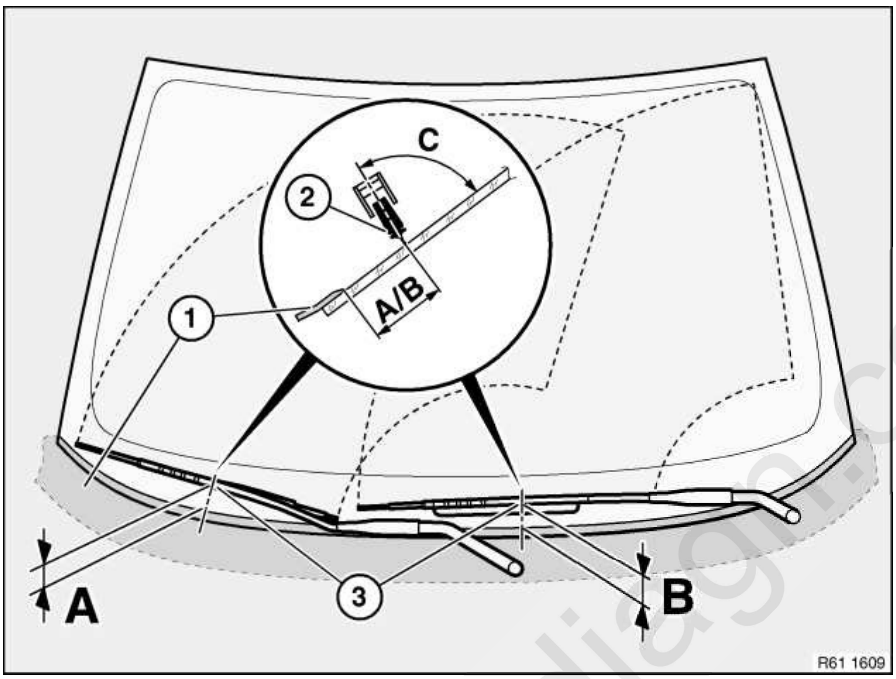
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing left and right wiper arm**

TECHNICAL INFORMATION

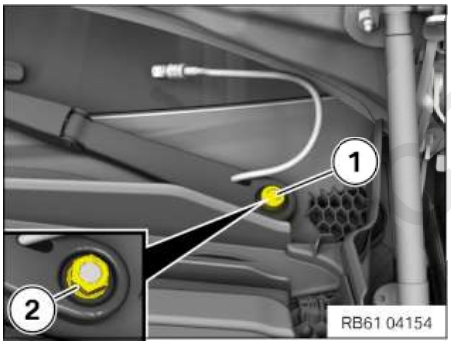
The wiper system must be in zero position.
After installing the cowl panel cover and before fitting the wiper arm:
Activate the wiper system once to ensure that it has the correct installation position.



- Connect the wiper arm (3).
- Correctly position the wiper arm (2) in relation to the window edge (1).

Distance from window pane edge to wiper blade

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

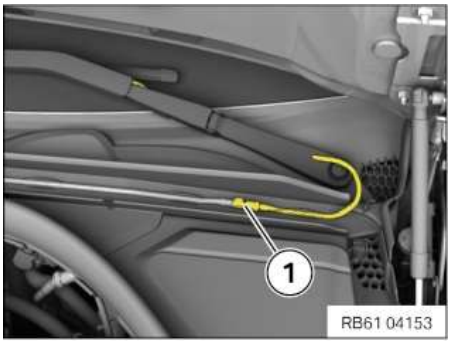


- Tighten nut (2).

Windscreen wiper arm

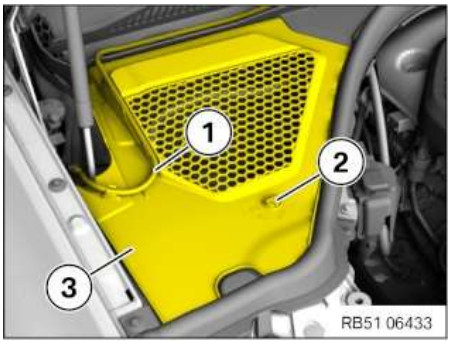
Combination hexagon nut		Tightening torque	35 Nm

- Connect the protective cap (1).



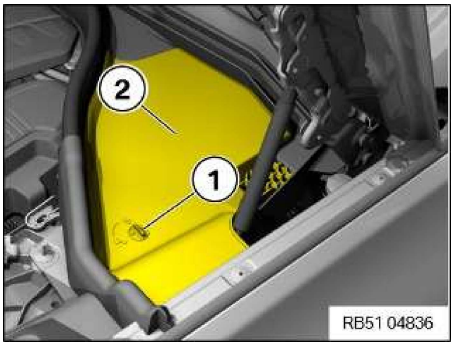
- Feed washer fluid hose (1) into the cowl panel guide and connect at the separation point.

10 – Install the rear right engine compartment cover



- Position the cover of the engine compartment on the rear right (3).
- Close lock (2).
- Insert washer fluid hose (1) into the guides.

11 – Install the cover of the engine compartment on the rear left



- Position the engine compartment cover at the rear left (2) .
- Close lock (1).

12 – Install the seal for the bonnet



- Press the rear bonnet seal (2) into the guide.
- Feed in cable (1) into the brackets.
- Check that the rear bonnet seal (2) and the cable (1) are seated correctly.

Additional Information

Overview of Tightening Torques

Bulkhead upper part to bottom bulkhead			Used in step 7
		Tightening torque	3 Nm

Tension strut on bulkhead			Used in step 7
M10x25 screw		Tightening torque	56 Nm

Tension strut to spring strut dome			Used in step 7
Screw	Renew screws.	Jointing torque	56 Nm
		Angle of rotation	90 °

Windscreen wiper arm			Used in step 9
Combination hexagon nut		Tightening torque	35 Nm

Overview of Special Tools

Overview Technical Data

Distance from window pane edge to wiper blade	Used in step 9
Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

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51 71 407 Replace the rear spoiler

TECHNICAL INFORMATION

Notes on component bonding using adhesive tape form the basis for these repair instructions and must be observed without fail.

For more information see: 51 00 ... Notes on component bonding with adhesive tape

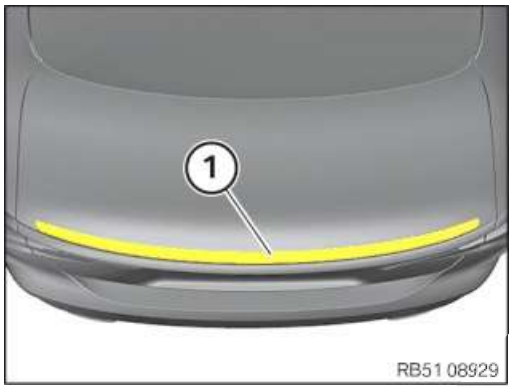
1 – Remove rear spoiler

RISK OF DAMAGE

Mechanical effects.

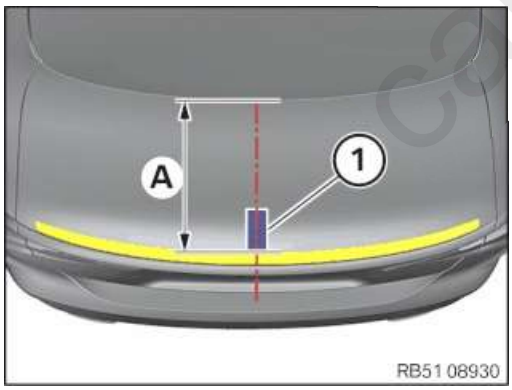
Paint damage.

- Mask those working areas at risk with yellow plastic adhesive tape.
- Remove and install heavy or bulky components with the aid of another person/other persons.



- Feed in the separating cord (approx. 50 cm) from the special tool 2 357 248 in the special tools 2 326 501.
- Carefully feed in the separating cord from the side below the rear spoiler (1).
- Carefully release the rear spoiler (1) from the tailgate with the special tool 2 326 501 by means of tensile movements and remove it in an upwards direction.
- Remove the adhesive residue from the tailgate.

2 – Determining the current position of rear spoiler



- Affix adhesive tape (1) according to the dimension (A) in the centre on the tailgate.

  Dimension (A) = 390 mm

  Adhesive tape (1) must not be located on the bonding surface of the rear spoiler.

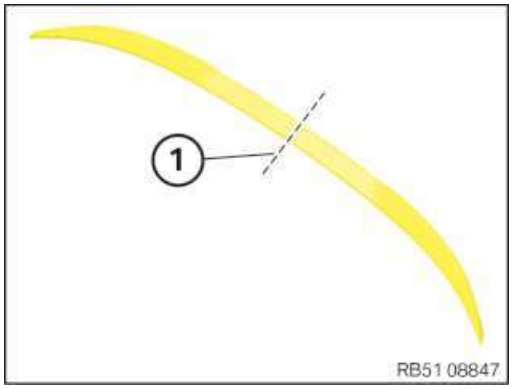
Expendable materials

Yellow plastic adhesive tape		83199410979

- Mark the centre of the tailgate on the adhesive tape (1).

3 – Install rear spoiler

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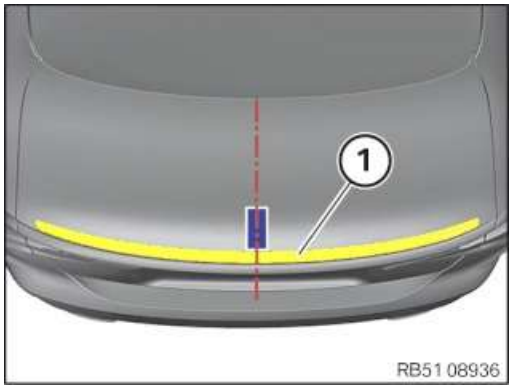
- Check the rear spoiler.

  Do not install rear spoilers with poor fitting accuracy.

  A rear spoiler loosely placed on the tailgate must not protrude, especially at the corners.
- Move the centre (1) of the tailgate to the outer side of the rear spoiler with adhesive tape.

Expendable materials

Yellow plastic adhesive tape		83199410979



- Place the rear spoiler (1) on the tailgate and align it centrally on the adhesive tape and the tailgate edge.

  Check whether the rear spoiler (1) fits correctly and is in the centre.
- Clean the bonding surface of the tailgate.

Expendable materials

Cleaning agent R2	500 ml	83190417324

- Pull off the protective film (2) of the bonding surface, align the rear spoiler (1) as shown and bond to the tailgate.
- Press down on the rear spoiler (1) with force using the hands over the entire area, in particular at the edges.
- Press with thumb or the back of the hand over the entire surface, since the adhesion of the adhesive tape is built up mainly by the contact pressure.
- Remove the adhesive tape.

Additional Information

Overview of Special Tools

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2 357 248 Removal and installation kit



Common

Used in step 1

Usage	Removal system for removing glued windshields, side and rear windows without causing damage. The windows are cut out using an ultra-strong cord made from braided polyethylene fibres.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	05 06 13 (934)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
2	2 357 312		**Fitting aid** The tool for placing string (81 43 2357312) is a part of the disassembly system “Spider” (81 43 2357248).	
1	2 344 272		**Nylon string** The nylon string (81 43 2344272) is a part of the disassembly system “Spider” (81 43 2357248).	

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2 326 501 Handle



Common	Used in step 1
Usage	(Pull handles) Cutting wire pull handles for removing rear, quarter light and side windows. Replaces tool 513270.
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	

Links

General repair instructions	Used in step
51 00 ... Notes on component bonding with adhesive tape	

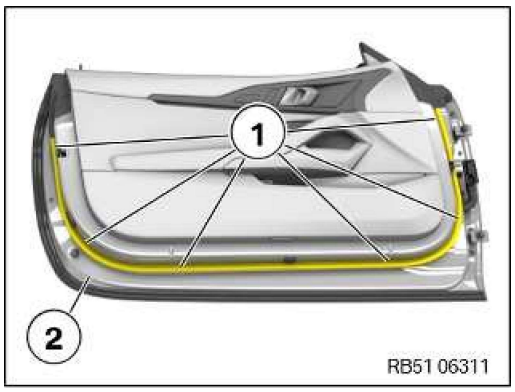
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51 71 115 Replacing sealing on front left or right door

NOTICE

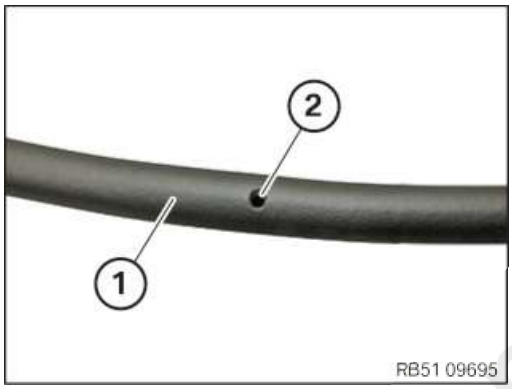
Description is for left component only. Procedure on the right side is identical.

1 – Removing the sealing



- Pull off the sealing (1) from the front door (2).

2 – Preparing the sealing for installation



Check

- Does the already installed sealing (1) have holes (2) present?

»

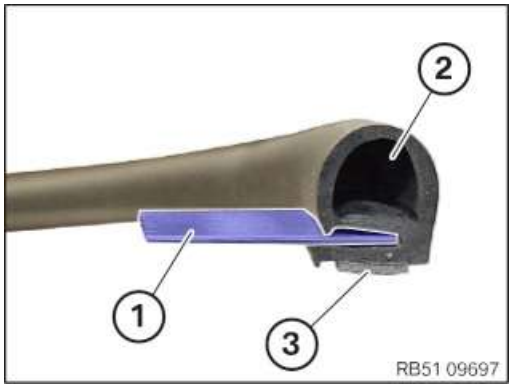
Result

» Yes.

Measure

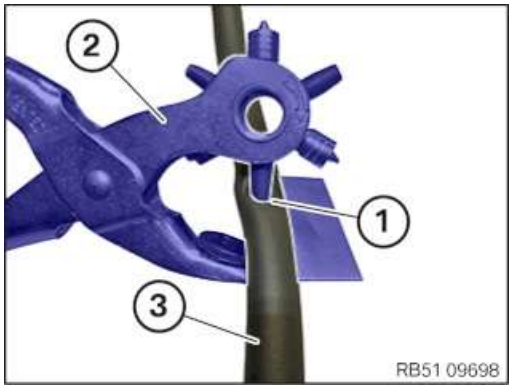
- Make holes in the new sealing.

  For this purpose, transfer the position and size of the holes from the already installed seal.



- Apply suitable auxiliary materials for the stamping operation, e.g. deburring the sheet metal cutout (1) in the gap between the (2) cavity and bonding surface (3).

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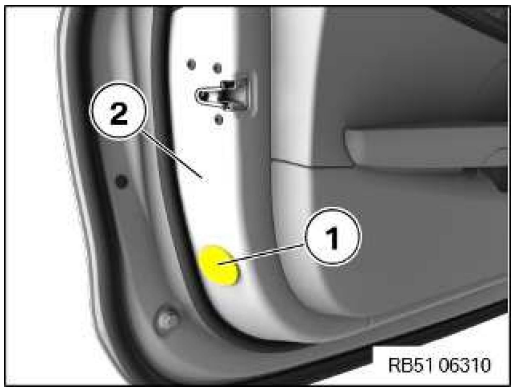


- Prepare holes (1) using the punch pliers (2) (shown here: revolving punch pliers) in the new seal (3).

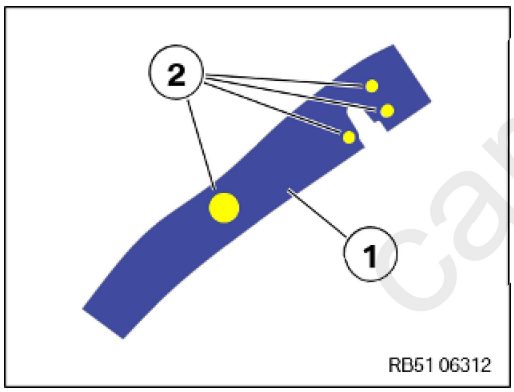
3 – Installing the seal

TECHNICAL INFORMATION

The repair instructions of bonded seals form the basis for these repair instructions and must be observed without fail.
For more information see: 54 10 ... Repair instructions for bonded seals



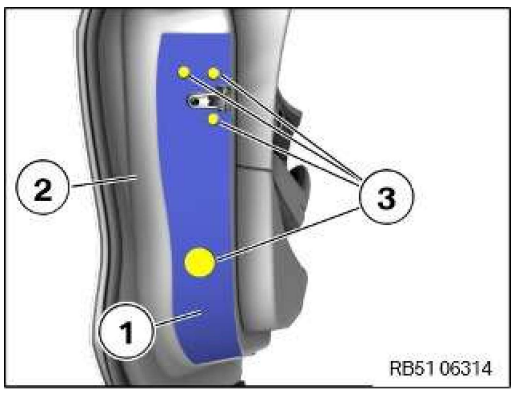
- Remove the plugs (1) on the front door (2).



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Clean the bonding surfaces on the inner door panel with adhesive remover (sourcing reference: BMW Group Parts).
- If necessary, cut out the pre-punched sections (2) for screws and openings form the template (1).

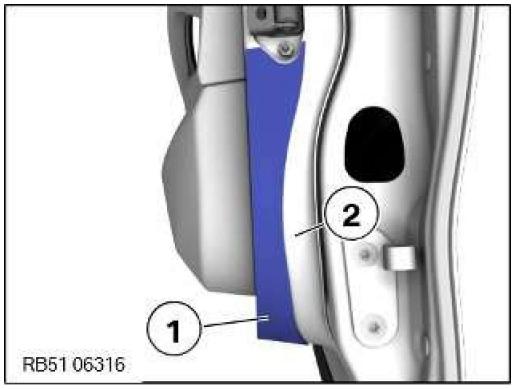


- Prior to bonding, align the template (1) on the inner door panel (2).

  The edge of template (1) and the bending radius of inner door panel (2) must run parallel.

  The marks/punch-outs (3) of the template (1) must match up with the respective bore hole of the inner door panel (2).

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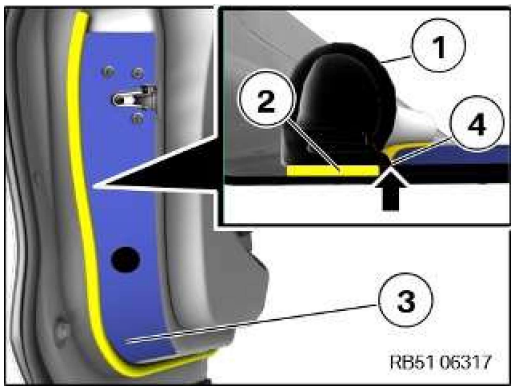


NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Clean the bonding surfaces on the inner door panel with adhesive remover (sourcing reference: BMW Group Parts).
- Prior to bonding, align the template (1) on the inner door panel (2).

  The edge of template (1) and the bending radius of inner door panel (2) must run parallel.



- Position the seal (1) along the template (3).

  The seal (1) must rest against the mark (4) (arrow) of the template (3).
- **Bond the sealing** (1) **as follows:**

  Gradually pull off the protective film (2).

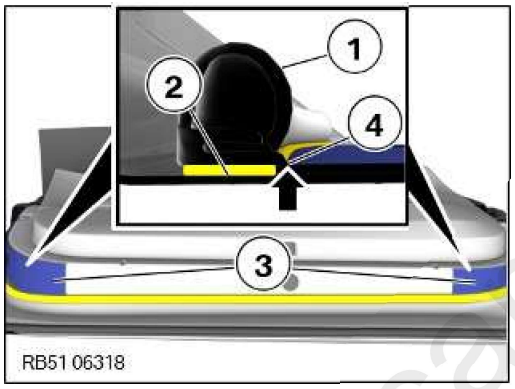
  Align the seal (1) accordingly on the template (3) and gently press it down.

  Check and if necessary correct the position of the seal (1).

  Do not overstretch or compress the seal (1) when positioning it.

  Press the seal (1) perpendicular to the bonding surface.

  Affix the seal (1) with firm thumb pressure.
- Slightly lift up the inner window recess finisher strip at the rear by hand and guide in the seal (1).



- Position the seal (1) along the template (3).

  The seal (1) must rest against the mark (4) (arrow) of the template (3).
- **Bond the sealing** (1) **as follows:**

  Gradually pull off the protective film (2).

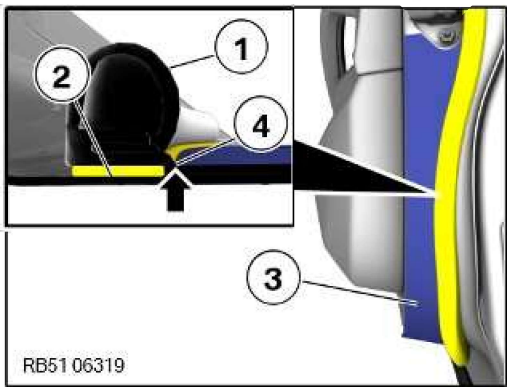
  Align the seal (1) accordingly on the templates (3) and gently press it down.

  Check and if necessary correct the position of the seal (1).

  Do not overstretch or compress the seal (1) when positioning it.

  Always apply pressure perpendicular to the bonding surface to affix the seal (1).

  Affix the seal (1) with firm thumb pressure.



- Position the seal (1) along the template (3).

  The seal (1) must rest against the mark (4) (arrow) of the template (3).
- **Bond the sealing** (1) **as follows:**

  Gradually pull off the protective film (2).

  Align the seal (1) accordingly on the template (3) and gently press it down.

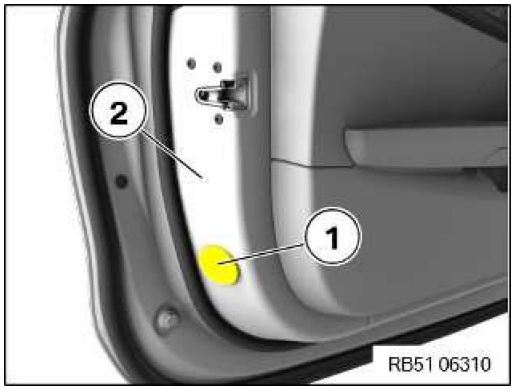
  Check and if necessary correct the position of the seal (1).

  Do not overstretch or compress the seal (1) when positioning it.

  Always apply pressure perpendicular to the bonding surface to affix the seal (1).

  Affix the seal (1) with firm thumb pressure.
- Slightly lift up the inner window recess finisher strip at the front by hand and guide in the seal (1).

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- Install the plug (1) at the front door (2).

Additional Information

Links

General repair instructions	Used in step
54 10 ... Repair notes for bonded seals	3

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51 72 ... Sealing installation

Note:
The utmost care must be taken when removing all sealings on the vehicle. Incorrect fitting can lead to wind noise and water ingress among other things and can affect the ease of closing and opening.

The following instructions only apply to sealing without sealant.

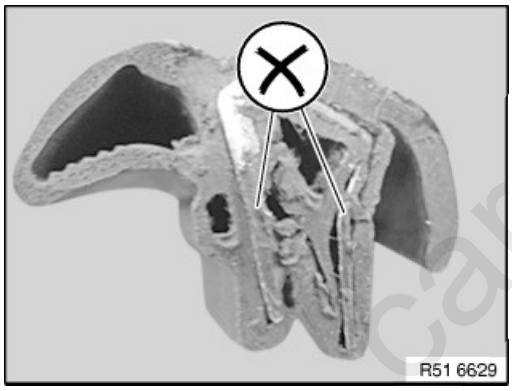
Sealings with sealant must be replaced each time they are disassembled.

Sealing surfaces must be cleaned.

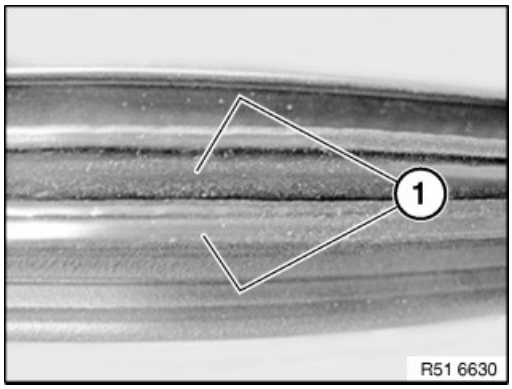


- <u>In general, the following applies:</u>

  Sealings on the side frame can be fitted and removed any number of times.
- Sealings must not be damaged or torn.
- The clamping surface must be compressed by hand far enough to ensure that a tight connection on the side flange is still possible. The sealing shanks may touch each other slightly. A completely compressed sealing is not permitted.

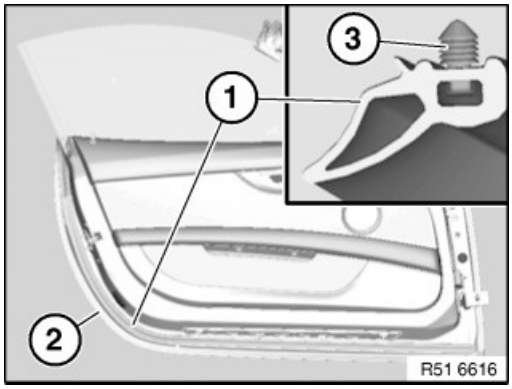


- It is not necessary to use special tools to compress the clamping surface. This can be done carefully by hand.
- The sealings must always be fitted except in the case of blockages. There is no defined contact pressure.
- A new gasket must be fitted if sealings in the tailgate area are repeatedly fitted and removed (water ingress due to cracked sheet metal).
- Sealings must be checked for correct fit after installation. If necessary, sealings should be lifted over the adjacent components using the appropriate tool. Neighbouring components must not be damaged.
- Sealings must be replaced if the metal inlay of the sealing is visible (corrosion).



- Ensure the clamping surface is even all round.

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- Sealings that are installed with plastic clips fit tightly against the body. If this is not the case, replace the clips or sealings.

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51 72 000 Replacing edge protection for left or right front door

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Removing the inner door sill cover strip

RISK OF DAMAGE

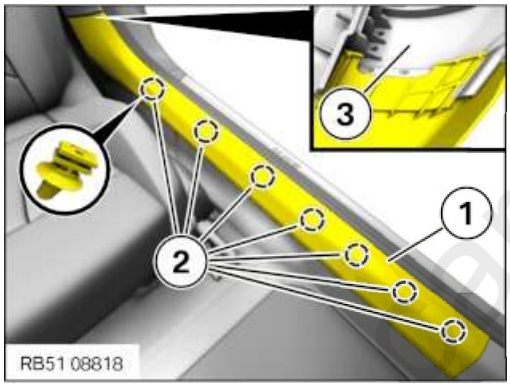
Bending of plastic parts.

Application of too much force can lead to bending of plastic parts.

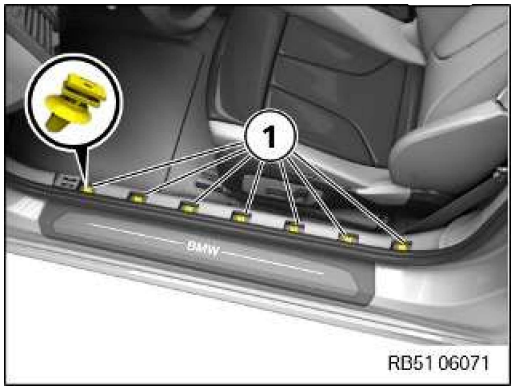
- Place special tool directly beside the mounting clip.
- Continue unclipping the part without using the tool if possible.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



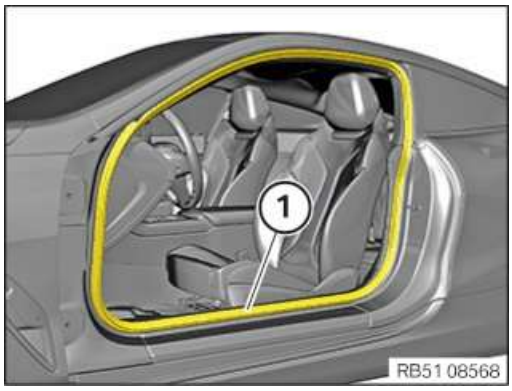
- Release door sill cover strip (1) with clips (2) starting from the front using a suitable special tool from the set of special tools 0 493 752 (00 9 329).
- Guide out and remove door sill cover strip (1) under the rear side trim panel (3) .



- If necessary, remove clips (1) and connect them to the door sill cover strip.

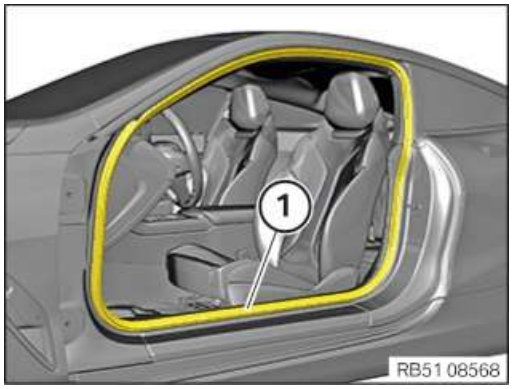
MAIN WORK

2 – Remove edge protection of the front door



- Pull off edge protection (1) along the perimeter.

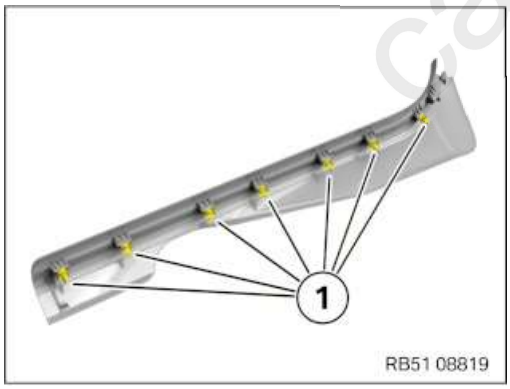
3 – Install edge protection of front door



- Attach edge protection (1) starting at the bottom centre along the circumference.

POSTPROCESSES

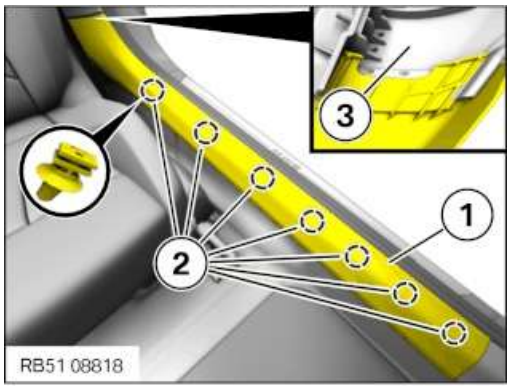
4 – Installing the inner door sill cover strip



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Check the clips (1) for damage and renew if necessary.



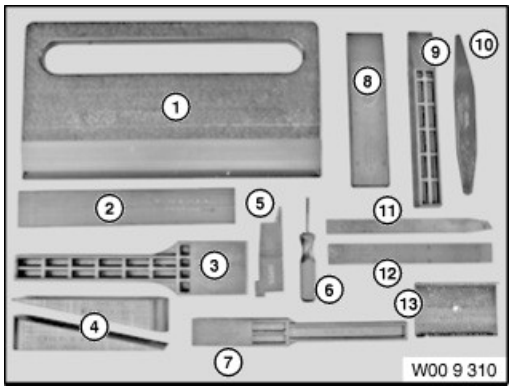
- Insert the door sill cover strip (1) below the rear side trim panel (3).
- Clip the door sill cover strip (1) in with the clips (2).

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Additional Information

Overview of Special Tools

0 493 752 (00 9 329) Case



Common	Used in step 1
Usage	(Case) with insert without mounting wedges, delivery while stocks last - as of 02/2019.
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 09 (530)

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51 72 ... Sealing installation

Note:
The utmost care must be taken when removing all sealings on the vehicle. Incorrect fitting can lead to wind noise and water ingress among other things and can affect the ease of closing and opening.

The following instructions only apply to sealing without sealant.

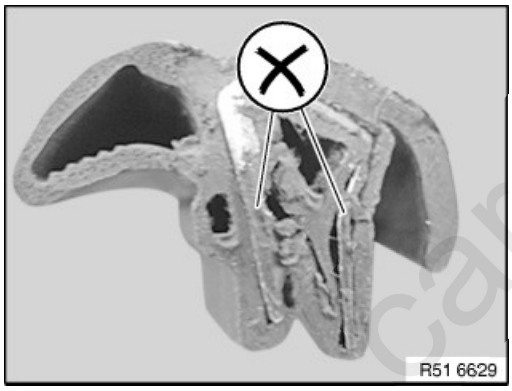
Sealings with sealant must be replaced each time they are disassembled.

Sealing surfaces must be cleaned.

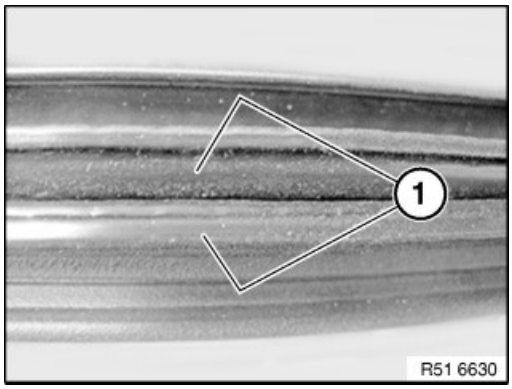


- <u>In general, the following applies:</u>

  Sealings on the side frame can be fitted and removed any number of times.
- Sealings must not be damaged or torn.
- The clamping surface must be compressed by hand far enough to ensure that a tight connection on the side flange is still possible. The sealing shanks may touch each other slightly. A completely compressed sealing is not permitted.

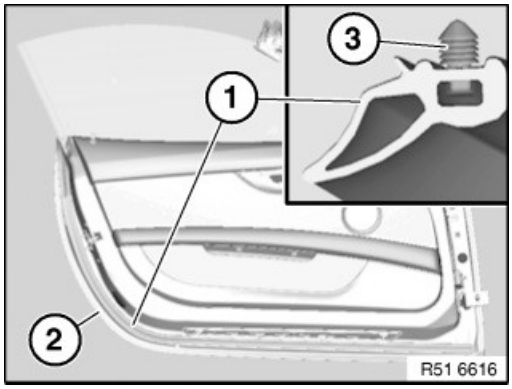


- It is not necessary to use special tools to compress the clamping surface. This can be done carefully by hand.
- The sealings must always be fitted except in the case of blockages. There is no defined contact pressure.
- A new gasket must be fitted if sealings in the tailgate area are repeatedly fitted and removed (water ingress due to cracked sheet metal).
- Sealings must be checked for correct fit after installation. If necessary, sealings should be lifted over the adjacent components using the appropriate tool. Neighbouring components must not be damaged.
- Sealings must be replaced if the metal inlay of the sealing is visible (corrosion).



- Ensure the clamping surface is even all round.

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- Sealings that are installed with plastic clips fit tightly against the body. If this is not the case, replace the clips or sealings.

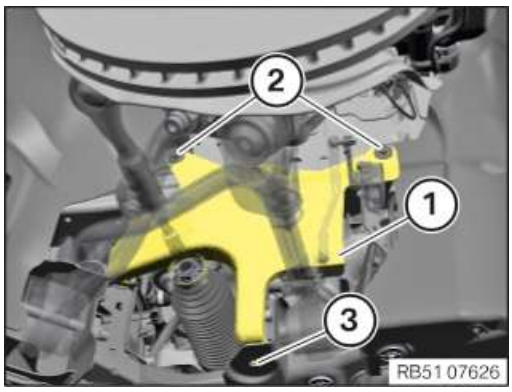
cardiagn.com

51 75 010 Removing and installing/replacing left or right steering assembly cover

NOTICE

Description is for left component only. Procedure on the right side is identical.

1 – Remove the cover of the steering assembly

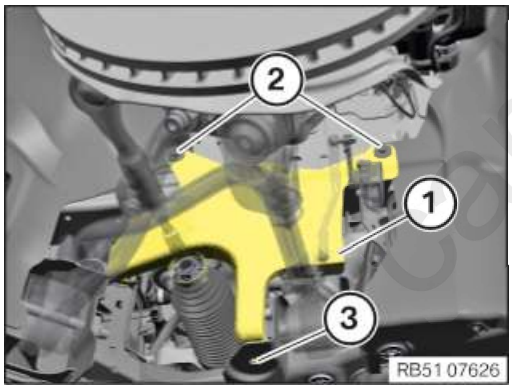


- Loosen screws (2) and (3).
- Remove the cover (1).

2 – Install the cover of the steering assembly

TECHNICAL INFORMATION

When tightening the screws, the cover can twist and cause chafe marks on the anti-roll bar (risk of corrosion).
Hold the cover while tightening the screws. Then check the position of the cover.



- Position the cover (1).
- Tighten down screws (2) and (3).

Cover, steering unit

Screw		Tightening torque	3 Nm

Additional Information

Overview of Tightening Torques

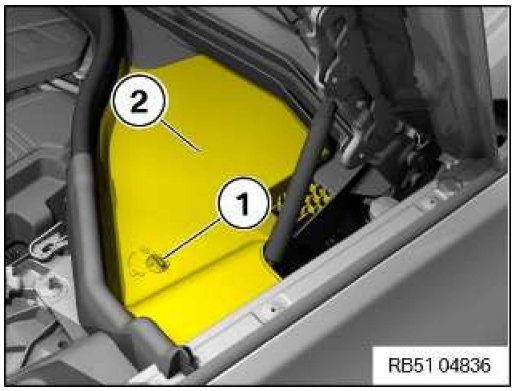
Cover, steering unit Used in step 2

Screw		Tightening torque	3 Nm

51 76 060 Removing and installing/replacing the bonnet seal on the left or right

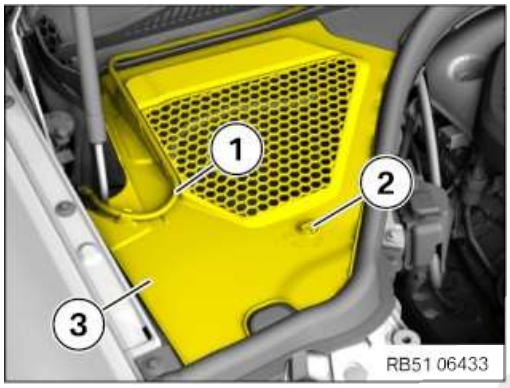
PRELIMINARY WORK

1 – Remove the cover of the engine compartment on the rear left or right



▸ **Remove the cover of the engine compartment at the rear left**

- Loosen the lock (1).
- Remove the cover (2) of the rear left engine compartment.

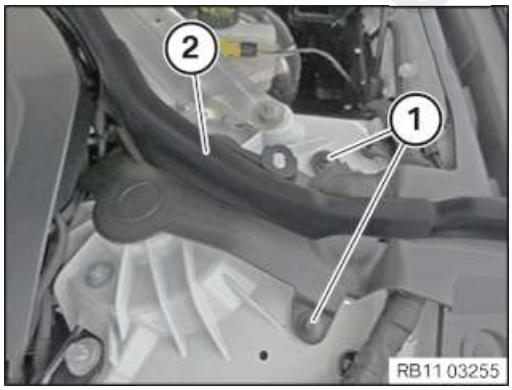


▸ **Remove the cover of the rear right engine compartment**

- Release washer fluid hose (1) from the guides.
- Loosen the lock (2).
- Remove the cover (3) of the rear right engine compartment.

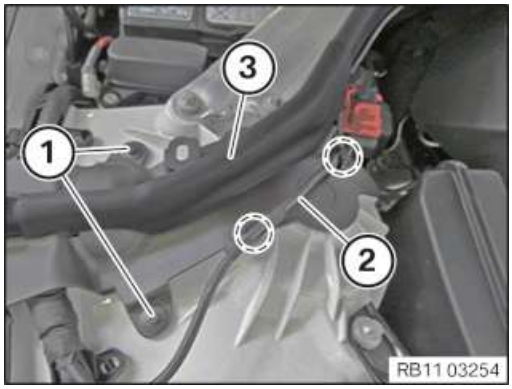
MAIN WORK

2 – Removing the bonnet seal sideways on the left or right



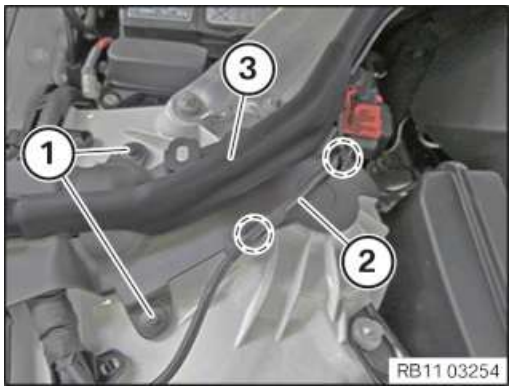
- Loosen the expanding rivet (1).
- Remove seal for bonnet (2) upwards.

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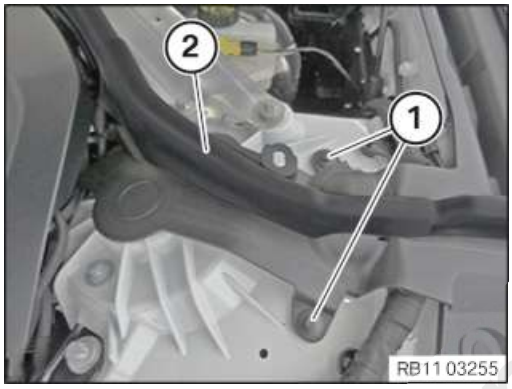


- Loosen the expanding rivet (1).
- Unclip cable (2) in marked areas.
- Remove seal for bonnet (3) upwards.

3 – Install the bonnet seal at the side on the left and right



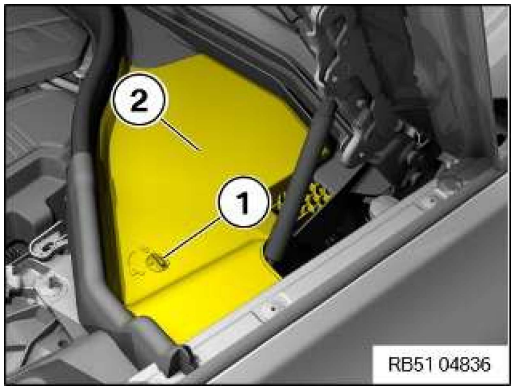
- Install the bonnet seal (3) and fasten it with the expanding rivets (1).
- Clip in cable (2) in marked areas.



- Install the bonnet seal (2) and fasten it with the expanding rivets (1).

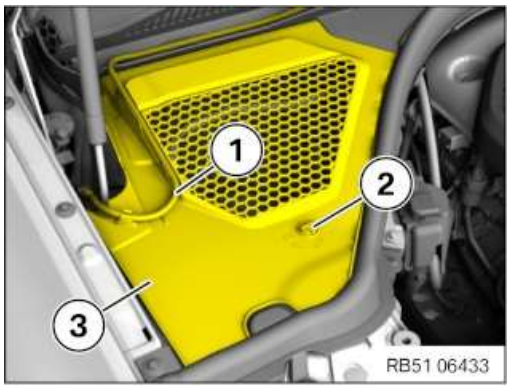
cardiagn.com

4 – Install the cover of the engine compartment on the rear left or right



▸ **Install the cover of the engine compartment on the rear left**

- Position the engine compartment cover at the rear left (2) .
- Close lock (1).



▸ **Install the rear right engine compartment cover**

- Position the cover of the engine compartment on the rear right (3).
- Close lock (2).
- Insert washer fluid hose (1) into the guides.

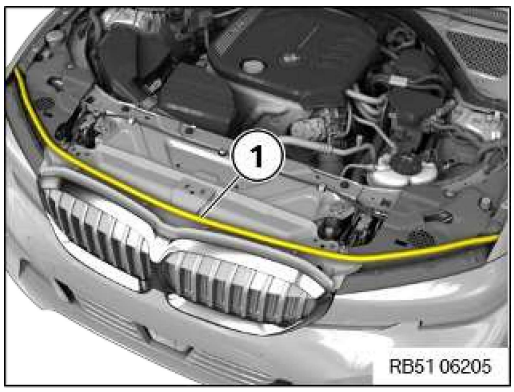
cardiagn.com

51 76 031 Removing and installing/replacing the bonnet sealing at the front

1 – Remove the seal for the bonnet in front

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

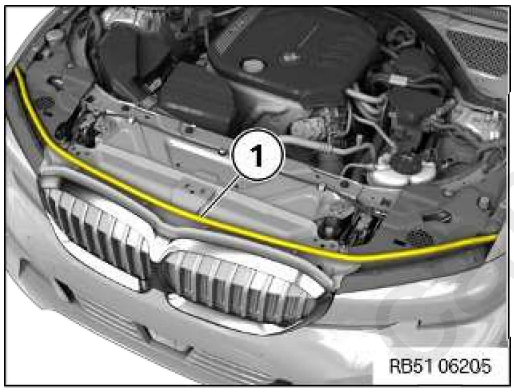


- Pull offfront bonnet seal (1) upwards.

2 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

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51 76 030 Removing and installing/replacing the bonnet sealing at the rear

1 – Remove the seal for the rear bonnet



- Feed the cable (1) out of the brackets toward the front.
- Remove the rear bonnet seal (2) from the guide toward the inside.

2 – Install the seal for the bonnet



- Press the rear bonnet seal (2) into the guide.
- Feed in cable (1) into the brackets.
- Check that the rear bonnet seal (2) and the cable (1) are seated correctly.

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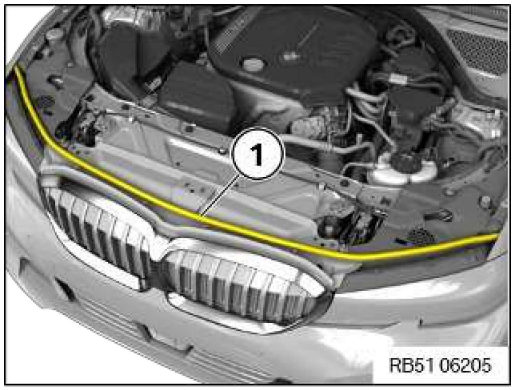
51 76 070 Replace centre engine compartment cover

PRELIMINARY WORK

1 – Remove the seal for the bonnet in front

NOTICE

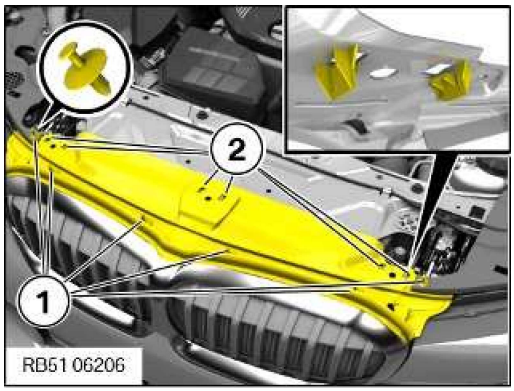
Schematic diagram is for example purposes. Some parts may differ in certain details.



- Pull offfront bonnet seal (1) upwards.

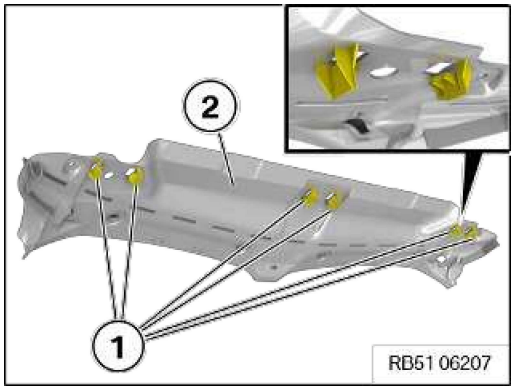
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2 – Removing the centre engine compartment cover



- Detach all expanding rivets (1).
- Release the cover at the latch mechanisms (2) and feed it out to the rear.

3 – Installing the cover for the centre engine compartment



Check

- Check the latch mechanisms (1) of the cover (2) for damage.

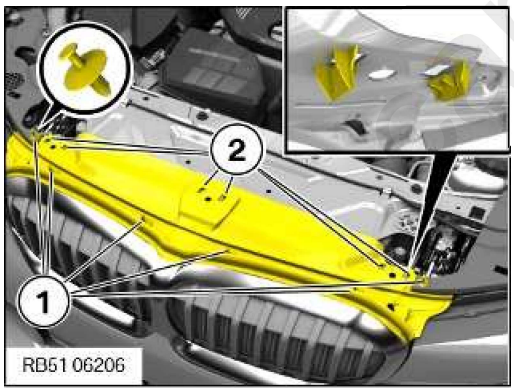
Result

» Latch mechanisms (1) are damaged.

Measure

- Replace the cover (2).

  Parts: Cover



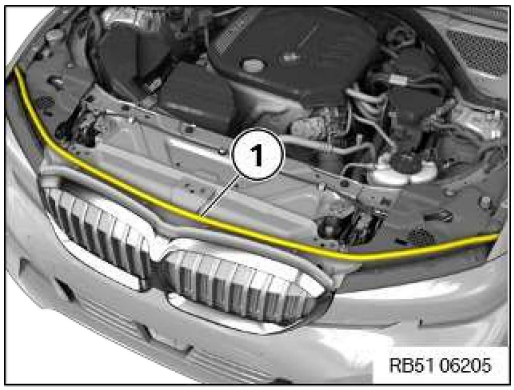
- Insert the cover from the rear and position it.
- Clip in the latch mechanisms (2).
- Mount all expanding rivets (1).

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4 – Install the seal for the front bonnet

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- Position the bonnet seal(1) and connect it on the mounting on the bumper and on the headlights.

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51 76 046 Replacing the tailgate seal

PRELIMINARY WORK

1 – Removing the trim panel for the rear left and right water channel

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Unclip the trim panel for the water channel (1) with the special tool 0 496 569 (00 9 325).

MAIN WORK

2 – Removing the seal for the tailgate



- Pull the tailgate seal (1) off beginning from the sealing joint (2) to the back.

3 – Installing the seal for the tailgate



- Remove remnants of the sealant from the sheet metal flange.
- Clean the sheet metal flange.
- Renew the tailgate seal (1).

  Parts: Seal for the tailgate
- Mount the tailgate seal (1) beginning from the top centre.

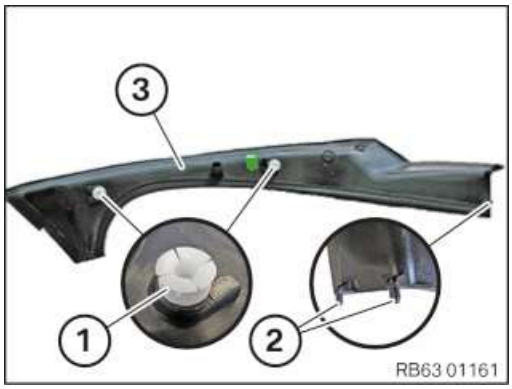
  Make sure that sealing joint (2) is at indicated position.
- Make sure that the tailgate seal (1) is positioned correctly against adjacent trim panel components.

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4 – Installing the trim panel for the rear left and right water channel

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Check the clips (1) and guides (2) on the trim panel for the water channel (3) for damage.



- Clip in the trim panel for the water channel (1).

Additional Information

Overview of Special Tools

0 496 569 (00 9 325) Wedge

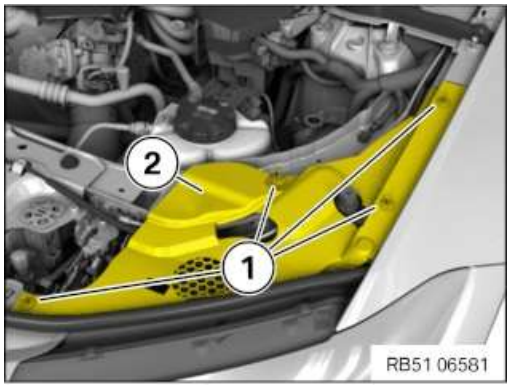


Common	Used in step 1
Usage	(Panel wedge) From 11/2008 this special tool replaces panel wedge 00 9 317 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	41 01 09 (507)

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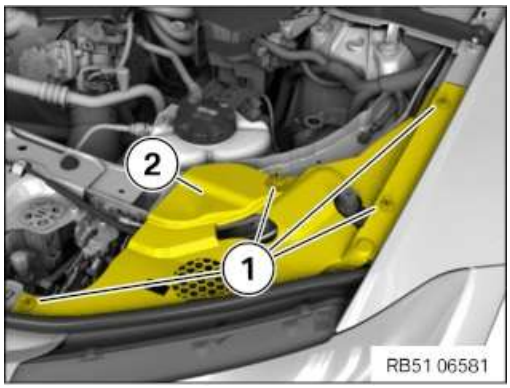
51 76 071 Replacing the top left engine compartment cover

1 – Remove the cover in the engine compartment on top



- Loosen the expanding rivet (1).
- Remove the cover in the engine compartment on top (2) partially.

2 – Install the cover in the engine compartment on top



- Install the cover in the engine compartment on top (2).
- Secure expanding rivet (1).

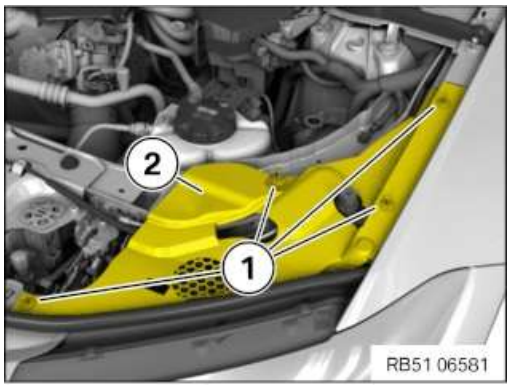
cardiagn.com

51 76 072 Replacing the top right engine compartment cover

1 – Remove cover in the engine compartment on the top right

NOTICE

Description is for left component only. Procedure on the right side is identical.



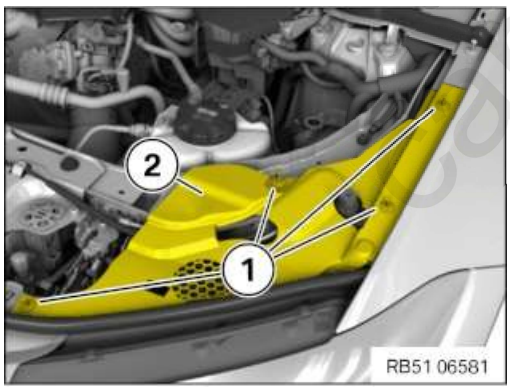
▸ **Remove the cover in the engine compartment on top**

- Loosen the expanding rivet (1).
- Remove the cover in the engine compartment on top (2) partially.

2 – Install the cover in the engine compartment on the top right

NOTICE

Description is for left component only. Procedure on the right side is identical.



▸ **Install the cover in the engine compartment on top**

- Install the cover in the engine compartment on top (2).
- Secure expanding rivet (1).

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61 00 ... Parking-residing-driving

Vehicles of the G series feature a new type of terminal control:

Functional description of the parking-residing-driving terminal control

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52 13 396 Remove and install/replace the head restraint guide on the front left or right

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

1 – Remove front head restraint



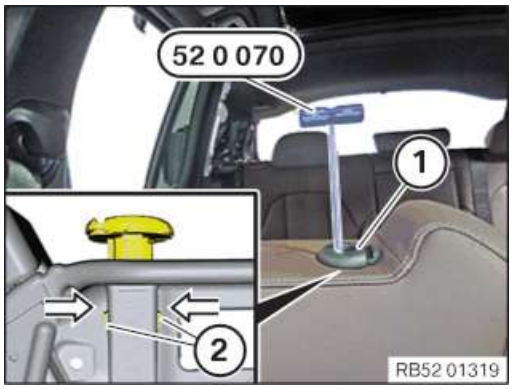
- Press the lock (2) and remove the head restraint (1) from the backrest toward the top.

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2 – Removing the guide sleeve for the front head restraint

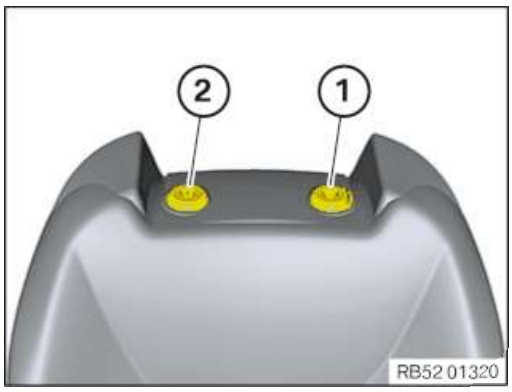
NOTICE

The description is for one component only. The procedure is identical for all further components.



- Push the latch mechanisms (2) inward in direction of the arrow with the special tool .
- Remove the guide sleeve (1) towards the top.

3 – Install the guide sleeve for the front head restraint



- Pay attention to the installation position:

  Insert the guide sleeve (1) **with** unlocking towards the left in the direction of travel.

  Insert the guide sleeve (2) **without** unlocking towards the right in the direction of travel.



NOTICE

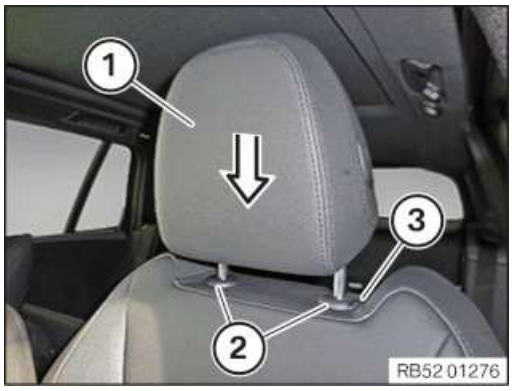
The description is for one component only. The procedure is identical for all further components.

- Insert the guide sleeve (1) into the rear seat backrest in the direction of arrow from the top and lock it.

  You have to feel the guide sleeve (1) engage.

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4 – Install the front head restraint



- Insert the head restraint (1) in the direction of the arrow into the guides (2).
- Slide the head restraint (1) in until the lock (3) is securely engaged.

Additional Information

Overview of Special Tools

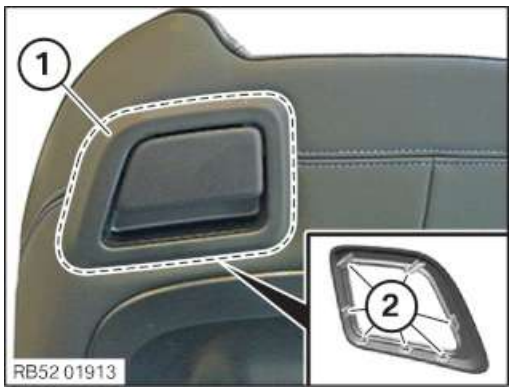
cardiagn.com

52 13 083 Removing and installing / renewing left or right cover for backrest release

NOTICE

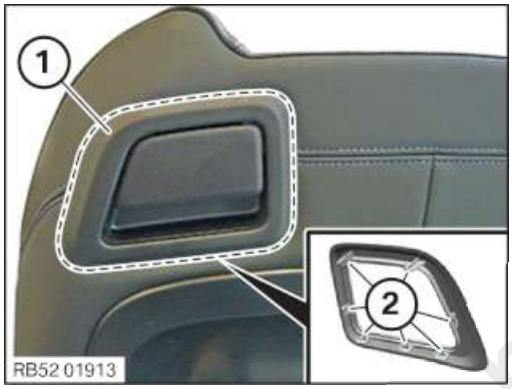
Description is for left component only. Procedure on the right side is identical.

1 – Removing the cover for the backrest release



- Unclip and remove cover (1) for the backrest release in the marked area from latch mechanisms (2) using a suitable tool.

2 – Installing a cover for backrest release



- Position the cover for backrest release (1) correctly in the marked area.
- Clip in the latch mechanism (2) of the cover for backrest release (1).

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52 13 390 Removing and installing or replacing front left or right head restraint

NOTICE

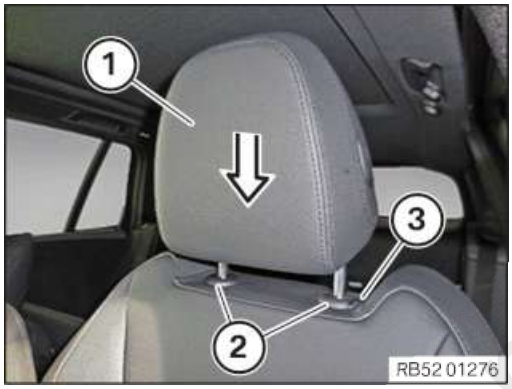
Description is for left component only. Procedure on the right side is identical.

1 – Remove front head restraint



- Press the lock (2) and remove the head restraint (1) from the backrest toward the top.

2 – Install the front head restraint



- Insert the head restraint (1) in the direction of the arrow into the guides (2).
- Slide the head restraint (1) in until the lock (3) is securely engaged.

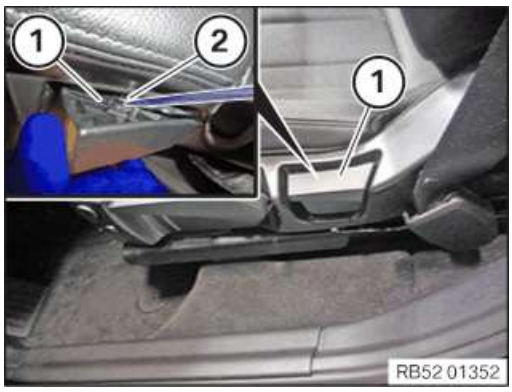
cardiagn.com

52 13 031 Removing and installing/replacing backrest adjustment lever on left or right front seat

NOTICE

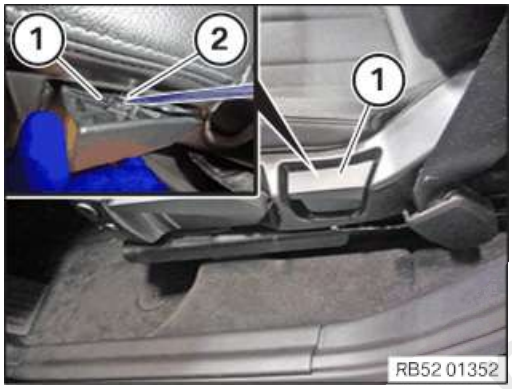
Description is for left component only. Procedure on the right side is identical.

1 – Removing the lever for backrest angle adjustment



- Pull the handle for the backrest angle adjustment (1) up.
- Use a suitable tool to unlock the retaining lug (2).
- Feed out the handle for the backrest angle adjustment (1) upwards.

2 – Installing the lever for the backrest angle adjustment



- Insert the handle for the backrest angle adjustment (1) from the top.
- Check retaining lug (2) for correct seating.

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52 14 001 Removing and installing driver's seat

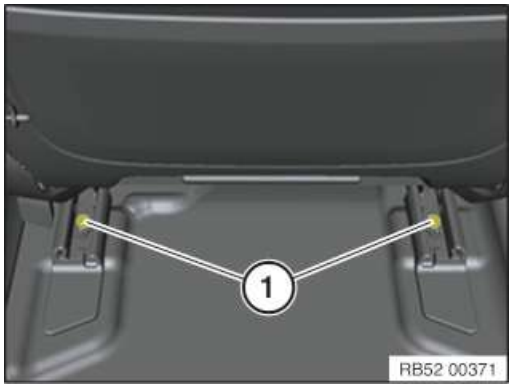
1 – Remove front seat

WARNING

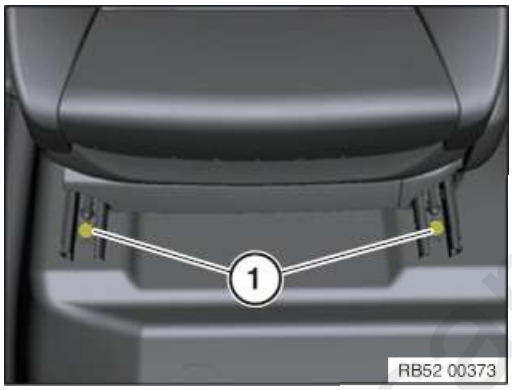
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

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▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

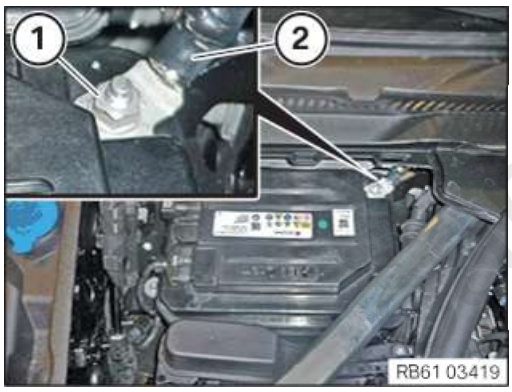
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

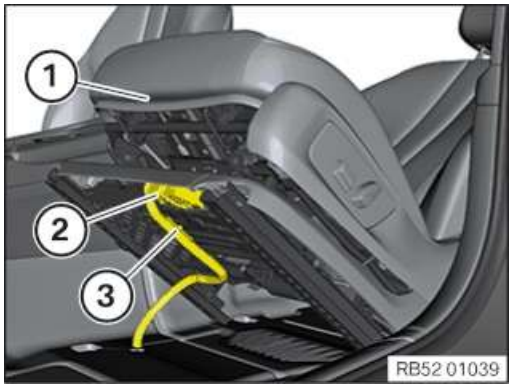
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Install front seat

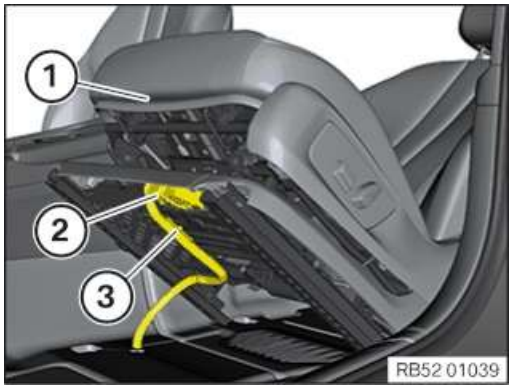
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

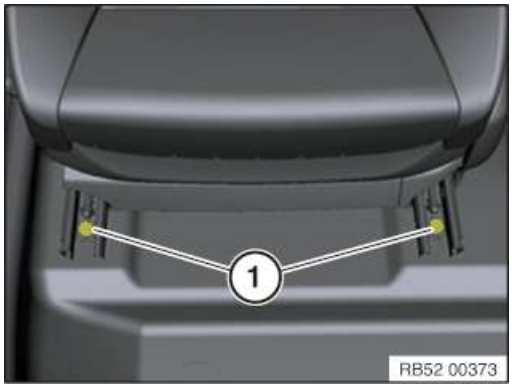


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



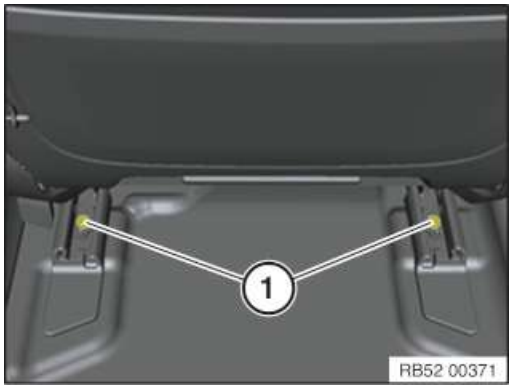
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Negative battery cable to 48-V battery Used in step 2

Nut M8		Tightening torque	19 Nm

Seat to body Used in step 2

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	12

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	12

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	12
61 20 900 Disconnecting and connecting battery earth lead	12
61 20 900 Disconnecting and connecting battery earth lead	12
61 20 900 Disconnecting and connecting battery earth lead	12
61 20 900 Disconnecting and connecting battery earth lead	12
61 20 900 Disconnecting and connecting battery earth lead	12
61 20 900 Disconnecting and connecting battery earth lead	12
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	12
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	12
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61 20 900 Disconnecting and connecting battery earth lead	12
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61 20 900 Disconnecting and connecting battery earth lead	12
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	12
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	12
61 20 900 Disconnecting and connecting battery earth lead	12
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	12
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	12
61 20 900 Disconnecting and connecting battery earth lead

52 14 041 Removing and installing or replacing inner cover on left or right front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

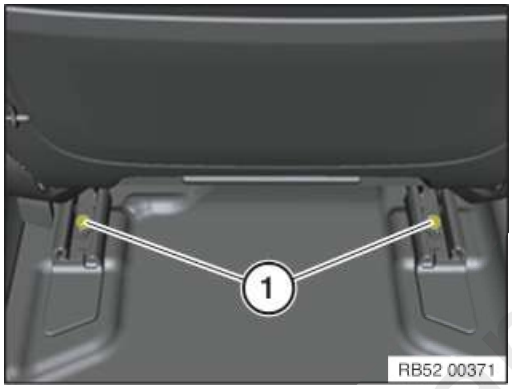
1 – Remove front seat

WARNING

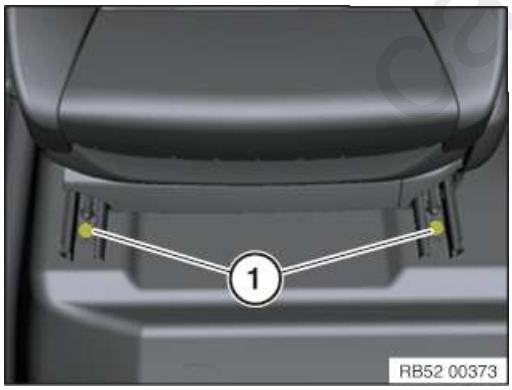
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

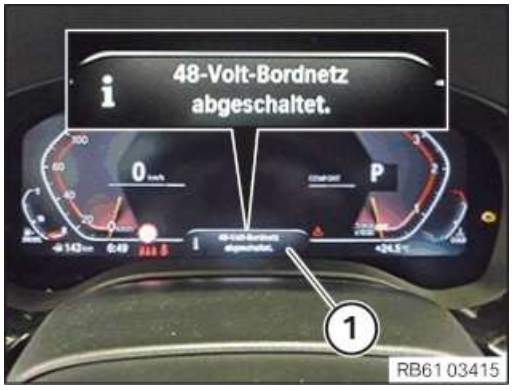
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.

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WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

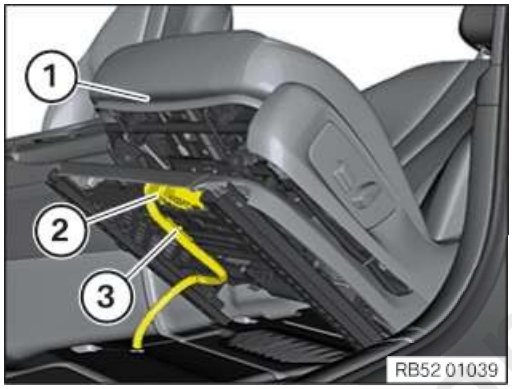
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

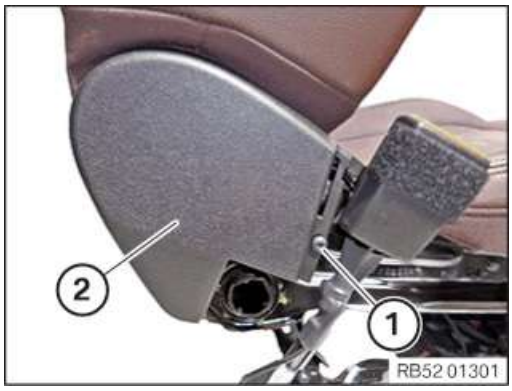
- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

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MAIN WORK

2 – Remove inner cover on front seat



- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

3 – Installing the inner cover on front seat



- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

POSTPROCESSES

4 – Install front seat

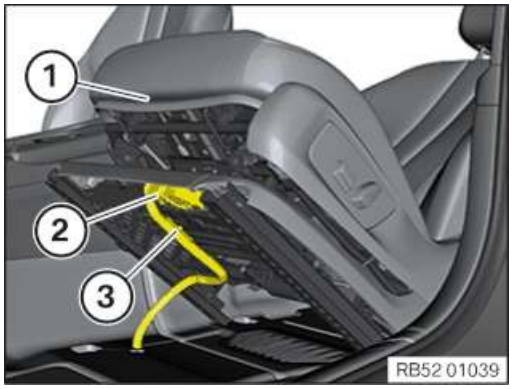
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

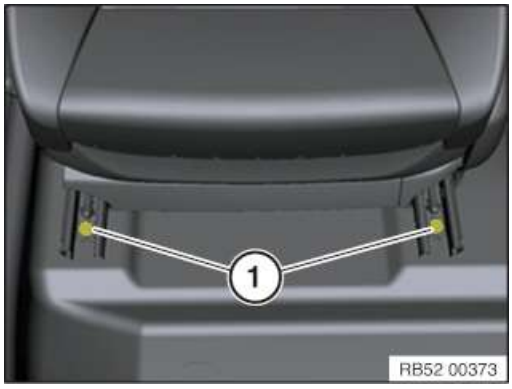


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



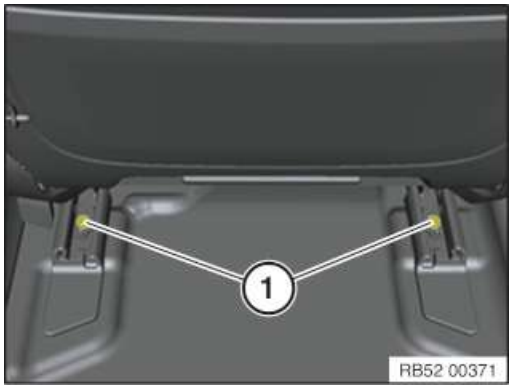
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Seat trim to seat frame — Used in step 3

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame — Used in step 3

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Negative battery cable to 48-V battery — Used in step 4

Nut M8		Tightening torque	19 Nm

Seat to body — Used in step 4

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	14

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	14

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	14
61 20 900 Disconnecting and connecting battery earth lead	14
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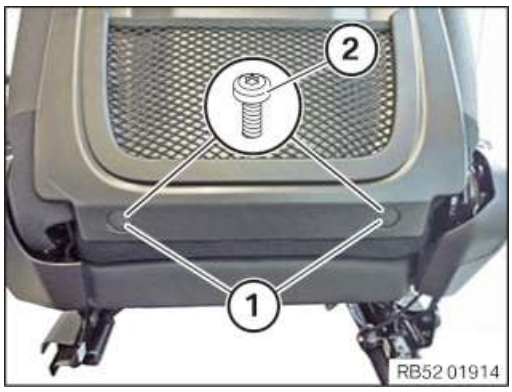
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52 14 198 Removing and installing or replacing rear panel on left or right front seat backrest

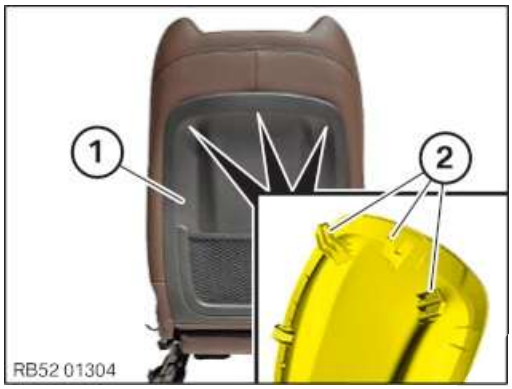
NOTICE

Description is for left component only. Procedure on the right side is identical.

1 – Removing rear panel on the front seat backrest



- Unclip the cover caps (1) with a suitable tool.
- Loosen screws (2).

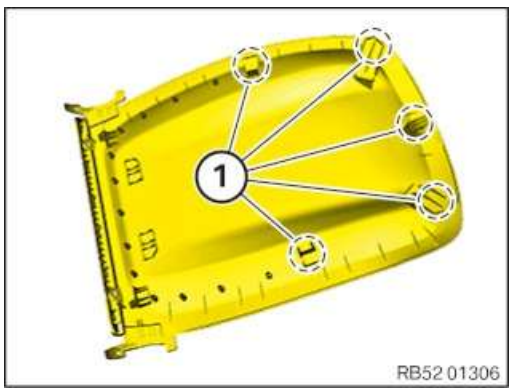


- Slide the rear panel (1) down and guide it out at the guides (2).



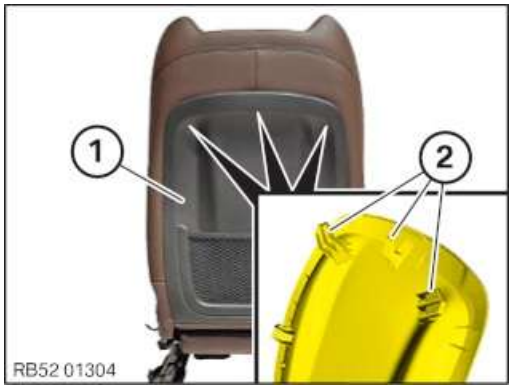
- Unclip the rear panel (1) from the clamps (2) and remove.

2 – Installing rear panel on the front seat backrest



- Check the guides and clamps (1) for damage and renew the rear panel as needed.

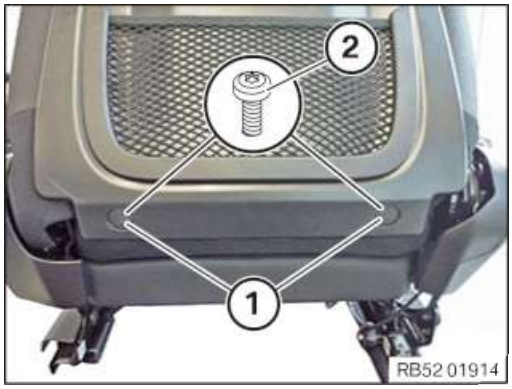
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- Thread the rear panel (1) in at the clamps (2).



- Position the rear panel (1) and clip it in at the clamps (2).



- Tighten the screws (2).

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Clip in cover caps (1).

Additional Information

Overview of Tightening Torques

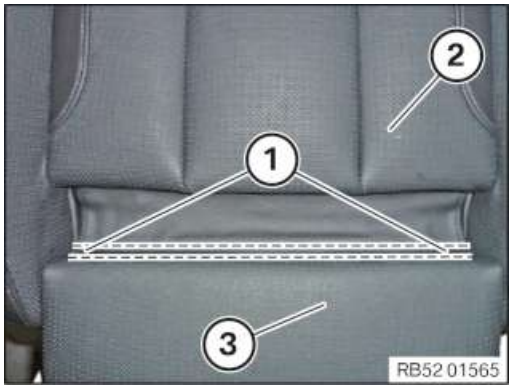
Rear panel on rear seat backrest Used in step 2

Screw		Tightening torque	3 Nm

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52 15 050 Removing and installing thigh support on left or right front seat

1 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).



- Loosen screws (1).
- Feed the thigh support (2) out.



- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

2 – Install thigh support



- Position the thigh support (2).
- Connect connectors (1) and lock.

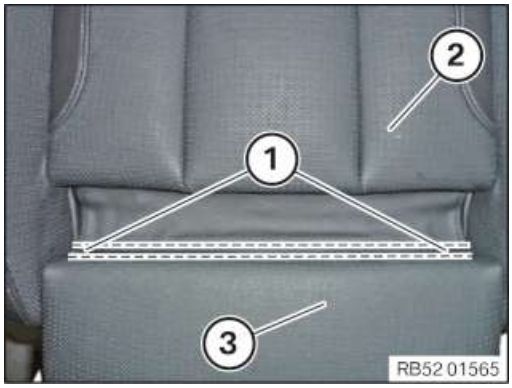
cardiagn.com



- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm



- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

Additional Information

Overview of Tightening Torques

Thigh support to front seat Used in step 2

Screw		Tightening torque	2 Nm

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52 15 040 Removing and installing/replacing outer cover on left or right front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.

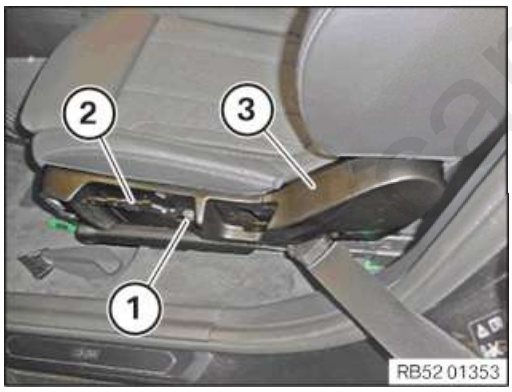
1 – Remove outer cover on front seat



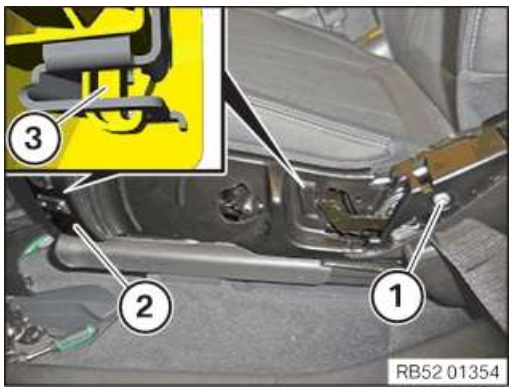
- Unclip the handle (1) for seat height adjustment.



- Pull the handle (1) up for backrest tilt adjustment.
- Use a suitable tool to unlock the retaining lug (2).
- Guide out the handle (1) for backrest tilt adjustment upwards.

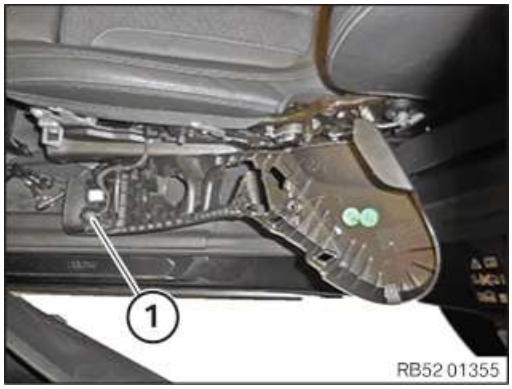


- Loosen screw (1).
- Remove the (2) metal brackets for the seat height adjustment.
- Unclip the cover (3).



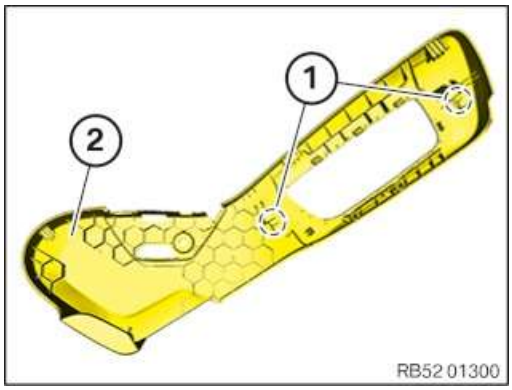
- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2).

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- Unlock and disconnect the plug connection (1) and, if necessary, unclip the cable clip.

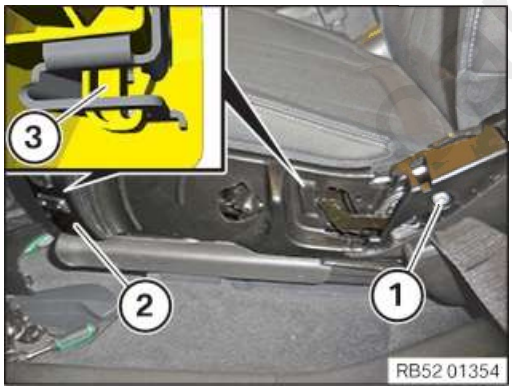
2 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect and lock the connector (1) and clip it into the cable clip if necessary.



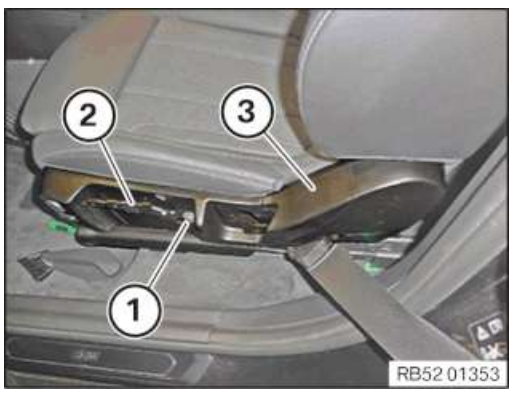
- Feed in cover (2) and position.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

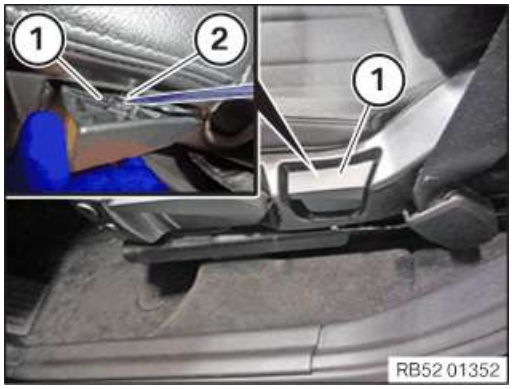
Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Position the adjustment lever (2) of the seat height adjustment.
- Tighten down screw (1).
- Clip in the cover (3).

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- Insert the handle (1) for the backrest tilt adjustment from the top.
- Check the retaining lug (2) for a correct fit.



- Clip in the handle (1) for the seat height adjustment.

Additional Information

Overview of Tightening Torques

Seat trim to seat frame — Used in step 2

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame — Used in step 2

Screw		Tightening torque	3.5 Nm

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52 15 034 Removing and installing/replacing release mechanism on left or right front seat

PRELIMINARY WORK

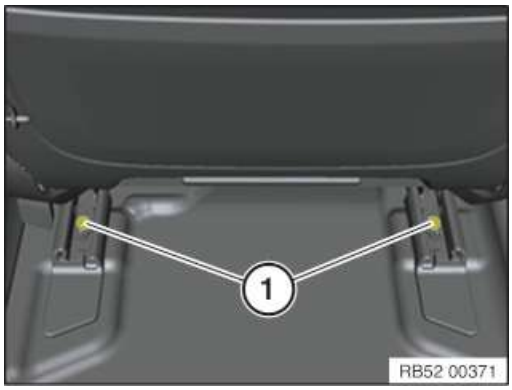
1 – Remove front seat

WARNING

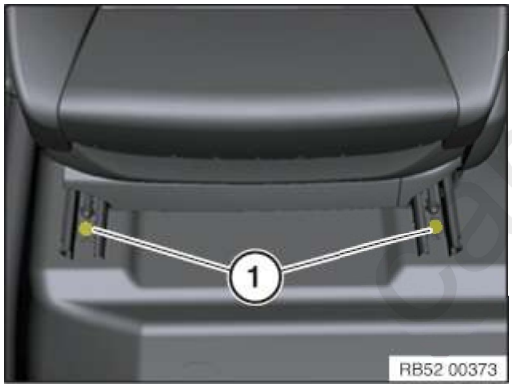
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

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WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

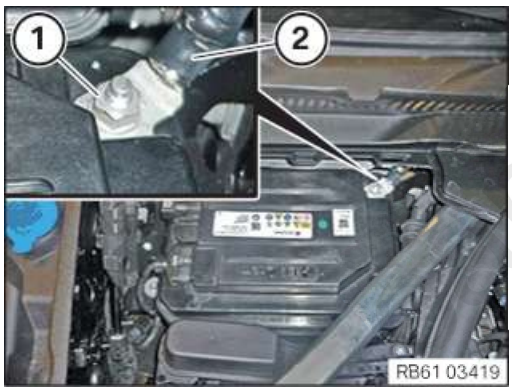
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

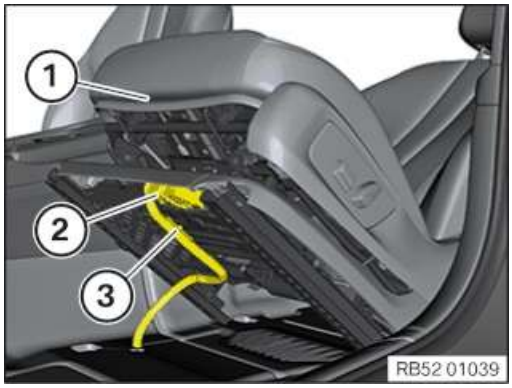
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove front head restraint



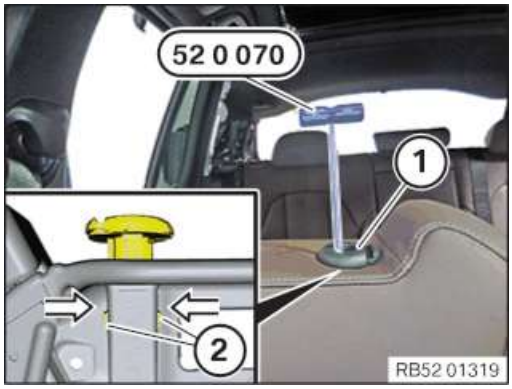
- Press the lock (2) and remove the head restraint (1) from the backrest toward the top.

3 – Removing the guide sleeve for the front head restraint

NOTICE

The description is for one component only. The procedure is identical for all further components.

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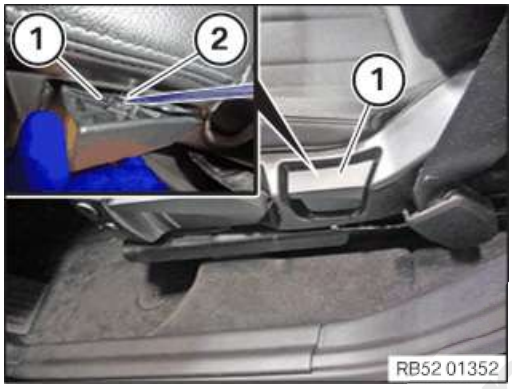


- Push the latch mechanisms (2) inward in direction of the arrow with the special tool .
- Remove the guide sleeve (1) towards the top.

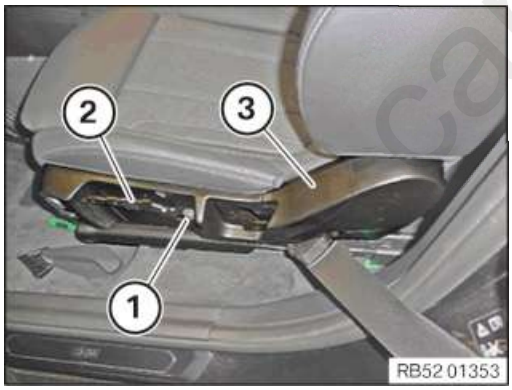
4 – Remove outer cover on front seat



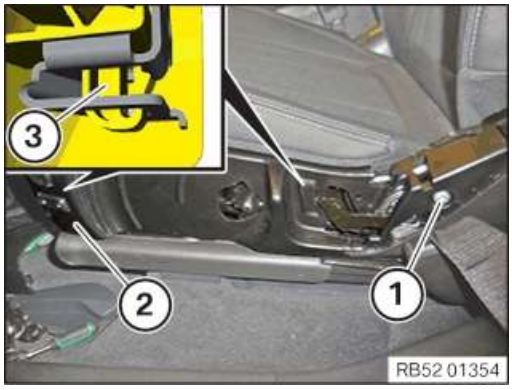
- Unclip the handle (1) for seat height adjustment.



- Pull the handle (1) up for backrest tilt adjustment.
- Use a suitable tool to unlock the retaining lug (2).
- Guide out the handle (1) for backrest tilt adjustment upwards.

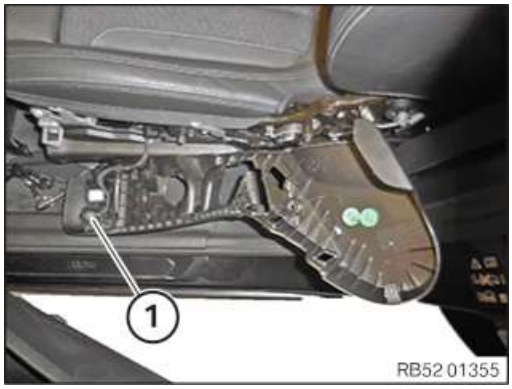


- Loosen screw (1).
- Remove the (2) metal brackets for the seat height adjustment.
- Unclip the cover (3).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2).

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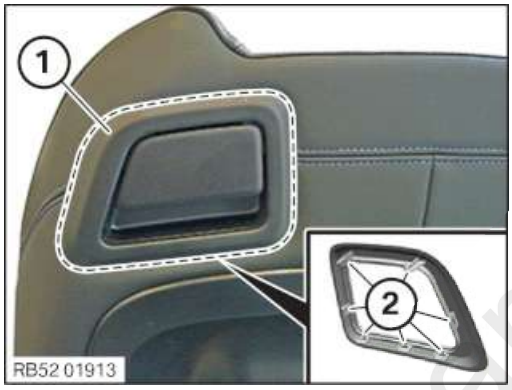
- Unlock and disconnect the plug connection (1) and, if necessary, unclip the cable clip.

5 – Remove inner cover on front seat



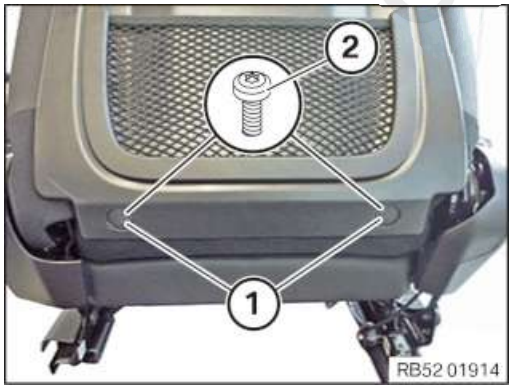
- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

6 – Removing the cover for the backrest release



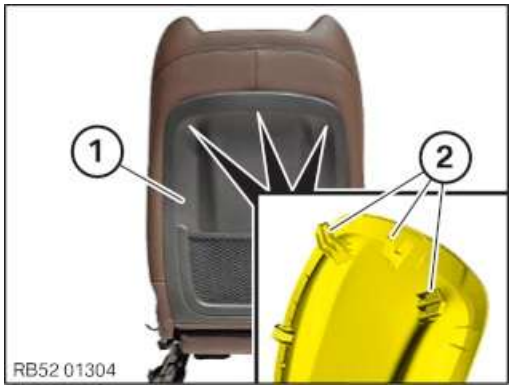
- Unclip and remove cover (1) for the backrest release in the marked area from latch mechanisms (2) using a suitable tool.

7 – Removing rear panel on the front seat backrest



- Unclip the cover caps (1) with a suitable tool.
- Loosen screws (2).

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- Slide the rear panel (1) down and guide it out at the guides (2).



- Unclip the rear panel (1) from the clamps (2) and remove.

8 – Removing the backrest cover with the cushion for the front seat

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.

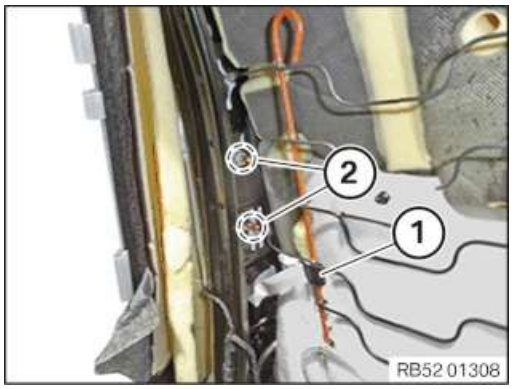


- Detach the backrest cover (1) in this area (2).
- Unhook seat cover (3).

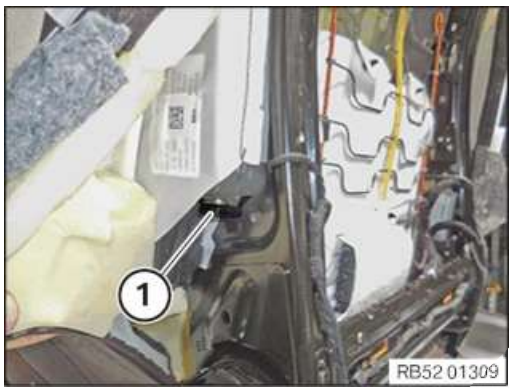
cardiagn.com



- Unclip clips (1).
- Unlock plug connection (2) and disconnect.



- Detach the holder (1).
- Loosen nuts (2).



- Unlock plug connection (1) and disconnect.



- Carefully guide out backrest cover (1) in the marked area (2).
- Remove the backrest cover (1) with the cushion damage-free in marked area (2).
- Guide out the backrest cover (1) with cushion complete with the side airbag in the direction of the arrow.

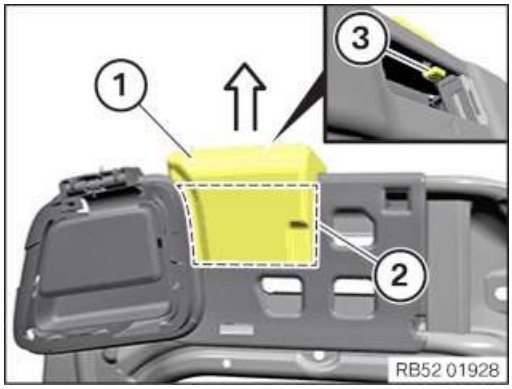
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MAIN WORK

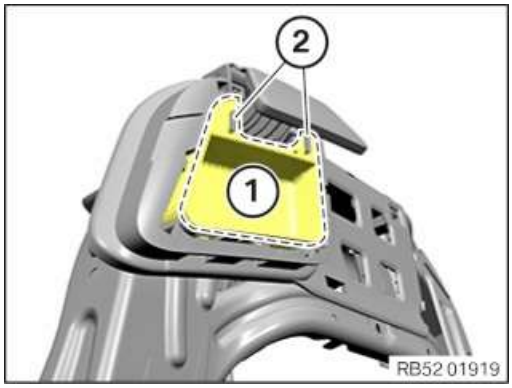
9 – Removing the release mechanism on the front seat

TECHNICAL INFORMATION

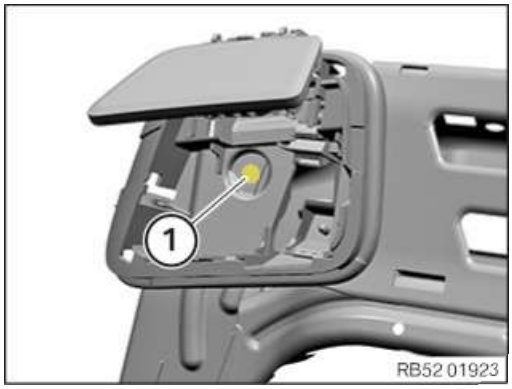
Different variants may be installed depending on the vehicle equipment.



- Release the insert (1) in the marked area (2) carefully from the adhesive strip.
- Feed out the insert (1) from the latch mechanism (3) in direction of arrow.



- Unclip the cover (1) on the latch mechanisms (2).
- Unclip the cover (1) in the marked area carefully.



RISK OF DAMAGE

Damage due to swarf.

Contamination can lead to malfunctions and damage.

- Cover working area.
- Draw off swarf during drilling using a vacuum cleaner.

- Drill out the rivet head (1).

Standard tools:
(Ø = 5 mm)

- Remove all rivet remnants.



RISK OF DAMAGE

Damage due to swarf.

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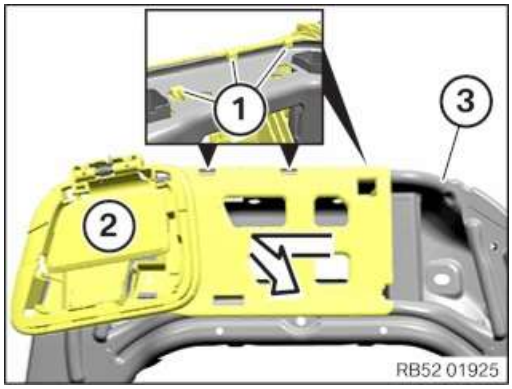
- Cover working area.
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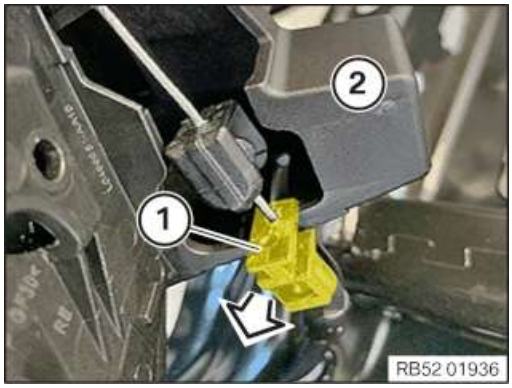
Standard tools:
(Ø = 5 mm)

- Remove all rivet remnants.

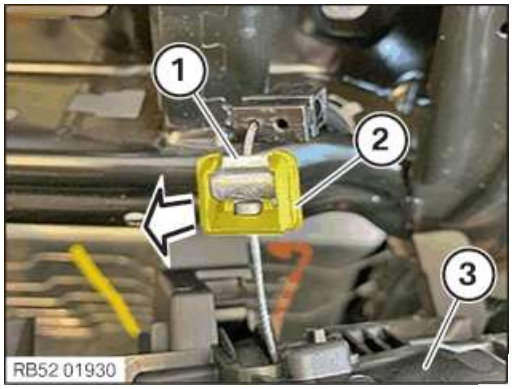
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- Unclip the latch mechanisms (1) from the backrest frame (3).
- Feed out the release mechanism (2) from the backrest frame (3) in direction of arrow.



- Feed out bowden cable (1) from the release mechanism (2) in direction of arrow.

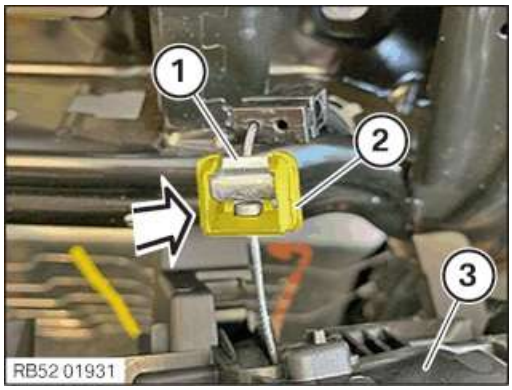


- Unclip Bowden cable (1) carefully from the connecting piece (2) in direction of arrow.
- Remove release mechanism (3).

10 – Installing the release mechanism on the front seat

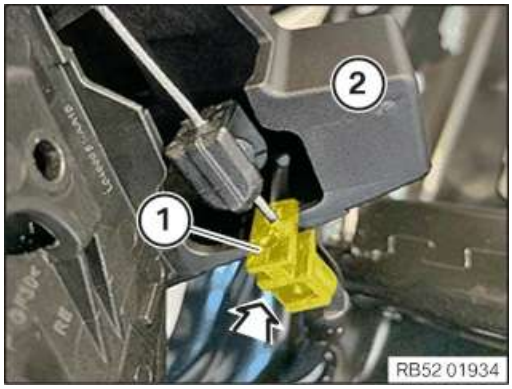
TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

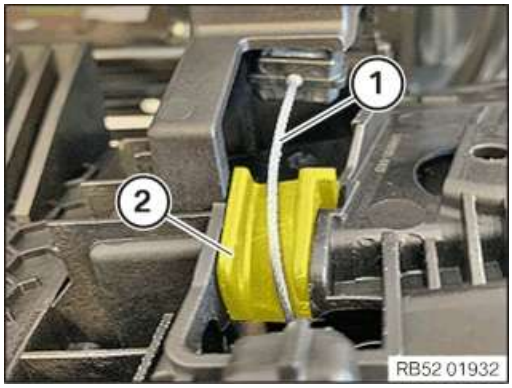


- Position the release mechanism (3) as shown.
- Clip the bowden cable (1) into the connecting piece (2) marked in yellow **carefully** in direction of arrow.

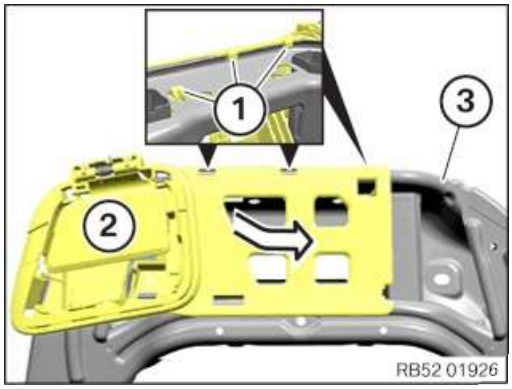
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- Feed in the bowden cable (1) into the release mechanism (2) in direction of the arrow.



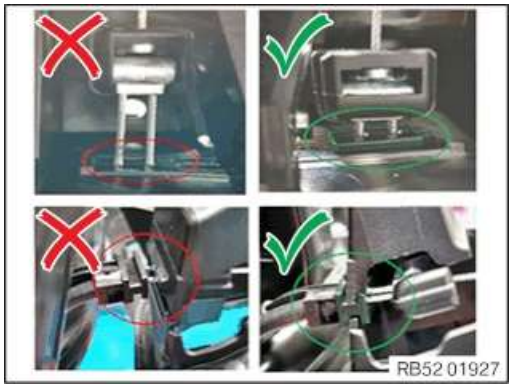
- Make sure that the cable (1) of the release mechanism goes along the guide marked in yellow (2) as shown.



- Feed in the release mechanism (2) into the the backrest frame (3) in direction of arrow.
- Clip in the latch mechanisms (1) into the backrest frame (3).



- Make sure that the bowden cable (1) is engaged correctly in the connecting piece (2).



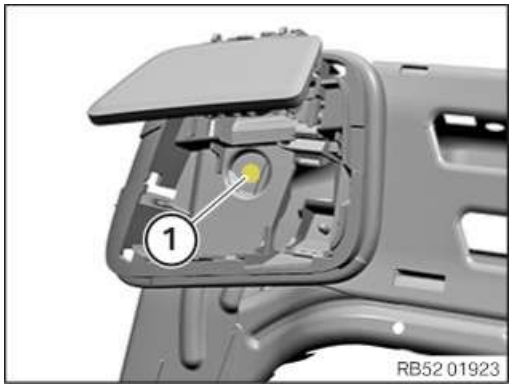
- Install marked sliding piece as shown in the release mechanism.

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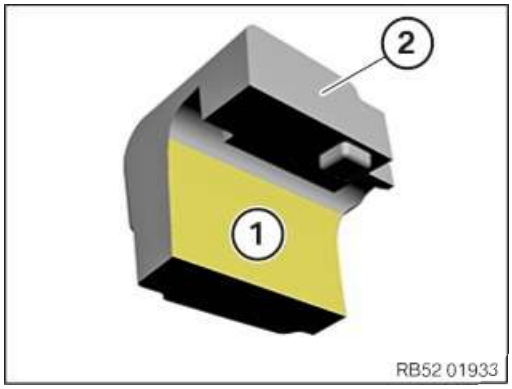
- Renew the blind rivet (1).

  Parts: Blind rivet
- Mount the release mechanism using the blind rivet (1).



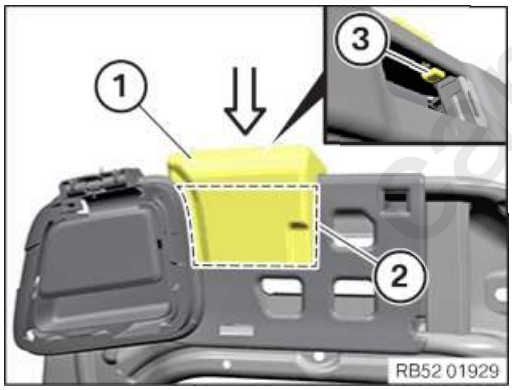
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  Parts: Blind rivet
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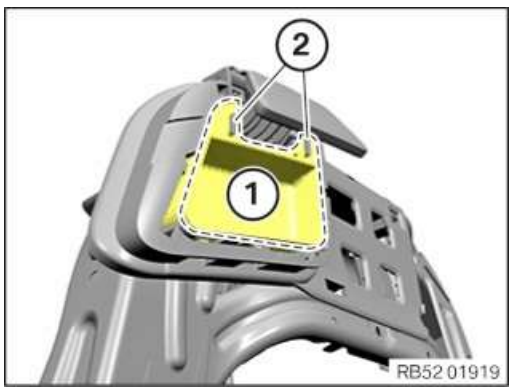


- Renew marked adhesive strips (1) on the insert (2).

  Parts: Adhesive strip



- Engage insert (1) into the latch mechanism (3) in direction of the arrow.
- Bond insert (1) in the marked area (2) with attached adhesive tapes.



- Position the cover (1) as shown.
- Clip in cover (1) on the latch mechanism (2) and in the marked area carefully.

POSTPROCESSES

11 – Install the backrest cover with the cushion for the front seat

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WARNING

Airbag unit.

Danger! Life-threatening injuries!

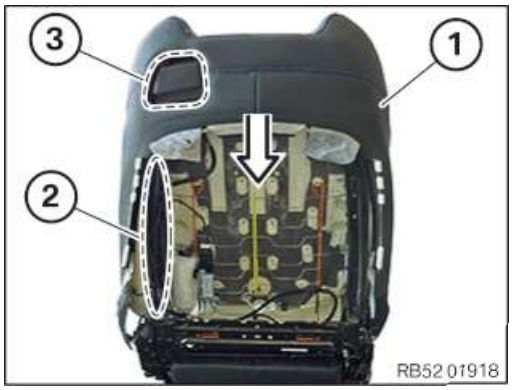
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

WARNING

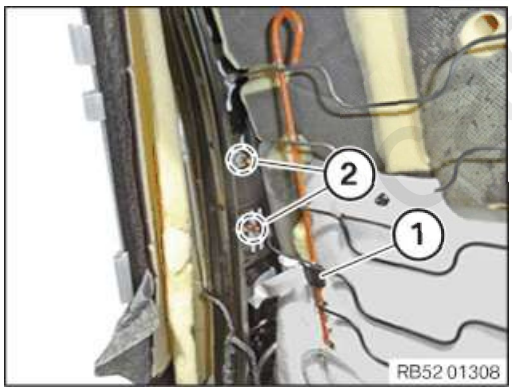
Pyrotechnic components.

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.



- Position backrest cover (1) with the cushion without damaging it in marked area (2).
- Position the backrest cover (1) completely with the side airbag in the direction of the arrow.
- Position the stud bolt of the side airbag in the area (2) correctly.
- Position backrest cover (1) correctly in the marked area (3).

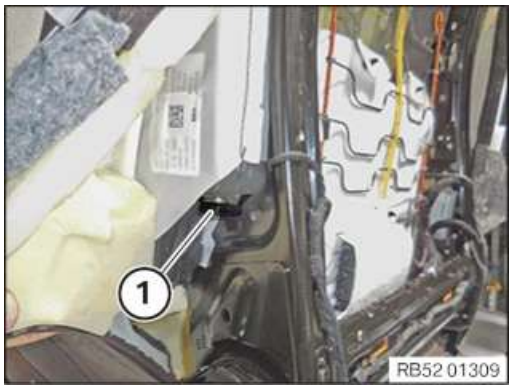


- Attach the holder (1).
- Renew nuts (2).

  Parts: Nuts
- Tighten nuts (2).

Airbag on backrest frame

Nut	Renew nut.	Tightening torque	6,5 Nm



- Connect connectors (1) and lock.

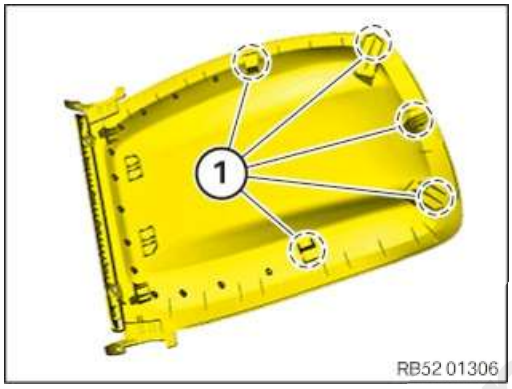


- Clip in clips (1).
- Connect connectors (2) and lock.

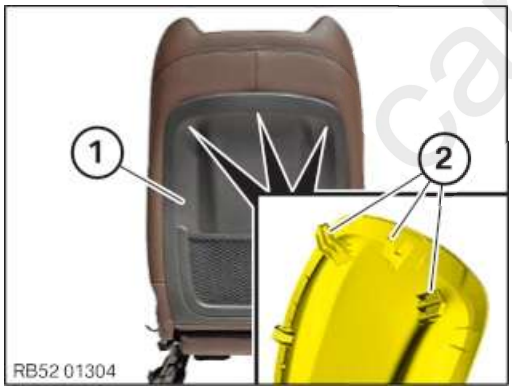


- Attach the backrest cover (1) in this area (2).
- Hook the seat cover (3).

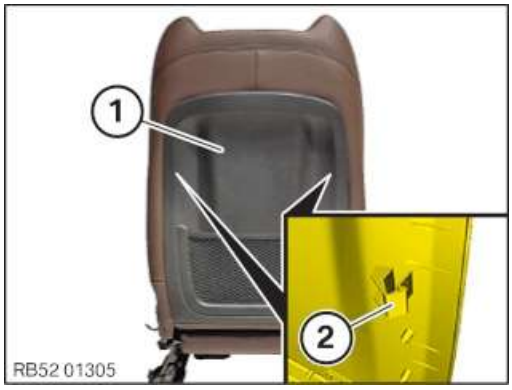
12 – Installing rear panel on the front seat backrest



- Check the guides and clamps (1) for damage and renew the rear panel as needed.

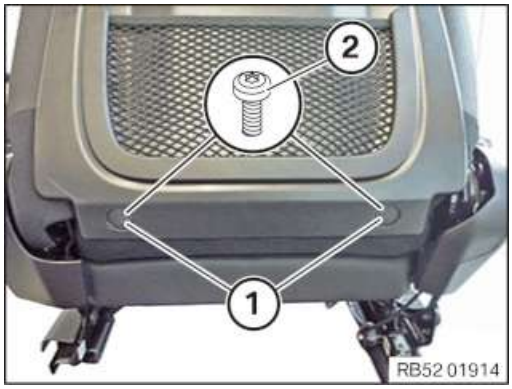


- Thread the rear panel (1) in at the clamps (2).



- Position the rear panel (1) and clip it in at the clamps (2).

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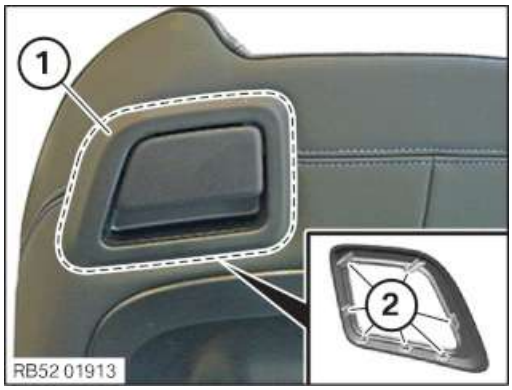
- Tighten the screws (2).

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

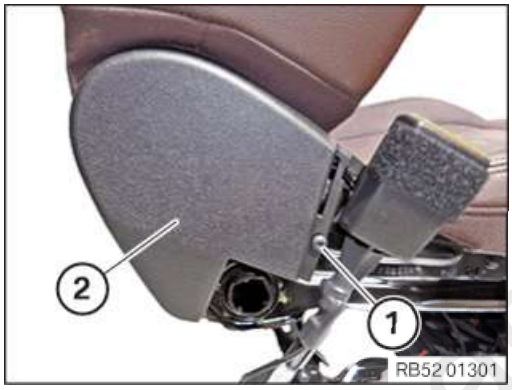
- Clip in cover caps (1).

13 – Installing a cover for backrest release



- Position the cover for backrest release (1) correctly in the marked area.
- Clip in the latch mechanism (2) of the cover for backrest release (1).

14 – Installing the inner cover on front seat



- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

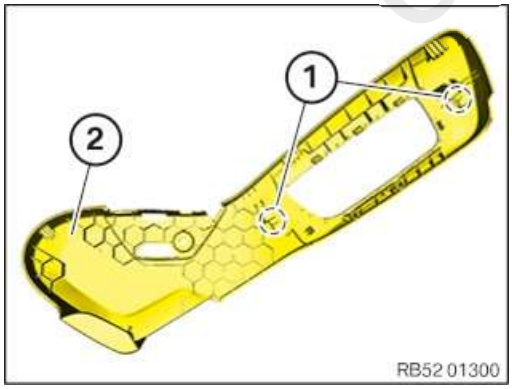
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame

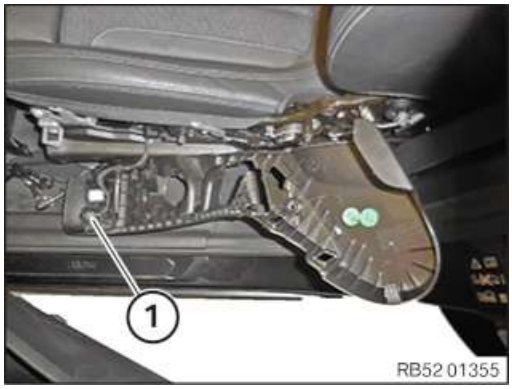
Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

15 – Install outer cover on front seat

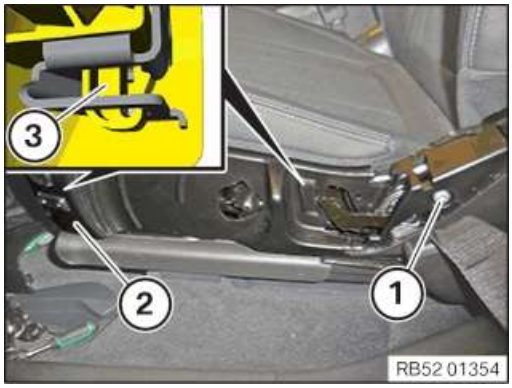


- Check the locking units (1) for damages, and replace the cover if necessary (2).

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- Connect and lock the connector (1) and clip it into the cable clip if necessary.



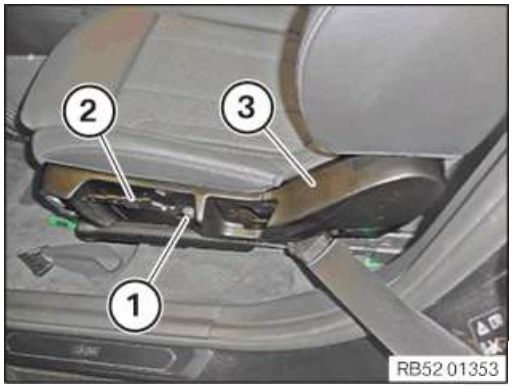
- Feed in cover (2) and position.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

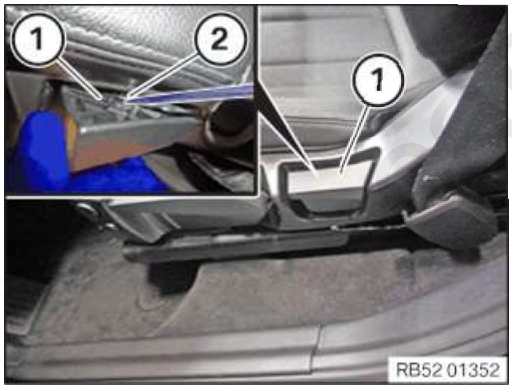
Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Position the adjustment lever (2) of the seat height adjustment.
- Tighten down screw (1).
- Clip in the cover (3).



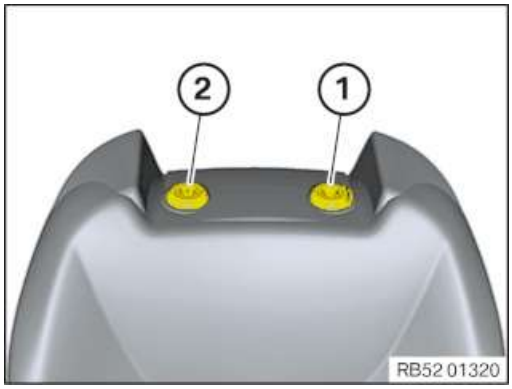
- Insert the handle (1) for the backrest tilt adjustment from the top.
- Check the retaining lug (2) for a correct fit.



- Clip in the handle (1) for the seat height adjustment.

16 – Install the guide sleeve for the front head restraint

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- Pay attention to the installation position:

  Insert the guide sleeve (1) **with** unlocking towards the left in the direction of travel.

  Insert the guide sleeve (2) **without** unlocking towards the right in the direction of travel.



NOTICE

The description is for one component only. The procedure is identical for all further components.

- Insert the guide sleeve (1) into the rear seat backrest in the direction of arrow from the top and lock it.

  You have to feel the guide sleeve (1) engage.

17 – Install the front head restraint



- Insert the head restraint (1) in the direction of the arrow into the guides (2).
- Slide the head restraint (1) in until the lock (3) is securely engaged.

18 – Install front seat

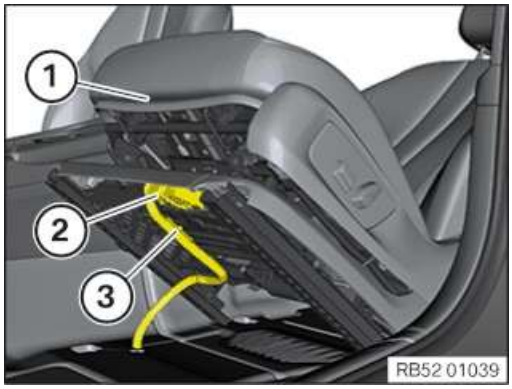
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

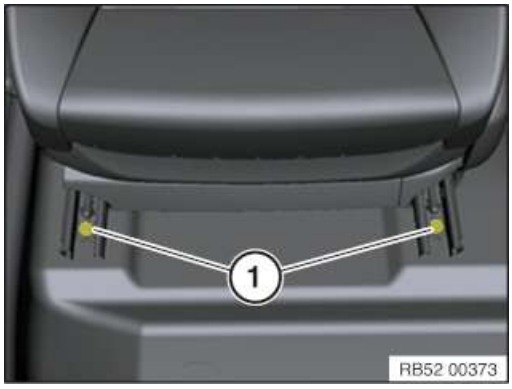


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



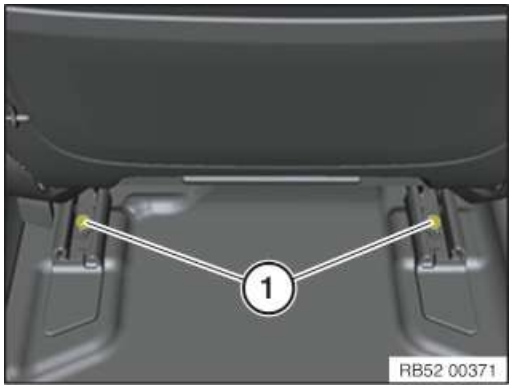
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

cardiagn.com



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Airbag on backrest frame — Used in step 11

Nut	Renew nut.	Tightening torque	6,5 Nm

Rear panel on rear seat backrest — Used in step 12

Screw		Tightening torque	3 Nm

Seat trim to seat frame — Used in step 1415

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame — Used in step 14

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame — Used in step 15

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 18

Nut M8		Tightening torque	19 Nm

Seat to body — Used in step 18

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	118

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	118

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118

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61 20 900 Disconnecting and connecting battery earth lead	118
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	118
61 20 900 Disconnecting and connecting battery earth lead

52 15 026 Removing/installing/replacing driver's seat and backrest frame

PRELIMINARY WORK

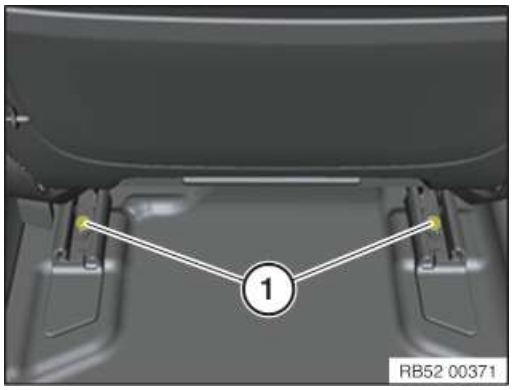
1 – Remove front seat

WARNING

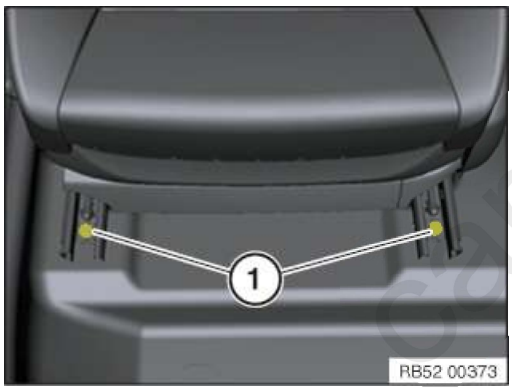
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

carmanuals.com

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

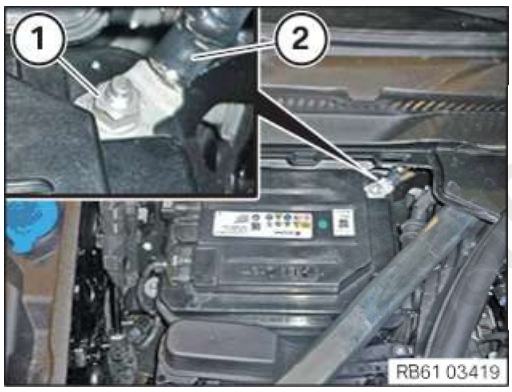
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

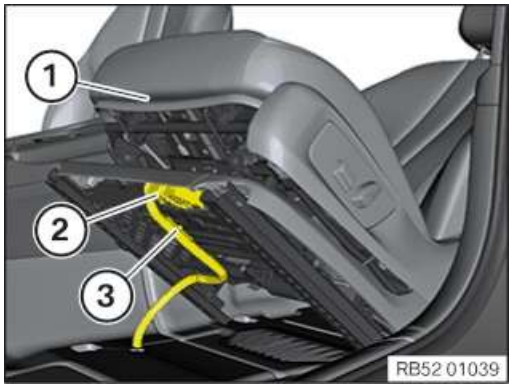
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove front head restraint



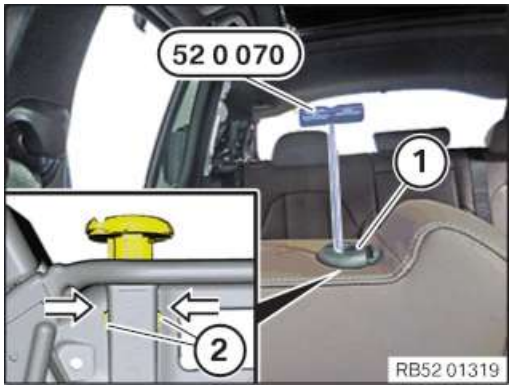
- Press the lock (2) and remove the head restraint (1) from the backrest toward the top.

3 – Removing the guide sleeve for the front head restraint

NOTICE

The description is for one component only. The procedure is identical for all further components.

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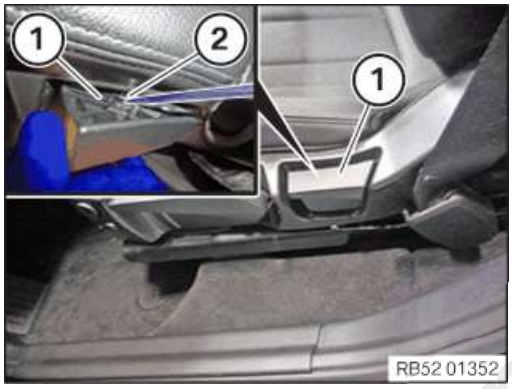


- Push the latch mechanisms (2) inward in direction of the arrow with the special tool .
- Remove the guide sleeve (1) towards the top.

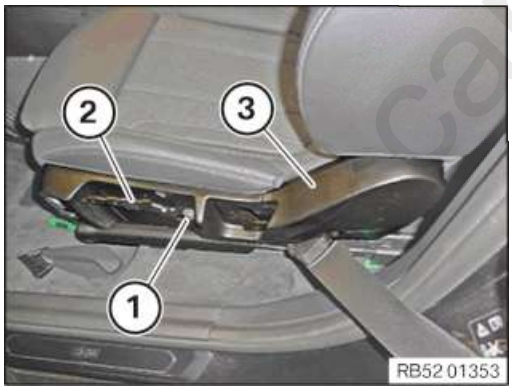
4 – Remove outer cover on front seat



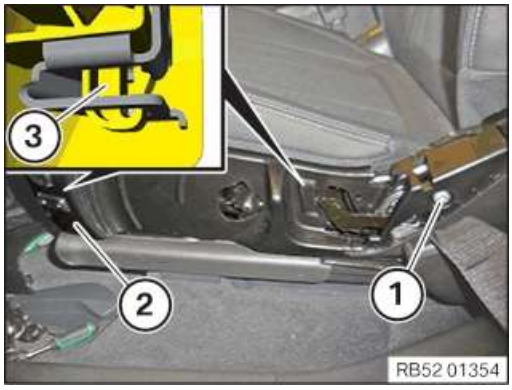
- Unclip the handle (1) for seat height adjustment.



- Pull the handle (1) up for backrest tilt adjustment.
- Use a suitable tool to unlock the retaining lug (2).
- Guide out the handle (1) for backrest tilt adjustment upwards.

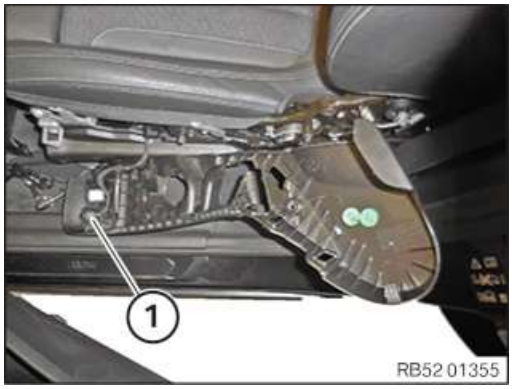


- Loosen screw (1).
- Remove the (2) metal brackets for the seat height adjustment.
- Unclip the cover (3).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2).

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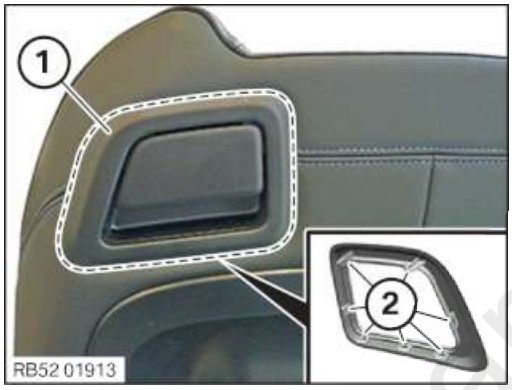
- Unlock and disconnect the plug connection (1) and, if necessary, unclip the cable clip.

5 – Remove inner cover on front seat



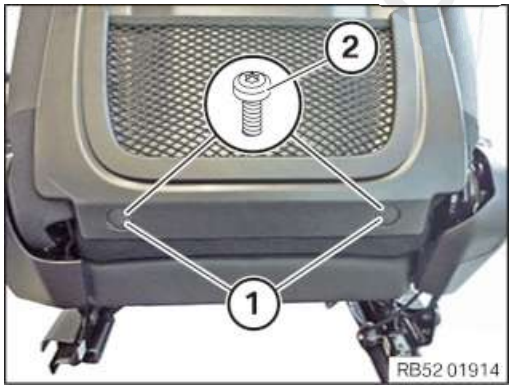
- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

6 – Removing the cover for the backrest release



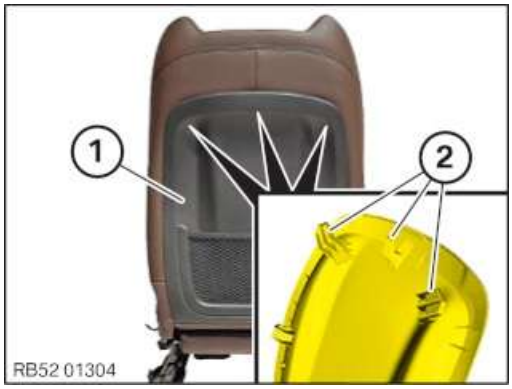
- Unclip and remove cover (1) for the backrest release in the marked area from latch mechanisms (2) using a suitable tool.

7 – Removing rear panel on the front seat backrest



- Unclip the cover caps (1) with a suitable tool.
- Loosen screws (2).

carsdiagn.com



- Slide the rear panel (1) down and guide it out at the guides (2).



- Unclip the rear panel (1) from the clamps (2) and remove.

8 – Removing the backrest cover with the cushion for the front seat

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.

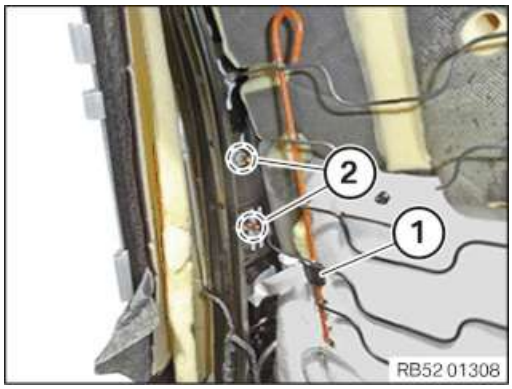


- Detach the backrest cover (1) in this area (2).
- Unhook seat cover (3).

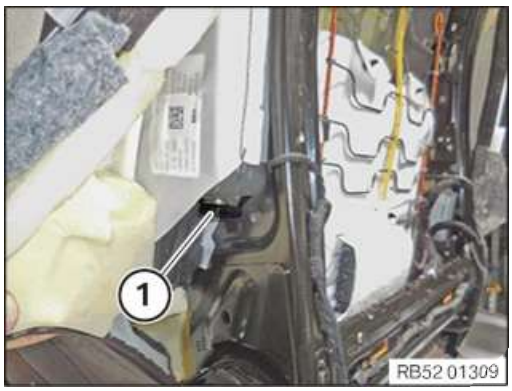
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- Unclip clips (1).
- Unlock plug connection (2) and disconnect.



- Detach the holder (1).
- Loosen nuts (2).



- Unlock plug connection (1) and disconnect.



- Carefully guide out backrest cover (1) in the marked area (2).
- Remove the backrest cover (1) with the cushion damage-free in marked area (2).
- Guide out the backrest cover (1) with cushion complete with the side airbag in the direction of the arrow.

9 – Remove side airbag from front seat

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

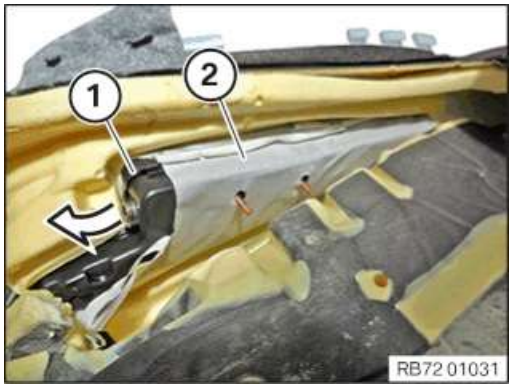
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WARNING

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.



- Pull the side airbag (1) out in the direction of arrow from the seat cover bag (2) on the backrest cover.

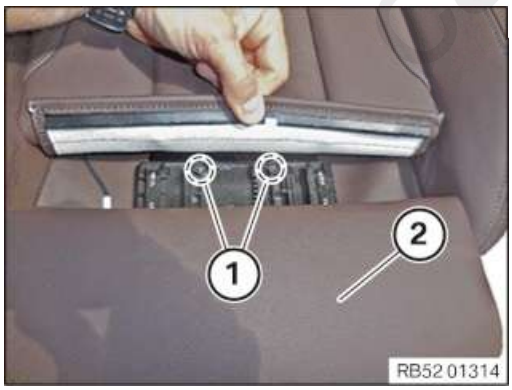
10 – Remove thigh support

Prerequisite

The thigh support is completely extended.

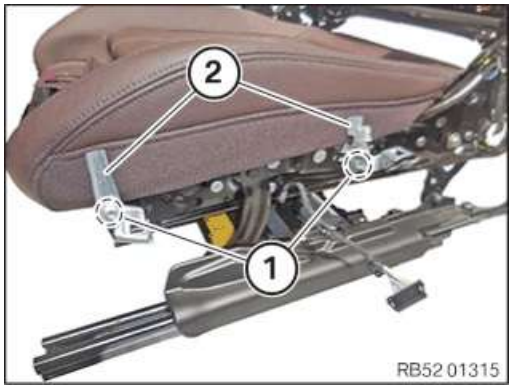


- Detach the seat cover (1) in this area (2).

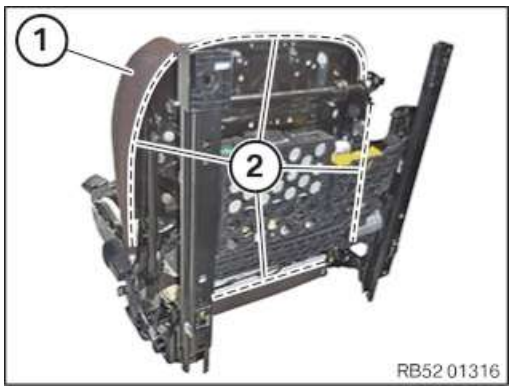


- Loosen the screws (1) and remove the thigh support (2).
- If necessary, disconnect the existing plug connection.

11 – Removing the seat cover with the cushion for the front seat



- Loosen screws (1) and remove the holder (2).



- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Unlock and disconnect the existing plug connections if required and unclip the cable clip .

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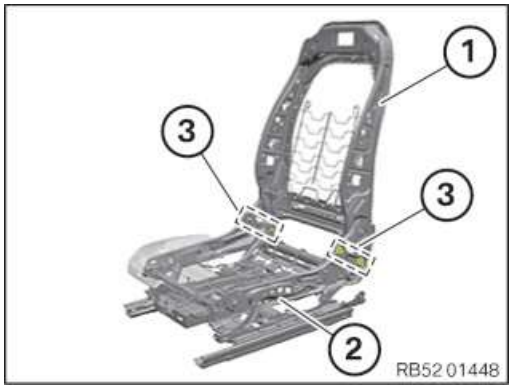
12 – Replacing the complete seat frame with the backrest frame



TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

- Remove all mounted parts of the seat frame to be replaced and the backrest frame (1).



TECHNICAL INFORMATION

When replacing the seat frame, the entire seat frame must be replaced with the backrest frame.

Replacement of individual parts (e.g. only the backrest frame) is not permitted.

- Renew the seat frame (2) and the backrest frame (1).

  Parts: Seat frame and backrest frame
- Position seat frame (2) and backrest frame (1) correctly.
- Renew screws (3).

  Parts: Screws
- Tighten the screws (3).

Backrest frame to seat frame

M10 screw	Renew screw.	Tightening torque	42 Nm

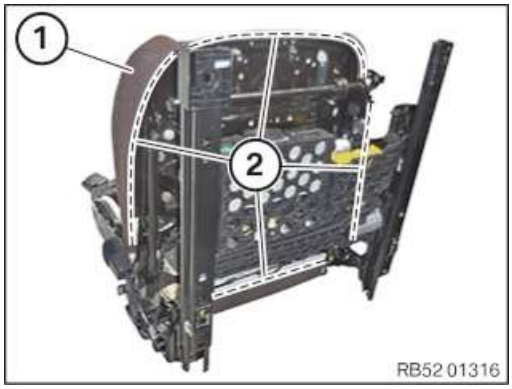


- Position and secure all the mounted parts on the seat frame and backrest frame (1).

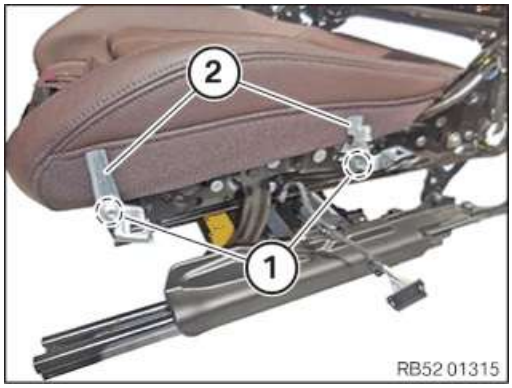
POSTPROCESSES

13 – Fit the seat cover with the cushion for the front seat

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- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Connect and lock existing connectors and clip in the cable clip if necessary.



- Position all the holders (2) and tighten the screws (1).

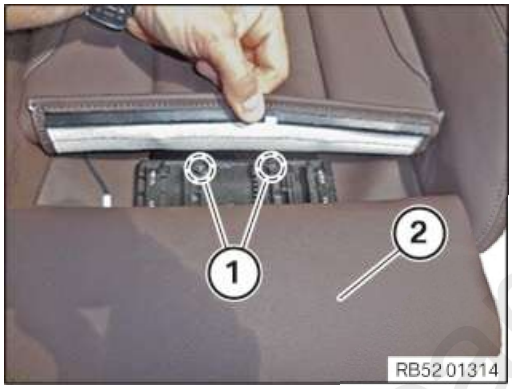
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

14 – Install thigh support

Prerequisite

The thigh support is completely extended.



- Connect the existing plug connections.
- Position the thigh support (2) and tighten the bolts (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm



- Attach the seat cover (1) in this area (2).

15 – Install side airbag on front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

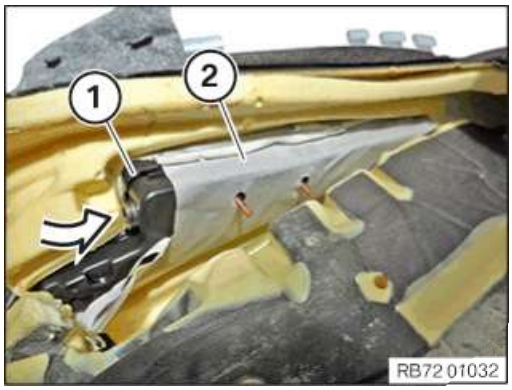
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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



- Feed the side airbag (1) in the direction of arrow into the seat cover pocket (2) on the backrest cover and position it correctly.

16 – Install the backrest cover with the cushion for the front seat

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

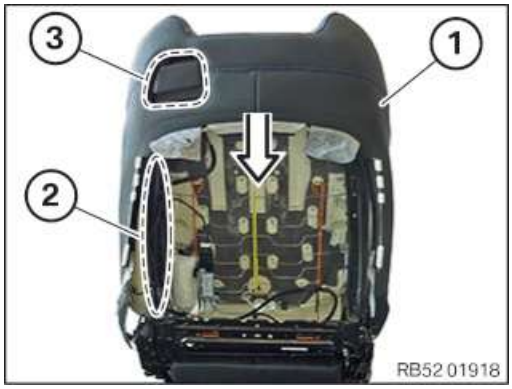
WARNING

Pyrotechnic components.

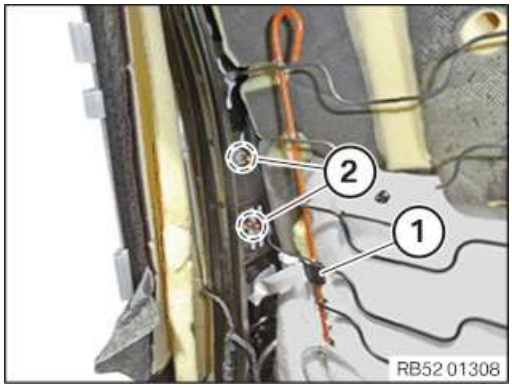
Danger! Life-threatening injuries!

- 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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- Position backrest cover (1) with the cushion without damaging it in marked area (2).
- Position the backrest cover (1) completely with the side airbag in the direction of the arrow.
- Position the stud bolt of the side airbag in the area (2) correctly.
- Position backrest cover (1) correctly in the marked area (3).

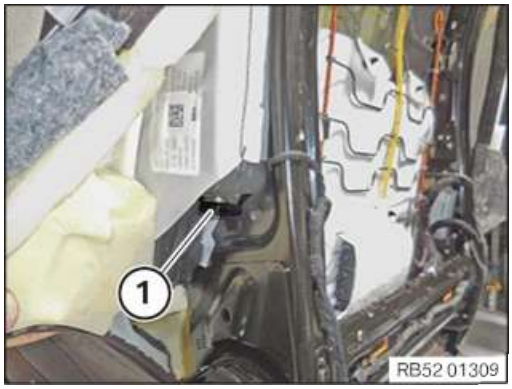


- Attach the holder (1).
- Renew nuts (2).

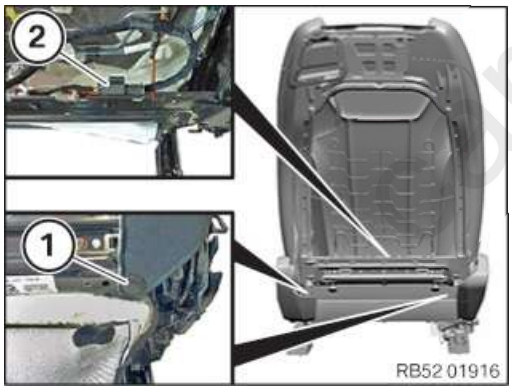
  Parts: Nuts
- Tighten nuts (2).

Airbag on backrest frame

Nut	Renew nut.	Tightening torque	6,5 Nm



- Connect connectors (1) and lock.



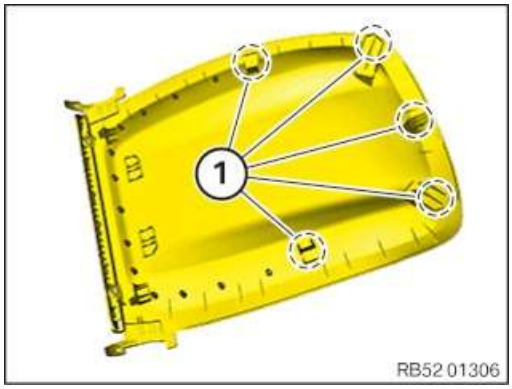
- Clip in clips (1).
- Connect connectors (2) and lock.



- Attach the backrest cover (1) in this area (2).
- Hook the seat cover (3).

17 – Installing rear panel on the front seat backrest

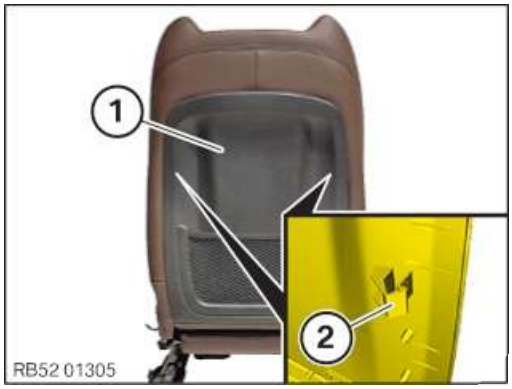
ordiagn.com



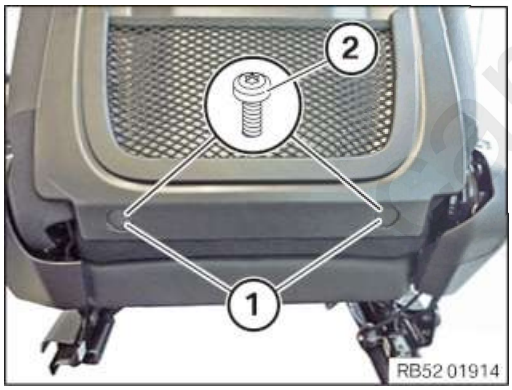
- Check the guides and clamps (1) for damage and renew the rear panel as needed.



- Thread the rear panel (1) in at the clamps (2).



- Position the rear panel (1) and clip it in at the clamps (2).



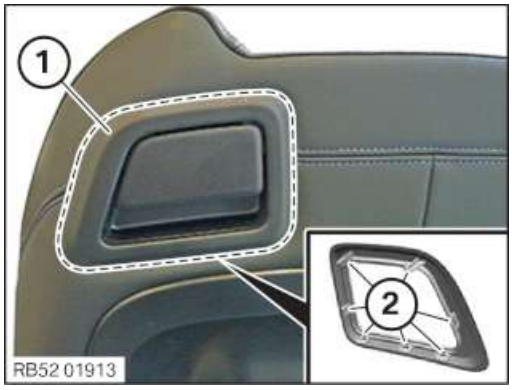
- Tighten the screws (2).

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Clip in cover caps (1).

18 – Installing a cover for backrest release



- Position the cover for backrest release (1) correctly in the marked area.
- Clip in the latch mechanism (2) of the cover for backrest release (1).

19 – Installing the inner cover on front seat

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- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

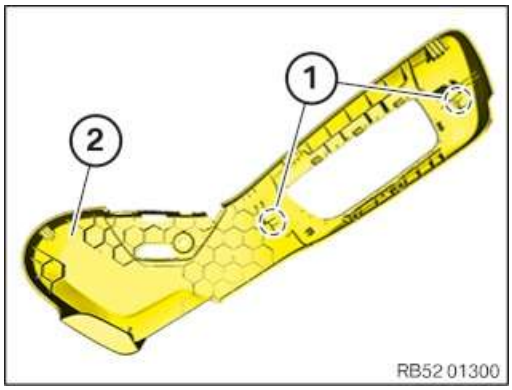
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

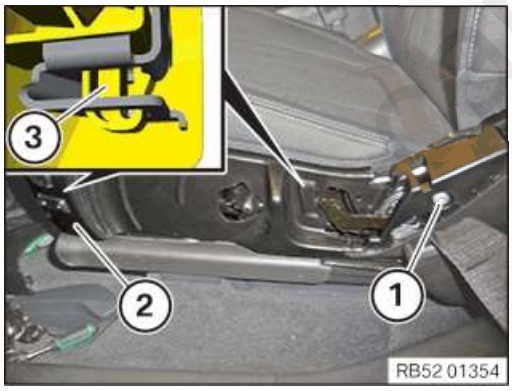
20 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect and lock the connector (1) and clip it into the cable clip if necessary.



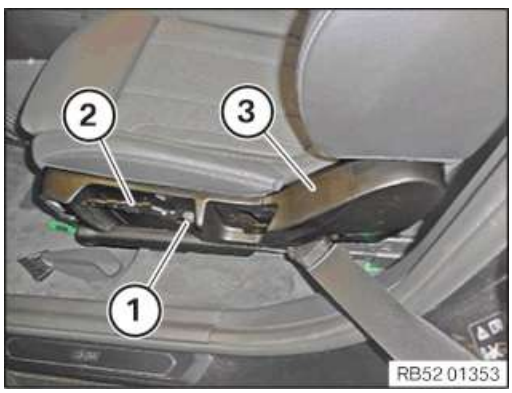
- Feed in cover (2) and position.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

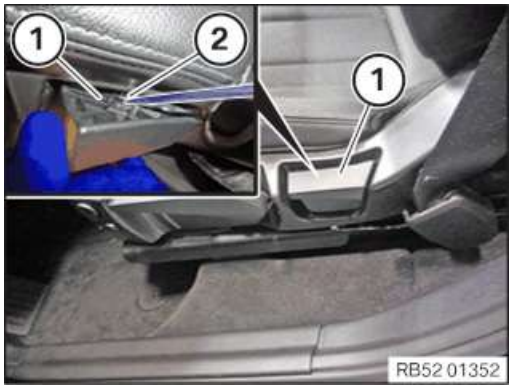
Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Position the adjustment lever (2) of the seat height adjustment.
- Tighten down screw (1).
- Clip in the cover (3).

diagn.com

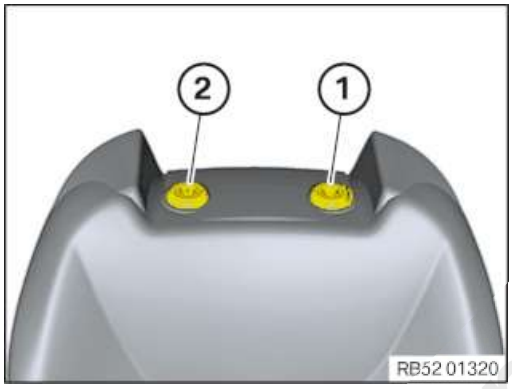


- Insert the handle (1) for the backrest tilt adjustment from the top.
- Check the retaining lug (2) for a correct fit.



- Clip in the handle (1) for the seat height adjustment.

21 – Install the guide sleeve for the front head restraint



- Pay attention to the installation position:

  Insert the guide sleeve (1) **with** unlocking towards the left in the direction of travel.

  Insert the guide sleeve (2) **without** unlocking towards the right in the direction of travel.



NOTICE

The description is for one component only. The procedure is identical for all further components.

- Insert the guide sleeve (1) into the rear seat backrest in the direction of arrow from the top and lock it.

  You have to feel the guide sleeve (1) engage.

22 – Install the front head restraint



- Insert the head restraint (1) in the direction of the arrow into the guides (2).
- Slide the head restraint (1) in until the lock (3) is securely engaged.

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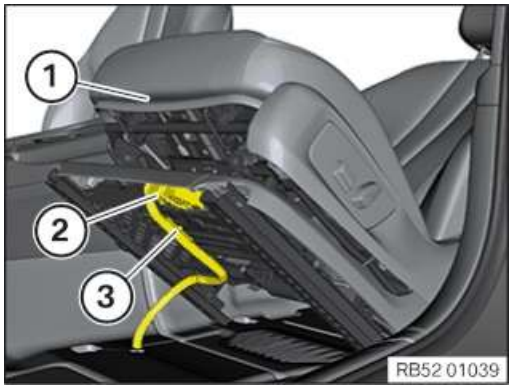
23 – Install front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**



- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

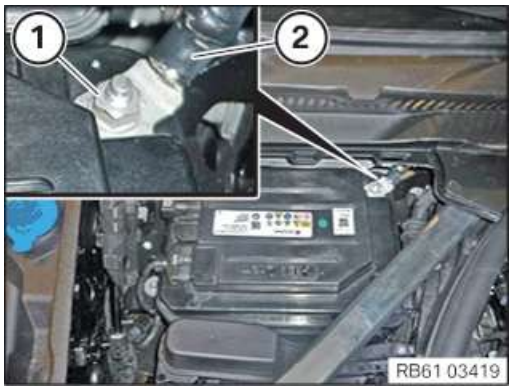
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

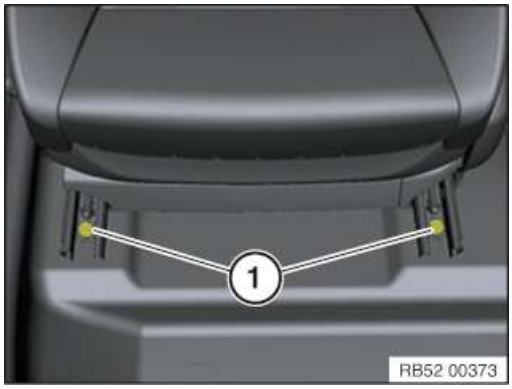


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

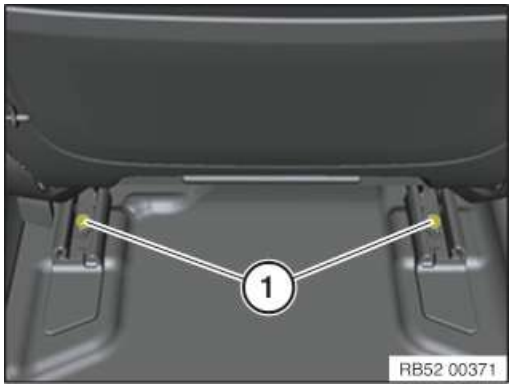


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Backrest frame to seat frame — Used in step 12

M10 screw	Renew screw.	Tightening torque	42 Nm

Seat trim to seat frame — Used in step 131920

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 14

Screw		Tightening torque	2 Nm

Airbag on backrest frame — Used in step 16

Nut	Renew nut.	Tightening torque	6,5 Nm

Rear panel on rear seat backrest — Used in step 17

Screw		Tightening torque	3 Nm

Inner seat trim to seat frame — Used in step 19

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame — Used in step 20

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 23

Nut M8		Tightening torque	19 Nm

Seat to body — Used in step 23

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	123

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	123

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	123
61 20 900 Disconnecting and connecting battery earth lead	123
61 20 900 Disconnecting and connecting battery earth lead	123
61 20 900 Disconnecting and connecting battery earth lead	123
61 20 900 Disconnecting and connecting battery earth lead	123
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	123
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	123
61 20 900 Disconnecting and connecting battery earth lead	123
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	123
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	123
61 20 900 Disconnecting and connecting battery earth lead	123
61 20 900 Disconnecting and connecting battery earth lead	123
61 20 900 Disconnecting and connecting battery earth lead	123
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52 15 407 Replacing backrest cover for driver's seat

PRELIMINARY WORK

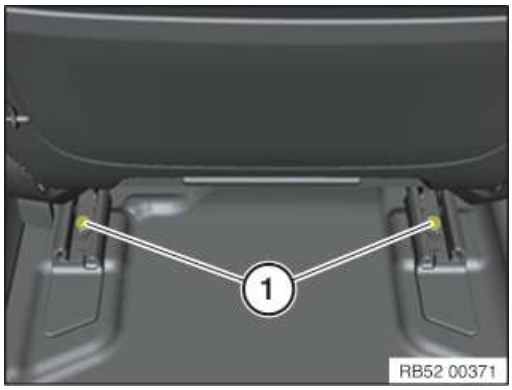
1 – Remove front seat

WARNING

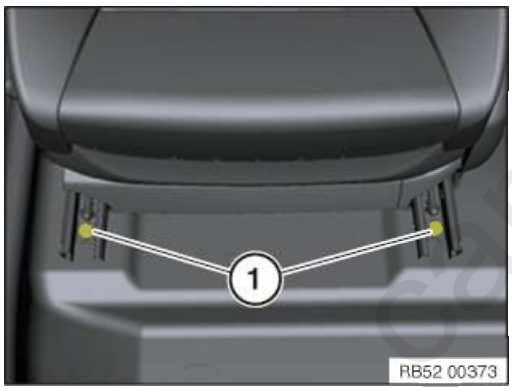
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

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WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

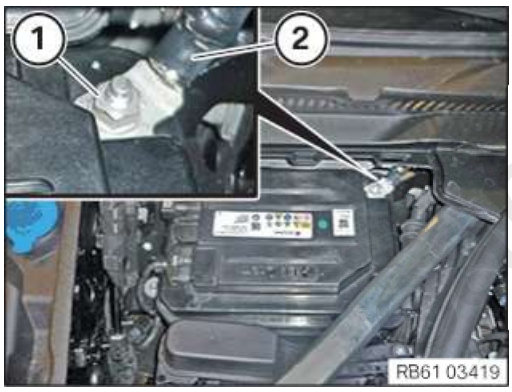
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

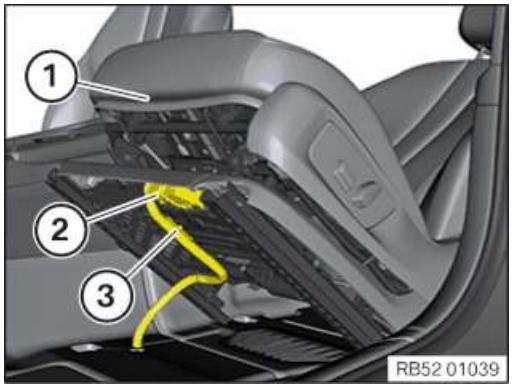
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove front head restraint



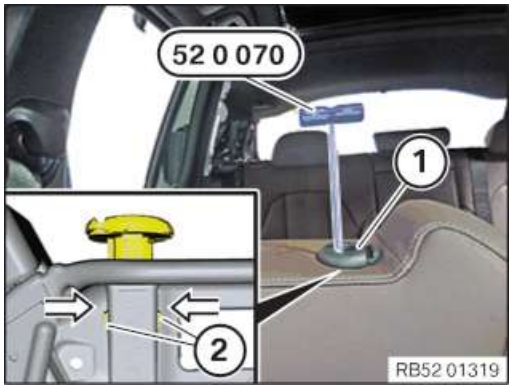
- Press the lock (2) and remove the head restraint (1) from the backrest toward the top.

3 – Removing the guide sleeve for the front head restraint

NOTICE

The description is for one component only. The procedure is identical for all further components.

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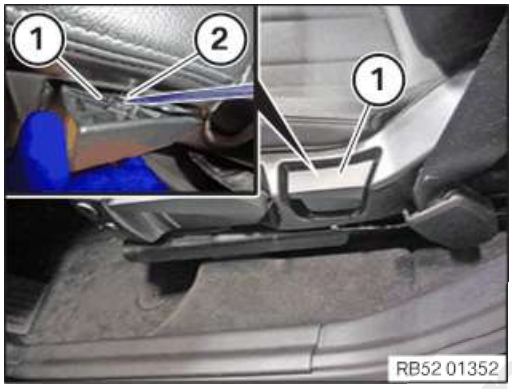


- Push the latch mechanisms (2) inward in direction of the arrow with the special tool .
- Remove the guide sleeve (1) towards the top.

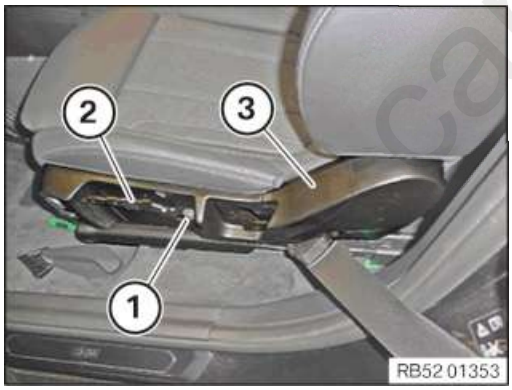
4 – Remove outer cover on front seat



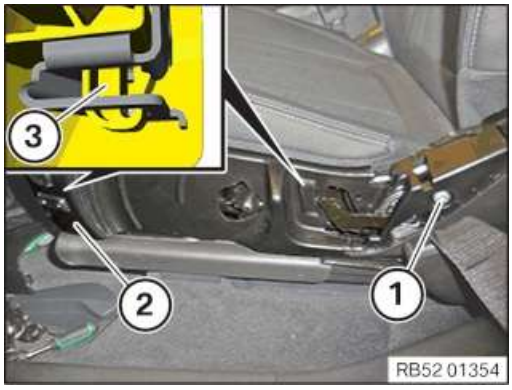
- Unclip the handle (1) for seat height adjustment.



- Pull the handle (1) up for backrest tilt adjustment.
- Use a suitable tool to unlock the retaining lug (2).
- Guide out the handle (1) for backrest tilt adjustment upwards.

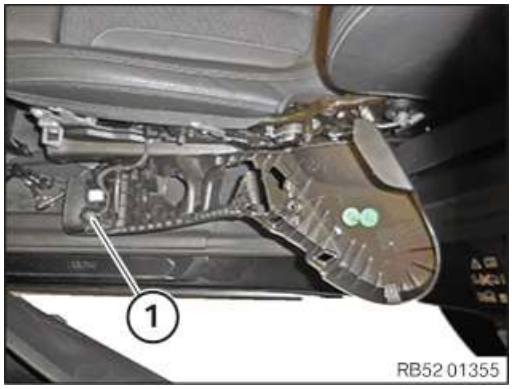


- Loosen screw (1).
- Remove the (2) metal brackets for the seat height adjustment.
- Unclip the cover (3).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2).

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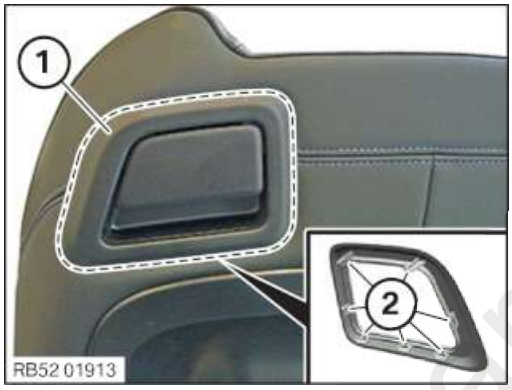
- Unlock and disconnect the plug connection (1) and, if necessary, unclip the cable clip.

5 – Remove inner cover on front seat



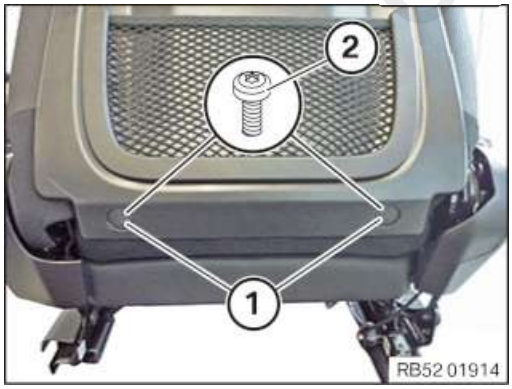
- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

6 – Removing the cover for the backrest release



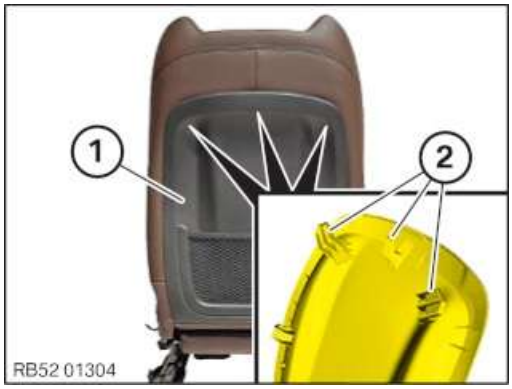
- Unclip and remove cover (1) for the backrest release in the marked area from latch mechanisms (2) using a suitable tool.

7 – Removing rear panel on the front seat backrest



- Unclip the cover caps (1) with a suitable tool.
- Loosen screws (2).

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- Slide the rear panel (1) down and guide it out at the guides (2).



- Unclip the rear panel (1) from the clamps (2) and remove.

8 – Removing the backrest cover with the cushion for the front seat

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.

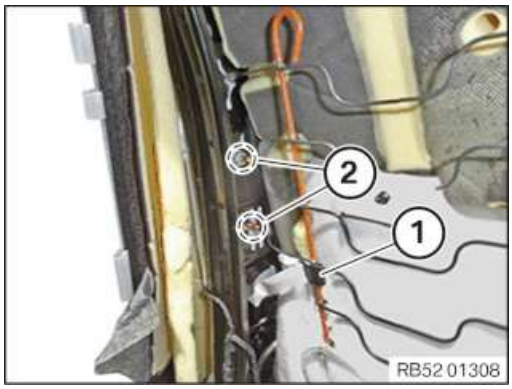


- Detach the backrest cover (1) in this area (2).
- Unhook seat cover (3).

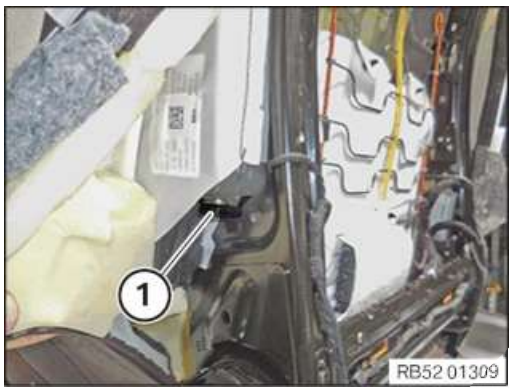
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- Unclip clips (1).
- Unlock plug connection (2) and disconnect.



- Detach the holder (1).
- Loosen nuts (2).



- Unlock plug connection (1) and disconnect.



- Carefully guide out backrest cover (1) in the marked area (2).
- Remove the backrest cover (1) with the cushion damage-free in marked area (2).
- Guide out the backrest cover (1) with cushion complete with the side airbag in the direction of the arrow.

9 – Remove side airbag from front seat

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

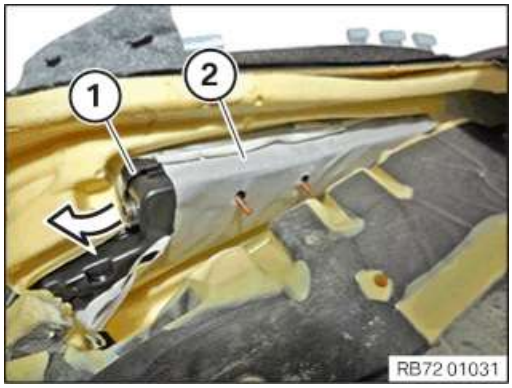
cardiagn.com

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.



- Pull the side airbag (1) out in the direction of arrow from the seat cover bag (2) on the backrest cover.

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MAIN WORK

10 – Remove the backrest cover from front seat-backrest

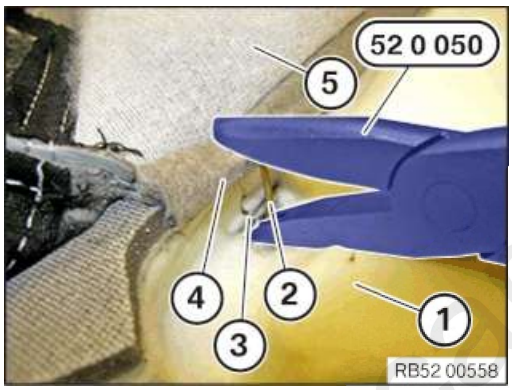


- Loosen all clamp on the trim wires (1).
- Remove the backrest cover (2) from the upholstery.
- Completely remove clamps from the backrest cover (2) and the cushion.

11 – Install the backrest cover of the front seat backrest



- Place the backrest cover (2) onto the upholstery.
- Secure all trim wires (1) with the clamps.



- Renew the clamps (2).

  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround the trim wire (3) of the cushion (1) and the trim wire (4) of the backrest cover (5) with the clamp (2) and bend the clamp (2) to close it.

POSTPROCESSES

12 – Install side airbag on front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

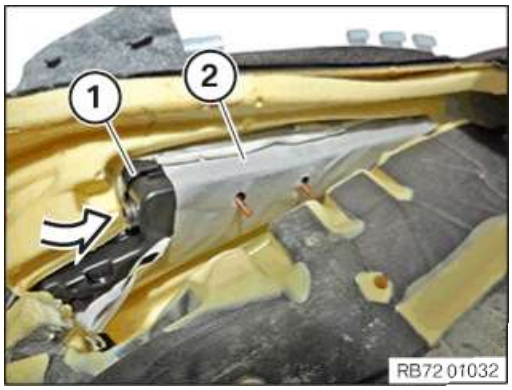
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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



- Feed the side airbag (1) in the direction of arrow into the seat cover pocket (2) on the backrest cover and position it correctly.

13 – Install the backrest cover with the cushion for the front seat

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

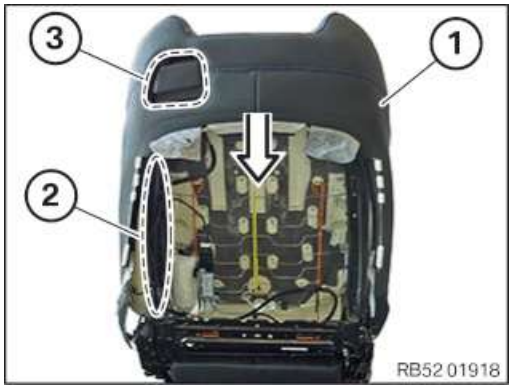
WARNING

Pyrotechnic components.

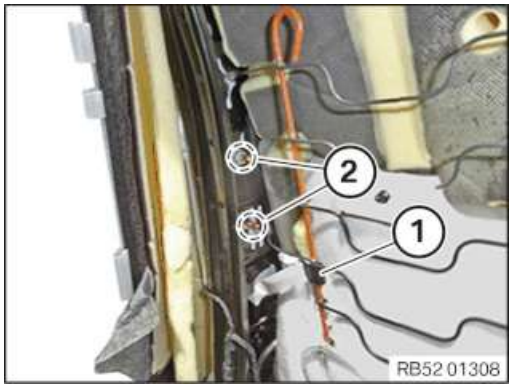
Danger! Life-threatening injuries!

- 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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- Position backrest cover (1) with the cushion without damaging it in marked area (2).
- Position the backrest cover (1) completely with the side airbag in the direction of the arrow.
- Position the stud bolt of the side airbag in the area (2) correctly.
- Position backrest cover (1) correctly in the marked area (3).

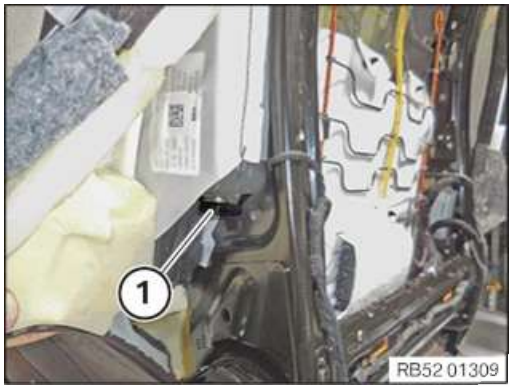


- Attach the holder (1).
- Renew nuts (2).

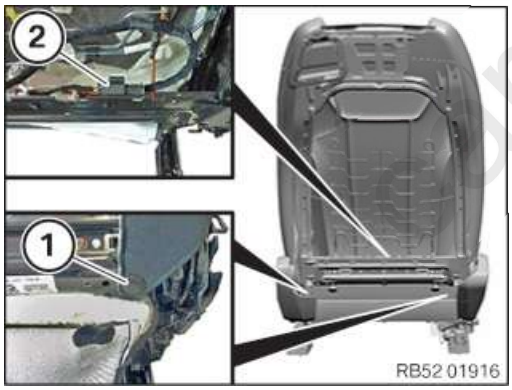
  Parts: Nuts
- Tighten nuts (2).

Airbag on backrest frame

Nut	Renew nut.	Tightening torque	6,5 Nm



- Connect connectors (1) and lock.



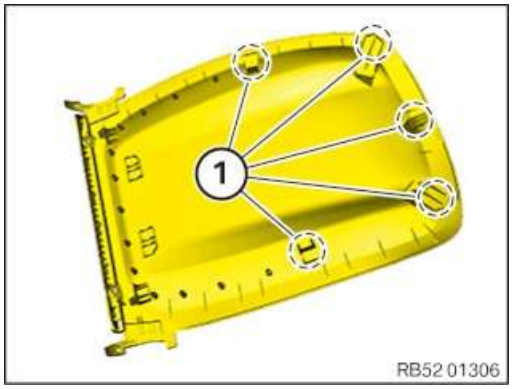
- Clip in clips (1).
- Connect connectors (2) and lock.



- Attach the backrest cover (1) in this area (2).
- Hook the seat cover (3).

14 – Installing rear panel on the front seat backrest

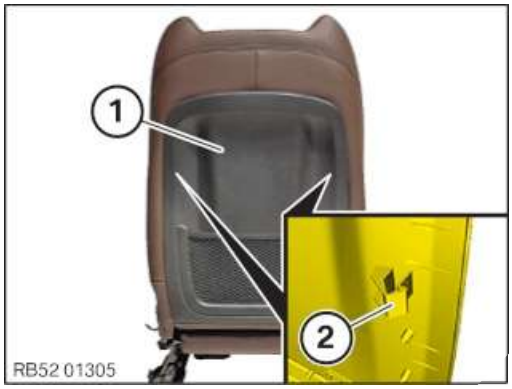
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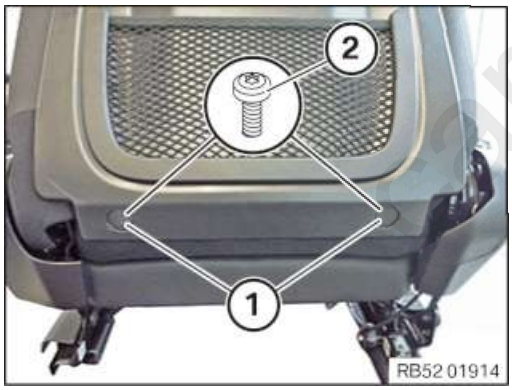
- Check the guides and clamps (1) for damage and renew the rear panel as needed.



- Thread the rear panel (1) in at the clamps (2).



- Position the rear panel (1) and clip it in at the clamps (2).



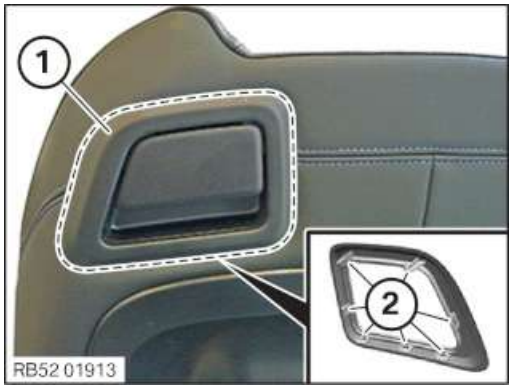
- Tighten the screws (2).

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Clip in cover caps (1).

15 – Installing a cover for backrest release



- Position the cover for backrest release (1) correctly in the marked area.
- Clip in the latch mechanism (2) of the cover for backrest release (1).

16 – Installing the inner cover on front seat

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- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

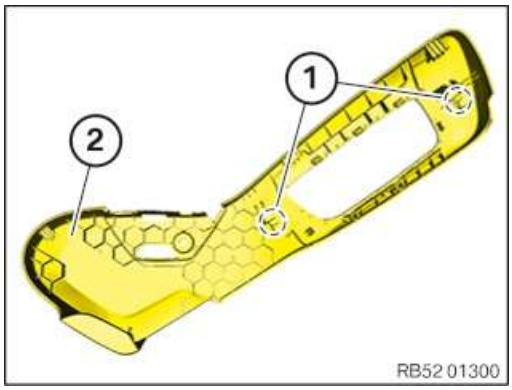
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

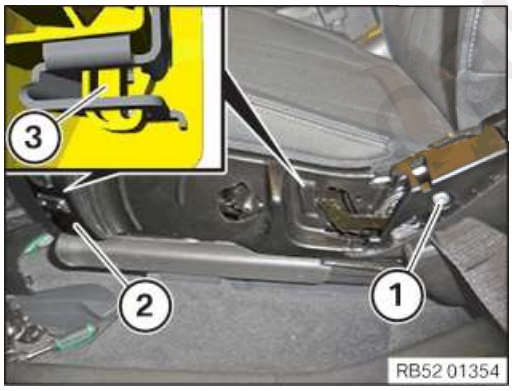
17 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect and lock the connector (1) and clip it into the cable clip if necessary.



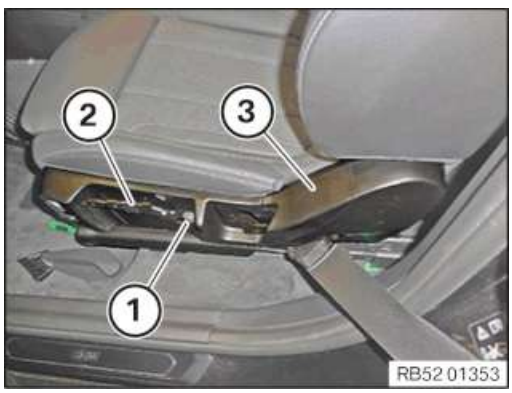
- Feed in cover (2) and position.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

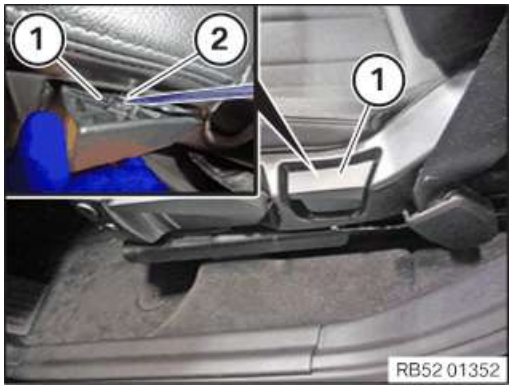
Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Position the adjustment lever (2) of the seat height adjustment.
- Tighten down screw (1).
- Clip in the cover (3).

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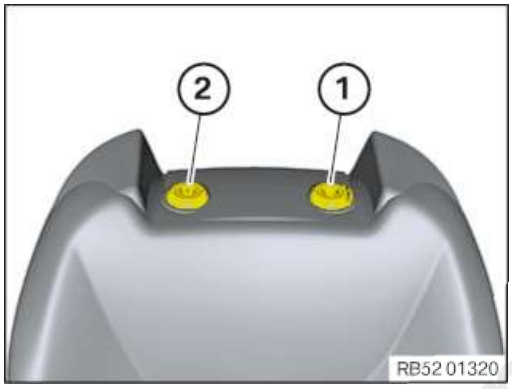


- Insert the handle (1) for the backrest tilt adjustment from the top.
- Check the retaining lug (2) for a correct fit.



- Clip in the handle (1) for the seat height adjustment.

18 – Install the guide sleeve for the front head restraint



- Pay attention to the installation position:

  Insert the guide sleeve (1) **with** unlocking towards the left in the direction of travel.

  Insert the guide sleeve (2) **without** unlocking towards the right in the direction of travel.



NOTICE

The description is for one component only. The procedure is identical for all further components.

- Insert the guide sleeve (1) into the rear seat backrest in the direction of arrow from the top and lock it.

  You have to feel the guide sleeve (1) engage.

19 – Install the front head restraint



- Insert the head restraint (1) in the direction of the arrow into the guides (2).
- Slide the head restraint (1) in until the lock (3) is securely engaged.

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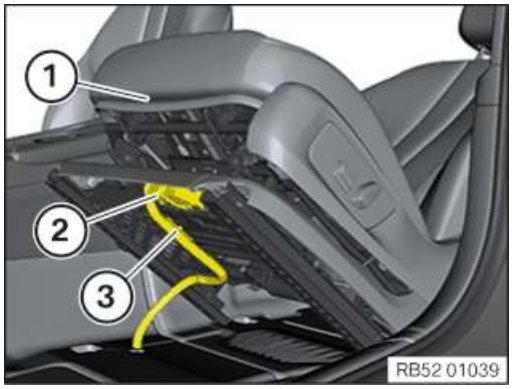
20 – Install front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

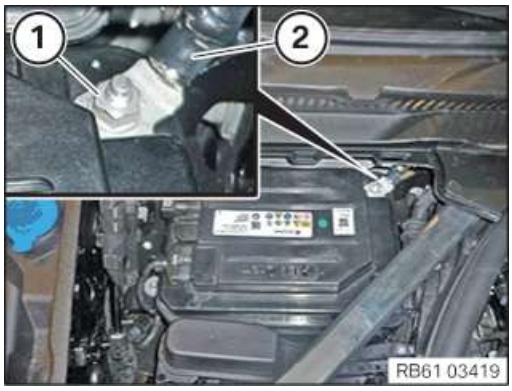
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

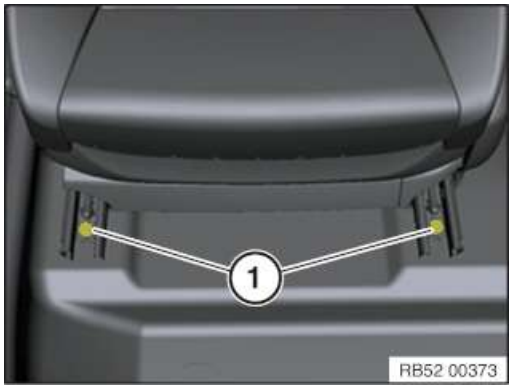


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

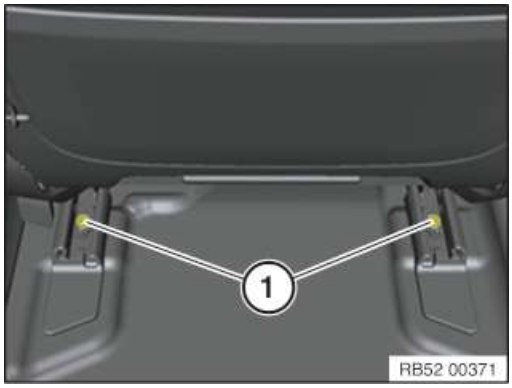


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Airbag on backrest frame — Used in step 13

Nut	Renew nut.	Tightening torque	6,5 Nm

Rear panel on rear seat backrest — Used in step 14

Screw		Tightening torque	3 Nm

Seat trim to seat frame — Used in step 1617

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame — Used in step 16

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame — Used in step 17

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 20

Nut M8		Tightening torque	19 Nm

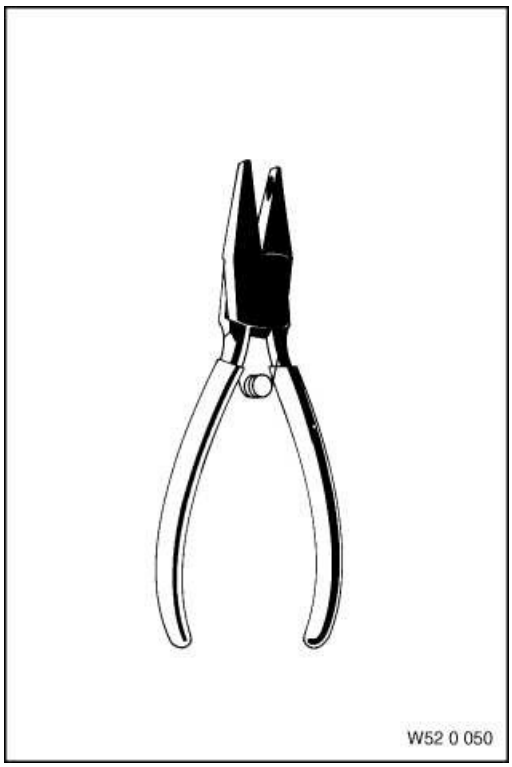
Seat to body — Used in step 20

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

cardiagn.com

0 492 668 (52 0 050) Pliers



Common	Used in step 11
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	120

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	120

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	120
61 20 900 Disconnecting and connecting battery earth lead	120
61 20 900 Disconnecting and connecting battery earth lead	120
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61 20 900 Disconnecting and connecting battery earth lead	120
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	120
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	120
61 20 900 Disconnecting and connecting battery earth lead	120
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52 15 427 Replacing facing for driver's seat and backrest

PRELIMINARY WORK

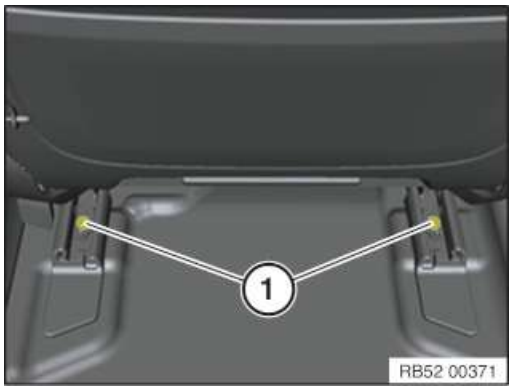
1 – Remove front seat

WARNING

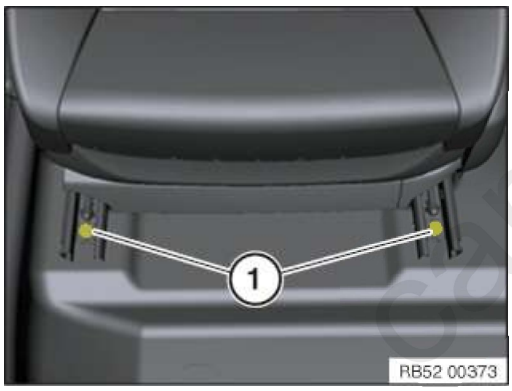
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

carmanuals.com

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

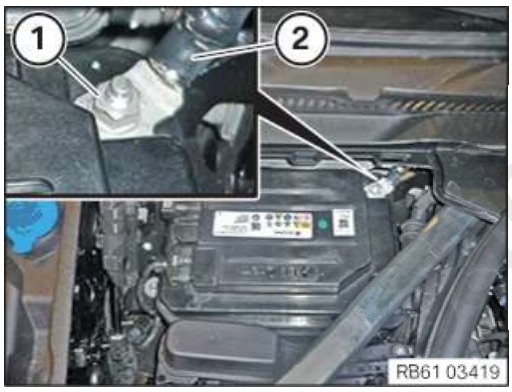
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

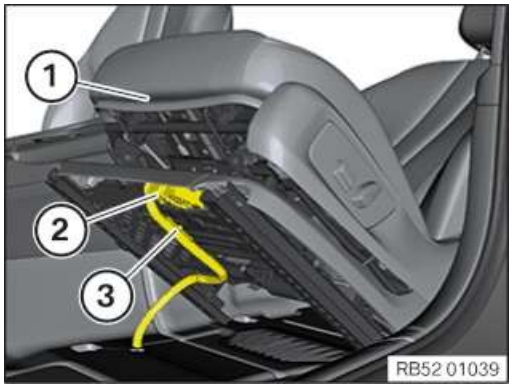
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove front head restraint



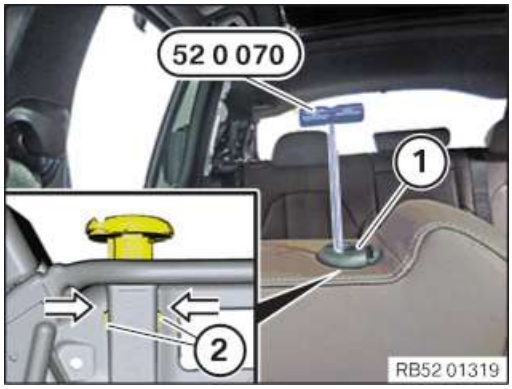
- Press the lock (2) and remove the head restraint (1) from the backrest toward the top.

3 – Removing the guide sleeve for the front head restraint

NOTICE

The description is for one component only. The procedure is identical for all further components.

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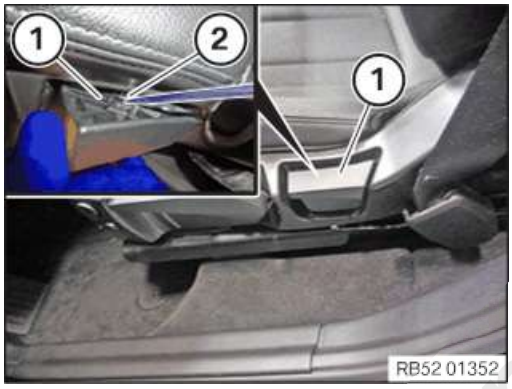


- Push the latch mechanisms (2) inward in direction of the arrow with the special tool .
- Remove the guide sleeve (1) towards the top.

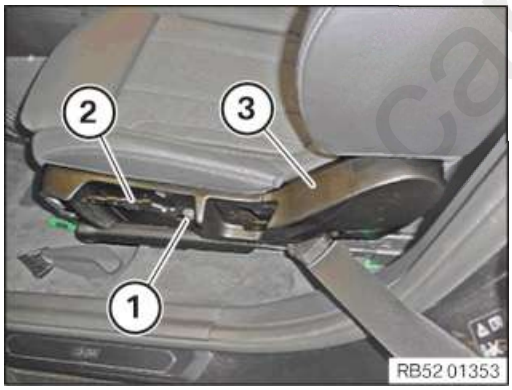
4 – Remove outer cover on front seat



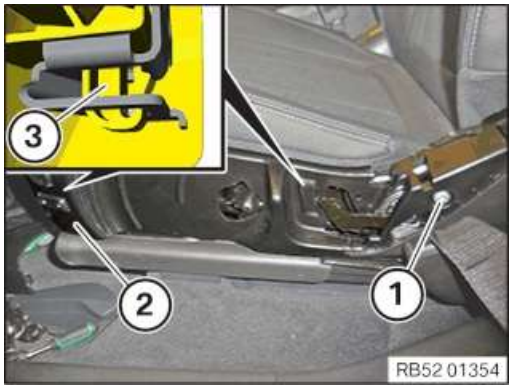
- Unclip the handle (1) for seat height adjustment.



- Pull the handle (1) up for backrest tilt adjustment.
- Use a suitable tool to unlock the retaining lug (2).
- Guide out the handle (1) for backrest tilt adjustment upwards.

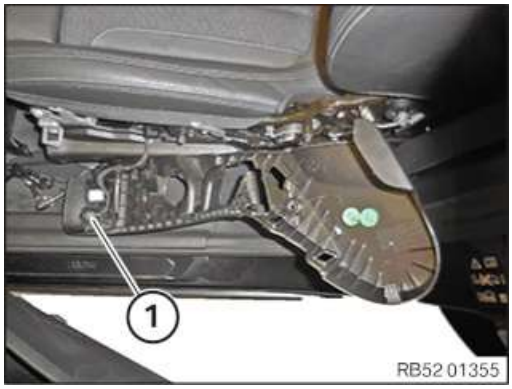


- Loosen screw (1).
- Remove the (2) metal brackets for the seat height adjustment.
- Unclip the cover (3).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2).

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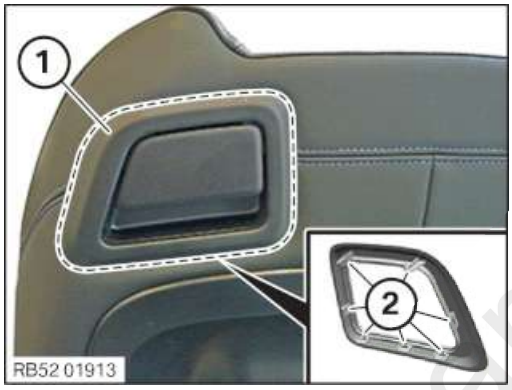
- Unlock and disconnect the plug connection (1) and, if necessary, unclip the cable clip.

5 – Remove inner cover on front seat



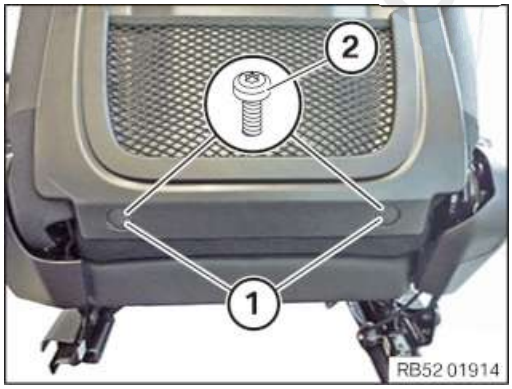
- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

6 – Removing the cover for the backrest release



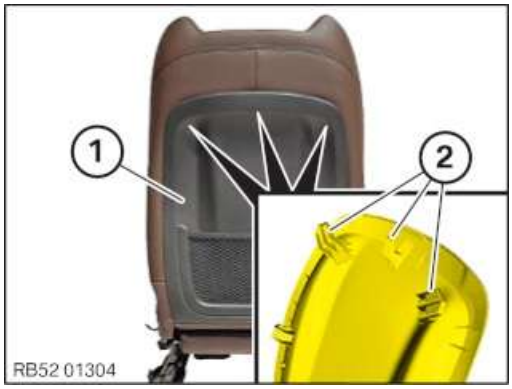
- Unclip and remove cover (1) for the backrest release in the marked area from latch mechanisms (2) using a suitable tool.

7 – Removing rear panel on the front seat backrest



- Unclip the cover caps (1) with a suitable tool.
- Loosen screws (2).

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- Slide the rear panel (1) down and guide it out at the guides (2).



- Unclip the rear panel (1) from the clamps (2) and remove.

8 – Removing the backrest cover with the cushion for the front seat

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.

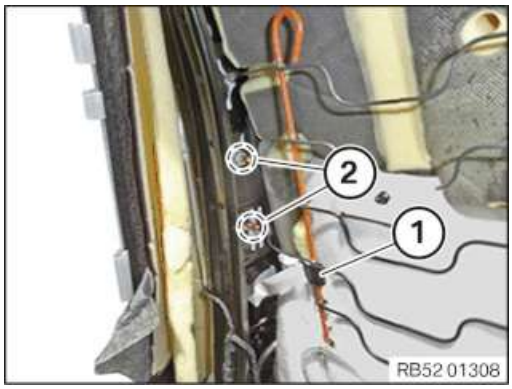


- Detach the backrest cover (1) in this area (2).
- Unhook seat cover (3).

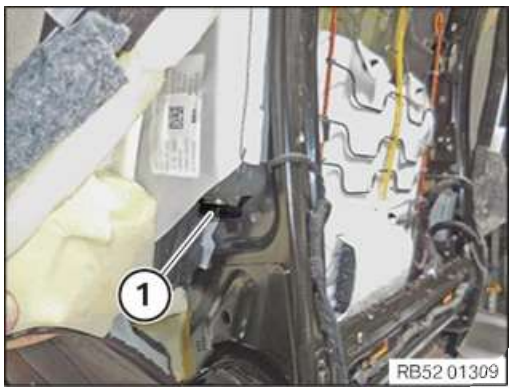
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- Unclip clips (1).
- Unlock plug connection (2) and disconnect.



- Detach the holder (1).
- Loosen nuts (2).



- Unlock plug connection (1) and disconnect.



- Carefully guide out backrest cover (1) in the marked area (2).
- Remove the backrest cover (1) with the cushion damage-free in marked area (2).
- Guide out the backrest cover (1) with cushion complete with the side airbag in the direction of the arrow.

9 – Remove side airbag from front seat

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

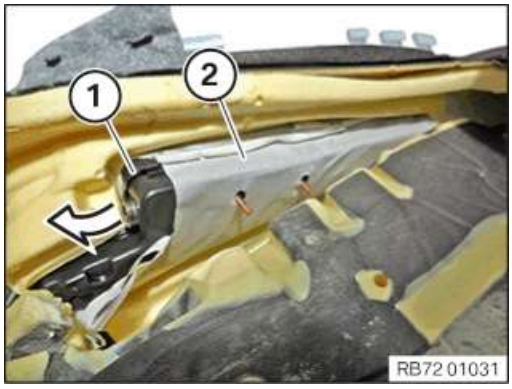
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WARNING

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.



- Pull the side airbag (1) out in the direction of arrow from the seat cover bag (2) on the backrest cover.

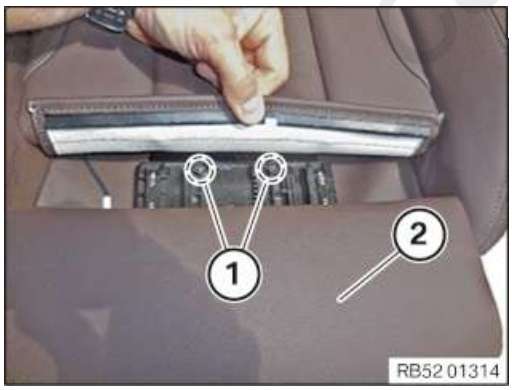
10 – Remove thigh support

Prerequisite

The thigh support is completely extended.

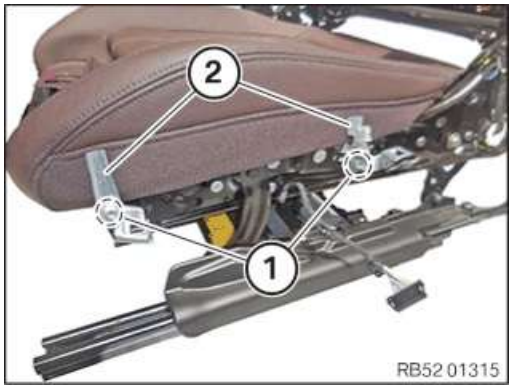


- Detach the seat cover (1) in this area (2).

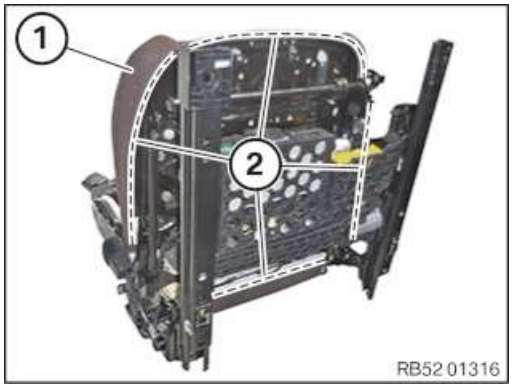


- Loosen the screws (1) and remove the thigh support (2).
- If necessary, disconnect the existing plug connection.

11 – Removing the seat cover with the cushion for the front seat



- Loosen screws (1) and remove the holder (2).



- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Unlock and disconnect the existing plug connections if required and unclip the cable clip .

12 – Remove the backrest cover from front seat-backrest



- Loosen all clamp on the trim wires (1).
- Remove the backrest cover (2) from the upholstery.
- Completely remove clamps from the backrest cover (2) and the cushion.

13 – Remove the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Loosen all clamp on the trim wires (1).
- Remove any remaining clamp from the seat cover and the upholstery.
- Thread out the rubber band (2).

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- Detach all clamps on the trim wires 1.
- Remove any remaining clamp from the seat cover (2) and the upholstery.
- Remove the seat cover (2) from the upholstery.

MAIN WORK

14 – Renewing the cushion for the front seat backrest

TECHNICAL INFORMATION

The heating mat is bonded to the foam pad and cannot be disassembled without damaging it.
When replacing, new heating mat must always be fitted with new foam pads.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **Equipment specification with seat heating**

  Position and align the heating mat (1) on the upholstery (2).

  Bond the heating mat (1) with the upholstery (2).

15 – Renewing the foam pad for the driver's seat

TECHNICAL INFORMATION

The heating mat is bonded to the foam pad and cannot be disassembled without damaging it.
When replacing, new heating mat must always be fitted with new foam pads.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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- **Equipment specification with seat heating**

  Position the heating mat (1) on the cushion and align.

  Bond the heating mat (1) to the cushion in these areas (2).

POSTPROCESSES

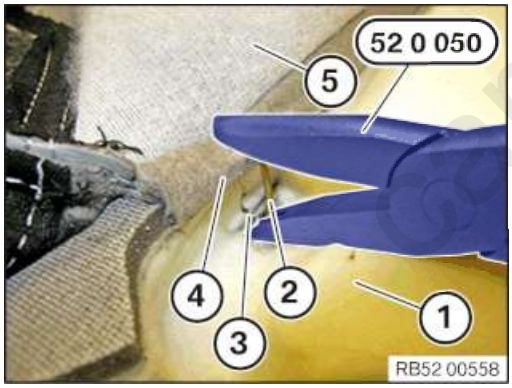
16 – Installing the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.

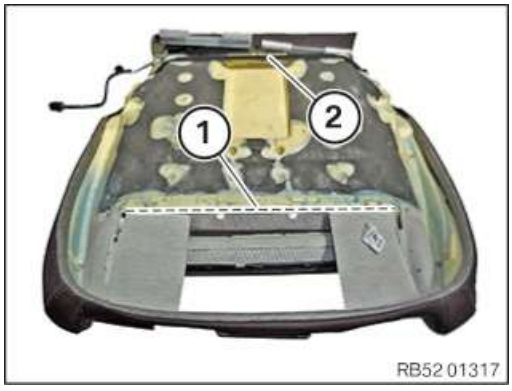


- Place the seat cover (2) on the cushion.
- Secure all trim wires (1) with the clamps.



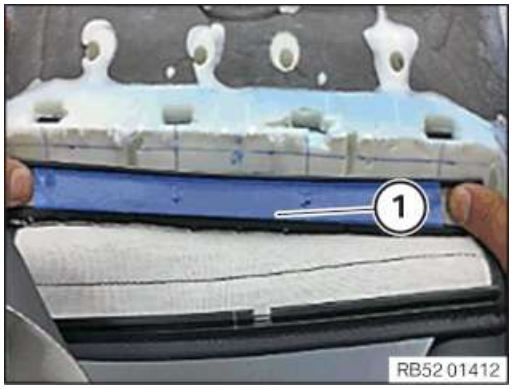
- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.
- Carefully bend the clamps (2).



- Position the trim wire in the insert ducts (1).
- Position the rubber band (2).

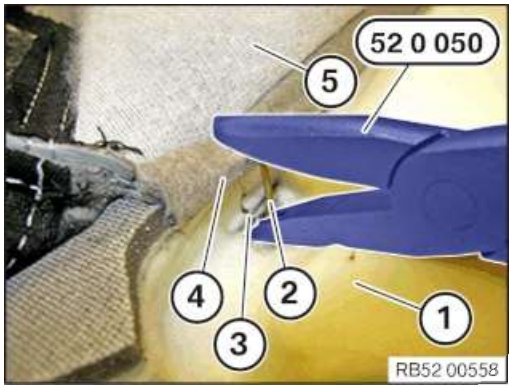
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- Correctly position the insert ducts.



- The clamps must be placed in the order (1) to (4) as described in the following step.



TECHNICAL INFORMATION

When installing the tacking channel, the wires of the seat heating and feed line must not be damaged by the clamps.

- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.

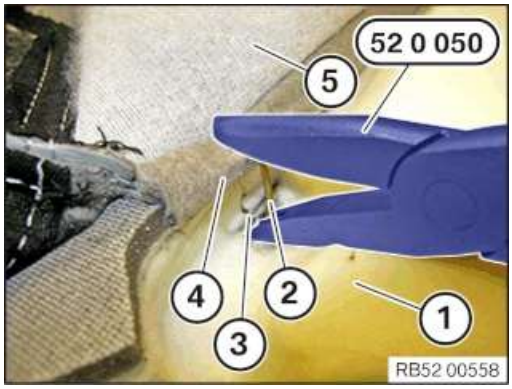
  Carefully bend the clamps (2).

17 – Install the backrest cover of the front seat backrest



- Place the backrest cover (2) onto the upholstery.
- Secure all trim wires (1) with the clamps.

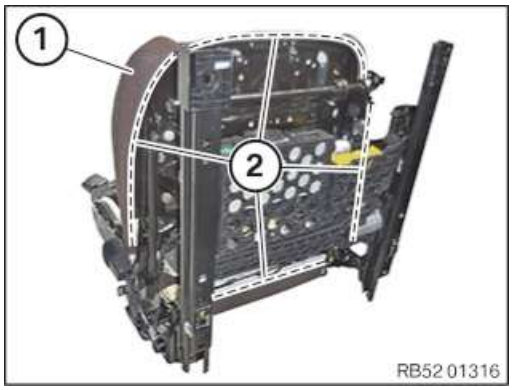
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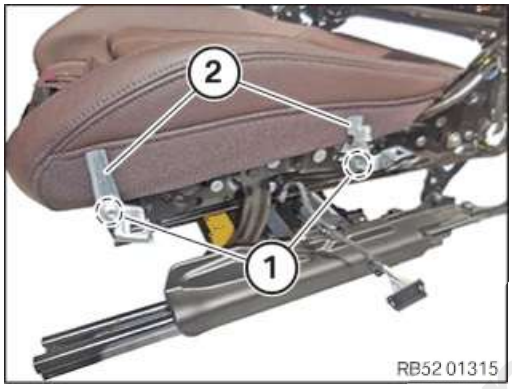
- Renew the clamps (2).

  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround the trim wire (3) of the cushion (1) and the trim wire (4) of the backrest cover (5) with the clamp (2) and bend the clamp (2) to close it.

18 – Fit the seat cover with the cushion for the front seat



- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Connect and lock existing connectors and clip in the cable clip if necessary.



- Position all the holders (2) and tighten the screws (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

19 – Install thigh support

Prerequisite

The thigh support is completely extended.



- Connect the existing plug connections.
- Position the thigh support (2) and tighten the bolts (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm

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- Attach the seat cover (1) in this area (2).

20 – Install side airbag on front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

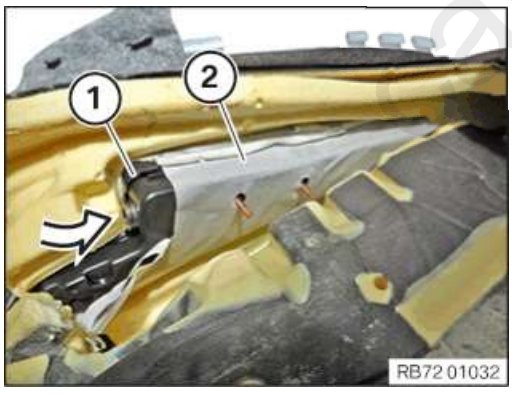
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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



- Feed the side airbag (1) in the direction of arrow into the seat cover pocket (2) on the backrest cover and position it correctly.

21 – Install the backrest cover with the cushion for the front seat

WARNING

Airbag unit.

Danger! Life-threatening injuries!

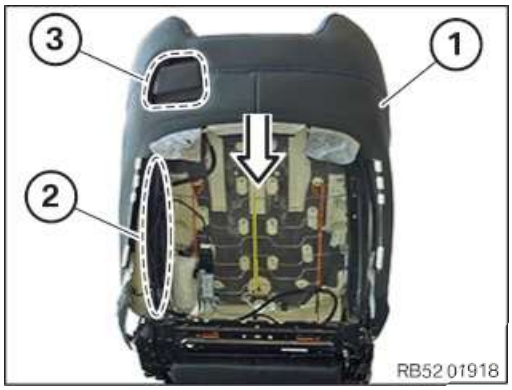
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

WARNING

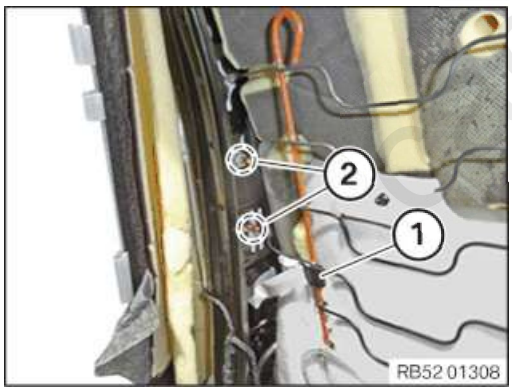
Pyrotechnic components.

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.



- Position backrest cover (1) with the cushion without damaging it in marked area (2).
- Position the backrest cover (1) completely with the side airbag in the direction of the arrow.
- Position the stud bolt of the side airbag in the area (2) correctly.
- Position backrest cover (1) correctly in the marked area (3).

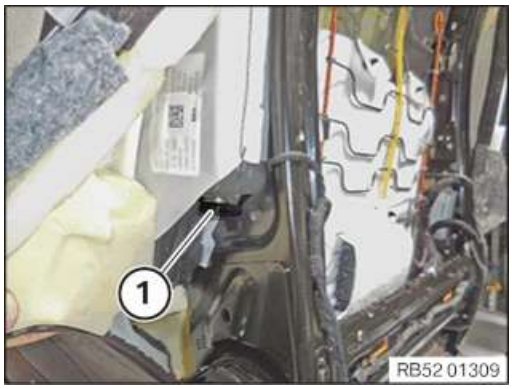


- Attach the holder (1).
- Renew nuts (2).

  Parts: Nuts
- Tighten nuts (2).

Airbag on backrest frame

Nut	Renew nut.	Tightening torque	6,5 Nm



- Connect connectors (1) and lock.

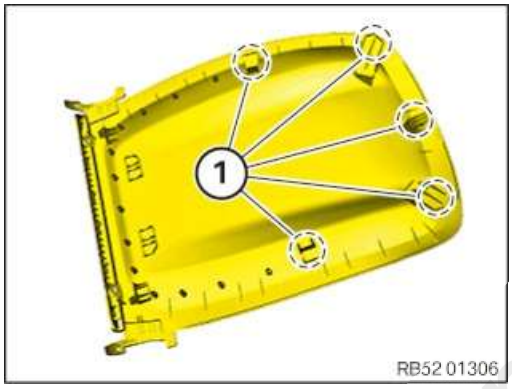


- Clip in clips (1).
- Connect connectors (2) and lock.

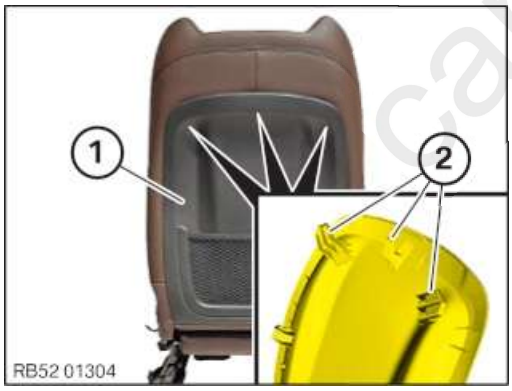


- Attach the backrest cover (1) in this area (2).
- Hook the seat cover (3).

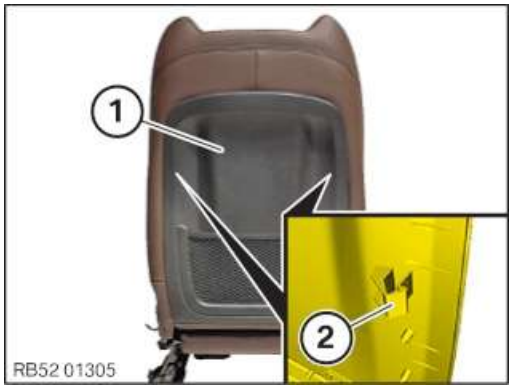
22 – Installing rear panel on the front seat backrest



- Check the guides and clamps (1) for damage and renew the rear panel as needed.

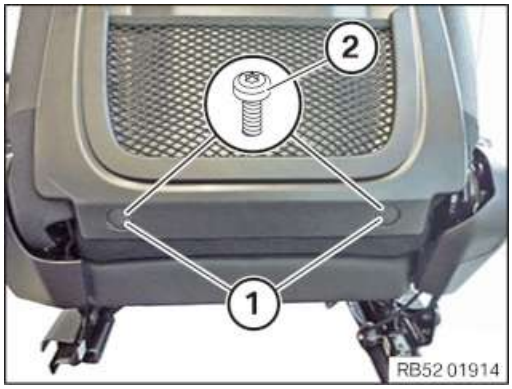


- Thread the rear panel (1) in at the clamps (2).



- Position the rear panel (1) and clip it in at the clamps (2).

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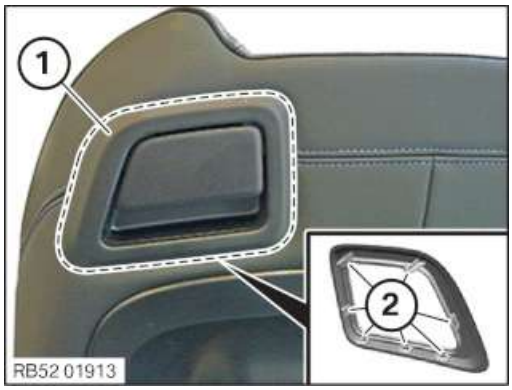
- Tighten the screws (2).

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

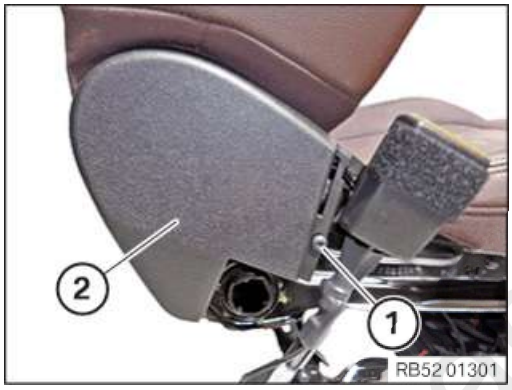
- Clip in cover caps (1).

23 – Installing a cover for backrest release



- Position the cover for backrest release (1) correctly in the marked area.
- Clip in the latch mechanism (2) of the cover for backrest release (1).

24 – Installing the inner cover on front seat



- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

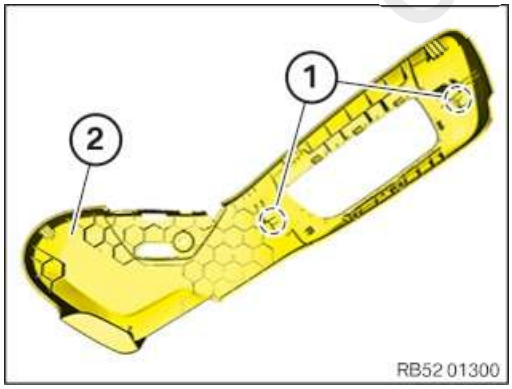
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame

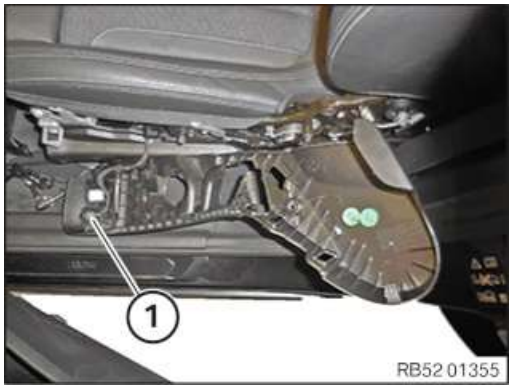
Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

25 – Install outer cover on front seat

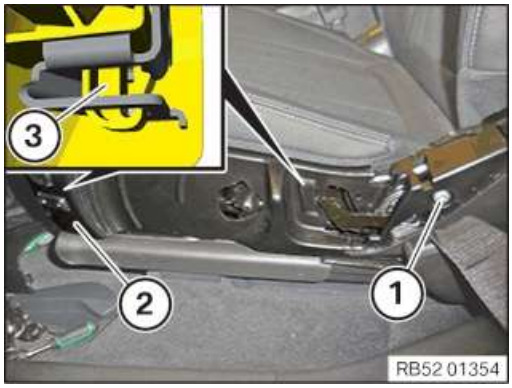


- Check the locking units (1) for damages, and replace the cover if necessary (2).

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- Connect and lock the connector (1) and clip it into the cable clip if necessary.



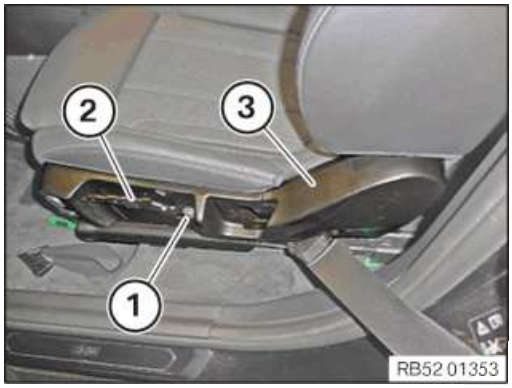
- Feed in cover (2) and position.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

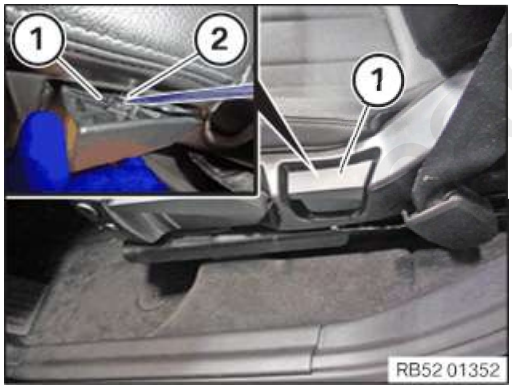
Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Position the adjustment lever (2) of the seat height adjustment.
- Tighten down screw (1).
- Clip in the cover (3).



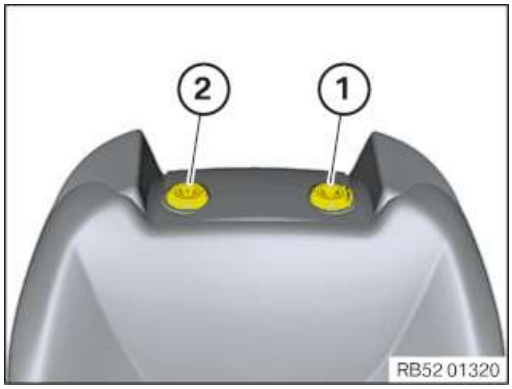
- Insert the handle (1) for the backrest tilt adjustment from the top.
- Check the retaining lug (2) for a correct fit.



- Clip in the handle (1) for the seat height adjustment.

26 – Install the guide sleeve for the front head restraint

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- Pay attention to the installation position:

  Insert the guide sleeve (1) **with** unlocking towards the left in the direction of travel.

  Insert the guide sleeve (2) **without** unlocking towards the right in the direction of travel.



NOTICE

The description is for one component only. The procedure is identical for all further components.

- Insert the guide sleeve (1) into the rear seat backrest in the direction of arrow from the top and lock it.

  You have to feel the guide sleeve (1) engage.

27 – Install the front head restraint



- Insert the head restraint (1) in the direction of the arrow into the guides (2).
- Slide the head restraint (1) in until the lock (3) is securely engaged.

28 – Install front seat

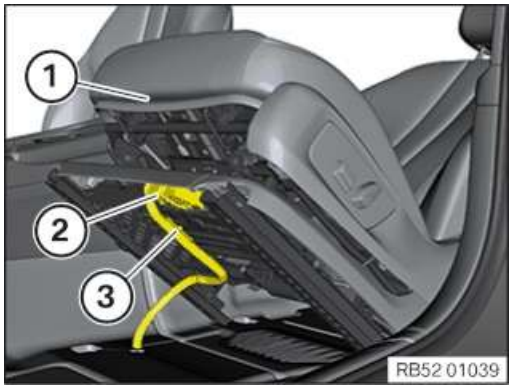
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

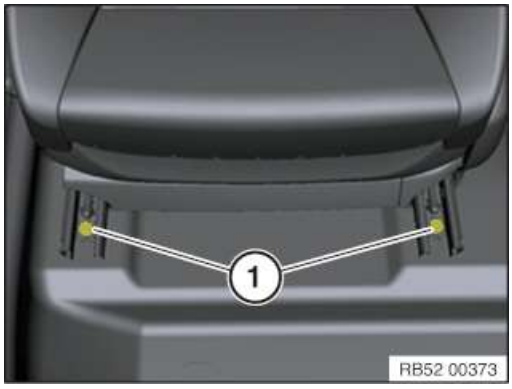


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



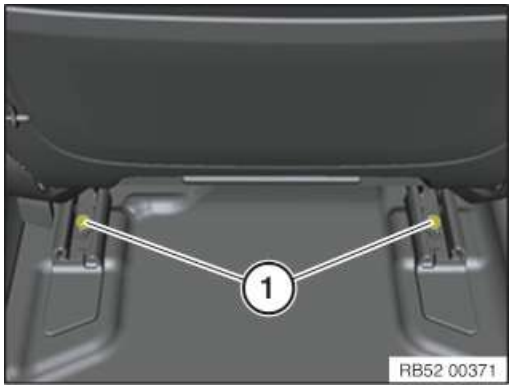
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Seat trim to seat frame — Used in step 182425

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 19

Screw		Tightening torque	2 Nm

Airbag on backrest frame — Used in step 21

Nut	Renew nut.	Tightening torque	6,5 Nm

Rear panel on rear seat backrest — Used in step 22

Screw		Tightening torque	3 Nm

Inner seat trim to seat frame — Used in step 24

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame — Used in step 25

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 28

Nut M8		Tightening torque	19 Nm

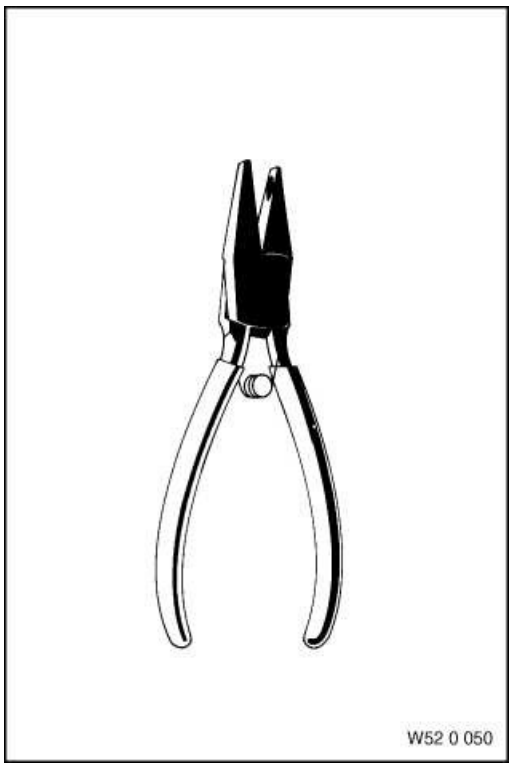
Seat to body — Used in step 28

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

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0 492 668 (52 0 050) Pliers



Common	Used in step 1617
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	128

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	128

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	128

61 20 900 Disconnecting and connecting battery earth lead	128
61 20 900 Disconnecting and connecting battery earth lead	128
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61 20 900 Disconnecting and connecting battery earth lead	128
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	128
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	128
61 20 900 Disconnecting and connecting battery earth lead	128
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	128
61 20 900 Disconnecting and connecting battery earth lead	128

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61 20 900 Disconnecting and connecting battery earth lead 128
61 20 900 Disconnecting and connecting battery earth lead 128

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52 15 412 Replacing seat and backrest cover for driver's seat

PRELIMINARY WORK

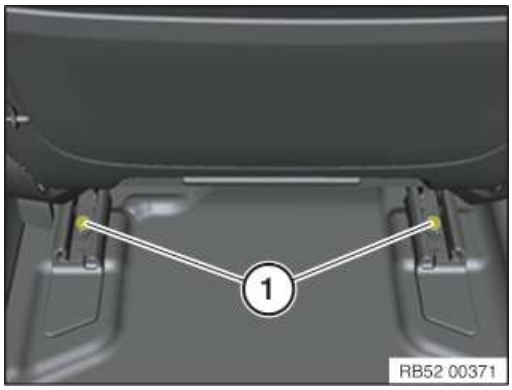
1 – Remove front seat

WARNING

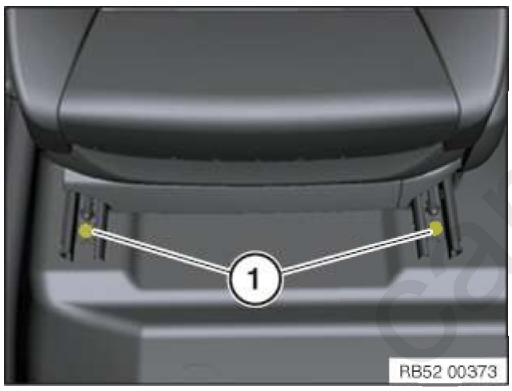
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

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WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

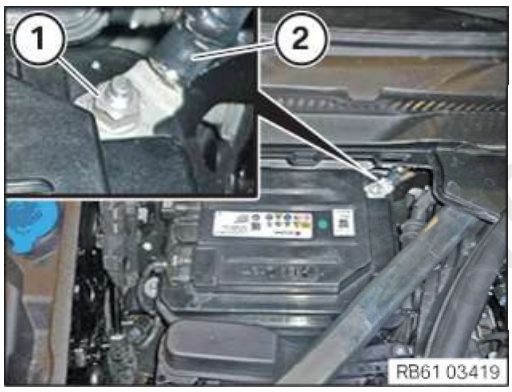
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

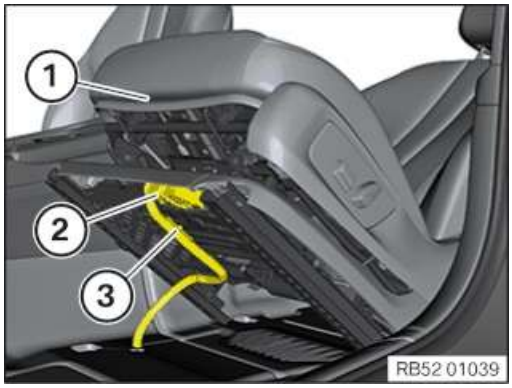
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove front head restraint



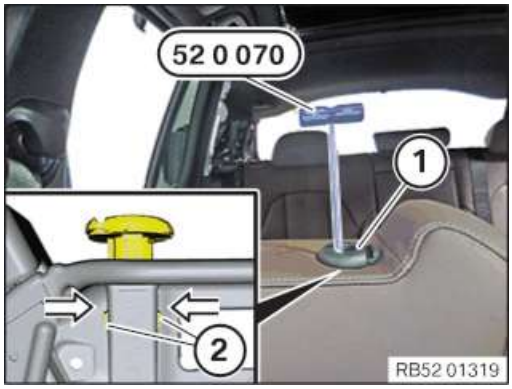
- Press the lock (2) and remove the head restraint (1) from the backrest toward the top.

3 – Removing the guide sleeve for the front head restraint

NOTICE

The description is for one component only. The procedure is identical for all further components.

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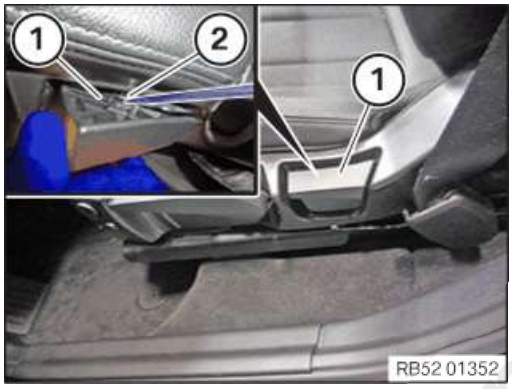


- Push the latch mechanisms (2) inward in direction of the arrow with the special tool .
- Remove the guide sleeve (1) towards the top.

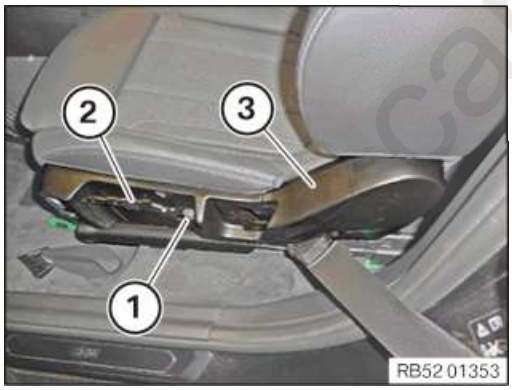
4 – Remove outer cover on front seat



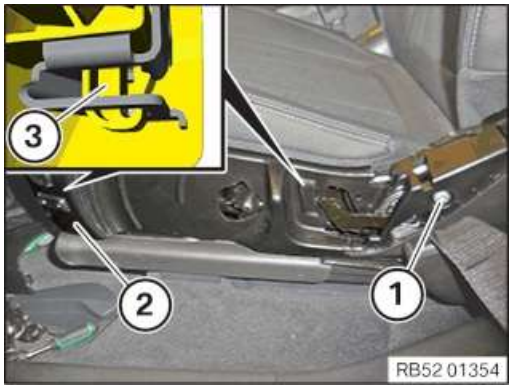
- Unclip the handle (1) for seat height adjustment.



- Pull the handle (1) up for backrest tilt adjustment.
- Use a suitable tool to unlock the retaining lug (2).
- Guide out the handle (1) for backrest tilt adjustment upwards.

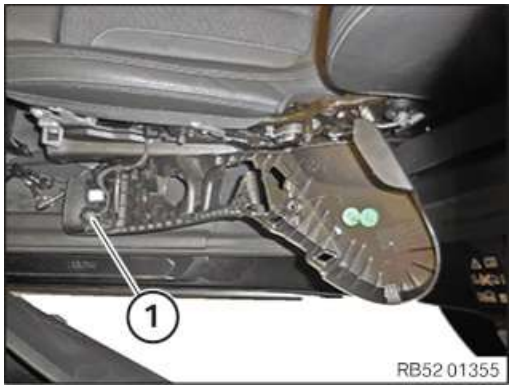


- Loosen screw (1).
- Remove the (2) metal brackets for the seat height adjustment.
- Unclip the cover (3).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2).

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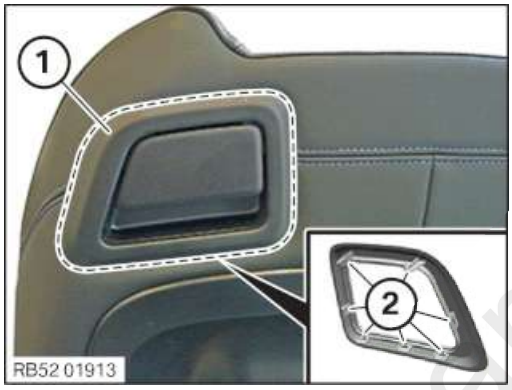
- Unlock and disconnect the plug connection (1) and, if necessary, unclip the cable clip.

5 – Remove inner cover on front seat



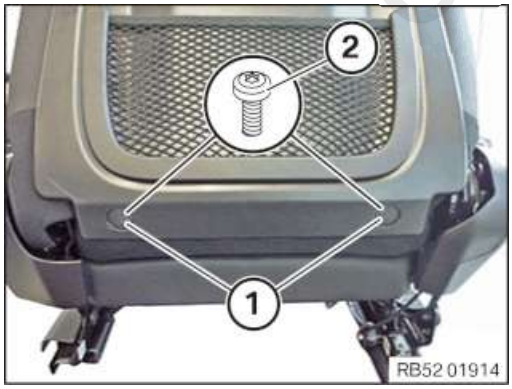
- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

6 – Removing the cover for the backrest release



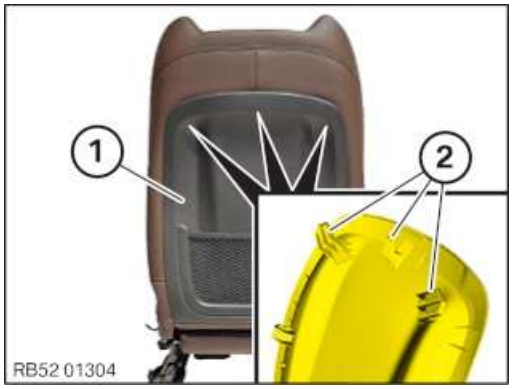
- Unclip and remove cover (1) for the backrest release in the marked area from latch mechanisms (2) using a suitable tool.

7 – Removing rear panel on the front seat backrest



- Unclip the cover caps (1) with a suitable tool.
- Loosen screws (2).

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- Slide the rear panel (1) down and guide it out at the guides (2).



- Unclip the rear panel (1) from the clamps (2) and remove.

8 – Removing the backrest cover with the cushion for the front seat

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.

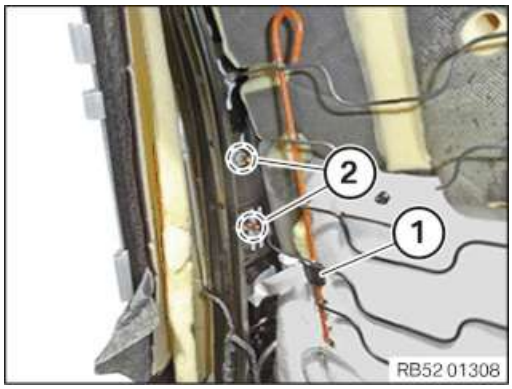


- Detach the backrest cover (1) in this area (2).
- Unhook seat cover (3).

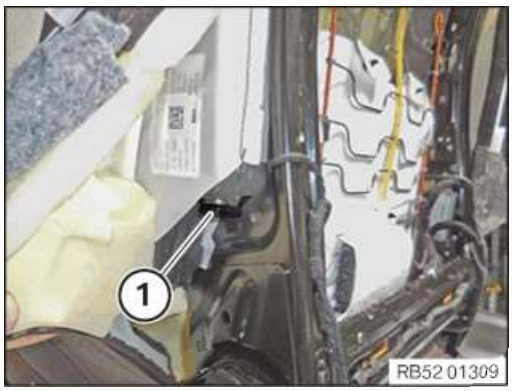
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- Unclip clips (1).
- Unlock plug connection (2) and disconnect.



- Detach the holder (1).
- Loosen nuts (2).



- Unlock plug connection (1) and disconnect.



- Carefully guide out backrest cover (1) in the marked area (2).
- Remove the backrest cover (1) with the cushion damage-free in marked area (2).
- Guide out the backrest cover (1) with cushion complete with the side airbag in the direction of the arrow.

9 – Remove side airbag from front seat

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

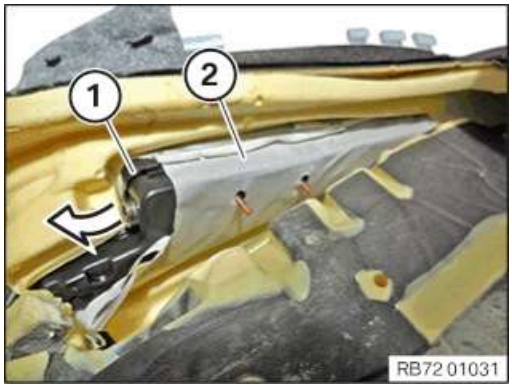
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WARNING

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.



- Pull the side airbag (1) out in the direction of arrow from the seat cover bag (2) on the backrest cover.

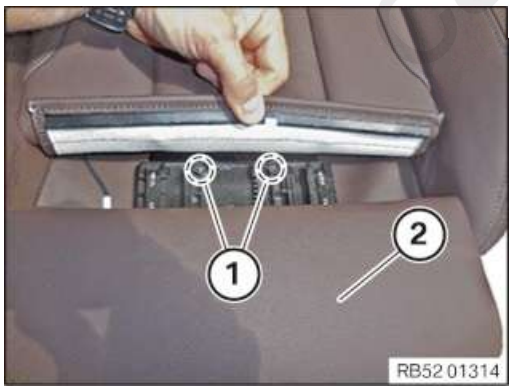
10 – Remove thigh support

Prerequisite

The thigh support is completely extended.

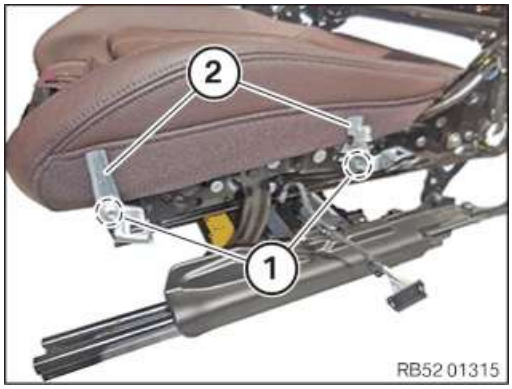


- Detach the seat cover (1) in this area (2).

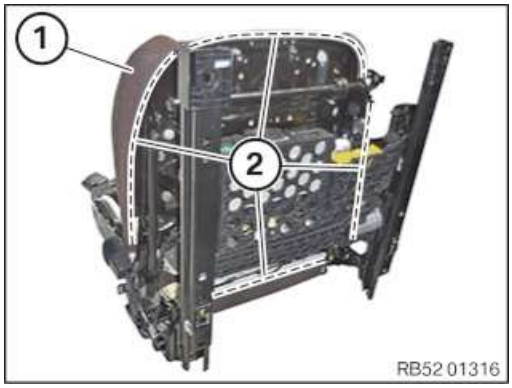


- Loosen the screws (1) and remove the thigh support (2).
- If necessary, disconnect the existing plug connection.

11 – Removing the seat cover with the cushion for the front seat



- Loosen screws (1) and remove the holder (2).



- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Unlock and disconnect the existing plug connections if required and unclip the cable clip .

MAIN WORK

12 – Remove the backrest cover from front seat-backrest



- Loosen all clamp on the trim wires (1).
- Remove the backrest cover (2) from the upholstery.
- Completely remove clamps from the backrest cover (2) and the cushion.

13 – Remove the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Loosen all clamp on the trim wires (1).
- Remove any remaining clamp from the seat cover and the upholstery.
- Thread out the rubber band (2).

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- Detach all clamps on the trim wires 1.
- Remove any remaining clamp from the seat cover (2) and the upholstery.
- Remove the seat cover (2) from the upholstery.

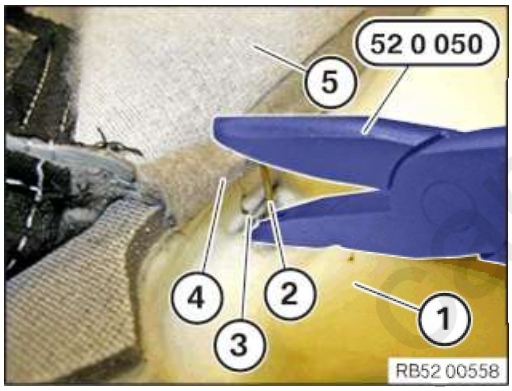
14 – Installing the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Place the seat cover (2) on the cushion.
- Secure all trim wires (1) with the clamps.



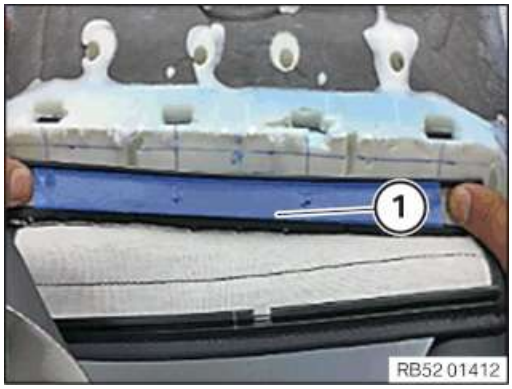
- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.
- Carefully bend the clamps (2).



- Position the trim wire in the insert ducts (1).
- Position the rubber band (2).

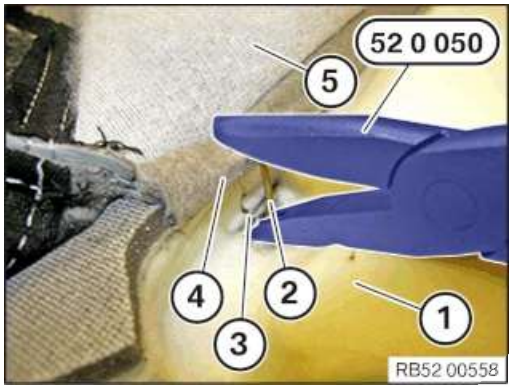
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- Correctly position the insert ducts.



- The clamps must be placed in the order (1) to (4) as described in the following step.



TECHNICAL INFORMATION

When installing the tacking channel, the wires of the seat heating and feed line must not be damaged by the clamps.

- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.

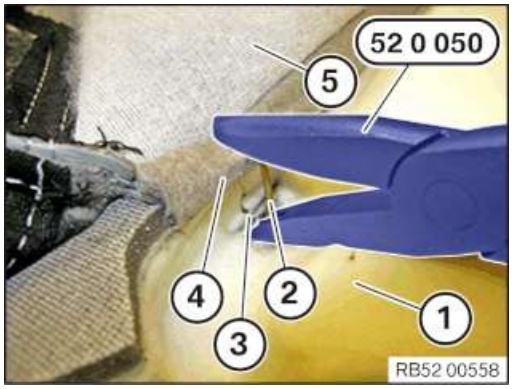
  Carefully bend the clamps (2).

15 – Install the backrest cover of the front seat backrest



- Place the backrest cover (2) onto the upholstery.
- Secure all trim wires (1) with the clamps.

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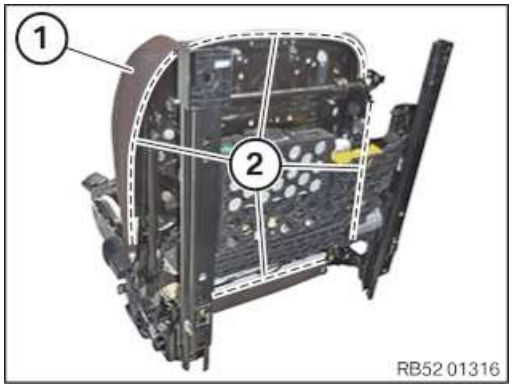


- Renew the clamps (2).

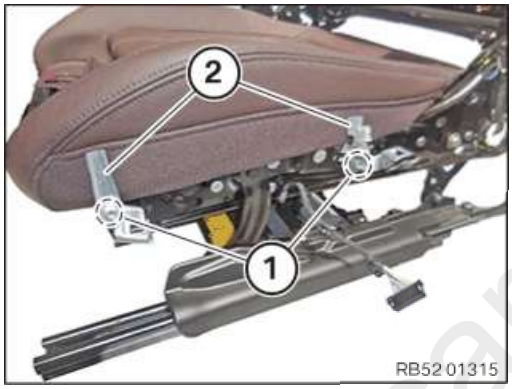
  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround the trim wire (3) of the cushion (1) and the trim wire (4) of the backrest cover (5) with the clamp (2) and bend the clamp (2) to close it.

POSTPROCESSES

16 – Fit the seat cover with the cushion for the front seat



- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Connect and lock existing connectors and clip in the cable clip if necessary.



- Position all the holders (2) and tighten the screws (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

17 – Install thigh support

Prerequisite

The thigh support is completely extended.



- Connect the existing plug connections.
- Position the thigh support (2) and tighten the bolts (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm

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- Attach the seat cover (1) in this area (2).

18 – Install side airbag on front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

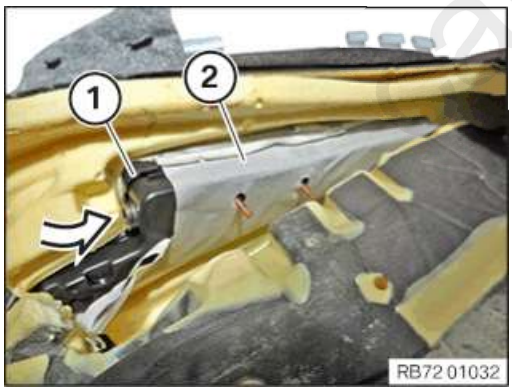
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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



- Feed the side airbag (1) in the direction of arrow into the seat cover pocket (2) on the backrest cover and position it correctly.

19 – Install the backrest cover with the cushion for the front seat

WARNING

Airbag unit.

Danger! Life-threatening injuries!

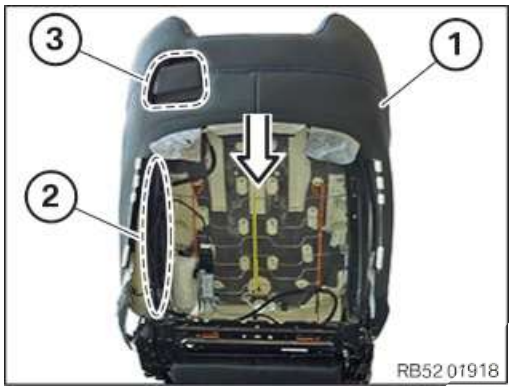
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

WARNING

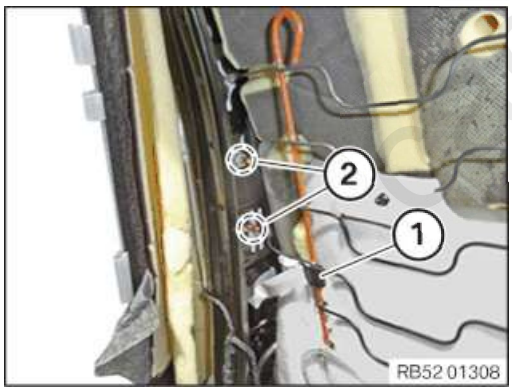
Pyrotechnic components.

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.



- Position backrest cover (1) with the cushion without damaging it in marked area (2).
- Position the backrest cover (1) completely with the side airbag in the direction of the arrow.
- Position the stud bolt of the side airbag in the area (2) correctly.
- Position backrest cover (1) correctly in the marked area (3).

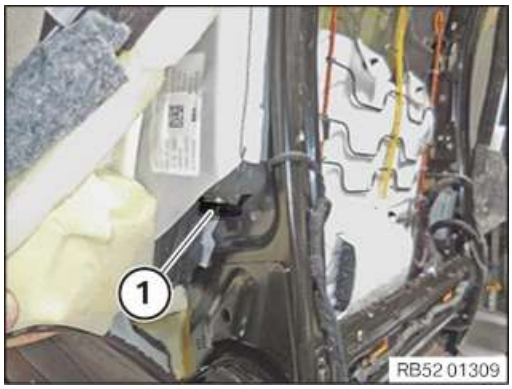


- Attach the holder (1).
- Renew nuts (2).

  Parts: Nuts
- Tighten nuts (2).

Airbag on backrest frame

Nut	Renew nut.	Tightening torque	6,5 Nm



- Connect connectors (1) and lock.

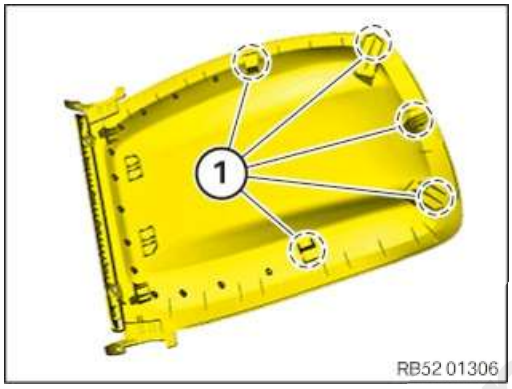


- Clip in clips (1).
- Connect connectors (2) and lock.

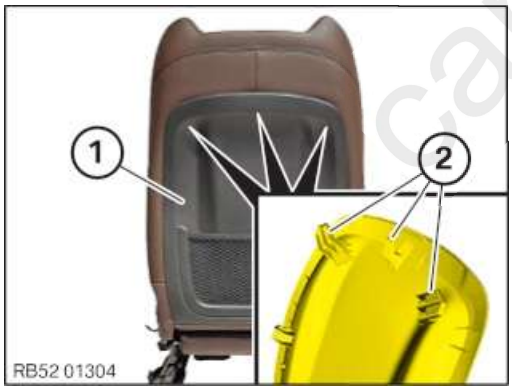


- Attach the backrest cover (1) in this area (2).
- Hook the seat cover (3).

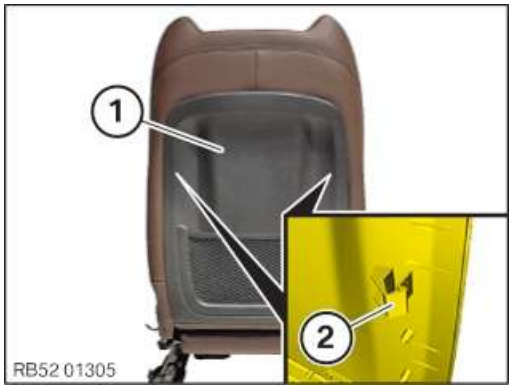
20 – Installing rear panel on the front seat backrest



- Check the guides and clamps (1) for damage and renew the rear panel as needed.

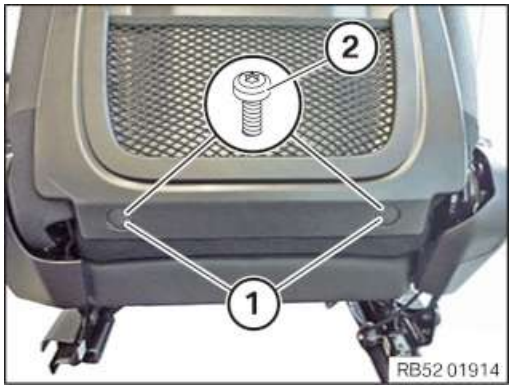


- Thread the rear panel (1) in at the clamps (2).



- Position the rear panel (1) and clip it in at the clamps (2).

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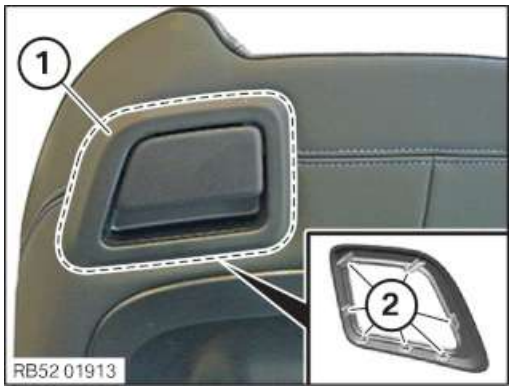
- Tighten the screws (2).

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

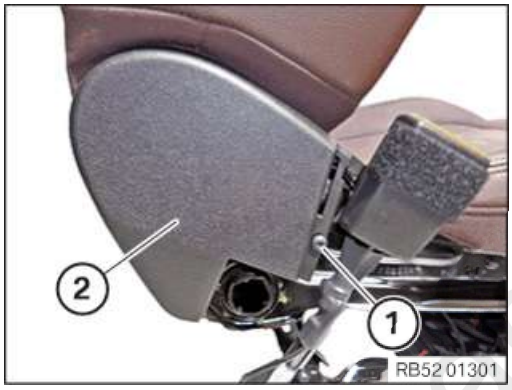
- Clip in cover caps (1).

21 – Installing a cover for backrest release



- Position the cover for backrest release (1) correctly in the marked area.
- Clip in the latch mechanism (2) of the cover for backrest release (1).

22 – Installing the inner cover on front seat



- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

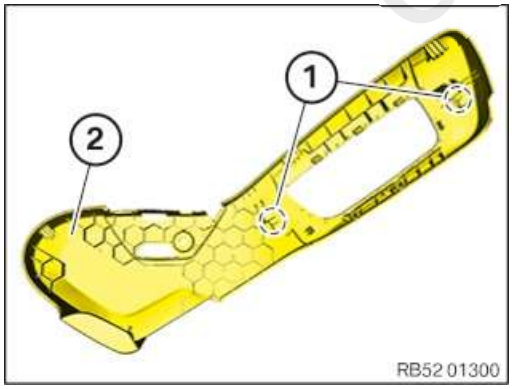
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame

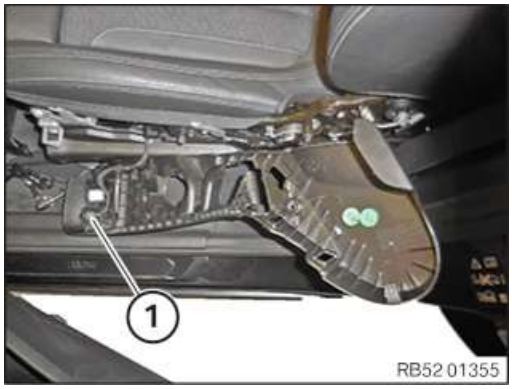
Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

23 – Install outer cover on front seat

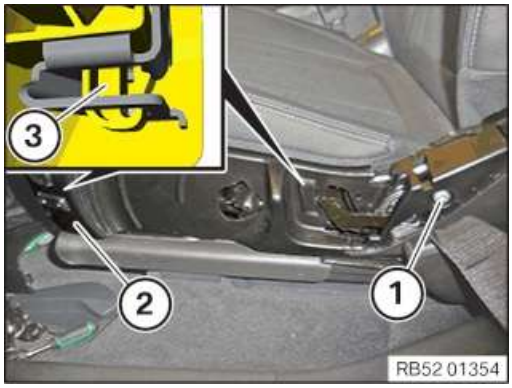


- Check the locking units (1) for damages, and replace the cover if necessary (2).

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- Connect and lock the connector (1) and clip it into the cable clip if necessary.



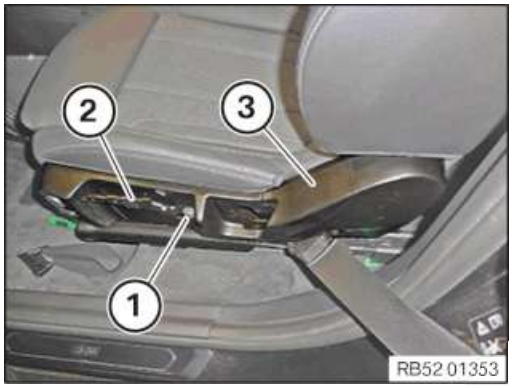
- Feed in cover (2) and position.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

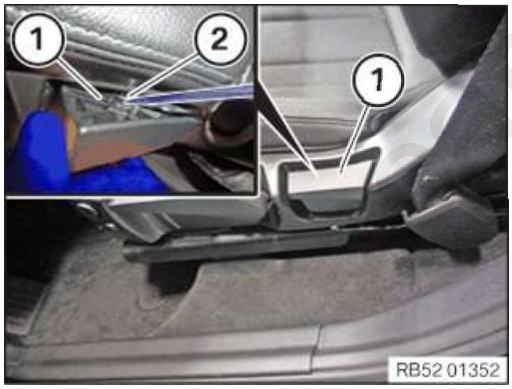
Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Position the adjustment lever (2) of the seat height adjustment.
- Tighten down screw (1).
- Clip in the cover (3).



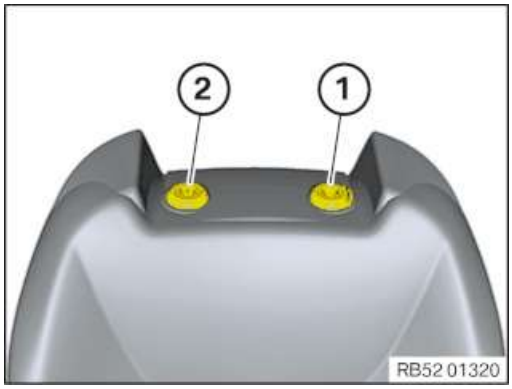
- Insert the handle (1) for the backrest tilt adjustment from the top.
- Check the retaining lug (2) for a correct fit.



- Clip in the handle (1) for the seat height adjustment.

24 – Install the guide sleeve for the front head restraint

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- Pay attention to the installation position:

  Insert the guide sleeve (1) **with** unlocking towards the left in the direction of travel.

  Insert the guide sleeve (2) **without** unlocking towards the right in the direction of travel.



NOTICE

The description is for one component only. The procedure is identical for all further components.

- Insert the guide sleeve (1) into the rear seat backrest in the direction of arrow from the top and lock it.

  You have to feel the guide sleeve (1) engage.

25 – Install the front head restraint



- Insert the head restraint (1) in the direction of the arrow into the guides (2).
- Slide the head restraint (1) in until the lock (3) is securely engaged.

26 – Install front seat

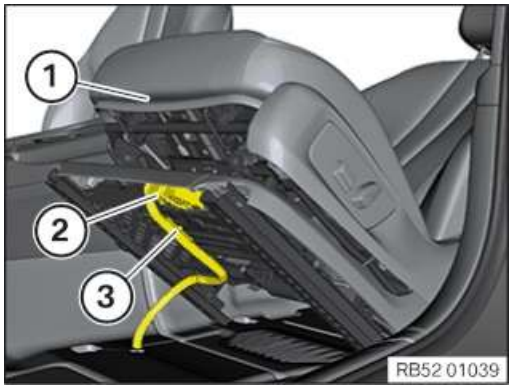
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

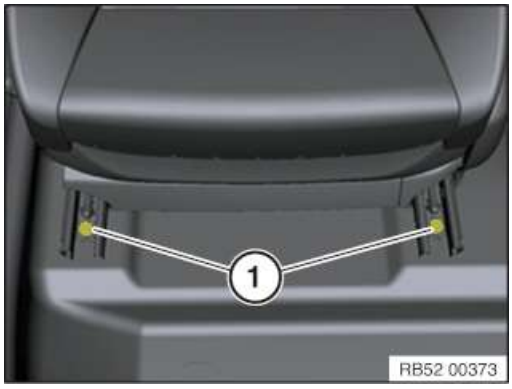


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



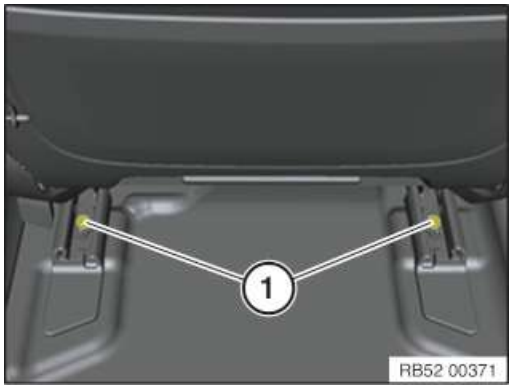
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Seat trim to seat frame — Used in step 162223

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 17

Screw		Tightening torque	2 Nm

Airbag on backrest frame — Used in step 19

Nut	Renew nut.	Tightening torque	6,5 Nm

Rear panel on rear seat backrest — Used in step 20

Screw		Tightening torque	3 Nm

Inner seat trim to seat frame — Used in step 22

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame — Used in step 23

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 26

Nut M8		Tightening torque	19 Nm

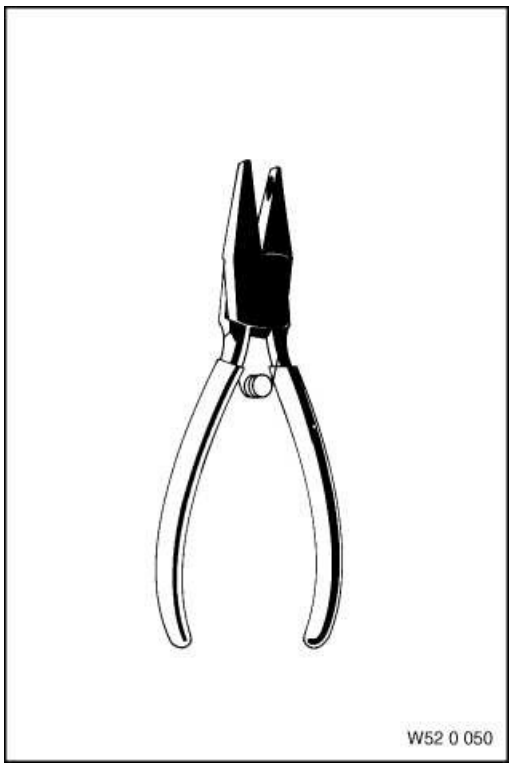
Seat to body — Used in step 26

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

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0 492 668 (52 0 050) Pliers



Common	Used in step 1415
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	126

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	126

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126

61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting battery earth lead	126
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126
61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126
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61 20 900 Disconnecting and connecting battery earth lead	126
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126
61 20 900 Disconnecting and connecting battery earth lead	126

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61 20 900 Disconnecting and connecting battery earth lead 126
61 20 900 Disconnecting and connecting battery earth lead 126

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52 15 402 Replacing seat cover for driver's seat

PRELIMINARY WORK

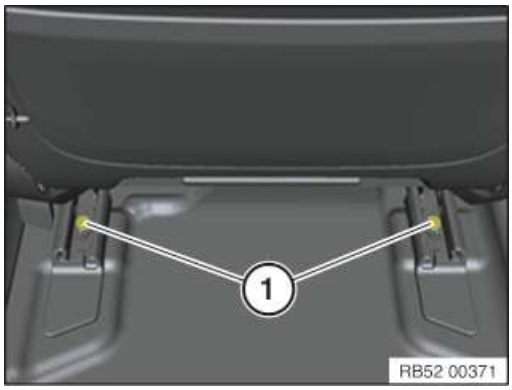
1 – Remove front seat

WARNING

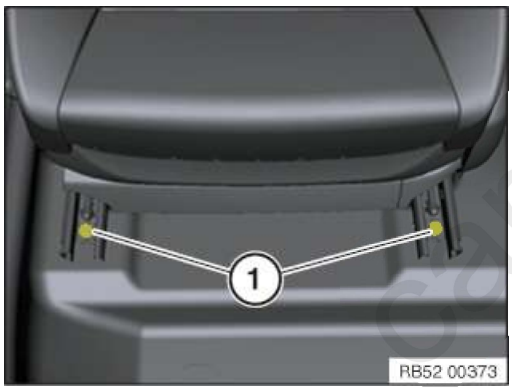
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

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WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

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Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

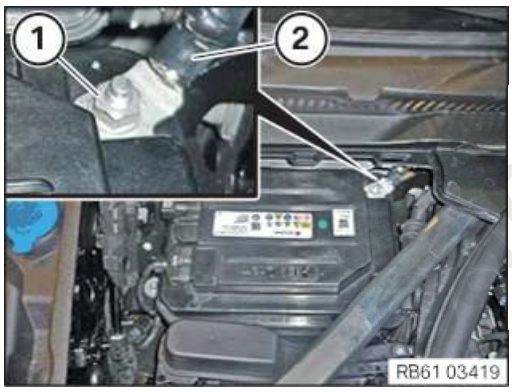
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

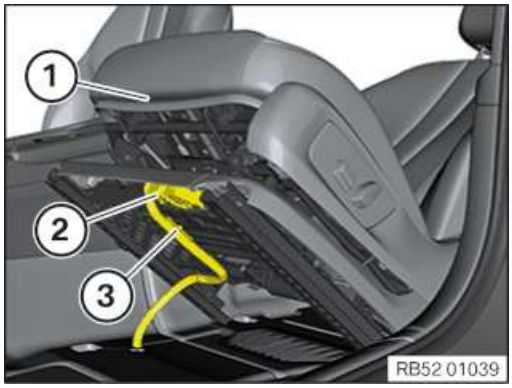
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

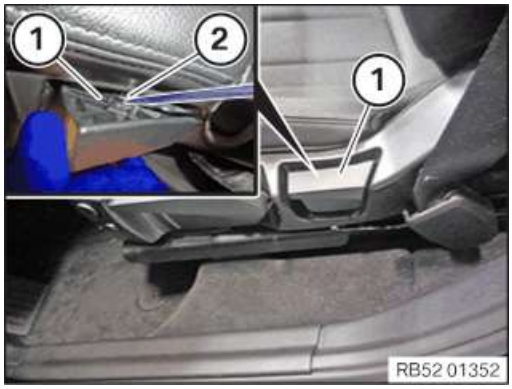
- Lift out front seat (1) with the assistance of a second person.

2 – Remove outer cover on front seat

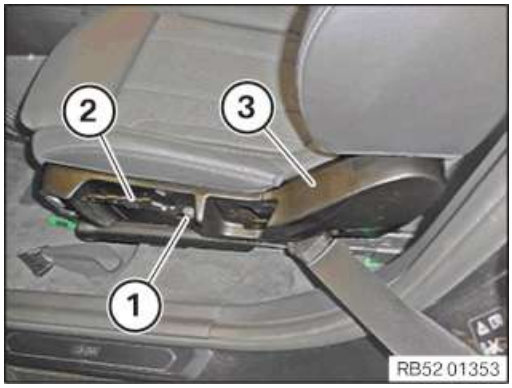


- Unclip the handle (1) for seat height adjustment.

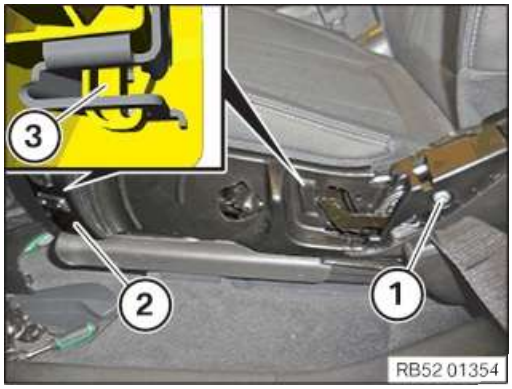
cardiagn.com



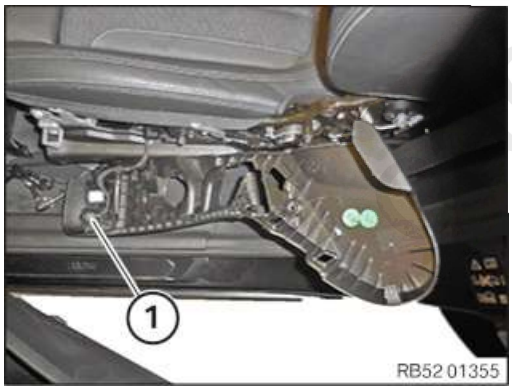
- Pull the handle (1) up for backrest tilt adjustment.
- Use a suitable tool to unlock the retaining lug (2).
- Guide out the handle (1) for backrest tilt adjustment upwards.



- Loosen screw (1).
- Remove the (2) metal brackets for the seat height adjustment.
- Unclip the cover (3).

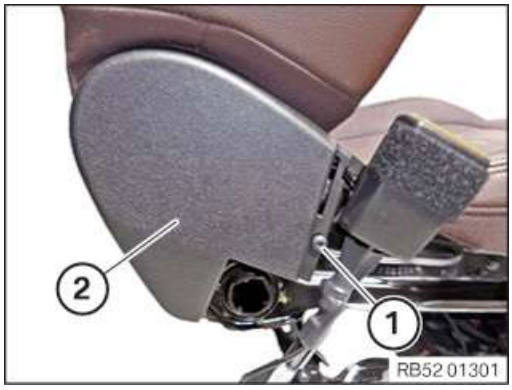


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2).



- Unlock and disconnect the plug connection (1) and, if necessary, unclip the cable clip.

3 – Remove inner cover on front seat



- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

4 – Remove thigh support

rdiagn.com

Prerequisite

The thigh support is completely extended.

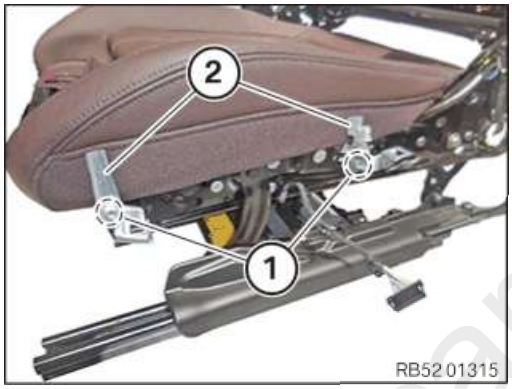


- Detach the seat cover (1) in this area (2).

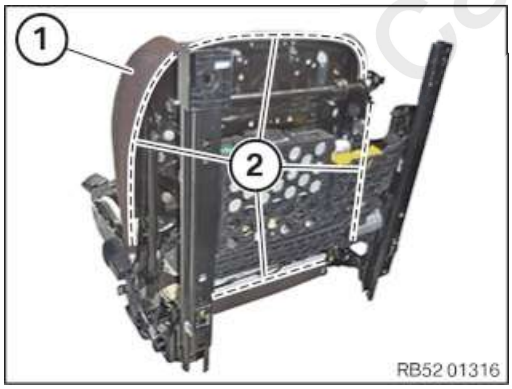


- Loosen the screws (1) and remove the thigh support (2).
- If necessary, disconnect the existing plug connection.

5 – Removing the seat cover with the cushion for the front seat



- Loosen screws (1) and remove the holder (2).



- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Unlock and disconnect the existing plug connections if required and unclip the cable clip .

MAIN WORK

6 – Remove the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.

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- Loosen all clamp on the trim wires (1).
- Remove any remaining clamp from the seat cover and the upholstery.
- Thread out the rubber band (2).



- Detach all clamps on the trim wires 1.
- Remove any remaining clamp from the seat cover (2) and the upholstery.
- Remove the seat cover (2) from the upholstery.

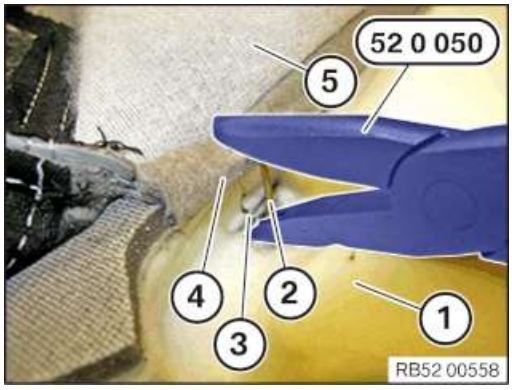
7 – Installing the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Place the seat cover (2) on the cushion.
- Secure all trim wires (1) with the clamps.



- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.
- Carefully bend the clamps (2).

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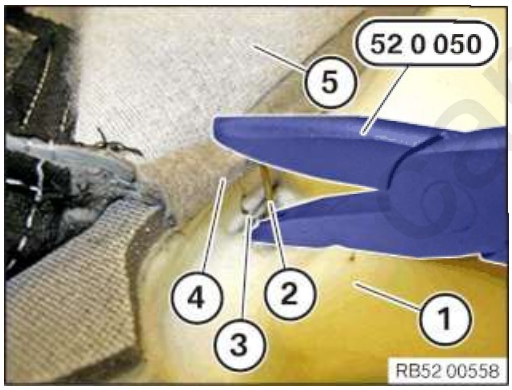
- Position the trim wire in the insert ducts (1).
- Position the rubber band (2).



- Correctly position the insert ducts.



- The clamps must be placed in the order (1) to (4) as described in the following step.



TECHNICAL INFORMATION

When installing the tacking channel, the wires of the seat heating and feed line must not be damaged by the clamps.

- Renew the clamps (2).

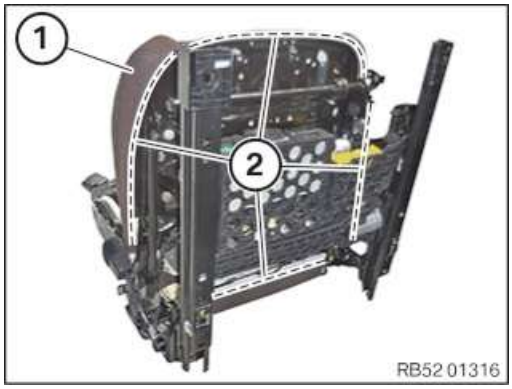
  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.

  Carefully bend the clamps (2).

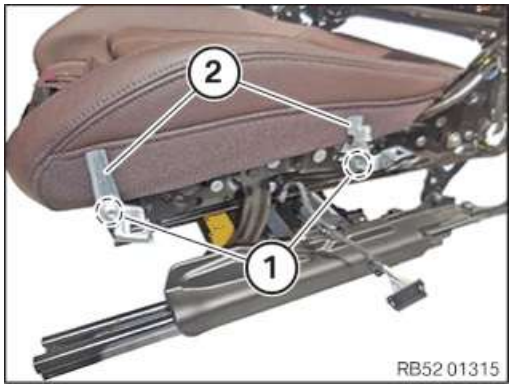
POSTPROCESSES

8 – Fit the seat cover with the cushion for the front seat

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- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Connect and lock existing connectors and clip in the cable clip if necessary.



- Position all the holders (2) and tighten the screws (1).

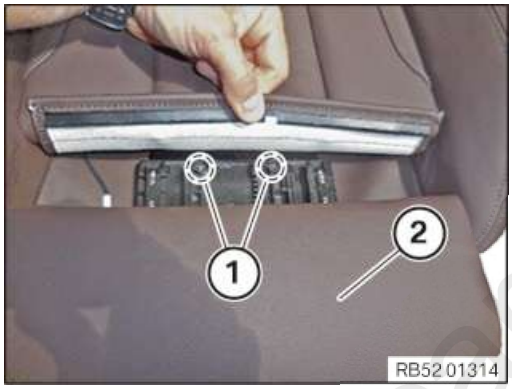
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

9 – Install thigh support

Prerequisite

The thigh support is completely extended.



- Connect the existing plug connections.
- Position the thigh support (2) and tighten the bolts (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm



- Attach the seat cover (1) in this area (2).

10 – Installing the inner cover on front seat

carmanualsdiagram.com



- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

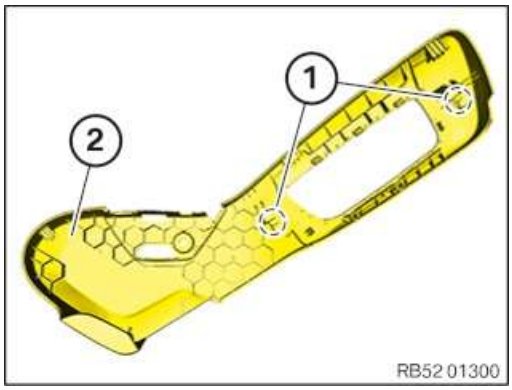
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

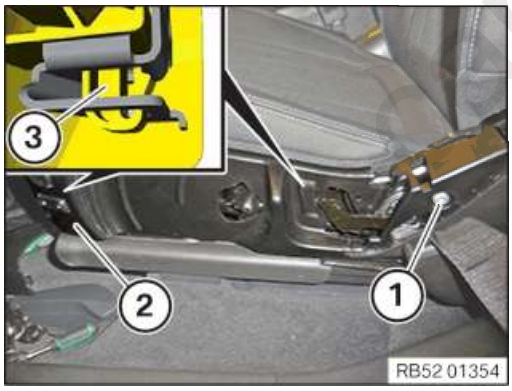
11 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect and lock the connector (1) and clip it into the cable clip if necessary.



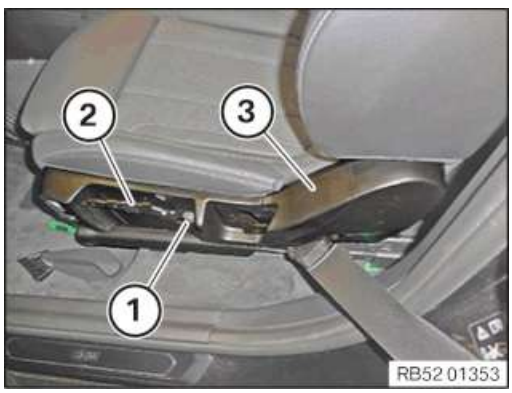
- Feed in cover (2) and position.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

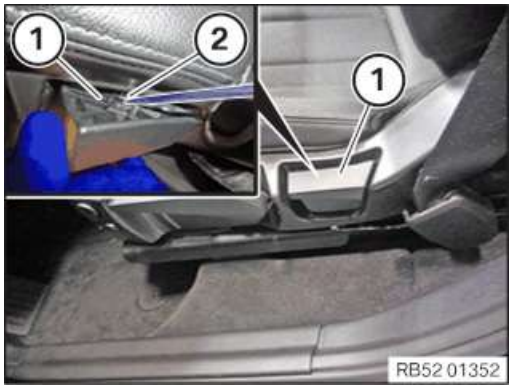
Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Position the adjustment lever (2) of the seat height adjustment.
- Tighten down screw (1).
- Clip in the cover (3).

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- Insert the handle (1) for the backrest tilt adjustment from the top.
- Check the retaining lug (2) for a correct fit.



- Clip in the handle (1) for the seat height adjustment.

12 – Install front seat

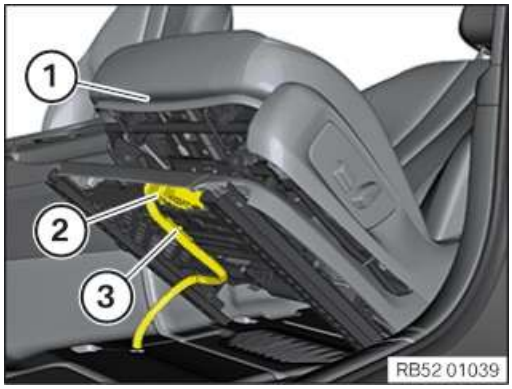
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

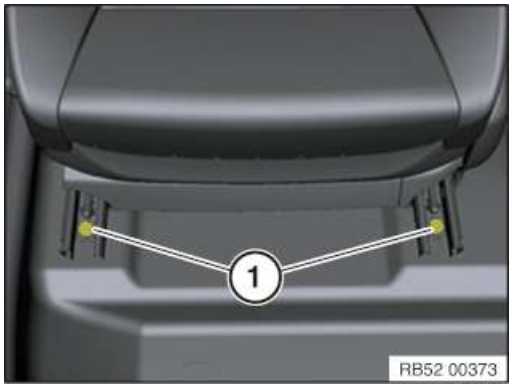


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



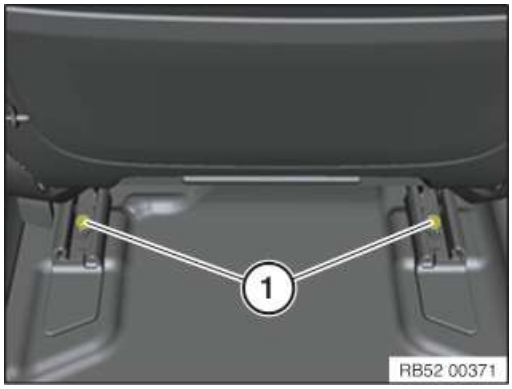
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Seat trim to seat frame — Used in step 81011

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 9

Screw		Tightening torque	2 Nm

Inner seat trim to seat frame — Used in step 10

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame — Used in step 11

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 12

Nut M8		Tightening torque	19 Nm

Seat to body — Used in step 12

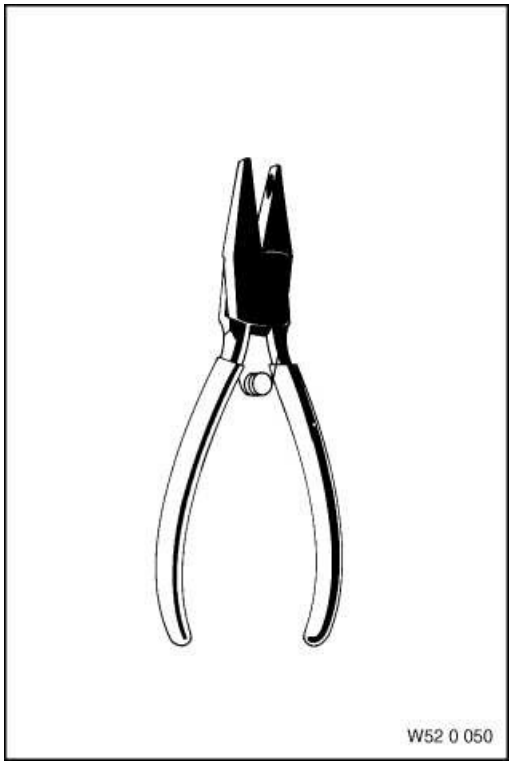
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 492 668 (52 0 050) Pliers

Used in step 7

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Common	
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	112

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	112

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	112
61 20 900 Disconnecting and connecting battery earth lead

52 15 404 Replacing seat cover for front passenger seat

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

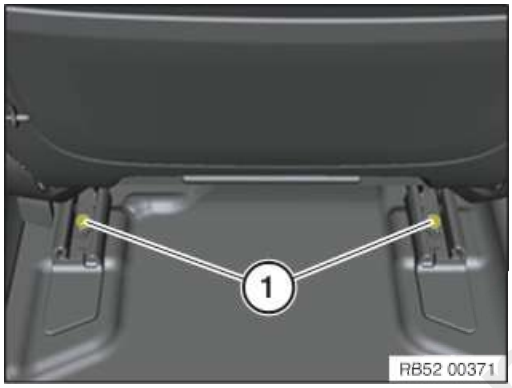
1 – Remove front seat

WARNING

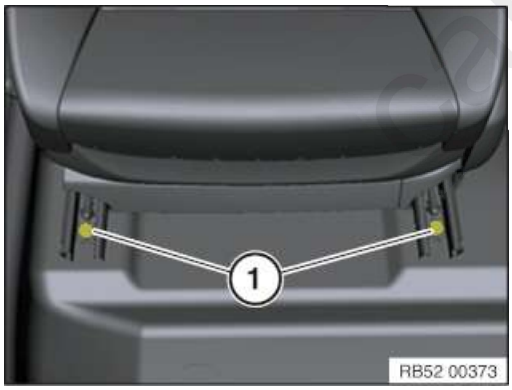
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

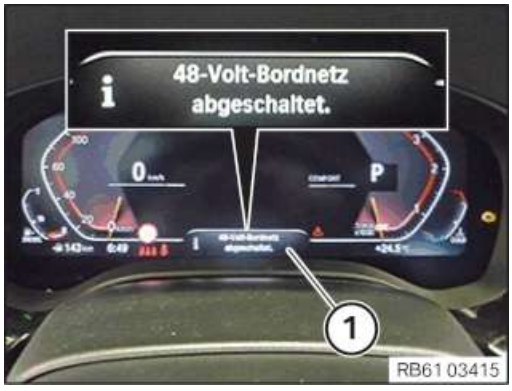
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.

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WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

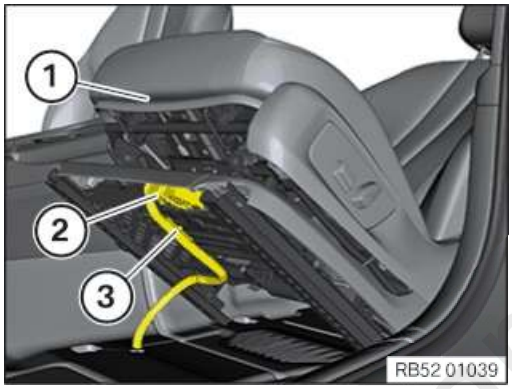
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove outer cover on front seat

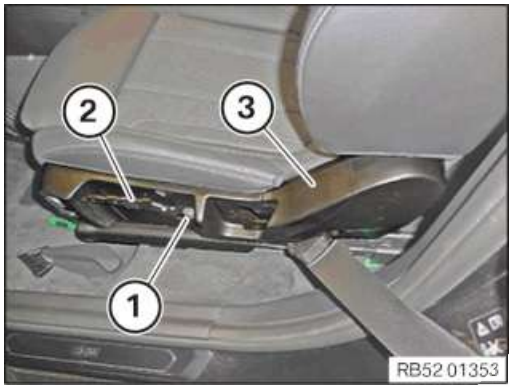
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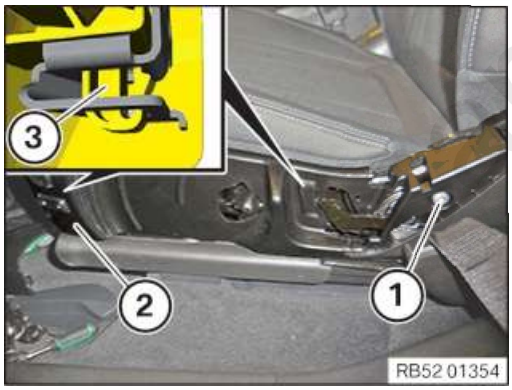
- Unclip the handle (1) for seat height adjustment.



- Pull the handle (1) up for backrest tilt adjustment.
- Use a suitable tool to unlock the retaining lug (2).
- Guide out the handle (1) for backrest tilt adjustment upwards.



- Loosen screw (1).
- Remove the (2) metal brackets for the seat height adjustment.
- Unclip the cover (3).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2).



- Unlock and disconnect the plug connection (1) and, if necessary, unclip the cable clip.

3 – Remove inner cover on front seat

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- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

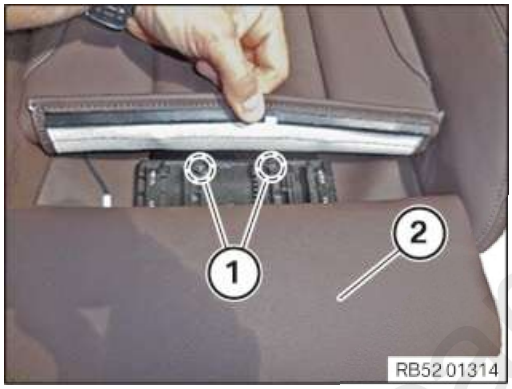
4 – Remove thigh support

Prerequisite

The thigh support is completely extended.

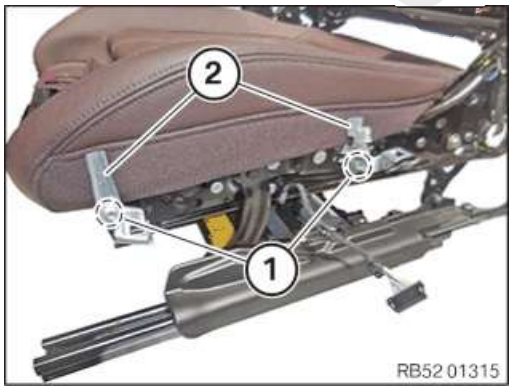


- Detach the seat cover (1) in this area (2).



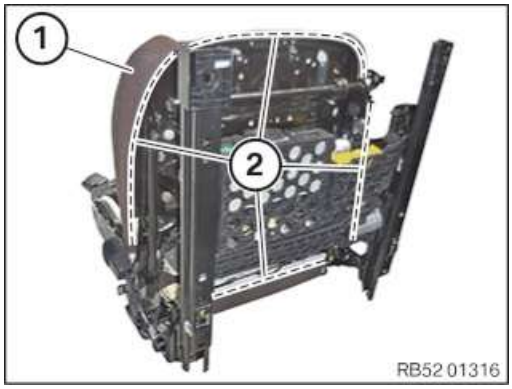
- Loosen the screws (1) and remove the thigh support (2).
- If necessary, disconnect the existing plug connection.

5 – Removing the seat cover with the cushion for the front seat



- Loosen screws (1) and remove the holder (2).

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- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Unlock and disconnect the existing plug connections if required and unclip the cable clip .

MAIN WORK

6 – Remove the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Loosen all clamp on the trim wires (1).
- Remove any remaining clamp from the seat cover and the upholstery.
- Thread out the rubber band (2).



- Detach all clamps on the trim wires 1.
- Remove any remaining clamp from the seat cover (2) and the upholstery.
- Remove the seat cover (2) from the upholstery.

7 – Installing the seat cover for the front seat

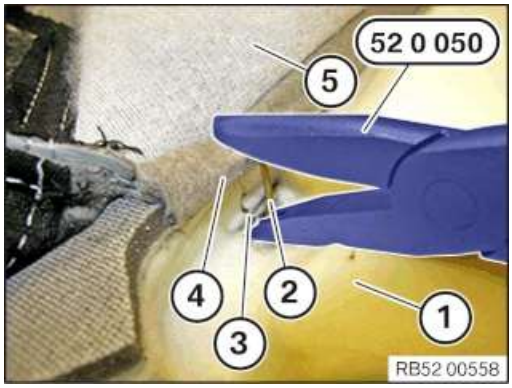
NOTICE

Description is for left component only. Procedure on the right side is identical.

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- Place the seat cover (2) on the cushion.
- Secure all trim wires (1) with the clamps.



- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.
- Carefully bend the clamps (2).



- Position the trim wire in the insert ducts (1).
- Position the rubber band (2).

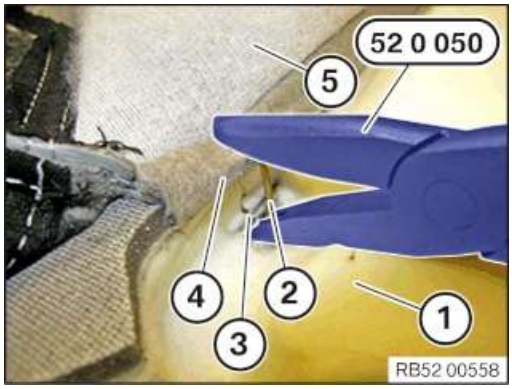


- Correctly position the insert ducts.



- The clamps must be placed in the order (1) to (4) as described in the following step.

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TECHNICAL INFORMATION

When installing the tacking channel, the wires of the seat heating and feed line must not be damaged by the clamps.

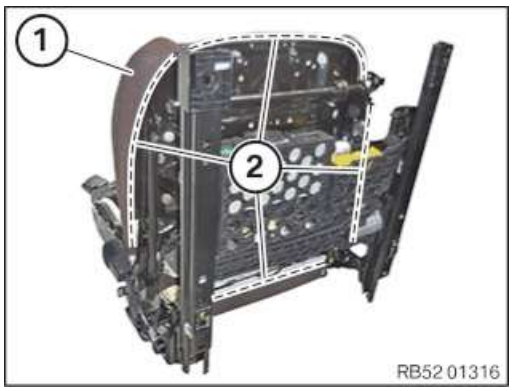
- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.

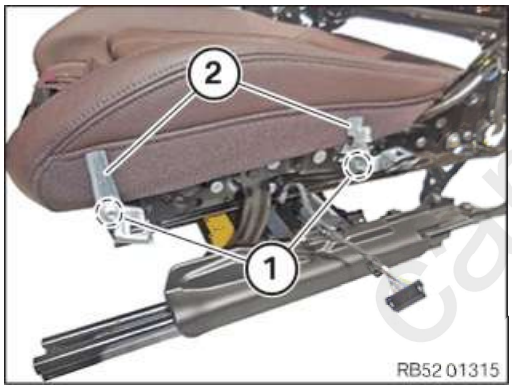
  Carefully bend the clamps (2).

POSTPROCESSES

8 – Fit the seat cover with the cushion for the front seat



- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Connect and lock existing connectors and clip in the cable clip if necessary.



- Position all the holders (2) and tighten the screws (1).

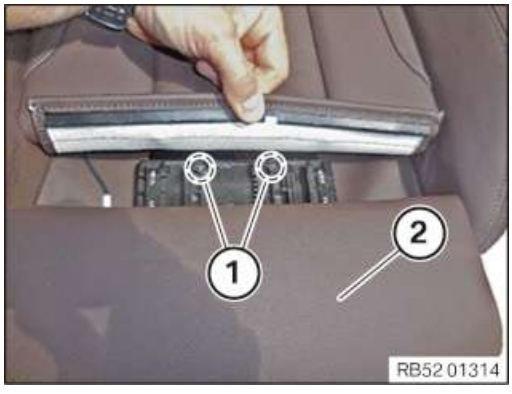
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

9 – Install thigh support

Prerequisite

The thigh support is completely extended.



- Connect the existing plug connections.
- Position the thigh support (2) and tighten the bolts (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm

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- Attach the seat cover (1) in this area (2).

10 – Installing the inner cover on front seat



- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

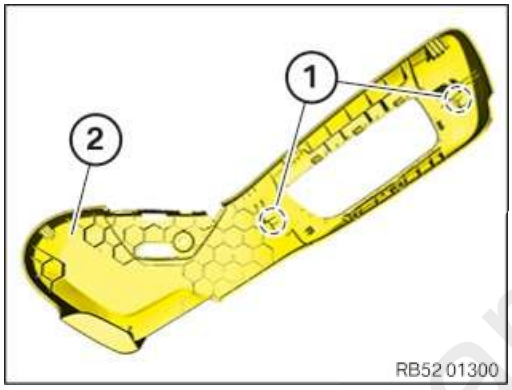
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

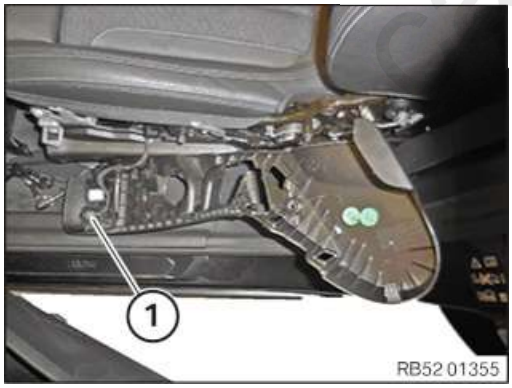
Inner seat trim to seat frame

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

11 – Install outer cover on front seat

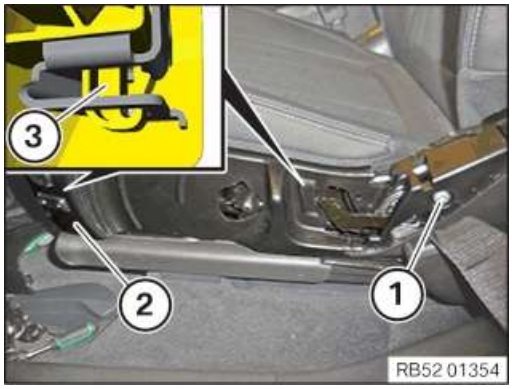


- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect and lock the connector (1) and clip it into the cable clip if necessary.

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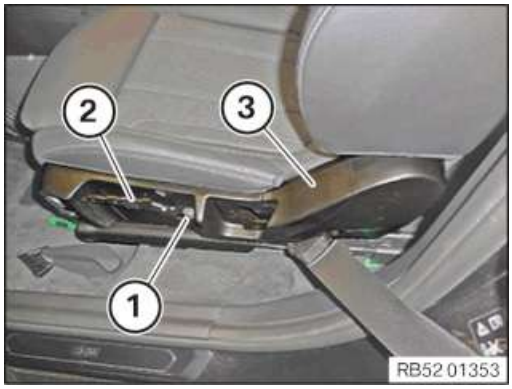
- Feed in cover (2) and position.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Position the adjustment lever (2) of the seat height adjustment.
- Tighten down screw (1).
- Clip in the cover (3).



- Insert the handle (1) for the backrest tilt adjustment from the top.
- Check the retaining lug (2) for a correct fit.



- Clip in the handle (1) for the seat height adjustment.

12 – Install front seat

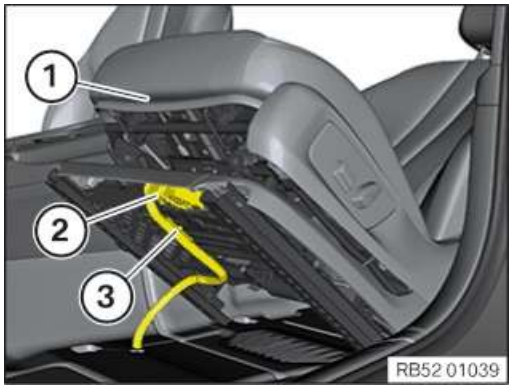
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

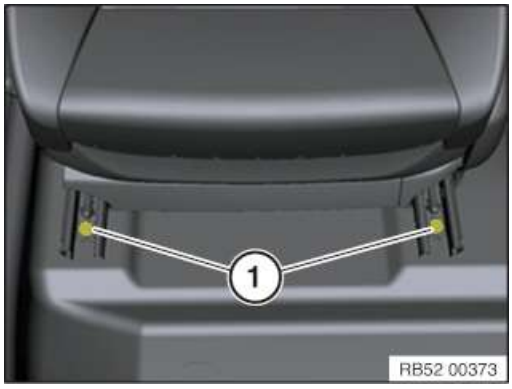


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



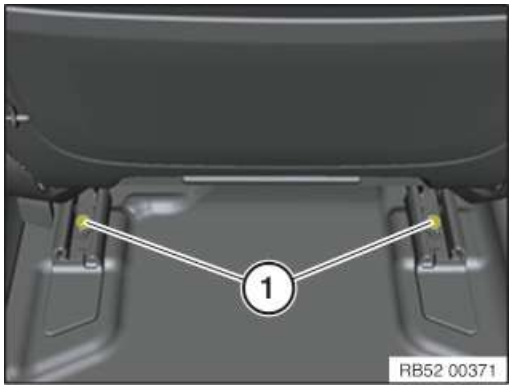
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Seat trim to seat frame — Used in step 81011

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 9

Screw		Tightening torque	2 Nm

Inner seat trim to seat frame — Used in step 10

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame — Used in step 11

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 12

Nut M8		Tightening torque	19 Nm

Seat to body — Used in step 12

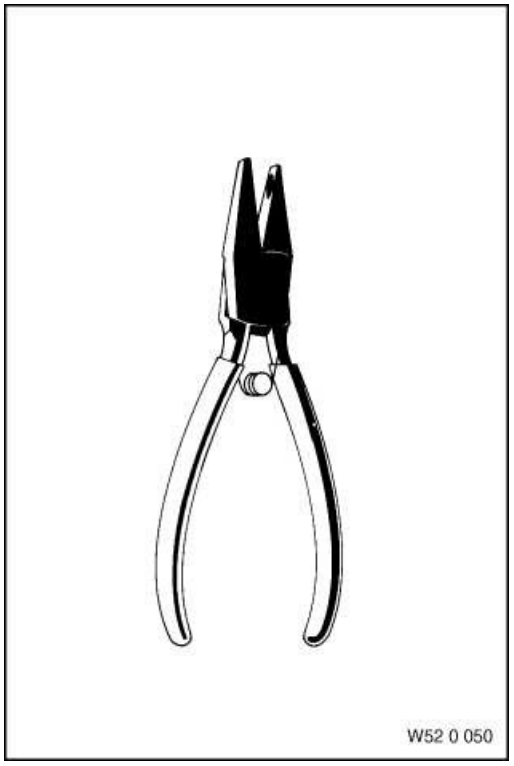
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 492 668 (52 0 050) Pliers

Used in step 7

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Common	
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	112

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	112

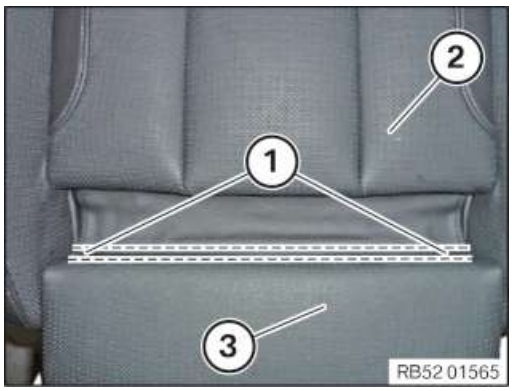
Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	112
61 20 900 Disconnecting and connecting battery earth lead

52 15 417 Replacing the facing for the thigh support on the left or right front seat

PRELIMINARY WORK

1 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).



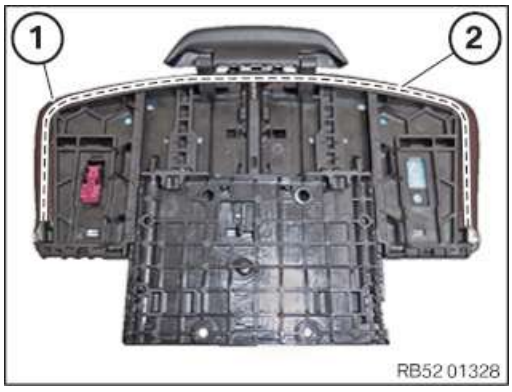
- Loosen screws (1).
- Feed the thigh support (2) out.



- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

MAIN WORK

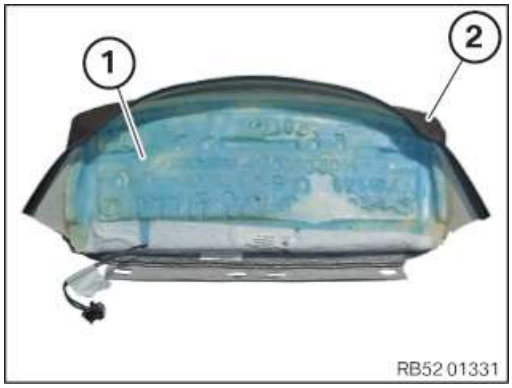
2 – Removing the cushion for the front seat thigh support



- Unhook the thigh support cover (1) in the area (2).

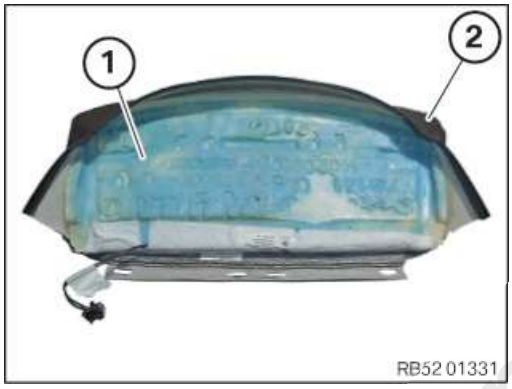


- Guide out the connector (1) and fold the thigh support cover (2) upwards.
- Detach the thigh support cover (2) in the area (3).



- Feed the cushion (1) out of the seat cover (2).

3 – Installing the cushion for the thigh support of the front seat



- Guide the upholstery (1) into the cover (2).



- Guide in the connector (1) and position the thigh support cover (2).
- Attach the thigh support cover (2) in area (3).



- Attach the thigh support cover (1) in area (2).

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4 – Install thigh support



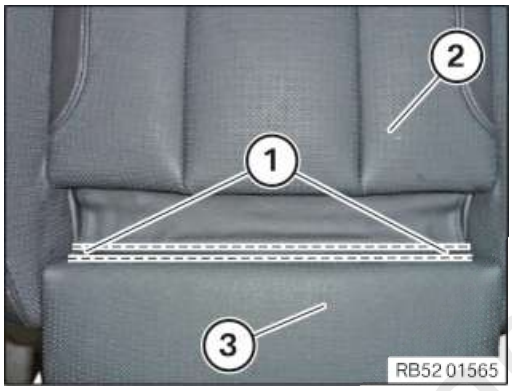
- Position the thigh support (2).
- Connect connectors (1) and lock.



- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm



- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

Additional Information

Overview of Tightening Torques

Thigh support to front seat Used in step 4

Screw		Tightening torque	2 Nm

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52 15 425 Replacing upholstery for driver's seat

PRELIMINARY WORK

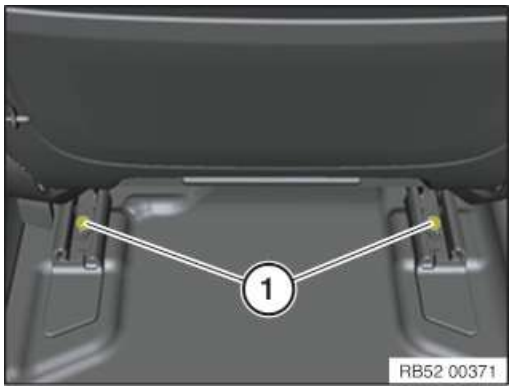
1 – Remove front seat

WARNING

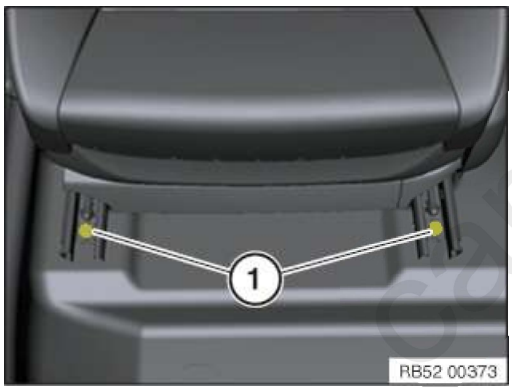
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

carmanuals.com

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

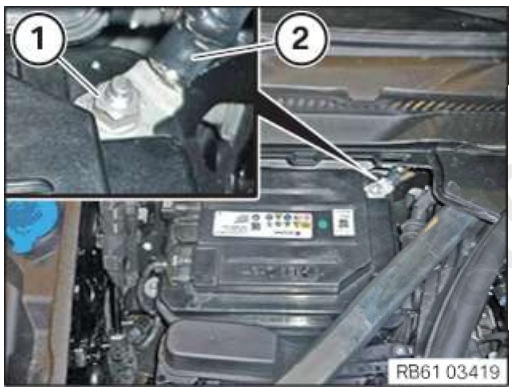
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

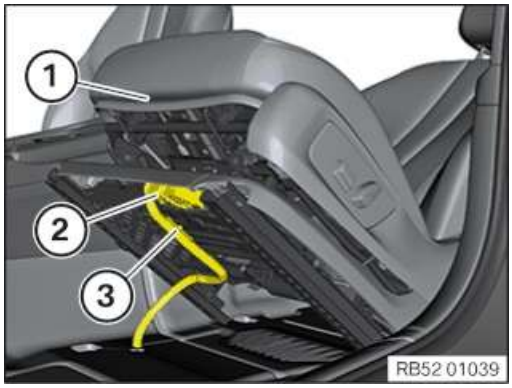
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

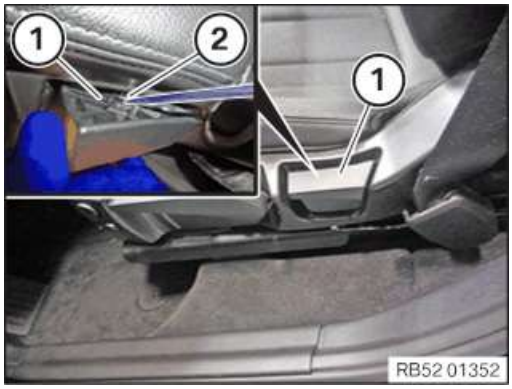
- Lift out front seat (1) with the assistance of a second person.

2 – Remove outer cover on front seat

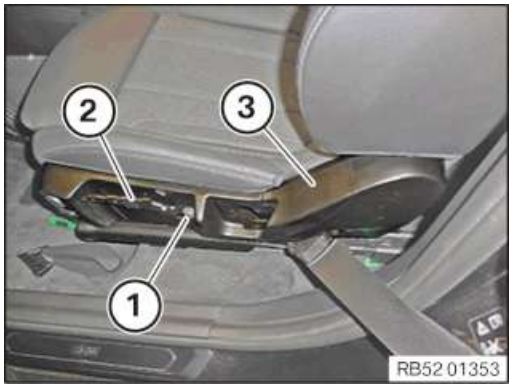


- Unclip the handle (1) for seat height adjustment.

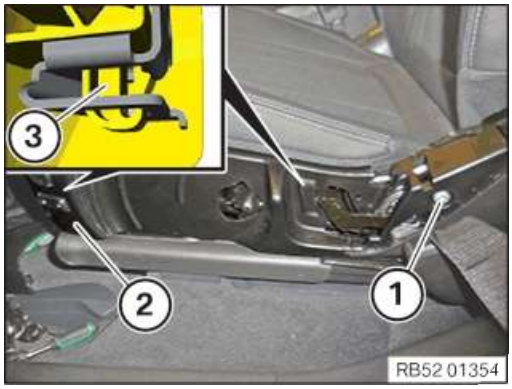
cardiagn.com



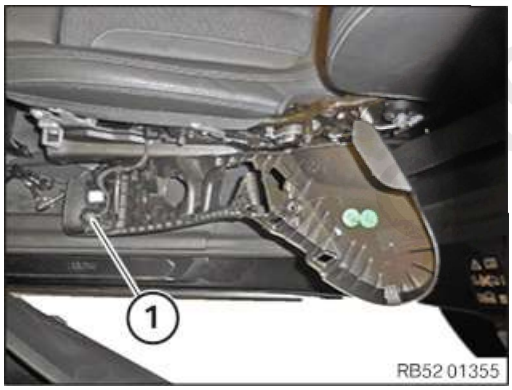
- Pull the handle (1) up for backrest tilt adjustment.
- Use a suitable tool to unlock the retaining lug (2).
- Guide out the handle (1) for backrest tilt adjustment upwards.



- Loosen screw (1).
- Remove the (2) metal brackets for the seat height adjustment.
- Unclip the cover (3).

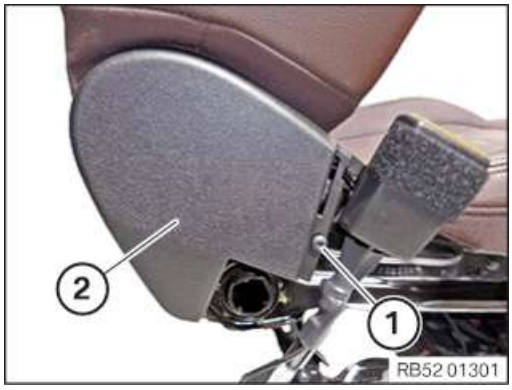


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2).



- Unlock and disconnect the plug connection (1) and, if necessary, unclip the cable clip.

3 – Remove inner cover on front seat



- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

4 – Remove thigh support

rdiagn.com

Prerequisite

The thigh support is completely extended.

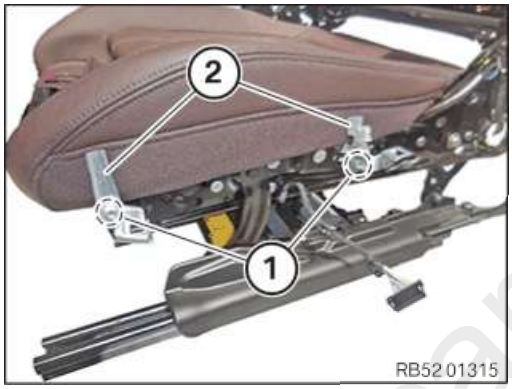


- Detach the seat cover (1) in this area (2).

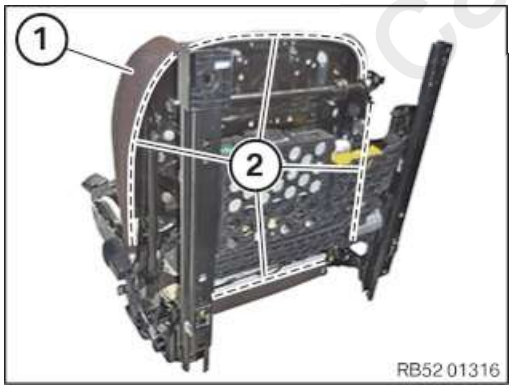


- Loosen the screws (1) and remove the thigh support (2).
- If necessary, disconnect the existing plug connection.

5 – Removing the seat cover with the cushion for the front seat



- Loosen screws (1) and remove the holder (2).



- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Unlock and disconnect the existing plug connections if required and unclip the cable clip .

6 – Remove the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.

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- Loosen all clamp on the trim wires (1).
- Remove any remaining clamp from the seat cover and the upholstery.
- Thread out the rubber band (2).



- Detach all clamps on the trim wires 1.
- Remove any remaining clamp from the seat cover (2) and the upholstery.
- Remove the seat cover (2) from the upholstery.

MAIN WORK

7 – Renewing the foam pad for the driver's seat

TECHNICAL INFORMATION

The heating mat is bonded to the foam pad and cannot be disassembled without damaging it.
When replacing, new heating mat must always be fitted with new foam pads.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **Equipment specification with seat heating**

  Position the heating mat (1) on the cushion and align.

  Bond the heating mat (1) to the cushion in these areas (2).

POSTPROCESSES

8 – Installing the seat cover for the front seat

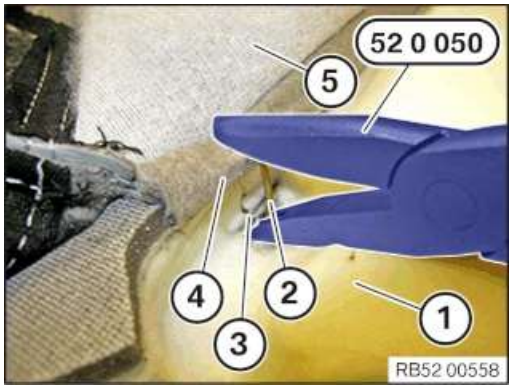
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NOTICE

Description is for left component only. Procedure on the right side is identical.



- Place the seat cover (2) on the cushion.
- Secure all trim wires (1) with the clamps.



- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.
- Carefully bend the clamps (2).



- Position the trim wire in the insert ducts (1).
- Position the rubber band (2).

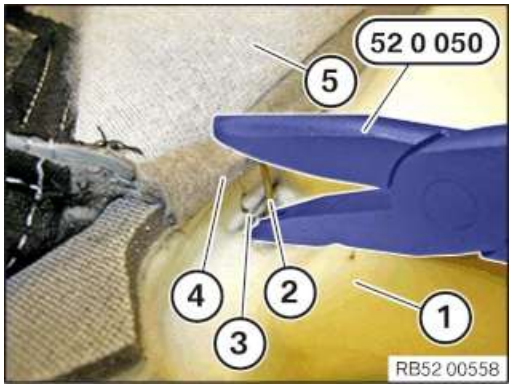


- Correctly position the insert ducts.

carldiag.com



- The clamps must be placed in the order (1) to (4) as described in the following step.



TECHNICAL INFORMATION

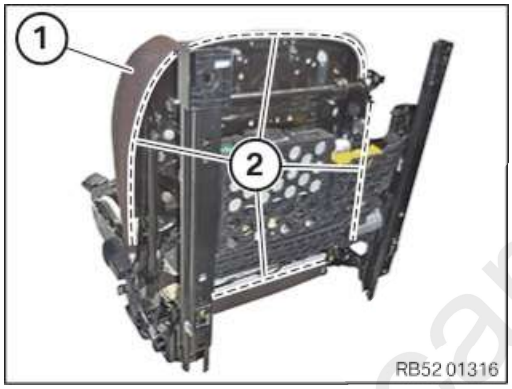
When installing the tacking channel, the wires of the seat heating and feed line must not be damaged by the clamps.

- Renew the clamps (2).

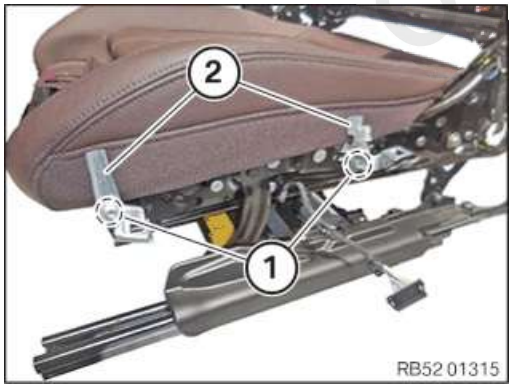
  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.

  Carefully bend the clamps (2).

9 – Fit the seat cover with the cushion for the front seat



- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Connect and lock existing connectors and clip in the cable clip if necessary.



- Position all the holders (2) and tighten the screws (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

10 – Install thigh support

Prerequisite

The thigh support is completely extended.

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- Connect the existing plug connections.
- Position the thigh support (2) and tighten the bolts (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm



- Attach the seat cover (1) in this area (2).

11 – Installing the inner cover on front seat



- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

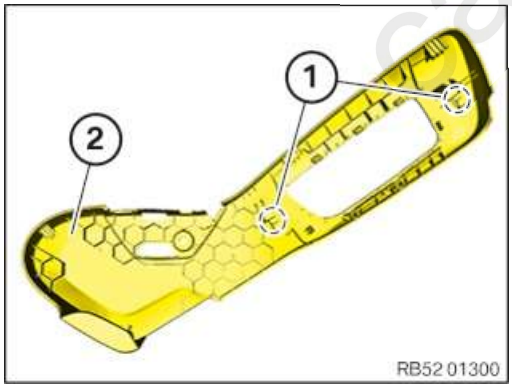
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

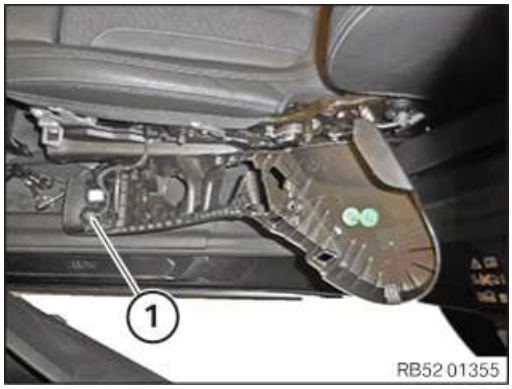
Inner seat trim to seat frame

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

12 – Install outer cover on front seat

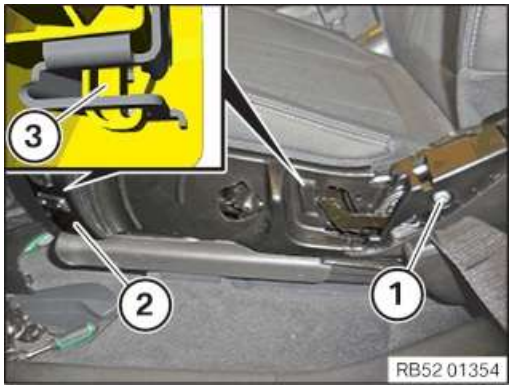


- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect and lock the connector (1) and clip it into the cable clip if necessary.

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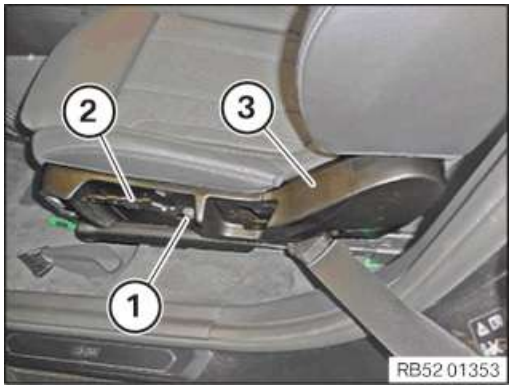
- Feed in cover (2) and position.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Position the adjustment lever (2) of the seat height adjustment.
- Tighten down screw (1).
- Clip in the cover (3).



- Insert the handle (1) for the backrest tilt adjustment from the top.
- Check the retaining lug (2) for a correct fit.



- Clip in the handle (1) for the seat height adjustment.

13 – Install front seat

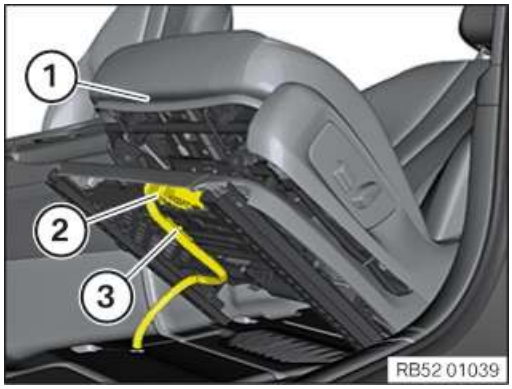
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

partdiagn.com



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

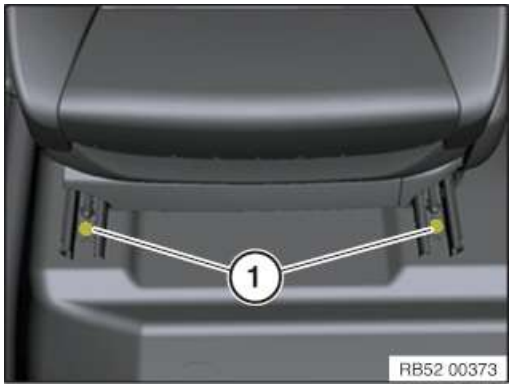


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



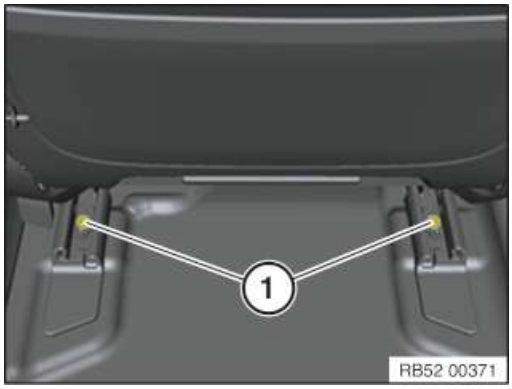
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Seat trim to seat frame — Used in step 91112

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 10

Screw		Tightening torque	2 Nm

Inner seat trim to seat frame — Used in step 11

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame — Used in step 12

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 13

Nut M8		Tightening torque	19 Nm

Seat to body — Used in step 13

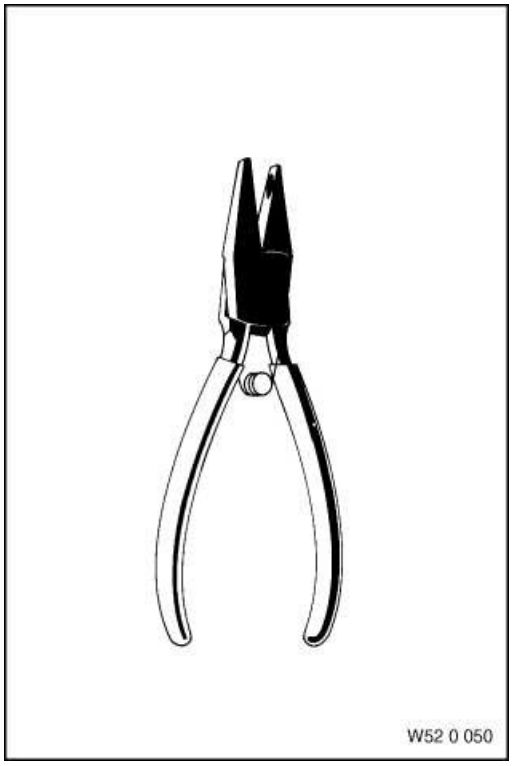
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 492 668 (52 0 050) Pliers

Used in step 8

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Common	
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	113

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	113

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	113
61 20 900 Disconnecting and connecting battery earth lead	113
61 20 900 Disconnecting and connecting battery earth lead	113
61 20 900 Disconnecting and connecting battery earth lead	113
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	113
61 20 900 Disconnecting and connecting battery earth lead	113
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	113
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	113
61 20 900 Disconnecting and connecting battery earth lead	113
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52 15 422 Replacing upholstery for driver's seat backrest

PRELIMINARY WORK

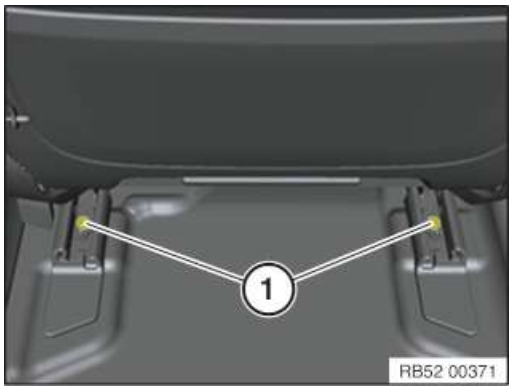
1 – Remove front seat

WARNING

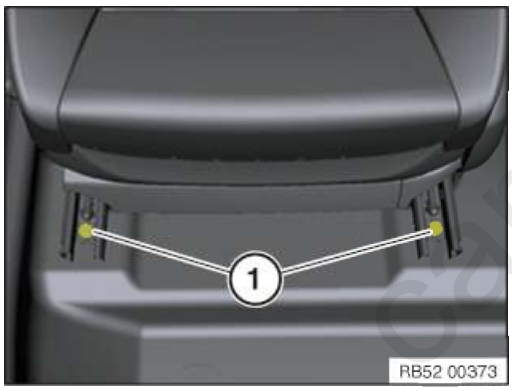
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

carmanuals.com

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

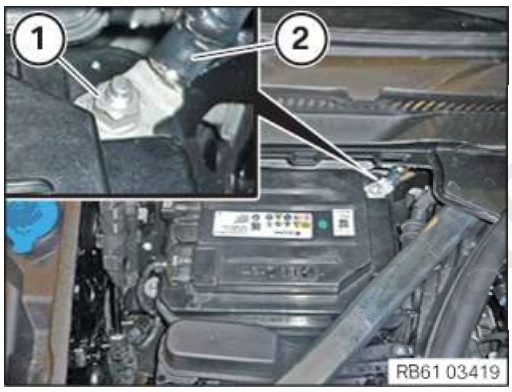
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

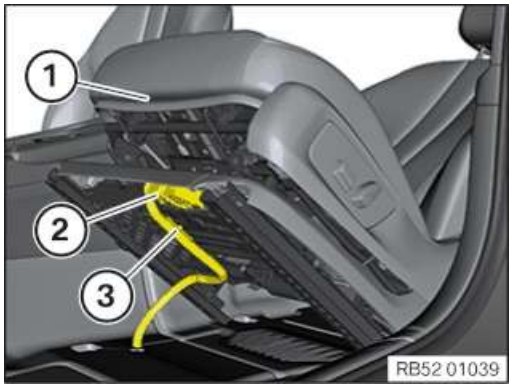
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove front head restraint



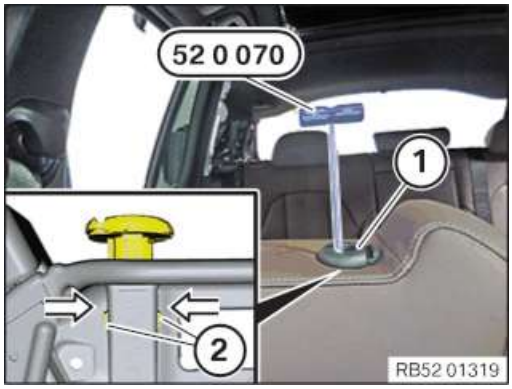
- Press the lock (2) and remove the head restraint (1) from the backrest toward the top.

3 – Removing the guide sleeve for the front head restraint

NOTICE

The description is for one component only. The procedure is identical for all further components.

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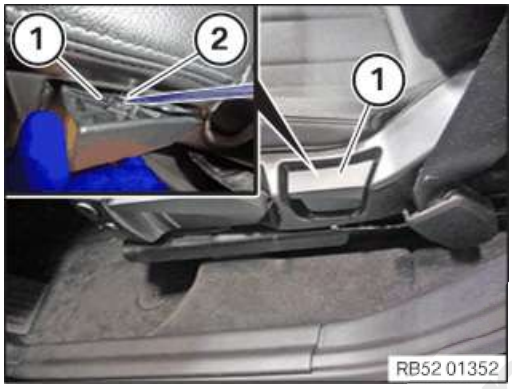


- Push the latch mechanisms (2) inward in direction of the arrow with the special tool .
- Remove the guide sleeve (1) towards the top.

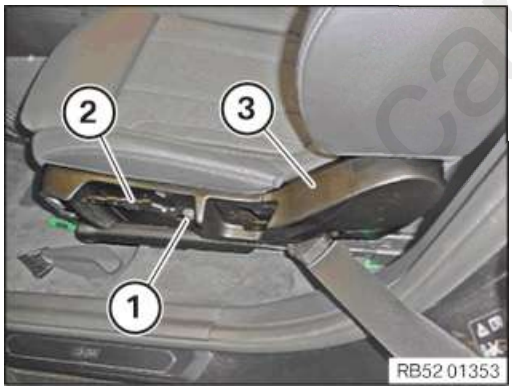
4 – Remove outer cover on front seat



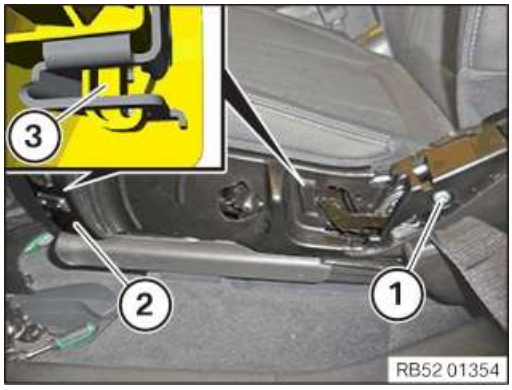
- Unclip the handle (1) for seat height adjustment.



- Pull the handle (1) up for backrest tilt adjustment.
- Use a suitable tool to unlock the retaining lug (2).
- Guide out the handle (1) for backrest tilt adjustment upwards.

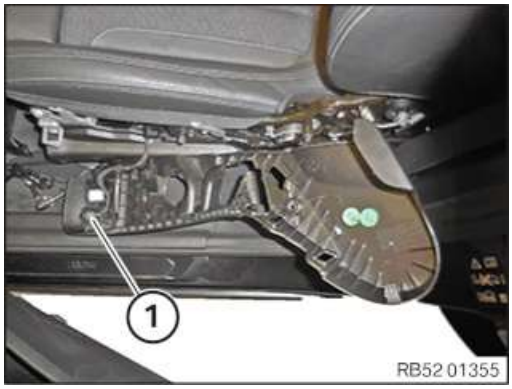


- Loosen screw (1).
- Remove the (2) metal brackets for the seat height adjustment.
- Unclip the cover (3).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2).

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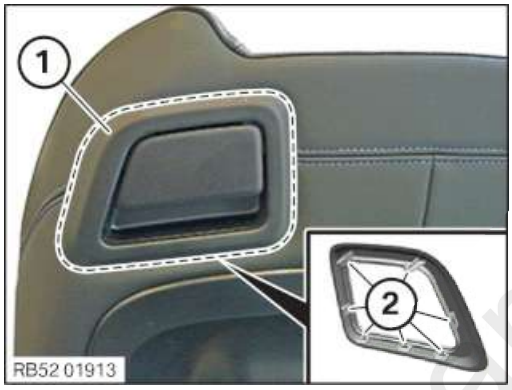
- Unlock and disconnect the plug connection (1) and, if necessary, unclip the cable clip.

5 – Remove inner cover on front seat



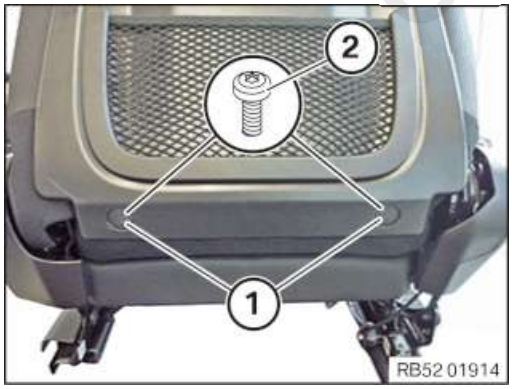
- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

6 – Removing the cover for the backrest release



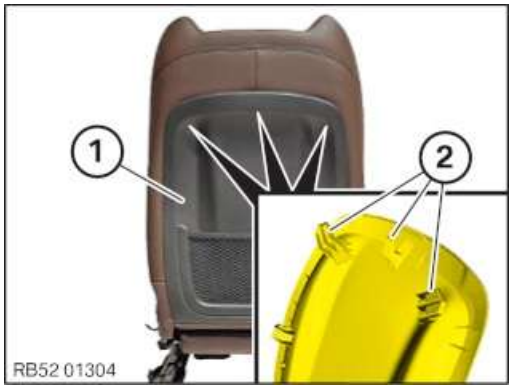
- Unclip and remove cover (1) for the backrest release in the marked area from latch mechanisms (2) using a suitable tool.

7 – Removing rear panel on the front seat backrest



- Unclip the cover caps (1) with a suitable tool.
- Loosen screws (2).

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- Slide the rear panel (1) down and guide it out at the guides (2).



- Unclip the rear panel (1) from the clamps (2) and remove.

8 – Removing the backrest cover with the cushion for the front seat

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.

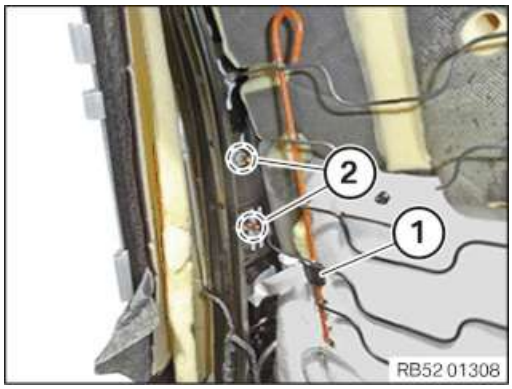


- Detach the backrest cover (1) in this area (2).
- Unhook seat cover (3).

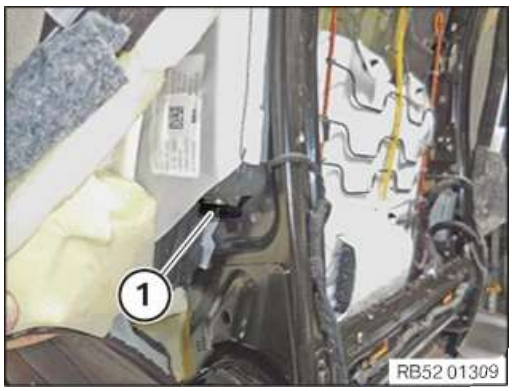
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- Unclip clips (1).
- Unlock plug connection (2) and disconnect.



- Detach the holder (1).
- Loosen nuts (2).



- Unlock plug connection (1) and disconnect.



- Carefully guide out backrest cover (1) in the marked area (2).
- Remove the backrest cover (1) with the cushion damage-free in marked area (2).
- Guide out the backrest cover (1) with cushion complete with the side airbag in the direction of the arrow.

9 – Remove side airbag from front seat

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

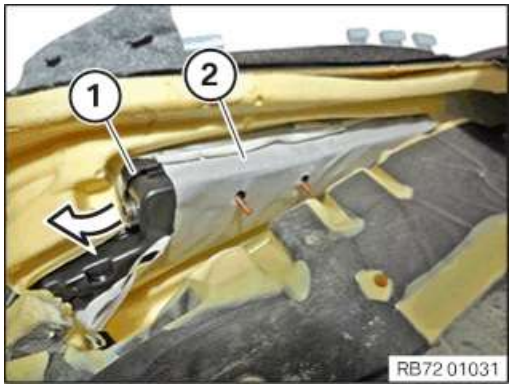
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WARNING

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.



- Pull the side airbag (1) out in the direction of arrow from the seat cover bag (2) on the backrest cover.

10 – Remove the backrest cover from front seat-backrest



- Loosen all clamp on the trim wires (1).
- Remove the backrest cover (2) from the upholstery.
- Completely remove clamps from the backrest cover (2) and the cushion.

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MAIN WORK

11 – Renewing the cushion for the front seat backrest

TECHNICAL INFORMATION

The heating mat is bonded to the foam pad and cannot be disassembled without damaging it.
When replacing, new heating mat must always be fitted with new foam pads.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **Equipment specification with seat heating**

  Position and align the heating mat (1) on the upholstery (2).

  Bond the heating mat (1) with the upholstery (2).

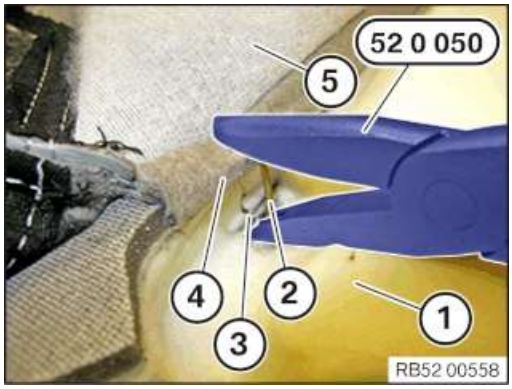
POSTPROCESSES

12 – Install the backrest cover of the front seat backrest



- Place the backrest cover (2) onto the upholstery.
- Secure all trim wires (1) with the clamps.

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- Renew the clamps (2).

  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround the trim wire (3) of the cushion (1) and the trim wire (4) of the backrest cover (5) with the clamp (2) and bend the clamp (2) to close it.

13 – Install side airbag on front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

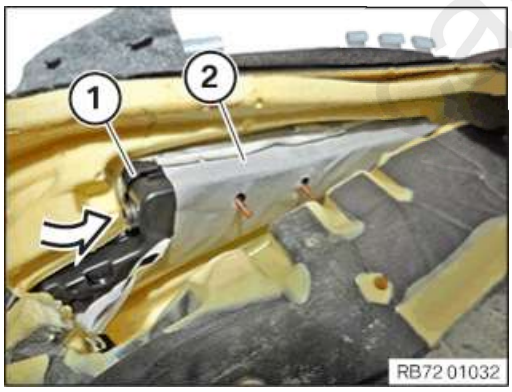
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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



- Feed the side airbag (1) in the direction of arrow into the seat cover pocket (2) on the backrest cover and position it correctly.

14 – Install the backrest cover with the cushion for the front seat

WARNING

Airbag unit.

Danger! Life-threatening injuries!

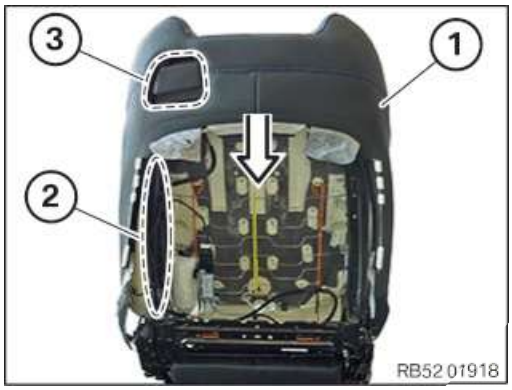
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

WARNING

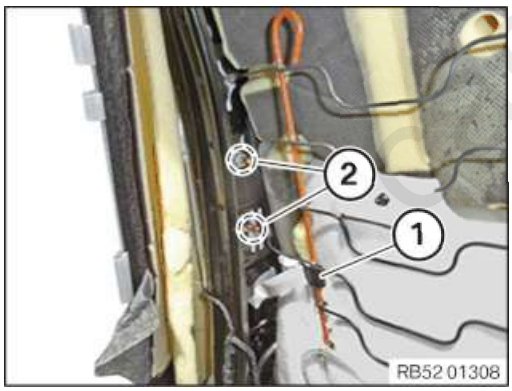
Pyrotechnic components.

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.



- Position backrest cover (1) with the cushion without damaging it in marked area (2).
- Position the backrest cover (1) completely with the side airbag in the direction of the arrow.
- Position the stud bolt of the side airbag in the area (2) correctly.
- Position backrest cover (1) correctly in the marked area (3).

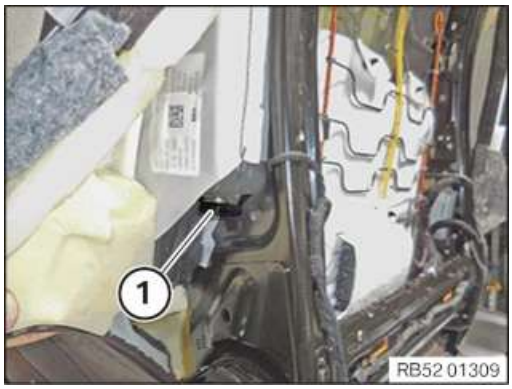


- Attach the holder (1).
- Renew nuts (2).

  Parts: Nuts
- Tighten nuts (2).

Airbag on backrest frame

Nut	Renew nut.	Tightening torque	6,5 Nm



- Connect connectors (1) and lock.

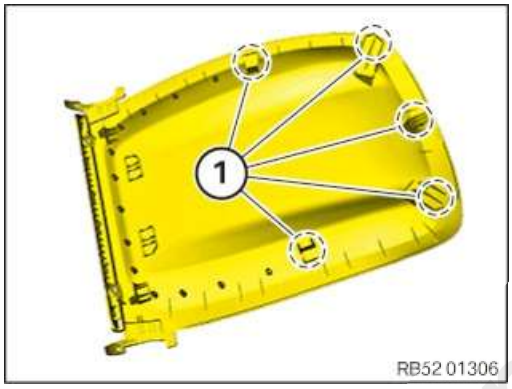


- Clip in clips (1).
- Connect connectors (2) and lock.

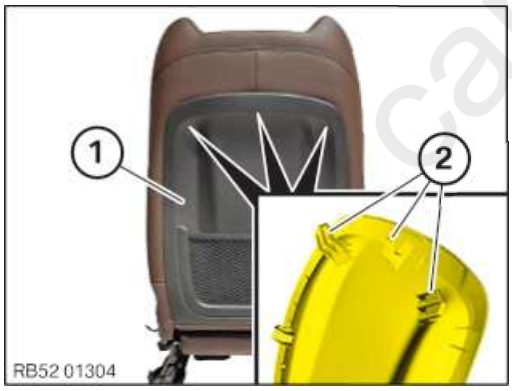


- Attach the backrest cover (1) in this area (2).
- Hook the seat cover (3).

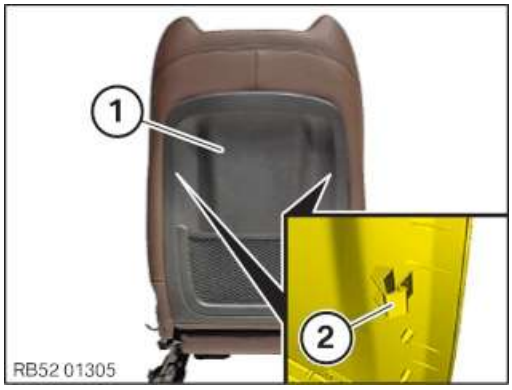
15 – Installing rear panel on the front seat backrest



- Check the guides and clamps (1) for damage and renew the rear panel as needed.

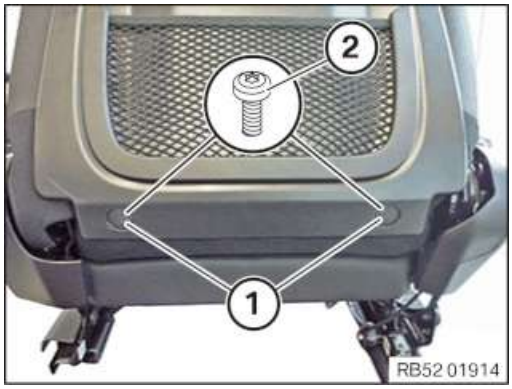


- Thread the rear panel (1) in at the clamps (2).



- Position the rear panel (1) and clip it in at the clamps (2).

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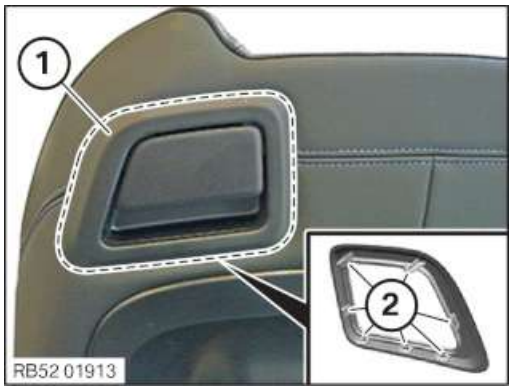
- Tighten the screws (2).

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

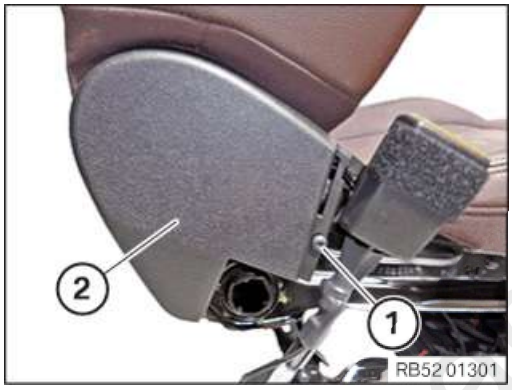
- Clip in cover caps (1).

16 – Installing a cover for backrest release



- Position the cover for backrest release (1) correctly in the marked area.
- Clip in the latch mechanism (2) of the cover for backrest release (1).

17 – Installing the inner cover on front seat



- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

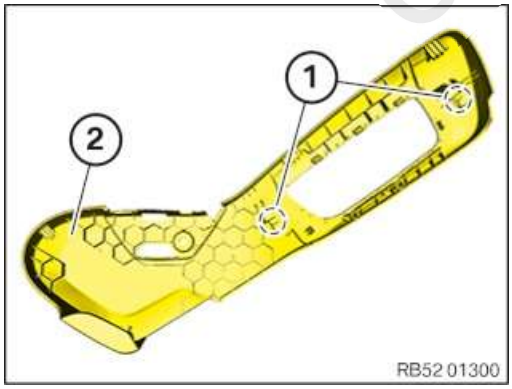
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame

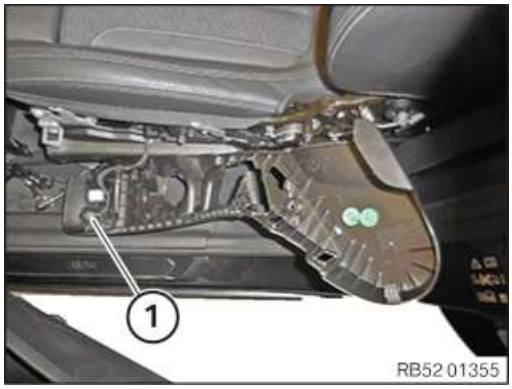
Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

18 – Install outer cover on front seat

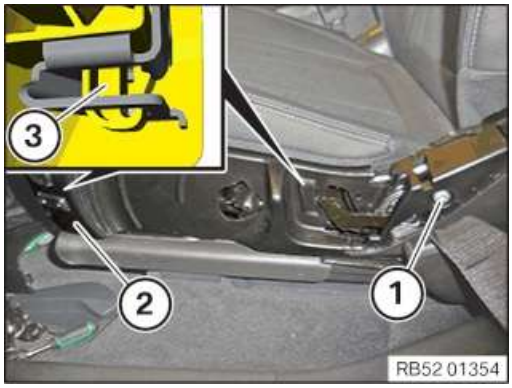


- Check the locking units (1) for damages, and replace the cover if necessary (2).

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- Connect and lock the connector (1) and clip it into the cable clip if necessary.



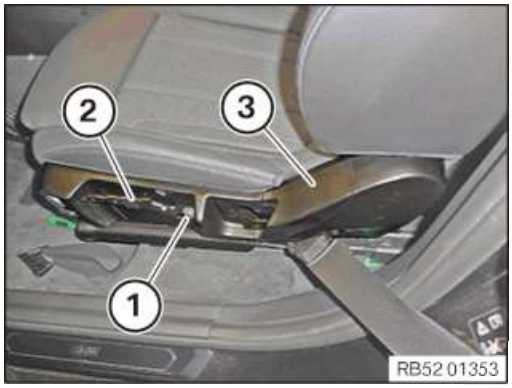
- Feed in cover (2) and position.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

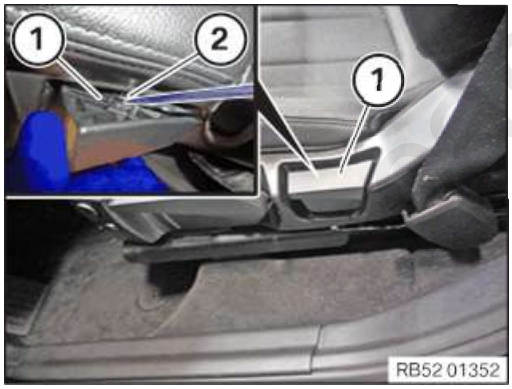
Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Position the adjustment lever (2) of the seat height adjustment.
- Tighten down screw (1).
- Clip in the cover (3).



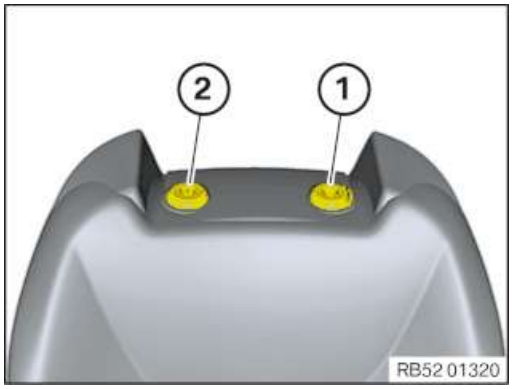
- Insert the handle (1) for the backrest tilt adjustment from the top.
- Check the retaining lug (2) for a correct fit.



- Clip in the handle (1) for the seat height adjustment.

19 – Install the guide sleeve for the front head restraint

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- Pay attention to the installation position:

  Insert the guide sleeve (1) **with** unlocking towards the left in the direction of travel.

  Insert the guide sleeve (2) **without** unlocking towards the right in the direction of travel.



NOTICE

The description is for one component only. The procedure is identical for all further components.

- Insert the guide sleeve (1) into the rear seat backrest in the direction of arrow from the top and lock it.

  You have to feel the guide sleeve (1) engage.

20 – Install the front head restraint



- Insert the head restraint (1) in the direction of the arrow into the guides (2).
- Slide the head restraint (1) in until the lock (3) is securely engaged.

21 – Install front seat

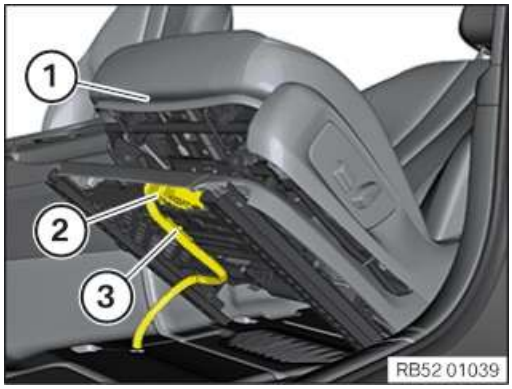
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

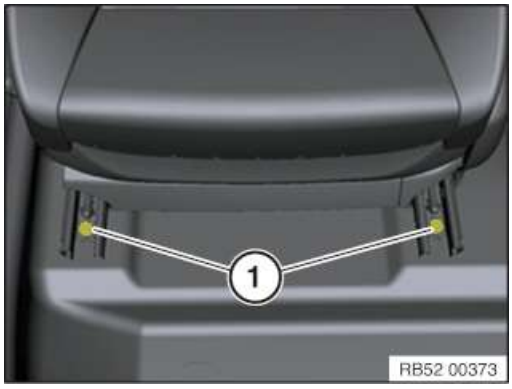


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



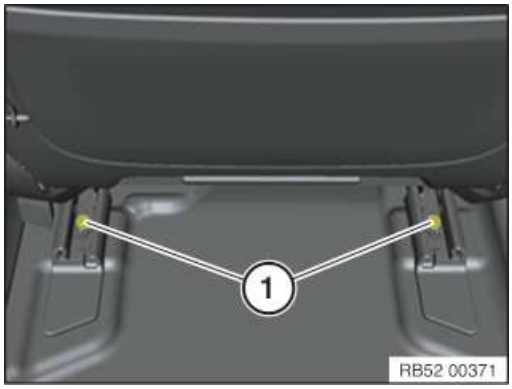
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Airbag on backrest frame — Used in step 14

Nut	Renew nut.	Tightening torque	6,5 Nm

Rear panel on rear seat backrest — Used in step 15

Screw		Tightening torque	3 Nm

Seat trim to seat frame — Used in step 1718

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame — Used in step 17

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame — Used in step 18

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 21

Nut M8		Tightening torque	19 Nm

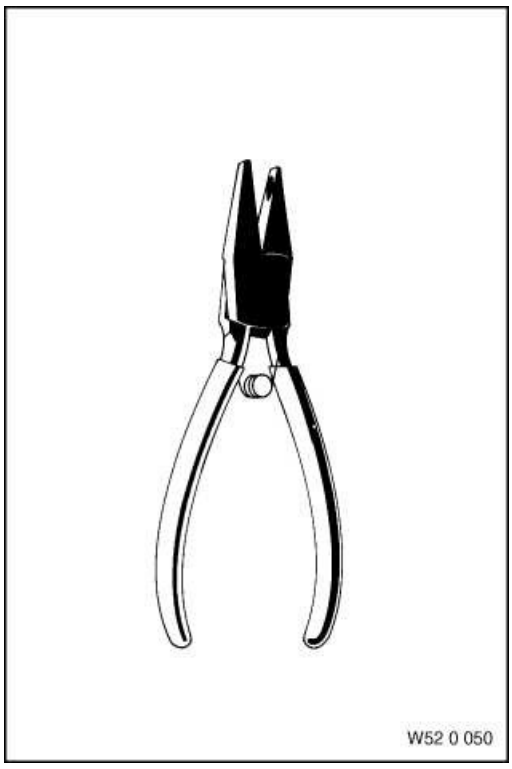
Seat to body — Used in step 21

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

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0 492 668 (52 0 050) Pliers



Common	Used in step 12
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	121

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	121

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	121
61 20 900 Disconnecting and connecting battery earth lead	121
61 20 900 Disconnecting and connecting battery earth lead	121
61 20 900 Disconnecting and connecting battery earth lead	121
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	121
61 20 900 Disconnecting and connecting battery earth lead	121
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	121
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	121
61 20 900 Disconnecting and connecting battery earth lead	121
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61 20 900 Disconnecting and connecting battery earth lead 121
61 20 900 Disconnecting and connecting battery earth lead 121
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 121
61 20 900 Disconnecting and connecting battery earth lead 121
61 20 900 Disconnecting and connecting battery earth lead 121
61 20 900 Disconnecting and connecting battery earth lead 121

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52 15 426 Replacing upholstery for front passenger seat

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

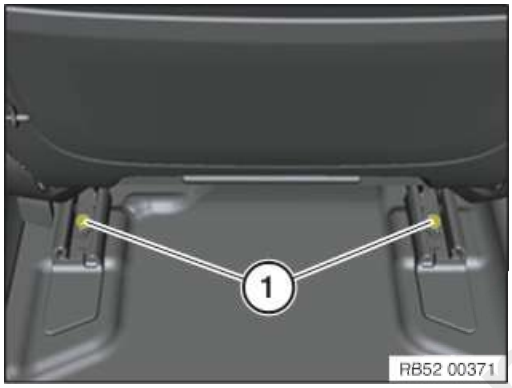
1 – Remove front seat

WARNING

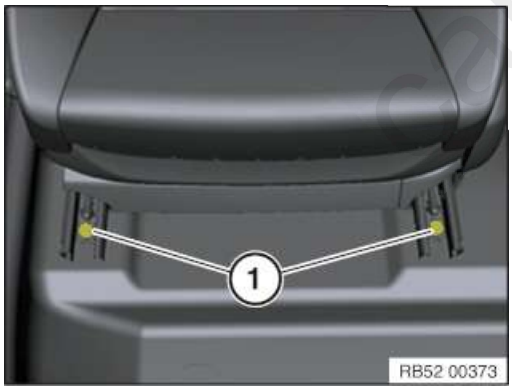
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

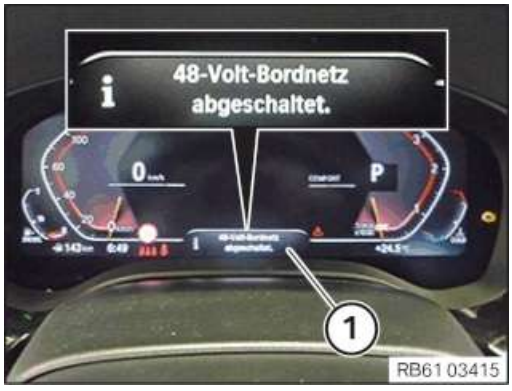
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.

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WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

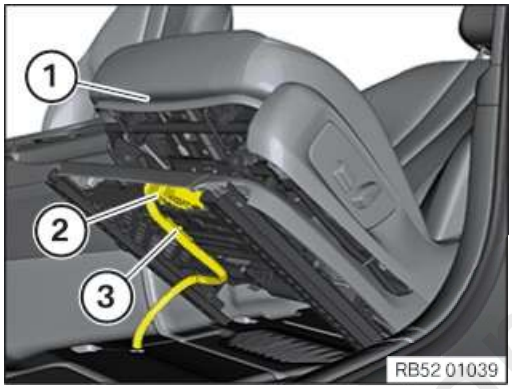
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove outer cover on front seat

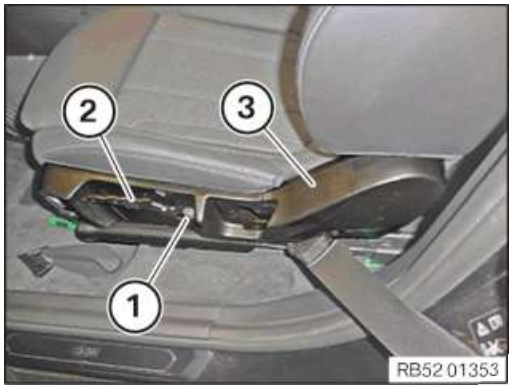
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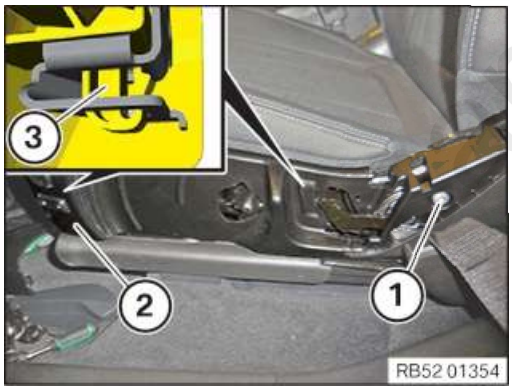
- Unclip the handle (1) for seat height adjustment.



- Pull the handle (1) up for backrest tilt adjustment.
- Use a suitable tool to unlock the retaining lug (2).
- Guide out the handle (1) for backrest tilt adjustment upwards.



- Loosen screw (1).
- Remove the (2) metal brackets for the seat height adjustment.
- Unclip the cover (3).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2).



- Unlock and disconnect the plug connection (1) and, if necessary, unclip the cable clip.

3 – Remove inner cover on front seat

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- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

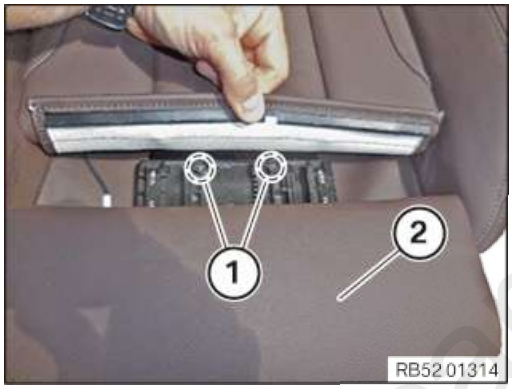
4 – Remove thigh support

Prerequisite

The thigh support is completely extended.

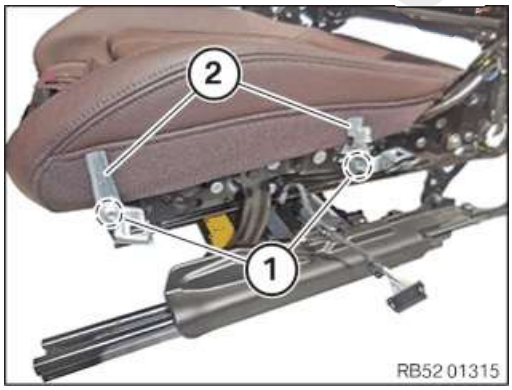


- Detach the seat cover (1) in this area (2).



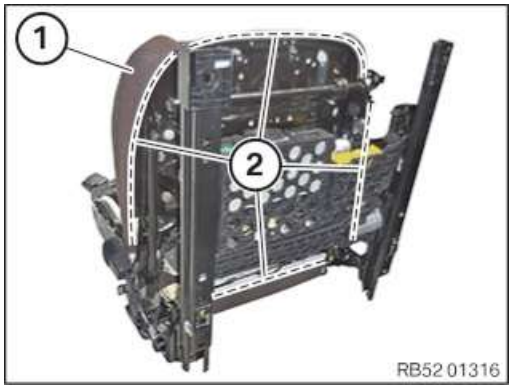
- Loosen the screws (1) and remove the thigh support (2).
- If necessary, disconnect the existing plug connection.

5 – Removing the seat cover with the cushion for the front seat



- Loosen screws (1) and remove the holder (2).

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- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Unlock and disconnect the existing plug connections if required and unclip the cable clip .

6 – Remove the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Loosen all clamp on the trim wires (1).
- Remove any remaining clamp from the seat cover and the upholstery.
- Thread out the rubber band (2).



- Detach all clamps on the trim wires 1.
- Remove any remaining clamp from the seat cover (2) and the upholstery.
- Remove the seat cover (2) from the upholstery.

MAIN WORK

POSTPROCESSES

7 – Installing the seat cover for the front seat

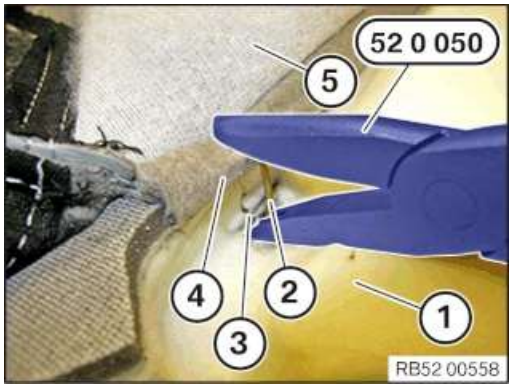
NOTICE

Description is for left component only. Procedure on the right side is identical.

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- Place the seat cover (2) on the cushion.
- Secure all trim wires (1) with the clamps.



- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.
- Carefully bend the clamps (2).



- Position the trim wire in the insert ducts (1).
- Position the rubber band (2).

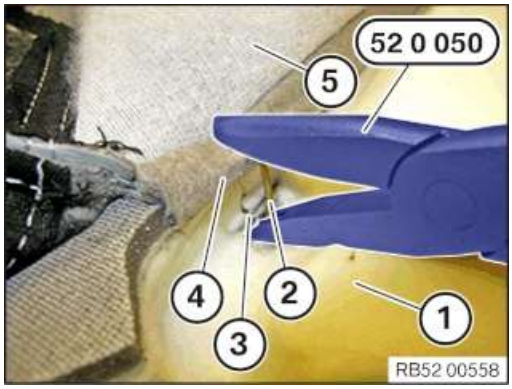


- Correctly position the insert ducts.



- The clamps must be placed in the order (1) to (4) as described in the following step.

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TECHNICAL INFORMATION

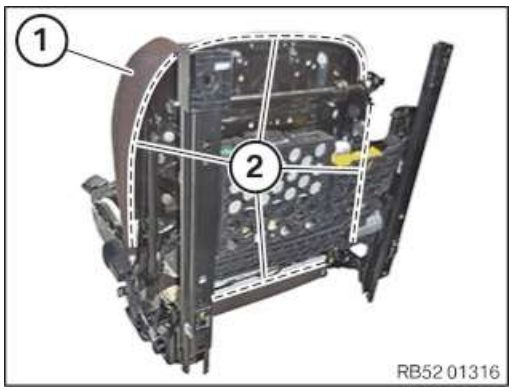
When installing the tacking channel, the wires of the seat heating and feed line must not be damaged by the clamps.

- Renew the clamps (2).

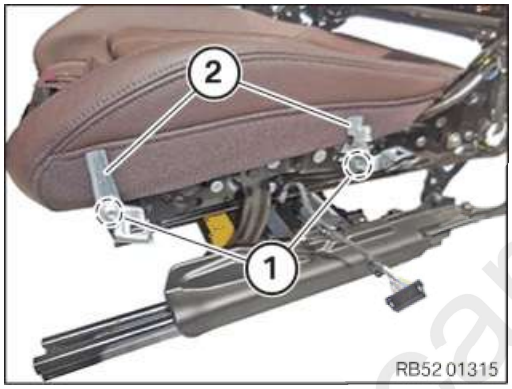
  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.

  Carefully bend the clamps (2).

8 – Fit the seat cover with the cushion for the front seat



- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Connect and lock existing connectors and clip in the cable clip if necessary.



- Position all the holders (2) and tighten the screws (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

9 – Install thigh support

Prerequisite

The thigh support is completely extended.



- Connect the existing plug connections.
- Position the thigh support (2) and tighten the bolts (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm

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- Attach the seat cover (1) in this area (2).

10 – Installing the inner cover on front seat



- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

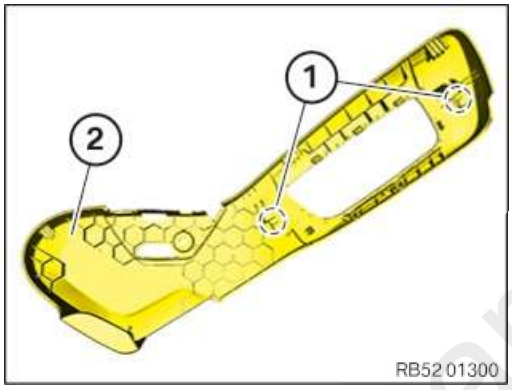
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

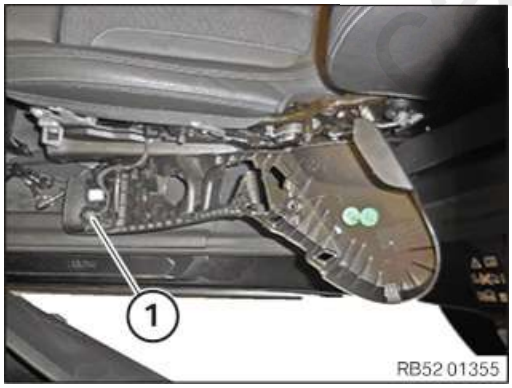
Inner seat trim to seat frame

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

11 – Install outer cover on front seat

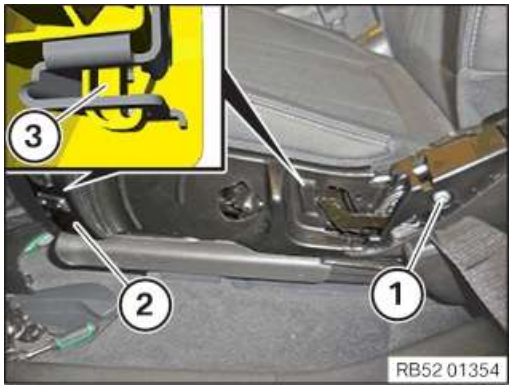


- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect and lock the connector (1) and clip it into the cable clip if necessary.

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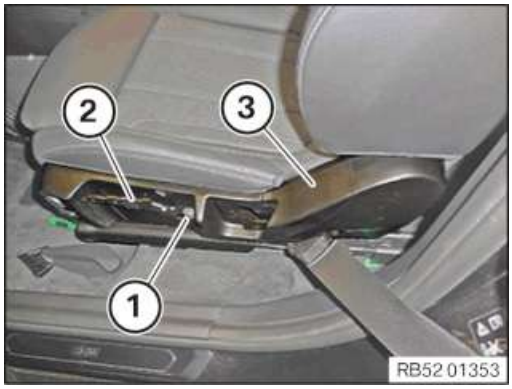
- Feed in cover (2) and position.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Position the adjustment lever (2) of the seat height adjustment.
- Tighten down screw (1).
- Clip in the cover (3).



- Insert the handle (1) for the backrest tilt adjustment from the top.
- Check the retaining lug (2) for a correct fit.



- Clip in the handle (1) for the seat height adjustment.

12 – Install front seat

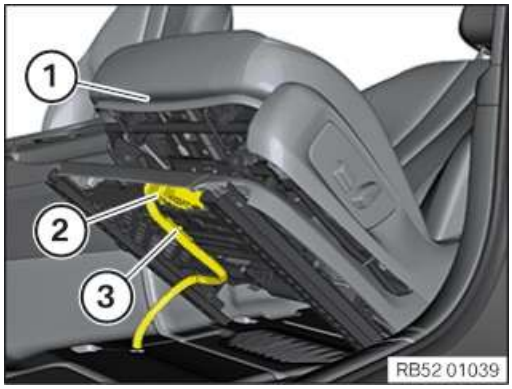
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

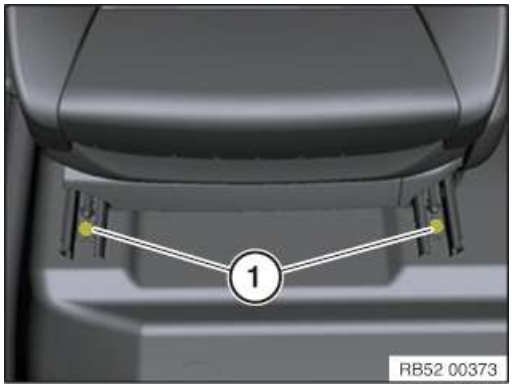


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



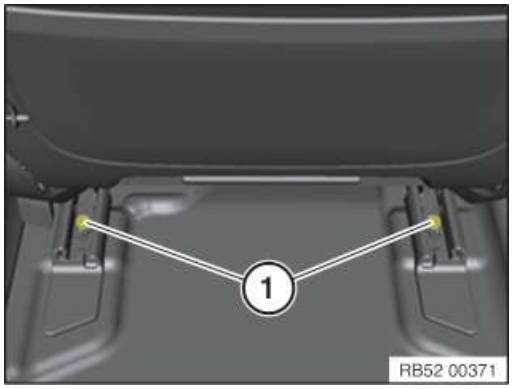
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Seat trim to seat frame — Used in step 81011

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 9

Screw		Tightening torque	2 Nm

Inner seat trim to seat frame — Used in step 10

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame — Used in step 11

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 12

Nut M8		Tightening torque	19 Nm

Seat to body — Used in step 12

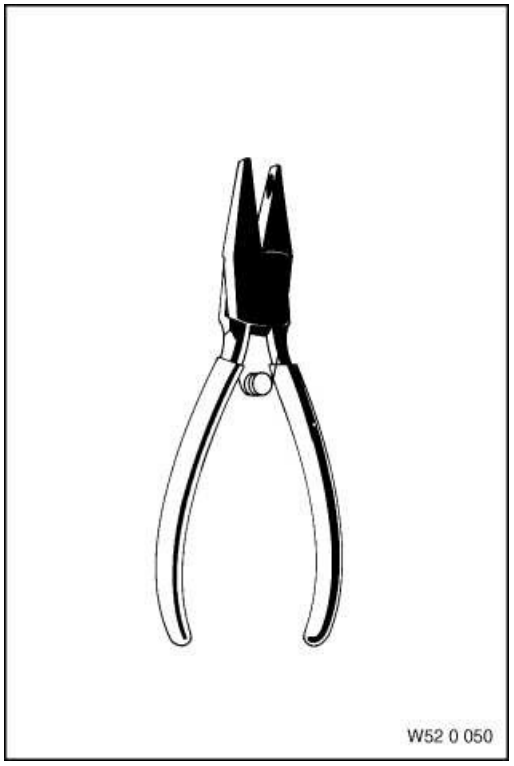
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 492 668 (52 0 050) Pliers

Used in step 7

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Common	
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	112

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	112

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
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61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	112
61 20 900 Disconnecting and connecting battery earth lead

52 14 001 Removing and installing driver's seat

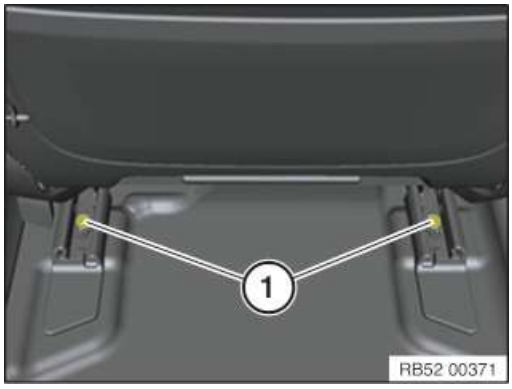
1 – Remove front seat

WARNING

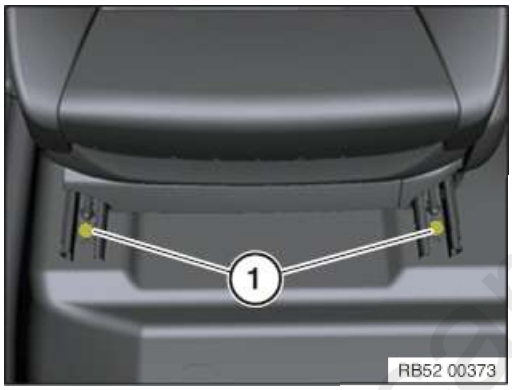
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

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▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

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Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

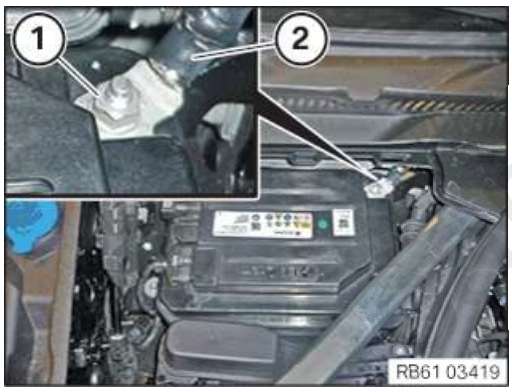
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

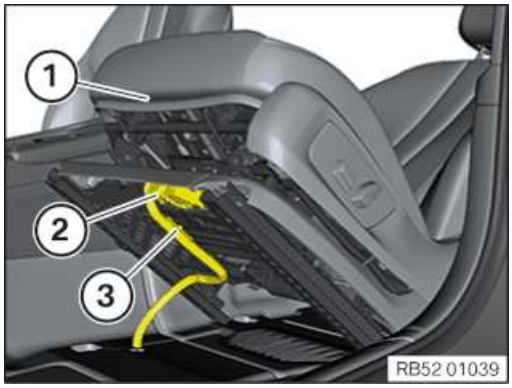
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Install front seat

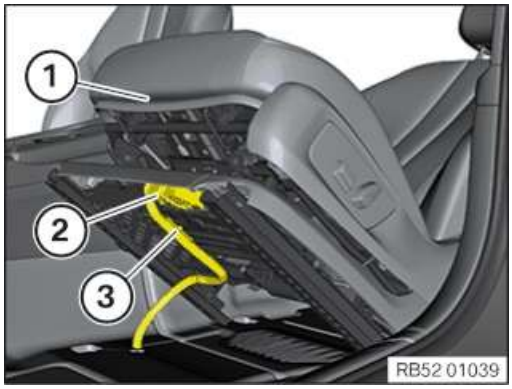
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

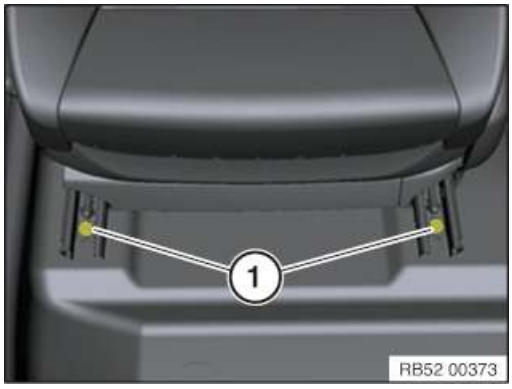


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



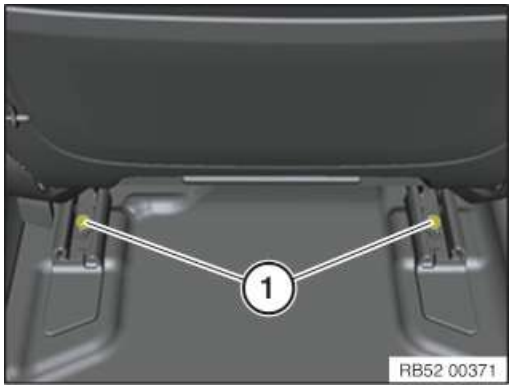
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Negative battery cable to 48-V battery Used in step 2

Nut M8		Tightening torque	19 Nm

Seat to body Used in step 2

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	12

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	12

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	12
61 20 900 Disconnecting and connecting battery earth lead	12
61 20 900 Disconnecting and connecting battery earth lead	12
61 20 900 Disconnecting and connecting battery earth lead	12
61 20 900 Disconnecting and connecting battery earth lead	12
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61 20 900 Disconnecting and connecting battery earth lead	12
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	12
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	12
61 20 900 Disconnecting and connecting battery earth lead

52 16 198 Removing and installing or replacing rear panel on left or right front seat backrest

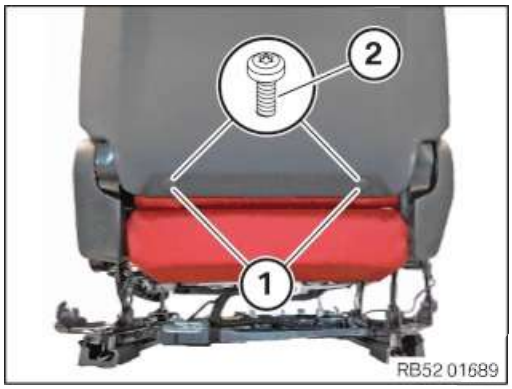
NOTICE

For a better overview the removed condition is shown here.

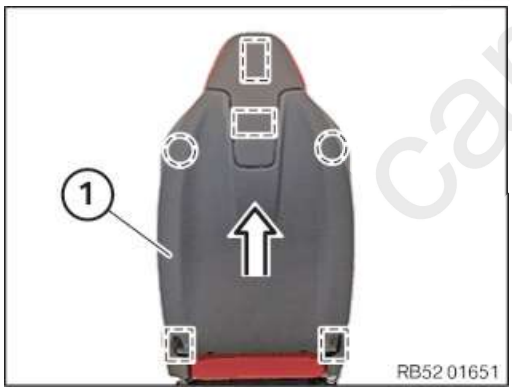
1 – Remove rear panel on front seat backrest



- Loosen screw (1).



- Remove cover caps (1) with a suitable tool.
- Release screws (2) underneath.



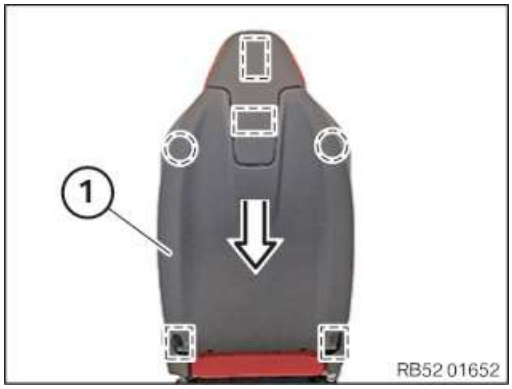
- Carefully unclip rear panel on front seat backrest (1) at marked points and feed out in direction of arrow.

2 – Install the rear panel on the front seat backrest

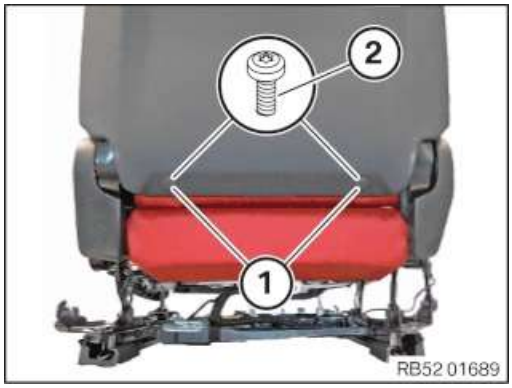


- Check guides and latch mechanisms in marked areas for damage.

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- Position rear panel on front seat backrest (1) correctly and clip into place in arrow direction.



- Position screws (2) correctly and tighten.

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Position cover caps (1) correctly and clip in.



- Tighten down screw (1).

Release handle to backrest frame

Screw		Tightening torque	2,7 Nm

Additional Information

Overview of Tightening Torques

Rear panel on rear seat backrest Used in step 2

Screw		Tightening torque	3 Nm

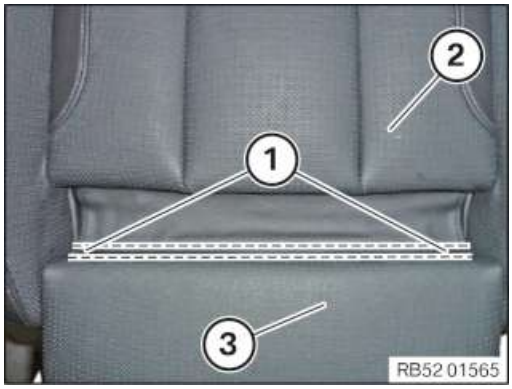
Release handle to backrest frame Used in step 2

Screw		Tightening torque	2,7 Nm

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52 16 048 Removing and installing thigh support on left or right front seat

1 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).



- Loosen screws (1).
- Feed the thigh support (2) out.



- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

2 – Install thigh support



- Position the thigh support (2).
- Connect connectors (1) and lock.

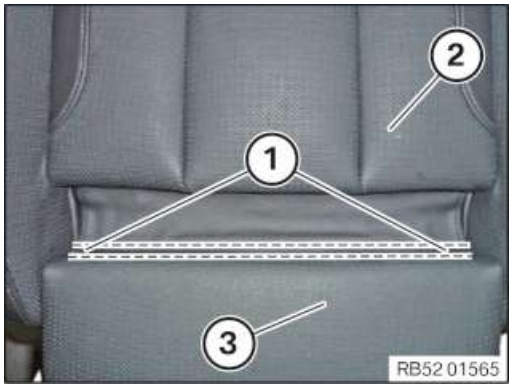
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- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm



- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

Additional Information

Overview of Tightening Torques

Thigh support to front seat Used in step 2

Screw		Tightening torque	2 Nm

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52 16 040 Removing and installing/replacing outer cover on left or right front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.

NOTICE

For a better overview the removed condition is shown here.

1 – Remove outer cover on front seat



- Unclip the cover (1).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).

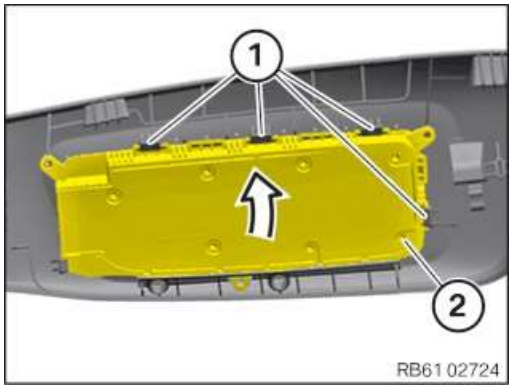


- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

2 – Renewing the cover on the front seat

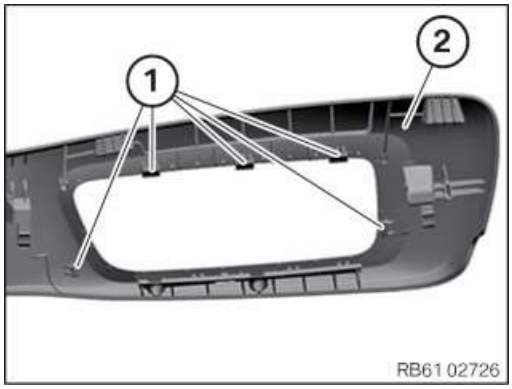
▸ **Removing operating unit for seat adjustment**

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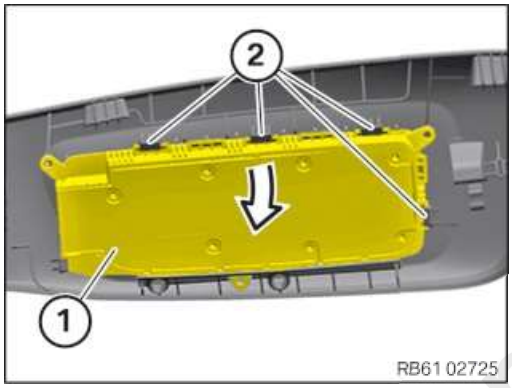


- Loosen latch mechanism (1).
- Remove the operating unit (2) in the direction of the arrow.

▸ **Installing the operating unit for the seat adjustment**

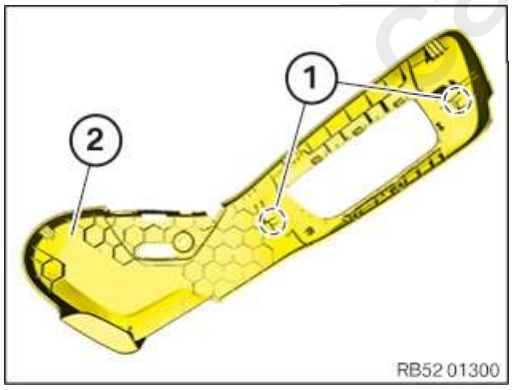


- Check the retaining lugs (1) for damage and renew the seat trim (2) if necessary.



- Install the operating unit (1) in the direction of the arrow.
- Check the correct fit of the latch mechanisms (2).

3 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.

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- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Clip in the cover (1).

Additional Information

Overview of Tightening Torques

Seat trim to seat frame Used in step 3

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame Used in step 3

Screw		Tightening torque	3.5 Nm

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52 16 034 Removing and installing/replacing release mechanism on left or right front seat

PRELIMINARY WORK

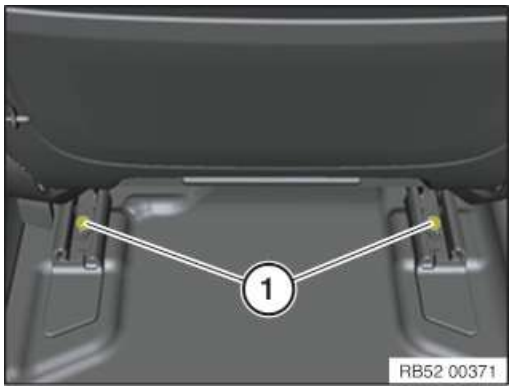
1 – Remove front seat

WARNING

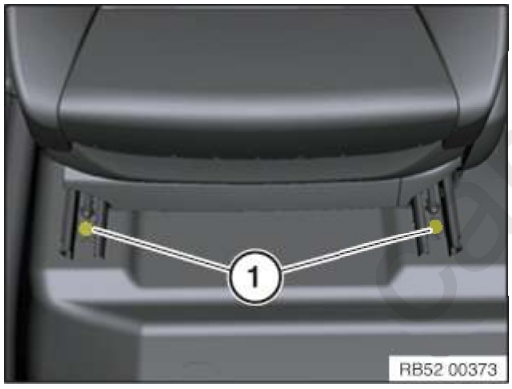
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

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WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

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Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

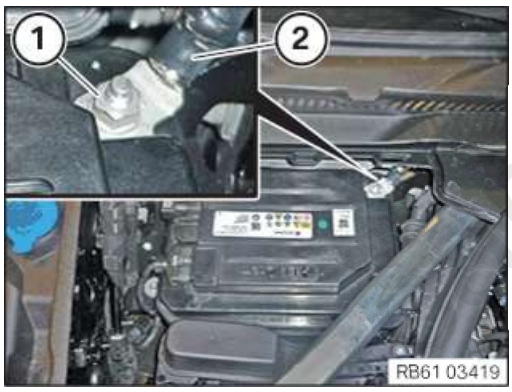
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

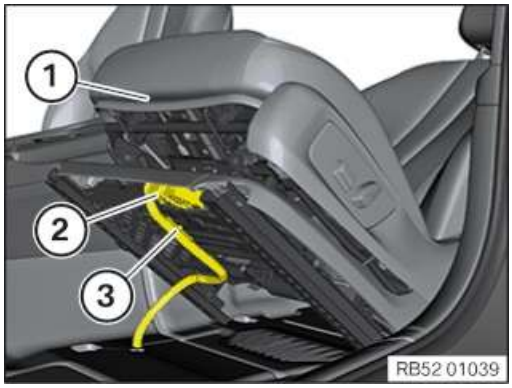
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove front head restraint



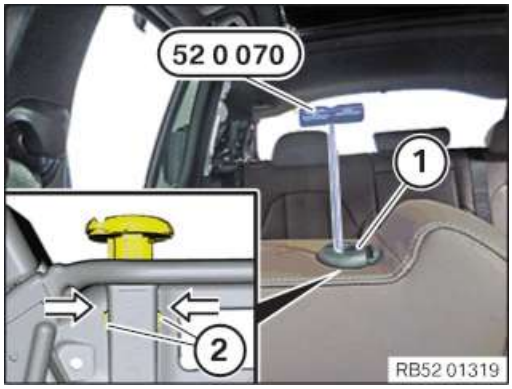
- Press the lock (2) and remove the head restraint (1) from the backrest toward the top.

3 – Removing the guide sleeve for the front head restraint

NOTICE

The description is for one component only. The procedure is identical for all further components.

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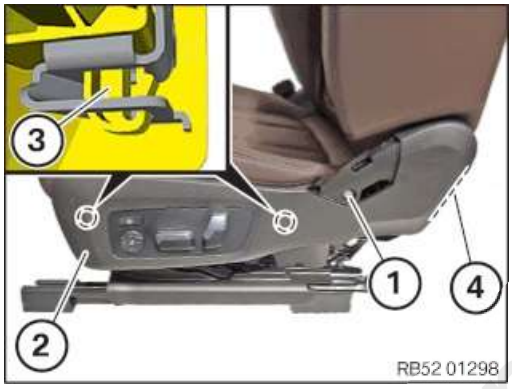


- Push the latch mechanisms (2) inward in direction of the arrow with the special tool .
- Remove the guide sleeve (1) towards the top.

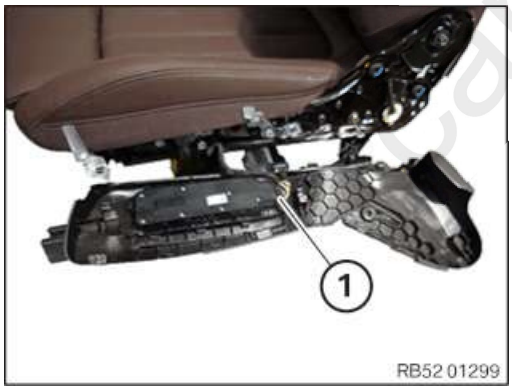
4 – Remove outer cover on front seat



- Unclip the cover (1).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

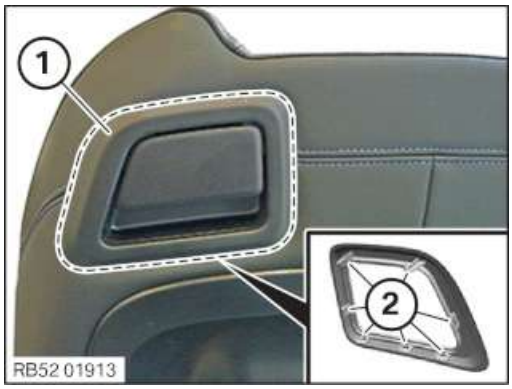
5 – Remove inner cover on front seat



- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

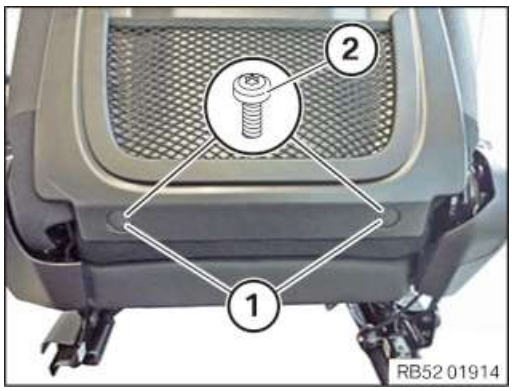
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6 – Removing the cover for the backrest release

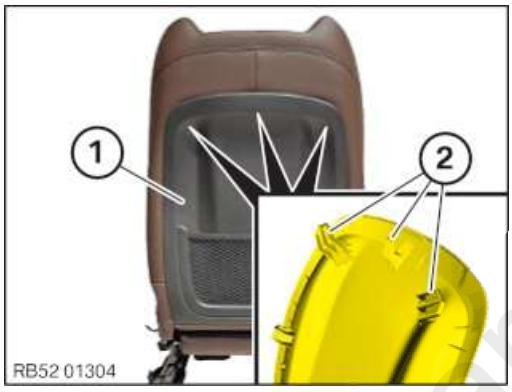


- Unclip and remove cover (1) for the backrest release in the marked area from latch mechanisms (2) using a suitable tool.

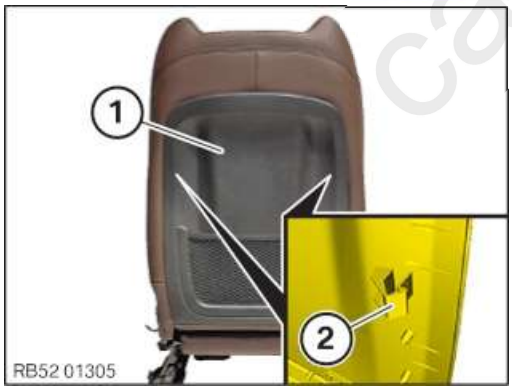
7 – Removing rear panel on the front seat backrest



- Unclip the cover caps (1) with a suitable tool.
- Loosen screws (2).



- Slide the rear panel (1) down and guide it out at the guides (2).



- Unclip the rear panel (1) from the clamps (2) and remove.

8 – Removing the backrest cover with the cushion for the front seat

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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!

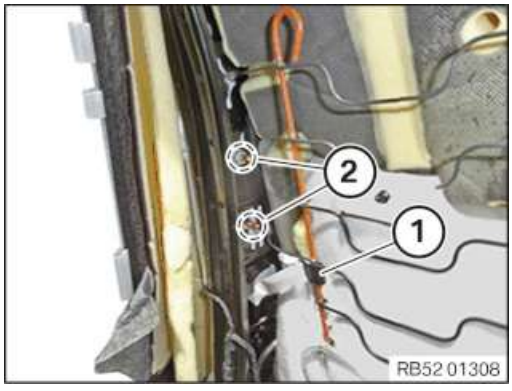
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Detach the backrest cover (1) in this area (2).
- Unhook seat cover (3).

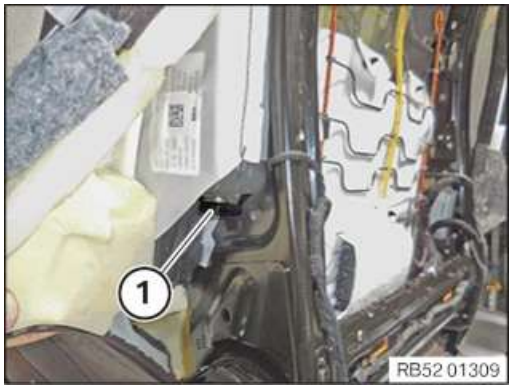


- Unclip clips (1).
- Unlock plug connection (2) and disconnect.



- Detach the holder (1).
- Loosen nuts (2).

carjdiagn.com



- Unlock plug connection (1) and disconnect.



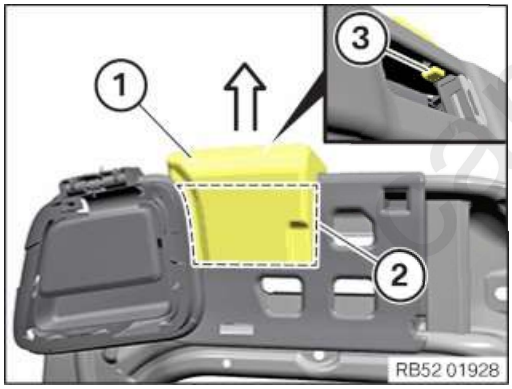
- Carefully guide out backrest cover (1) in the marked area (2).
- Remove the backrest cover (1) with the cushion damage-free in marked area (2).
- Guide out the backrest cover (1) with cushion complete with the side airbag in the direction of the arrow.

MAIN WORK

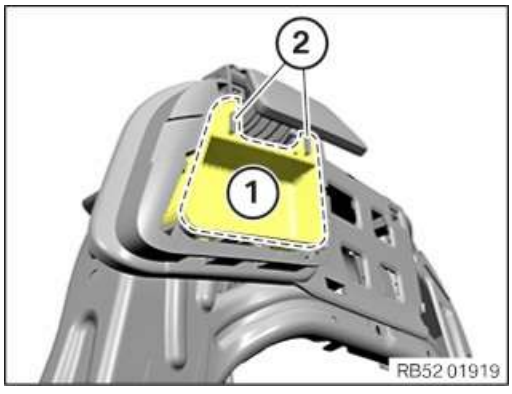
9 – Removing the release mechanism on the front seat

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

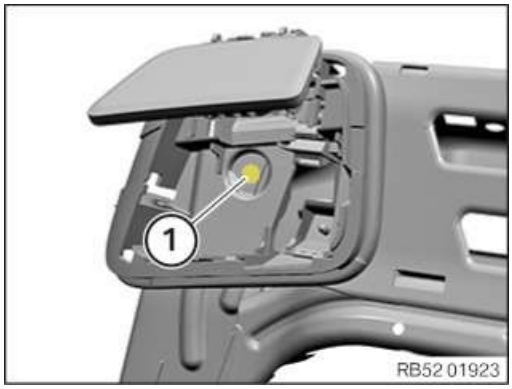


- Release the insert (1) in the marked area (2) carefully from the adhesive strip.
- Feed out the insert (1) from the latch mechanism (3) in direction of arrow.



- Unclip the cover (1) on the latch mechanisms (2).
- Unclip the cover (1) in the marked area carefully.

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RISK OF DAMAGE

Damage due to swarf.

Contamination can lead to malfunctions and damage.

- Cover working area.
- Draw off swarf during drilling using a vacuum cleaner.

- Drill out the rivet head (1).

  Standard tools:
  (Ø = 5 mm)

- Remove all rivet remnants.



RISK OF DAMAGE

Damage due to swarf.

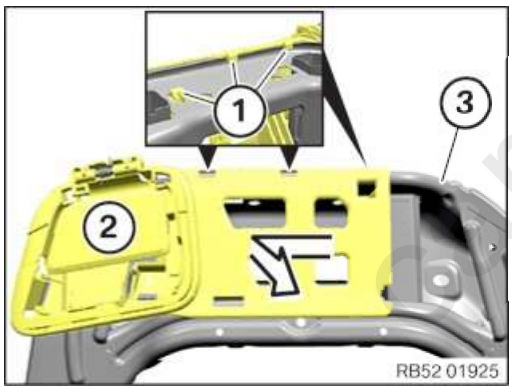
Contamination can lead to malfunctions and damage.

- Cover working area.
- Draw off swarf during drilling using a vacuum cleaner.

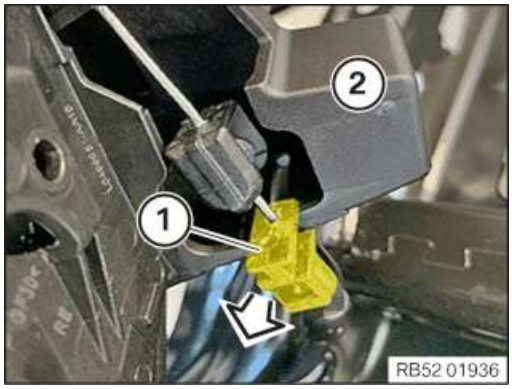
- Drill out the rivet head (1).

  Standard tools:
  (Ø = 5 mm)

- Remove all rivet remnants.

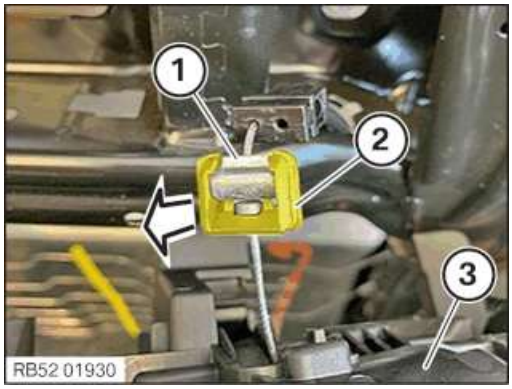


- Unclip the latch mechanisms (1) from the backrest frame (3).
- Feed out the release mechanism (2) from the backrest frame (3) in direction of arrow.



- Feed out bowden cable (1) from the release mechanism (2) in direction of arrow.

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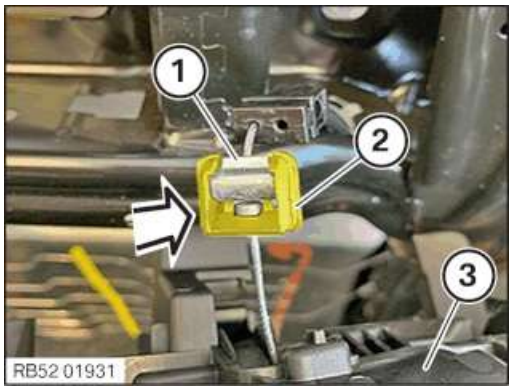


- Unclip Bowden cable (1) carefully from the connecting piece (2) in direction of arrow.
- Remove release mechanism (3).

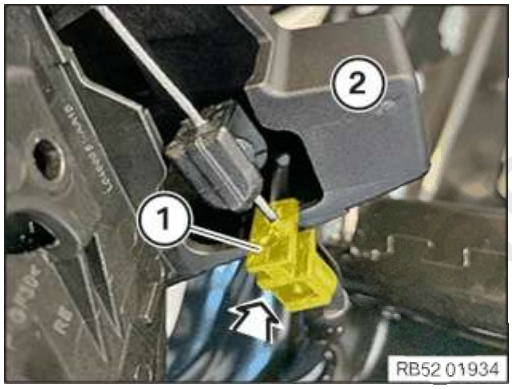
10 – Installing the release mechanism on the front seat

TECHNICAL INFORMATION

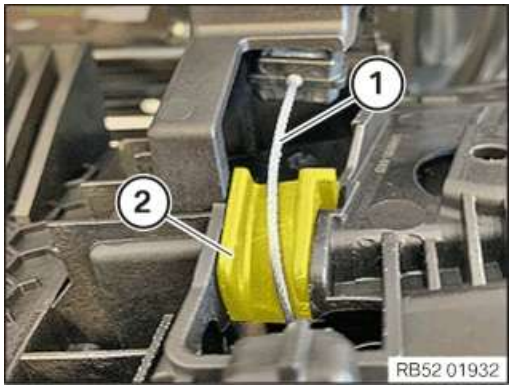
Different variants may be installed depending on the vehicle equipment.



- Position the release mechanism (3) as shown.
- Clip the bowden cable (1) into the connecting piece (2) marked in yellow **carefully** in direction of arrow.

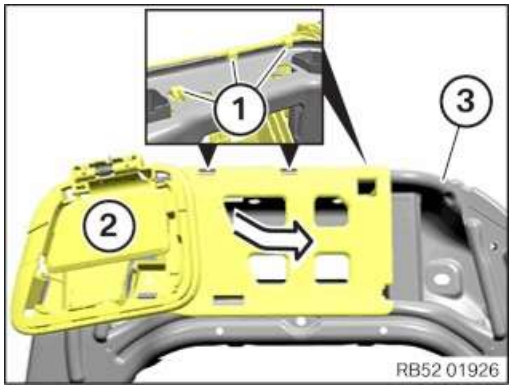


- Feed in the bowden cable (1) into the release mechanism (2) in direction of the arrow.



- Make sure that the cable (1) of the release mechanism goes along the guide marked in yellow (2) as shown.

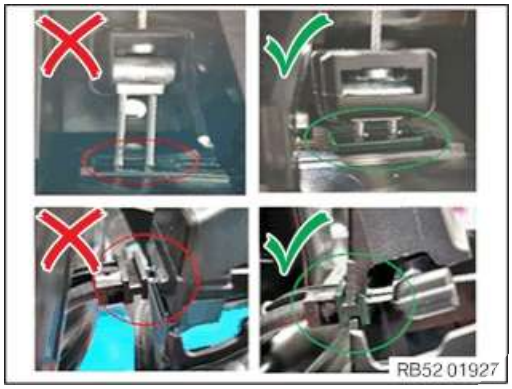
fdiagn.com



- Feed in the release mechanism (2) into the the backrest frame (3) in direction of arrow.
- Clip in the latch mechanisms (1) into the backrest frame (3).



- Make sure that the bowden cable (1) is engaged correctly in the connecting piece (2).

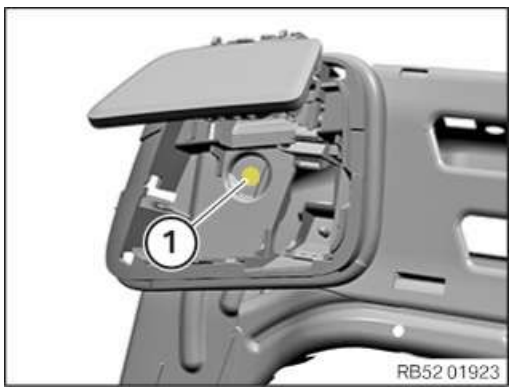


- Install marked sliding piece as shown in the release mechanism.



- Renew the blind rivet (1).

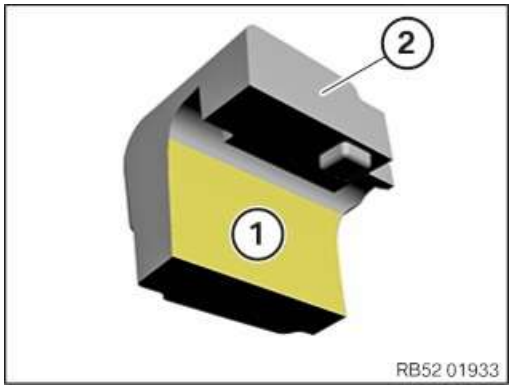
  Parts: Blind rivet
- Mount the release mechanism using the blind rivet (1).



- Renew the blind rivet (1).

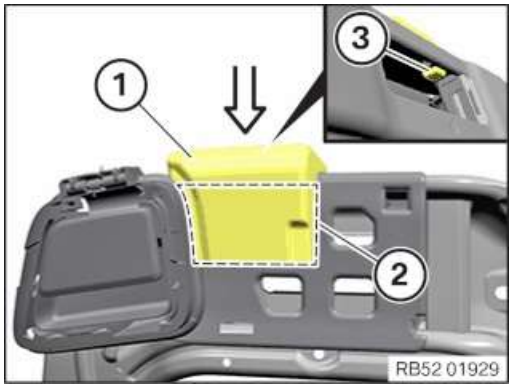
  Parts: Blind rivet
- Mount the release mechanism using the blind rivet (1).

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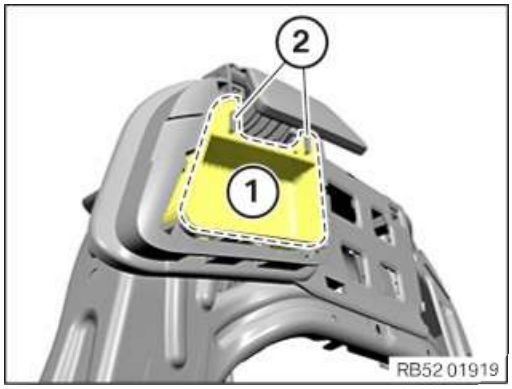


- Renew marked adhesive strips (1) on the insert (2).

  Parts: Adhesive strip



- Engage insert (1) into the latch mechanism (3) in direction of the arrow.
- Bond insert (1) in the marked area (2) with attached adhesive tapes.



- Position the cover (1) as shown.
- Clip in cover (1) on the latch mechanism (2) and in the marked area carefully.

POSTPROCESSES

11 – Install the backrest cover with the cushion for the front seat

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

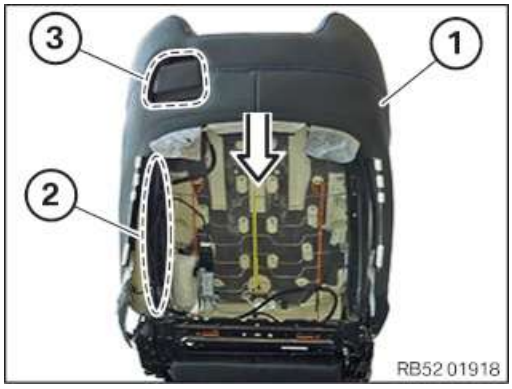
cardiagn.com

WARNING

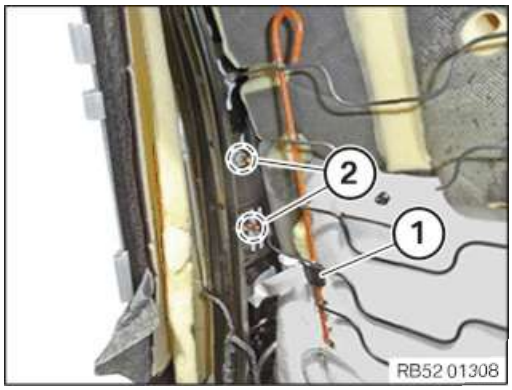
Pyrotechnic components.

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.



- Position backrest cover (1) with the cushion without damaging it in marked area (2).
- Position the backrest cover (1) completely with the side airbag in the direction of the arrow.
- Position the stud bolt of the side airbag in the area (2) correctly.
- Position backrest cover (1) correctly in the marked area (3).

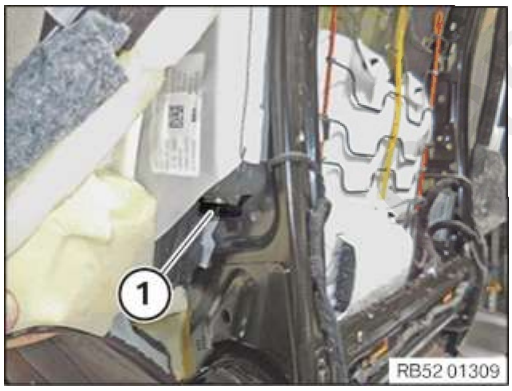


- Attach the holder (1).
- Renew nuts (2).

  Parts: Nuts
- Tighten nuts (2).

Airbag on backrest frame

Nut	Renew nut.	Tightening torque	6,5 Nm



- Connect connectors (1) and lock.

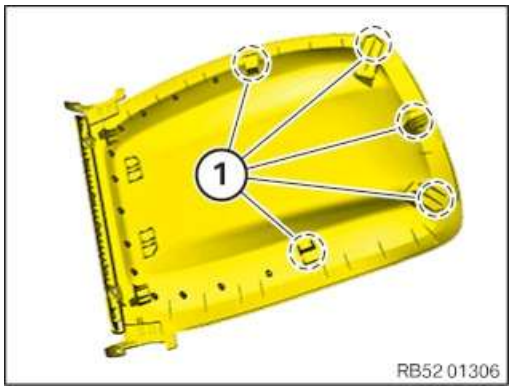


- Clip in clips (1).
- Connect connectors (2) and lock.

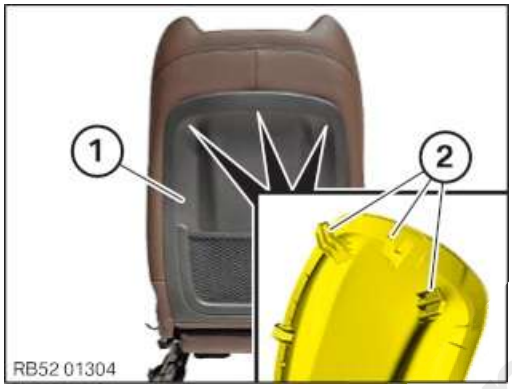


- Attach the backrest cover (1) in this area (2).
- Hook the seat cover (3).

12 – Installing rear panel on the front seat backrest



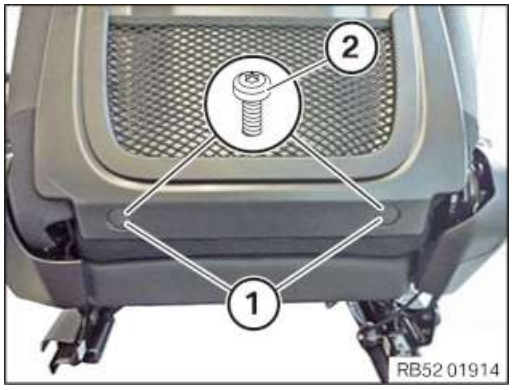
- Check the guides and clamps (1) for damage and renew the rear panel as needed.



- Thread the rear panel (1) in at the clamps (2).



- Position the rear panel (1) and clip it in at the clamps (2).



- Tighten the screws (2).

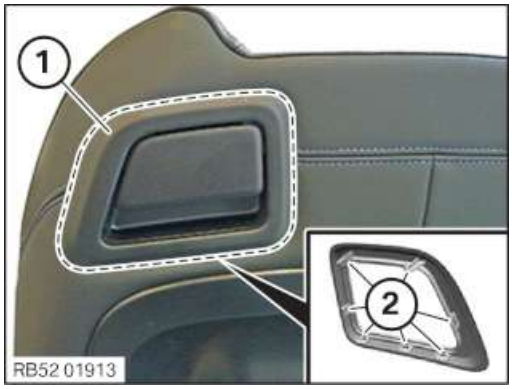
Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Clip in cover caps (1).

13 – Installing a cover for backrest release

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- Position the cover for backrest release (1) correctly in the marked area.
- Clip in the latch mechanism (2) of the cover for backrest release (1).

14 – Installing the inner cover on front seat



- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

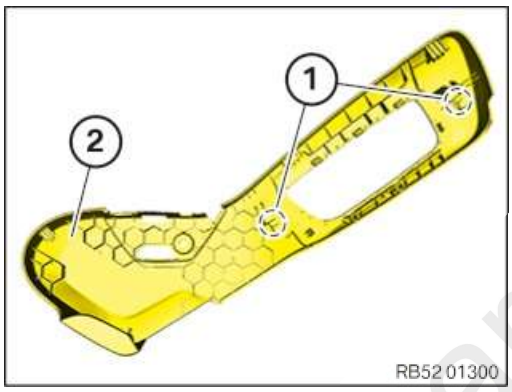
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

15 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.

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- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

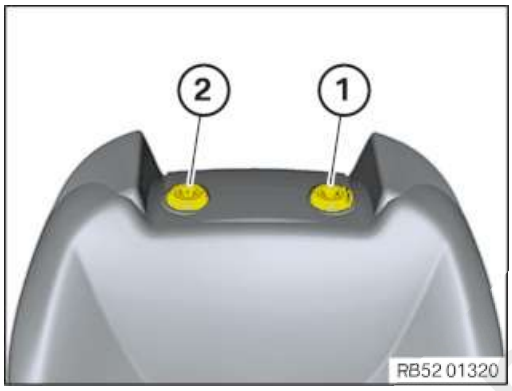
Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Clip in the cover (1).

16 – Install the guide sleeve for the front head restraint



- Pay attention to the installation position:

  Insert the guide sleeve (1) **with** unlocking towards the left in the direction of travel.

  Insert the guide sleeve (2) **without** unlocking towards the right in the direction of travel.



NOTICE

The description is for one component only. The procedure is identical for all further components.

- Insert the guide sleeve (1) into the rear seat backrest in the direction of arrow from the top and lock it.

  You have to feel the guide sleeve (1) engage.

17 – Install the front head restraint

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- Insert the head restraint (1) in the direction of the arrow into the guides (2).
- Slide the head restraint (1) in until the lock (3) is securely engaged.

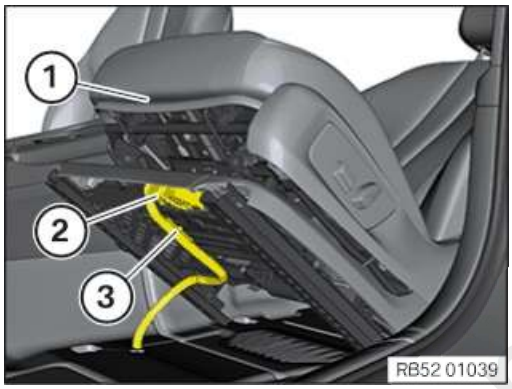
18 – Install front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

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- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

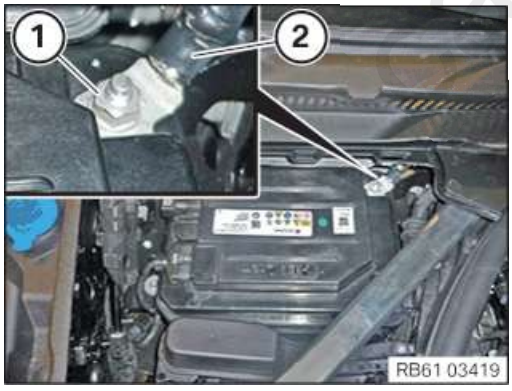
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

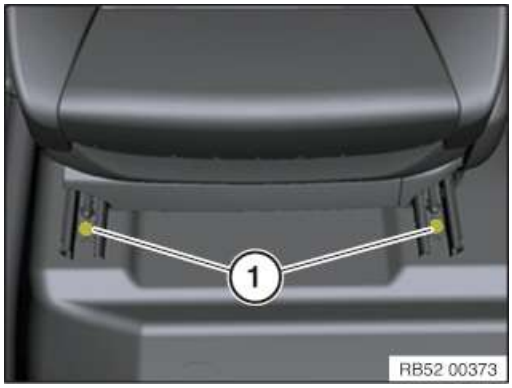


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

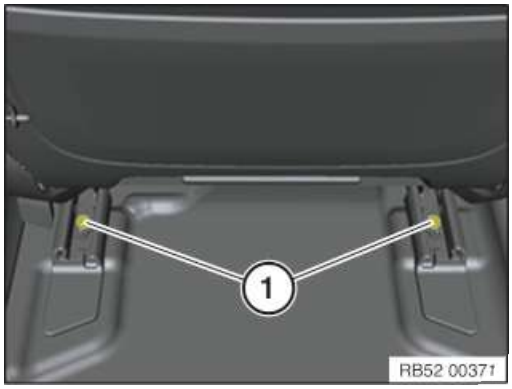


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Airbag on backrest frame Used in step 11

Nut	Renew nut.	Tightening torque	6,5 Nm

Rear panel on rear seat backrest Used in step 12

Screw		Tightening torque	3 Nm

Seat trim to seat frame Used in step 1415

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame Used in step 14

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame Used in step 15

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery Used in step 18

Nut M8		Tightening torque	19 Nm

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Seat to body			Used in step 18
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	118

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	118

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
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61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	118
61 20 900 Disconnecting and connecting battery earth lead	118
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52 16 026 Removing/installing/replacing driver's seat and backrest frame

PRELIMINARY WORK

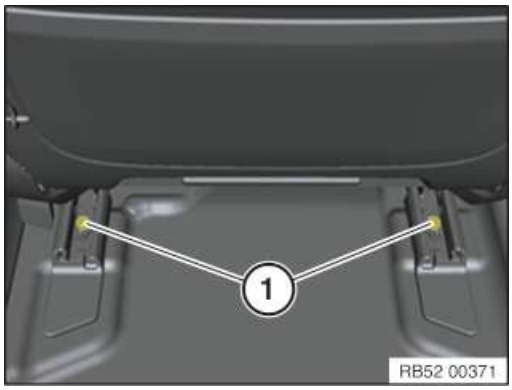
1 – Remove front seat

WARNING

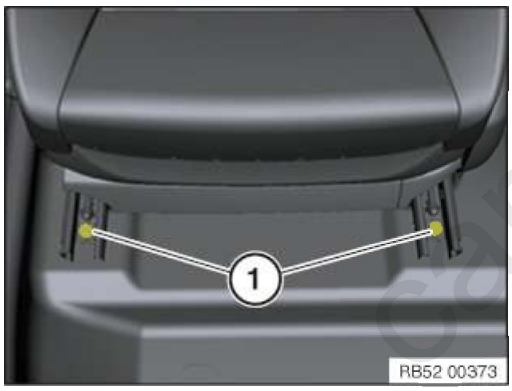
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

carmanuals.com

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

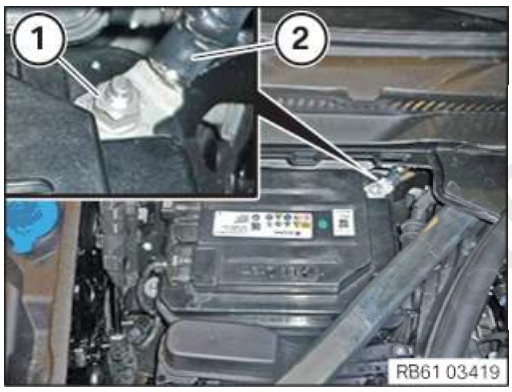
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

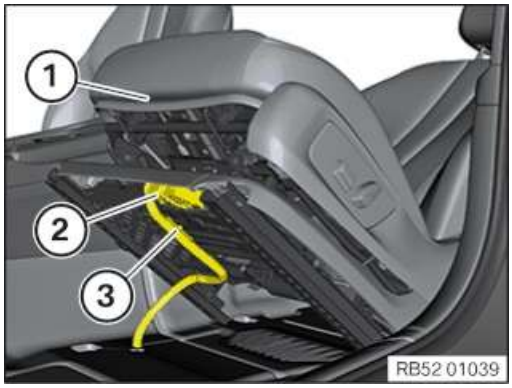
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove front head restraint



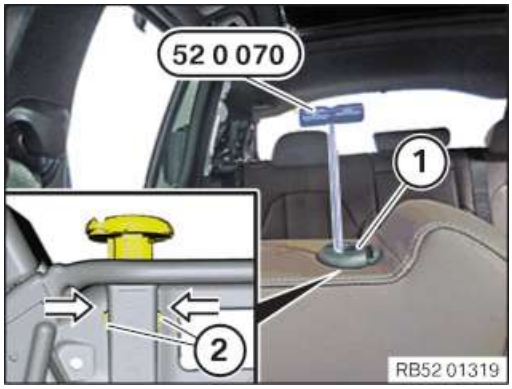
- Press the lock (2) and remove the head restraint (1) from the backrest toward the top.

3 – Removing the guide sleeve for the front head restraint

NOTICE

The description is for one component only. The procedure is identical for all further components.

cardiagn.com

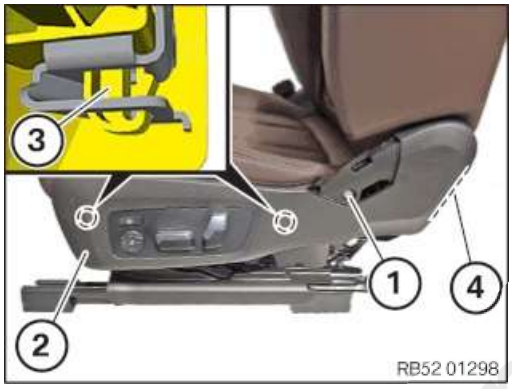


- Push the latch mechanisms (2) inward in direction of the arrow with the special tool .
- Remove the guide sleeve (1) towards the top.

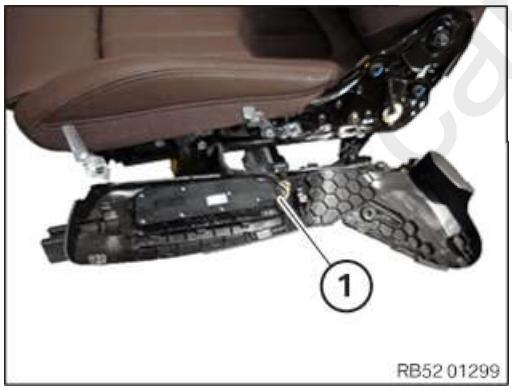
4 – Remove outer cover on front seat



- Unclip the cover (1).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

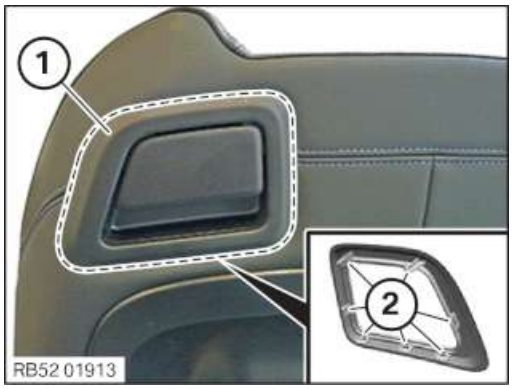
5 – Remove inner cover on front seat



- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

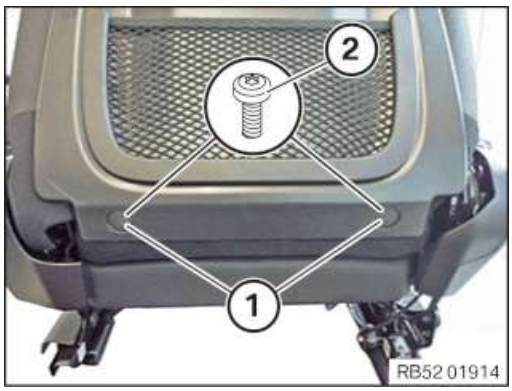
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6 – Removing the cover for the backrest release

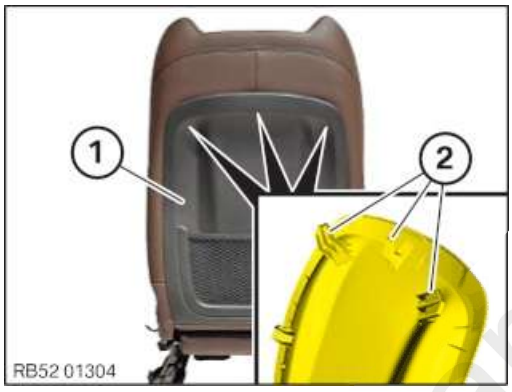


- Unclip and remove cover (1) for the backrest release in the marked area from latch mechanisms (2) using a suitable tool.

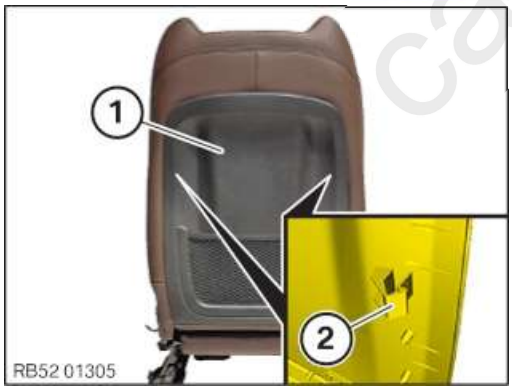
7 – Removing rear panel on the front seat backrest



- Unclip the cover caps (1) with a suitable tool.
- Loosen screws (2).



- Slide the rear panel (1) down and guide it out at the guides (2).



- Unclip the rear panel (1) from the clamps (2) and remove.

8 – Removing the backrest cover with the cushion for the front seat

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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!

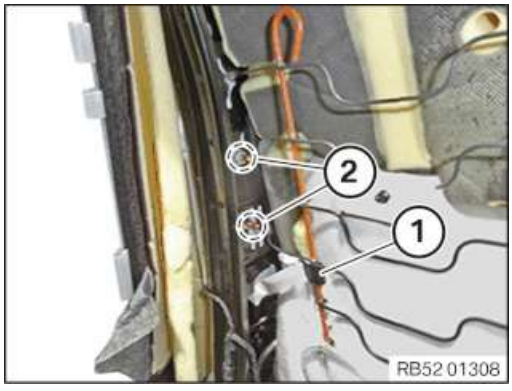
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Detach the backrest cover (1) in this area (2).
- Unhook seat cover (3).

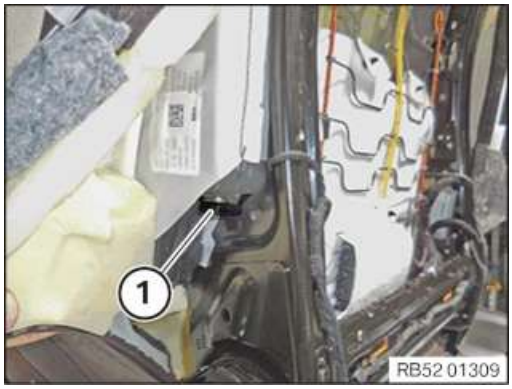


- Unclip clips (1).
- Unlock plug connection (2) and disconnect.



- Detach the holder (1).
- Loosen nuts (2).

carjdiagn.com



- Unlock plug connection (1) and disconnect.



- Carefully guide out backrest cover (1) in the marked area (2).
- Remove the backrest cover (1) with the cushion damage-free in marked area (2).
- Guide out the backrest cover (1) with cushion complete with the side airbag in the direction of the arrow.

9 – Remove side airbag from front seat

WARNING

Airbag unit.

Danger! Life-threatening injuries!

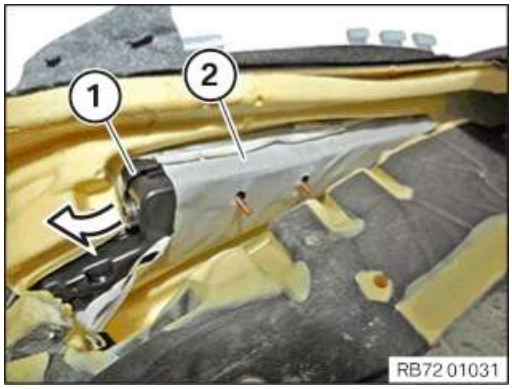
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

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.



- Pull the side airbag (1) out in the direction of arrow from the seat cover bag (2) on the backrest cover.

10 – Remove thigh support

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10 – Remove thigh support

Prerequisite

The thigh support is completely extended.

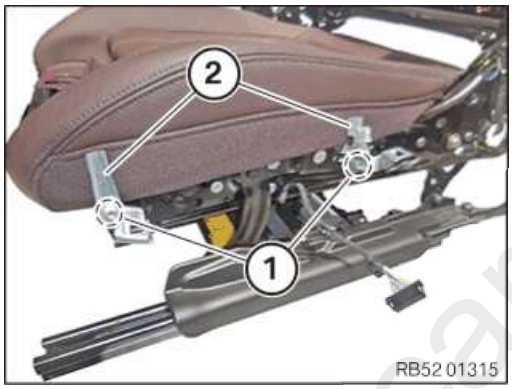


- Detach the seat cover (1) in this area (2).

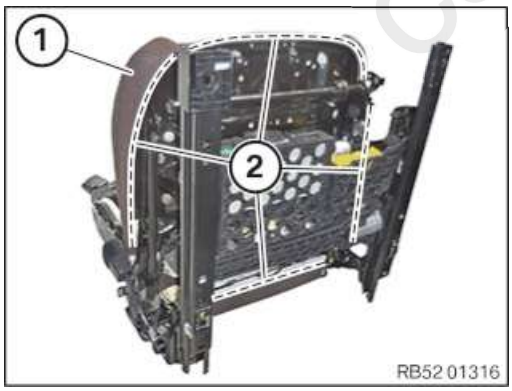


- Loosen the screws (1) and remove the thigh support (2).
- If necessary, disconnect the existing plug connection.

11 – Removing the seat cover with the cushion for the front seat



- Loosen screws (1) and remove the holder (2).



- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Unlock and disconnect the existing plug connections if required and unclip the cable clip .

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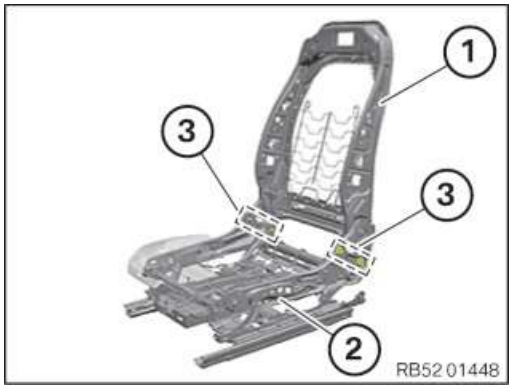
12 – Replacing the complete seat frame with the backrest frame



TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

- Remove all mounted parts of the seat frame to be replaced and the backrest frame (1).



TECHNICAL INFORMATION

When replacing the seat frame, the entire seat frame must be replaced with the backrest frame.

Replacement of individual parts (e.g. only the backrest frame) is not permitted.

- Renew the seat frame (2) and the backrest frame (1).

  Parts: Seat frame and backrest frame
- Position seat frame (2) and backrest frame (1) correctly.
- Renew screws (3).

  Parts: Screws
- Tighten the screws (3).

Backrest frame to seat frame

M10 screw	Renew screw.	Tightening torque	42 Nm

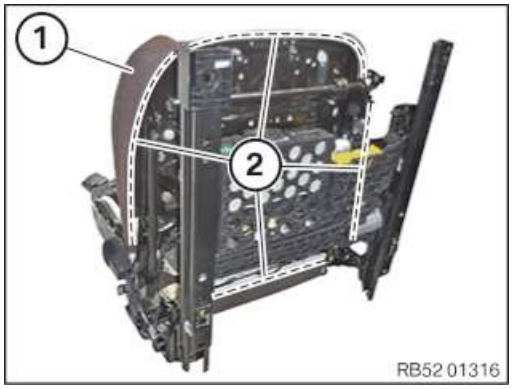


- Position and secure all the mounted parts on the seat frame and backrest frame (1).

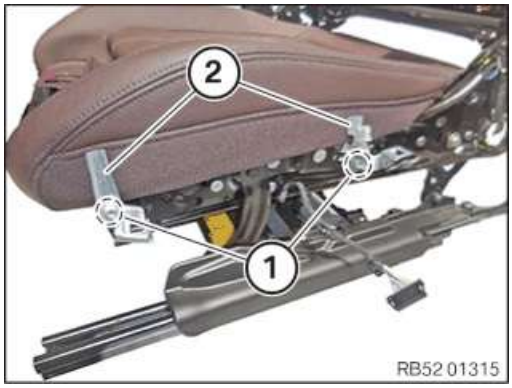
POSTPROCESSES

13 – Fit the seat cover with the cushion for the front seat

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- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Connect and lock existing connectors and clip in the cable clip if necessary.



- Position all the holders (2) and tighten the screws (1).

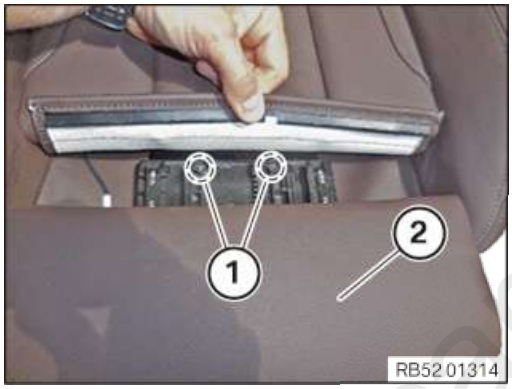
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

14 – Install thigh support

Prerequisite

The thigh support is completely extended.



- Connect the existing plug connections.
- Position the thigh support (2) and tighten the bolts (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm



- Attach the seat cover (1) in this area (2).

15 – Install side airbag on front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

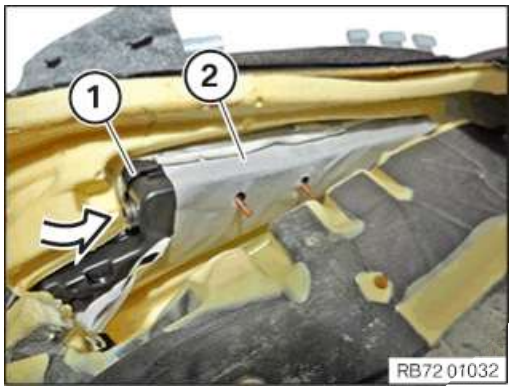
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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



- Feed the side airbag (1) in the direction of arrow into the seat cover pocket (2) on the backrest cover and position it correctly.

16 – Install the backrest cover with the cushion for the front seat

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

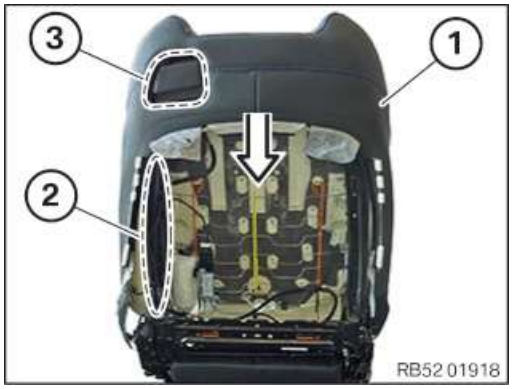
WARNING

Pyrotechnic components.

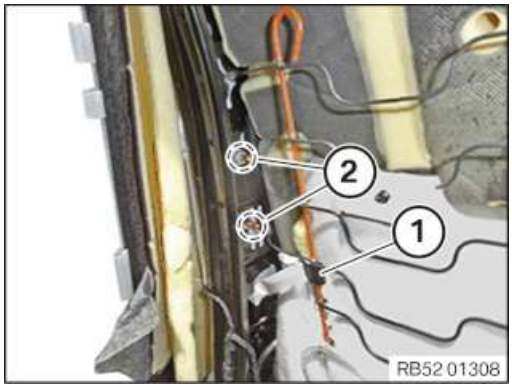
Danger! Life-threatening injuries!

- 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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- Position backrest cover (1) with the cushion without damaging it in marked area (2).
- Position the backrest cover (1) completely with the side airbag in the direction of the arrow.
- Position the stud bolt of the side airbag in the area (2) correctly.
- Position backrest cover (1) correctly in the marked area (3).

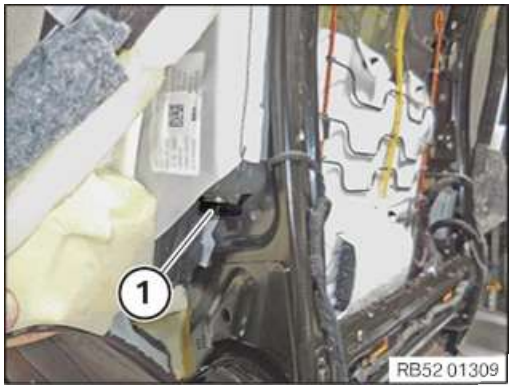


- Attach the holder (1).
- Renew nuts (2).

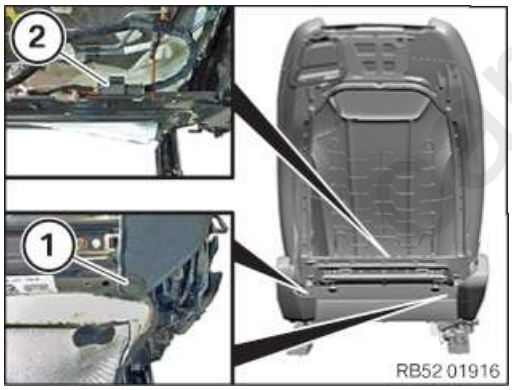
  Parts: Nuts
- Tighten nuts (2).

Airbag on backrest frame

Nut	Renew nut.	Tightening torque	6,5 Nm



- Connect connectors (1) and lock.



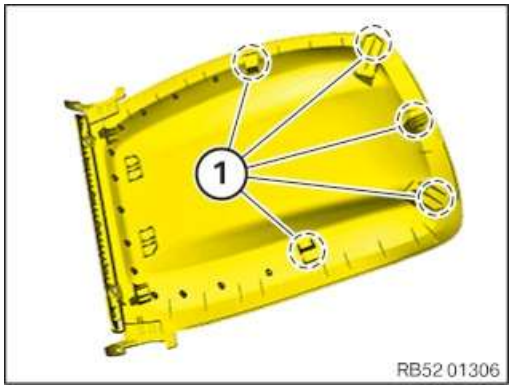
- Clip in clips (1).
- Connect connectors (2) and lock.



- Attach the backrest cover (1) in this area (2).
- Hook the seat cover (3).

17 – Installing rear panel on the front seat backrest

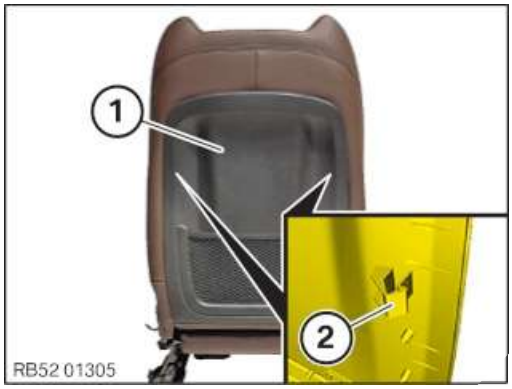
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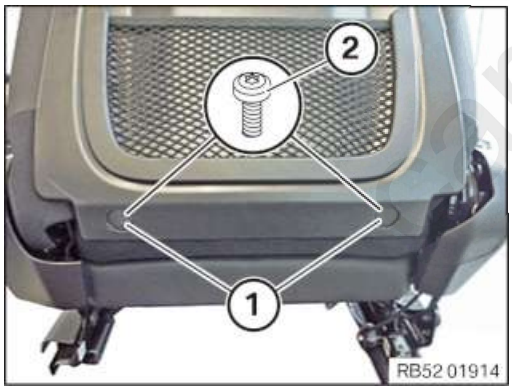
- Check the guides and clamps (1) for damage and renew the rear panel as needed.



- Thread the rear panel (1) in at the clamps (2).



- Position the rear panel (1) and clip it in at the clamps (2).



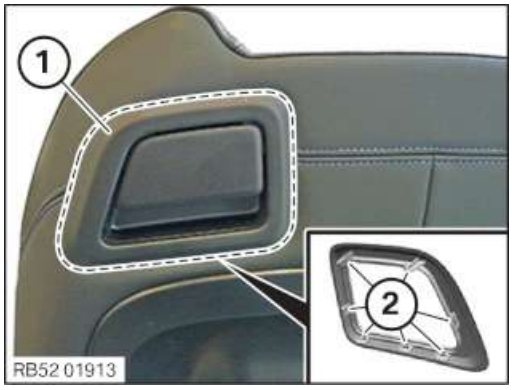
- Tighten the screws (2).

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Clip in cover caps (1).

18 – Installing a cover for backrest release



- Position the cover for backrest release (1) correctly in the marked area.
- Clip in the latch mechanism (2) of the cover for backrest release (1).

19 – Installing the inner cover on front seat

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- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

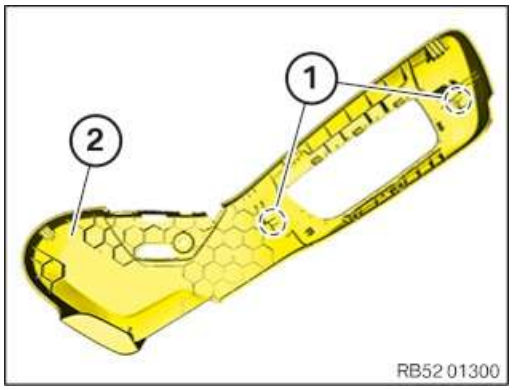
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

20 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

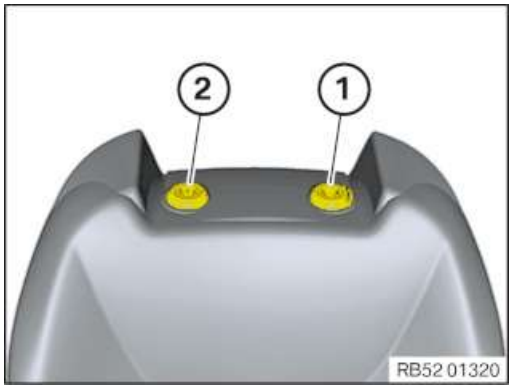
Screw		Tightening torque	3.5 Nm



- Clip in the cover (1).

21 – Install the guide sleeve for the front head restraint

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- Pay attention to the installation position:

  Insert the guide sleeve (1) **with** unlocking towards the left in the direction of travel.

  Insert the guide sleeve (2) **without** unlocking towards the right in the direction of travel.



NOTICE

The description is for one component only. The procedure is identical for all further components.

- Insert the guide sleeve (1) into the rear seat backrest in the direction of arrow from the top and lock it.

  You have to feel the guide sleeve (1) engage.

22 – Install the front head restraint



- Insert the head restraint (1) in the direction of the arrow into the guides (2).
- Slide the head restraint (1) in until the lock (3) is securely engaged.

23 – Install front seat

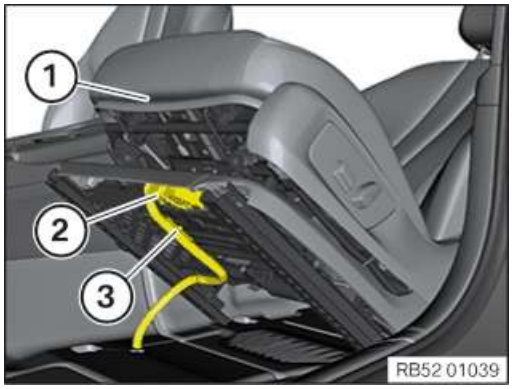
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

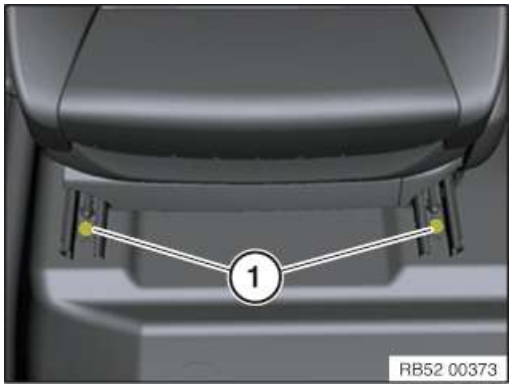


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



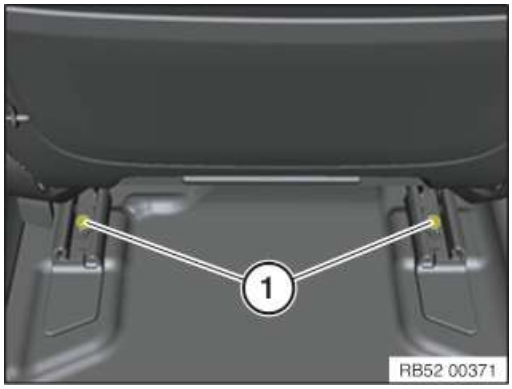
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Backrest frame to seat frame — Used in step 12

M10 screw	Renew screw.	Tightening torque	42 Nm

Seat trim to seat frame — Used in step 131920

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 14

Screw		Tightening torque	2 Nm

Airbag on backrest frame — Used in step 16

Nut	Renew nut.	Tightening torque	6,5 Nm

Rear panel on rear seat backrest — Used in step 17

Screw		Tightening torque	3 Nm

Inner seat trim to seat frame — Used in step 19

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame — Used in step 20

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 23

Nut M8		Tightening torque	19 Nm

Seat to body — Used in step 23

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	123

General repair instructions	Used in step

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72 00 ... Safety regulations for handling components with gas generators	123

Repair instructions	**Used in step**
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	123
61 20 900 Disconnecting and connecting battery earth lead	123
61 20 900 Disconnecting and connecting battery earth lead	123
61 20 900 Disconnecting and connecting battery earth lead	123
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	123
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	123
61 20 900 Disconnecting and connecting battery earth lead	123
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52 16 407 Replacing backrest cover for driver's seat

PRELIMINARY WORK

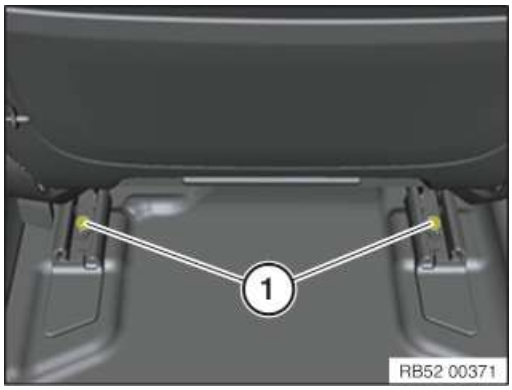
1 – Remove front seat

WARNING

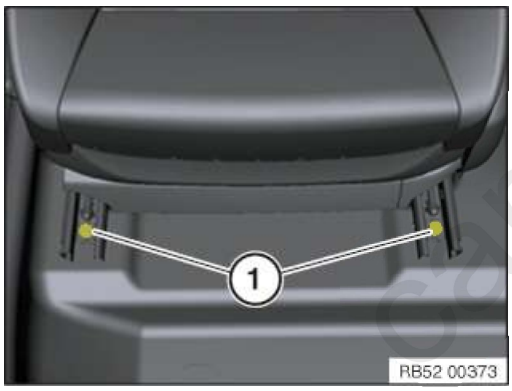
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

carmanuals.com

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

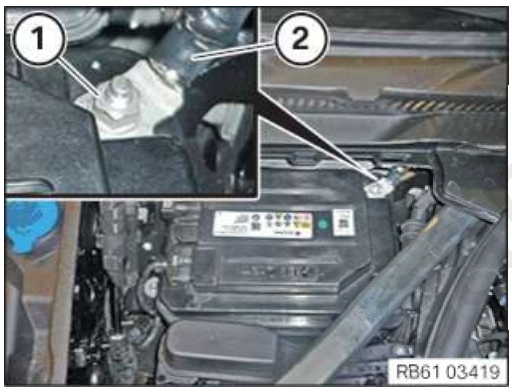
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

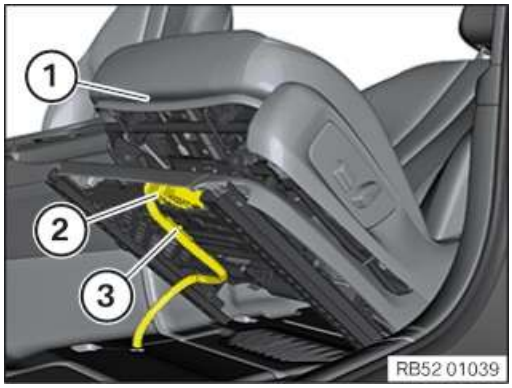
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove front head restraint



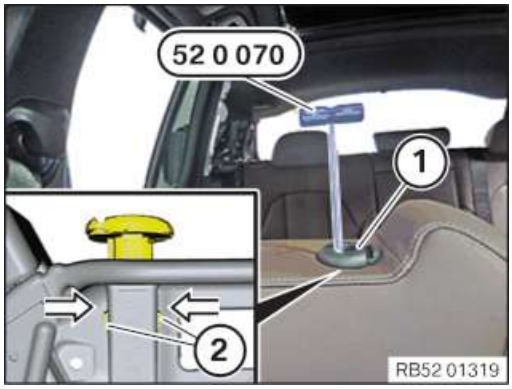
- Press the lock (2) and remove the head restraint (1) from the backrest toward the top.

3 – Removing the guide sleeve for the front head restraint

NOTICE

The description is for one component only. The procedure is identical for all further components.

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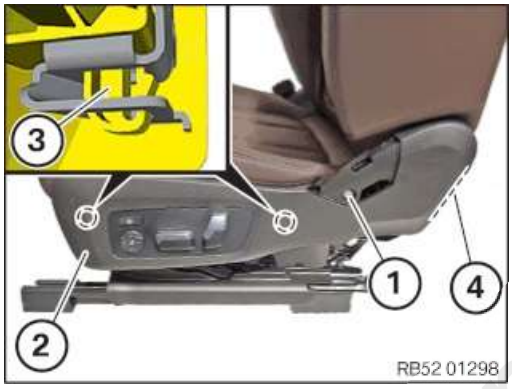


- Push the latch mechanisms (2) inward in direction of the arrow with the special tool .
- Remove the guide sleeve (1) towards the top.

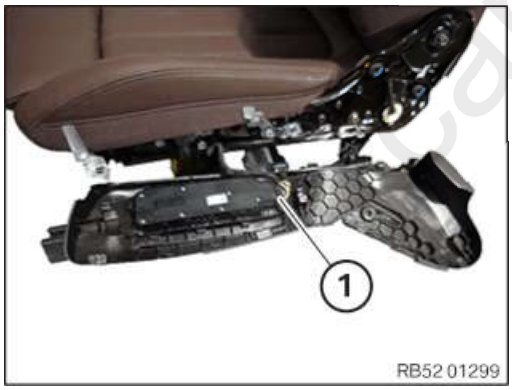
4 – Remove outer cover on front seat



- Unclip the cover (1).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

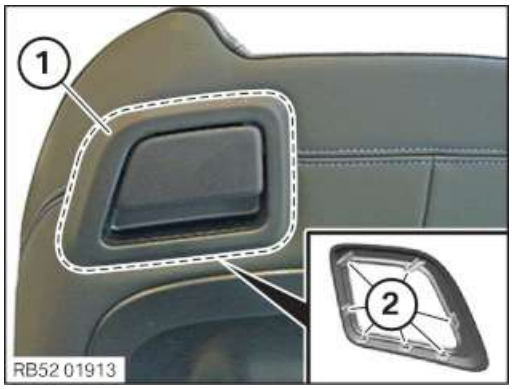
5 – Remove inner cover on front seat



- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

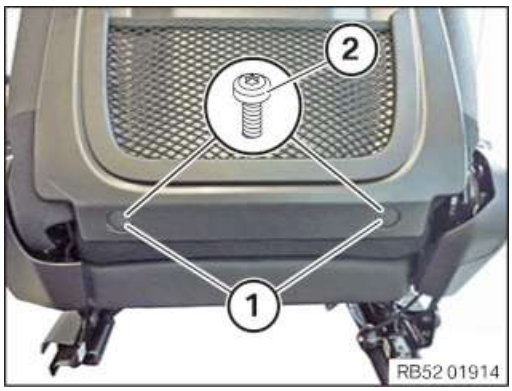
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6 – Removing the cover for the backrest release

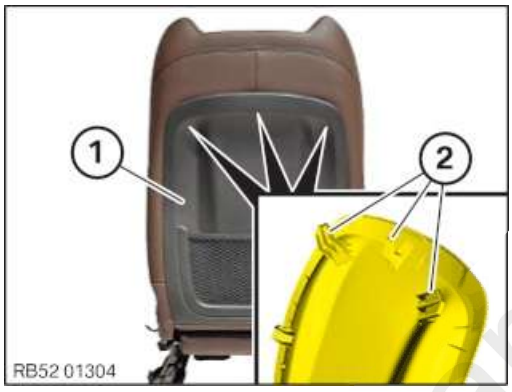


- Unclip and remove cover (1) for the backrest release in the marked area from latch mechanisms (2) using a suitable tool.

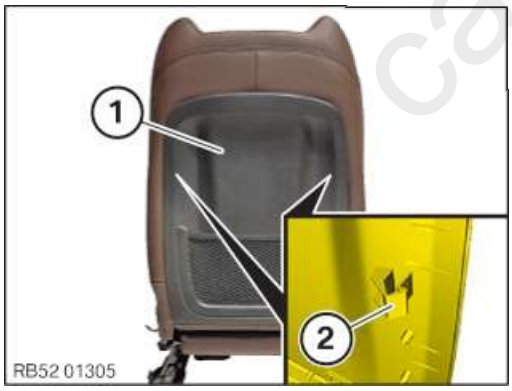
7 – Removing rear panel on the front seat backrest



- Unclip the cover caps (1) with a suitable tool.
- Loosen screws (2).



- Slide the rear panel (1) down and guide it out at the guides (2).



- Unclip the rear panel (1) from the clamps (2) and remove.

8 – Removing the backrest cover with the cushion for the front seat

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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!

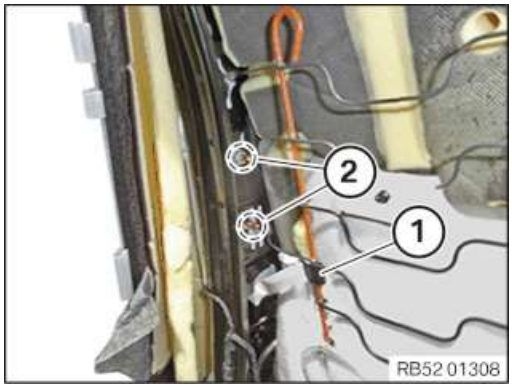
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Detach the backrest cover (1) in this area (2).
- Unhook seat cover (3).

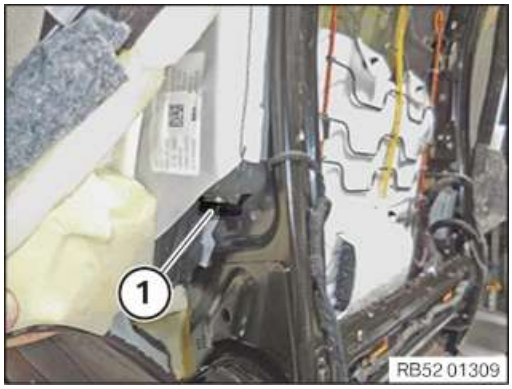


- Unclip clips (1).
- Unlock plug connection (2) and disconnect.



- Detach the holder (1).
- Loosen nuts (2).

carjdiagn.com



- Unlock plug connection (1) and disconnect.



- Carefully guide out backrest cover (1) in the marked area (2).
- Remove the backrest cover (1) with the cushion damage-free in marked area (2).
- Guide out the backrest cover (1) with cushion complete with the side airbag in the direction of the arrow.

9 – Remove side airbag from front seat

WARNING

Airbag unit.

Danger! Life-threatening injuries!

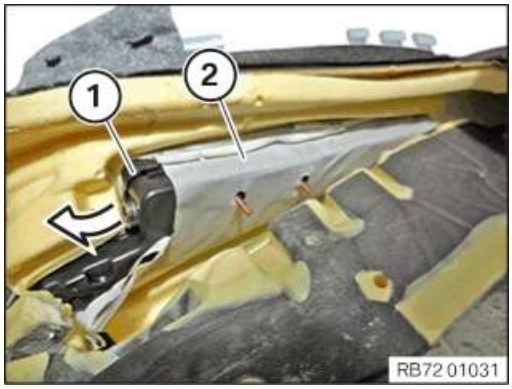
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

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.



- Pull the side airbag (1) out in the direction of arrow from the seat cover bag (2) on the backrest cover.

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MAIN WORK

10 – Remove the backrest cover from front seat-backrest

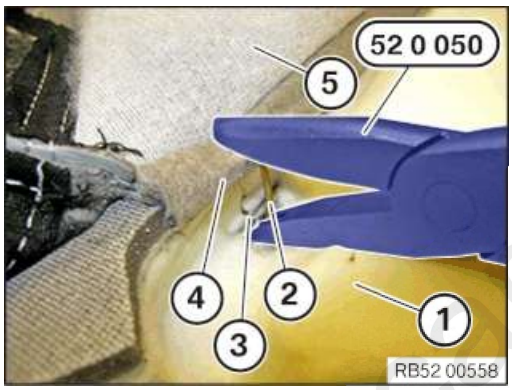


- Loosen all clamp on the trim wires (1).
- Remove the backrest cover (2) from the upholstery.
- Completely remove clamps from the backrest cover (2) and the cushion.

11 – Install the backrest cover of the front seat backrest



- Place the backrest cover (2) onto the upholstery.
- Secure all trim wires (1) with the clamps.



- Renew the clamps (2).

  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround the trim wire (3) of the cushion (1) and the trim wire (4) of the backrest cover (5) with the clamp (2) and bend the clamp (2) to close it.

POSTPROCESSES

12 – Install side airbag on front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

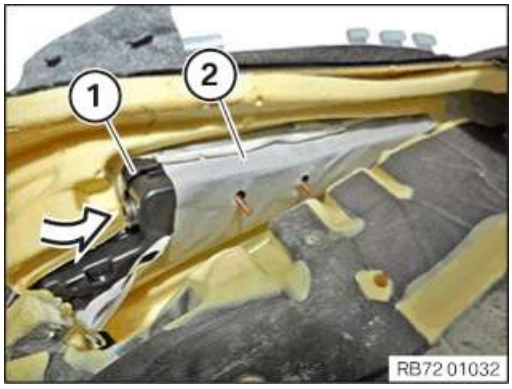
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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



- Feed the side airbag (1) in the direction of arrow into the seat cover pocket (2) on the backrest cover and position it correctly.

13 – Install the backrest cover with the cushion for the front seat

WARNING

Airbag unit.

Danger! Life-threatening injuries!

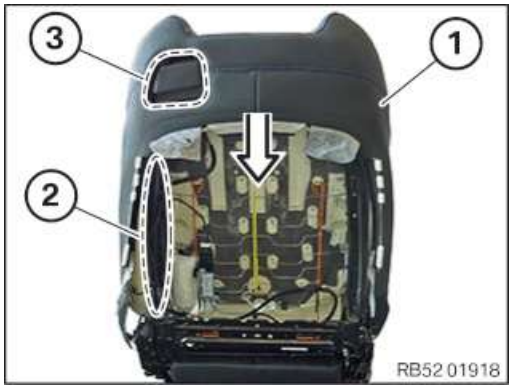
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

WARNING

Pyrotechnic components.

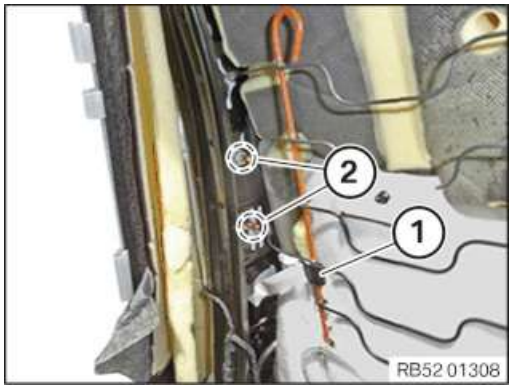
Danger! Life-threatening injuries!

- 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.



- Position backrest cover (1) with the cushion without damaging it in marked area (2).
- Position the backrest cover (1) completely with the side airbag in the direction of the arrow.
- Position the stud bolt of the side airbag in the area (2) correctly.
- Position backrest cover (1) correctly in the marked area (3).

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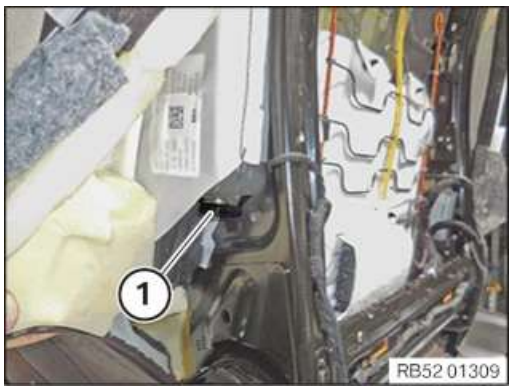


- Attach the holder (1).
- Renew nuts (2).

  Parts: Nuts
- Tighten nuts (2).

Airbag on backrest frame

Nut	Renew nut.	Tightening torque	6,5 Nm



- Connect connectors (1) and lock.

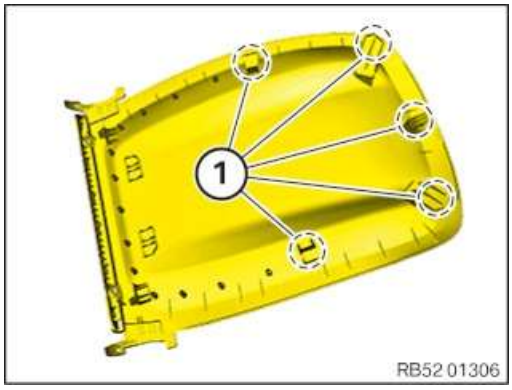


- Clip in clips (1).
- Connect connectors (2) and lock.



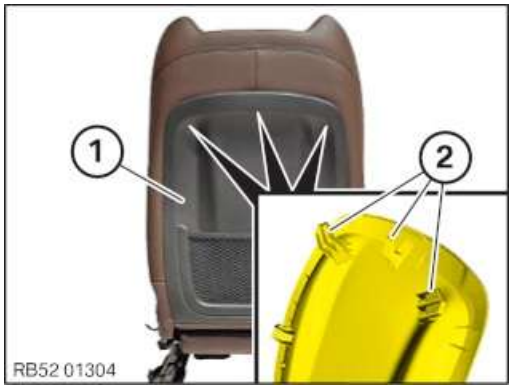
- Attach the backrest cover (1) in this area (2).
- Hook the seat cover (3).

14 – Installing rear panel on the front seat backrest



- Check the guides and clamps (1) for damage and renew the rear panel as needed.

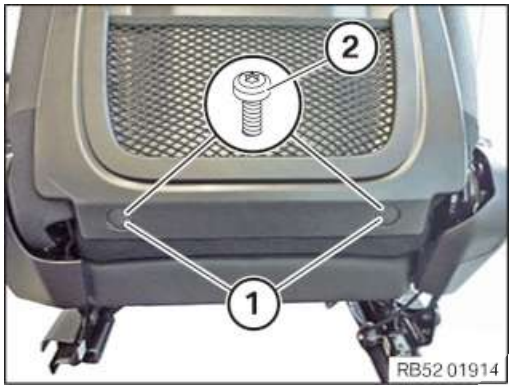
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- Thread the rear panel (1) in at the clamps (2).



- Position the rear panel (1) and clip it in at the clamps (2).



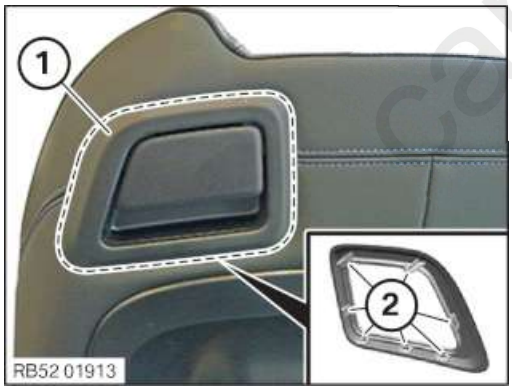
- Tighten the screws (2).

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Clip in cover caps (1).

15 – Installing a cover for backrest release



- Position the cover for backrest release (1) correctly in the marked area.
- Clip in the latch mechanism (2) of the cover for backrest release (1).

16 – Installing the inner cover on front seat



- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

Seat trim to seat frame

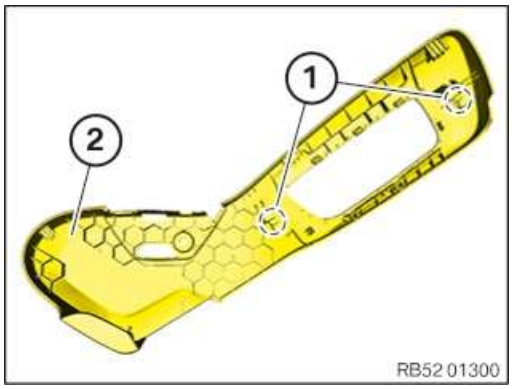
Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

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17 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw	Tightening torque	2.5 Nm

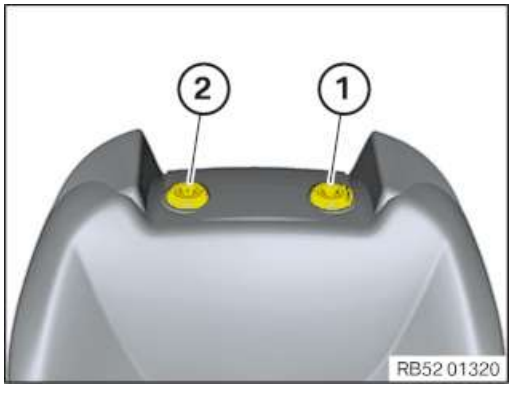
Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Clip in the cover (1).

18 – Install the guide sleeve for the front head restraint



- Pay attention to the installation position:

  Insert the guide sleeve (1) **with** unlocking towards the left in the direction of travel.

  Insert the guide sleeve (2) **without** unlocking towards the right in the direction of travel.

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NOTICE

The description is for one component only. The procedure is identical for all further components.

- Insert the guide sleeve (1) into the rear seat backrest in the direction of arrow from the top and lock it.

  You have to feel the guide sleeve (1) engage.

19 – Install the front head restraint



- Insert the head restraint (1) in the direction of the arrow into the guides (2).
- Slide the head restraint (1) in until the lock (3) is securely engaged.

20 – Install front seat

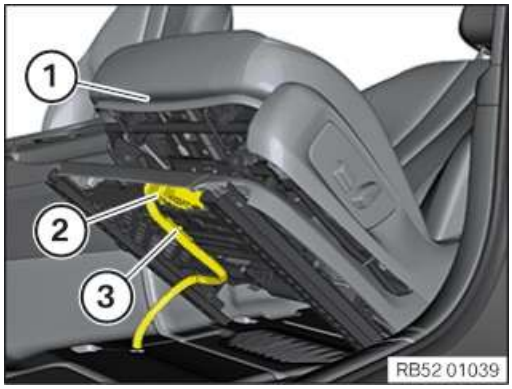
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

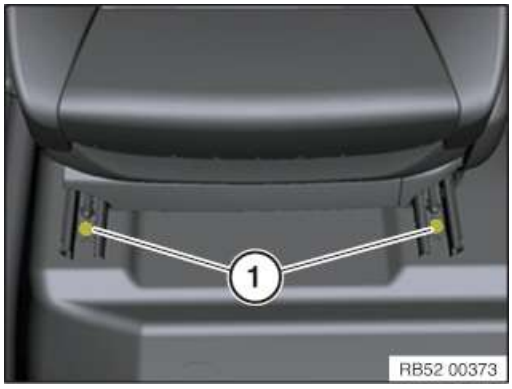


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



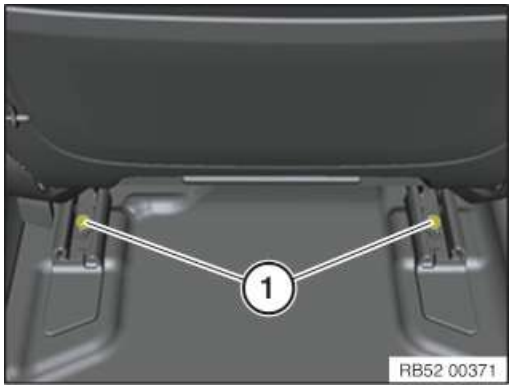
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Airbag on backrest frame — Used in step 13

Nut	Renew nut.	Tightening torque	6,5 Nm

Rear panel on rear seat backrest — Used in step 14

Screw		Tightening torque	3 Nm

Seat trim to seat frame — Used in step 1617

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame — Used in step 16

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame — Used in step 17

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 20

Nut M8		Tightening torque	19 Nm

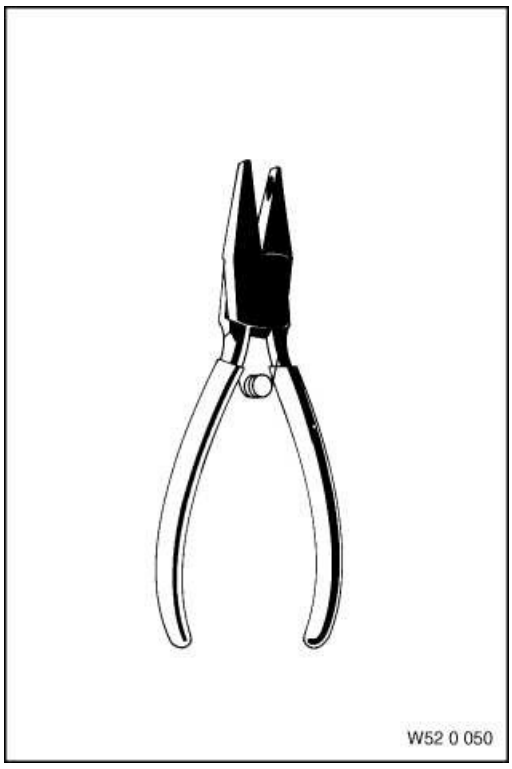
Seat to body — Used in step 20

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

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0 492 668 (52 0 050) Pliers



Common	Used in step 11
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	120

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	120

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	120
61 20 900 Disconnecting and connecting battery earth lead	120
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52 16 412 Replacing seat and backrest cover for driver's seat

PRELIMINARY WORK

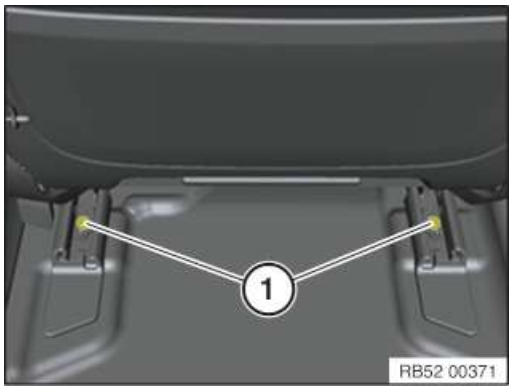
1 – Remove front seat

WARNING

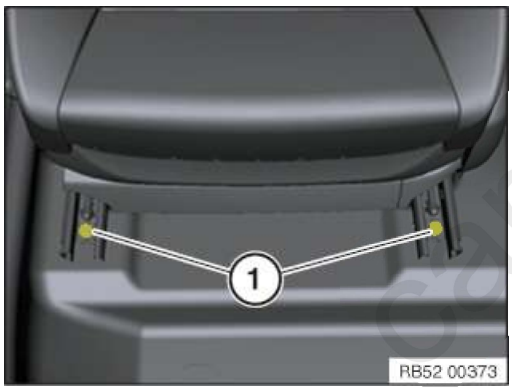
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

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WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

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Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

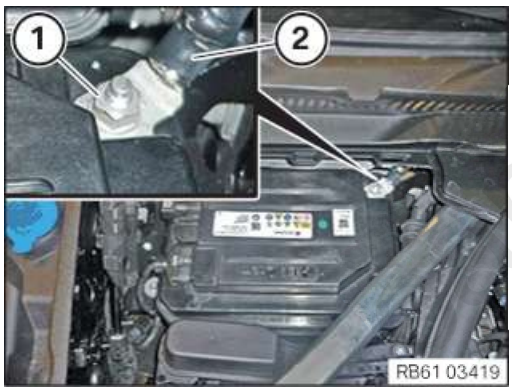
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

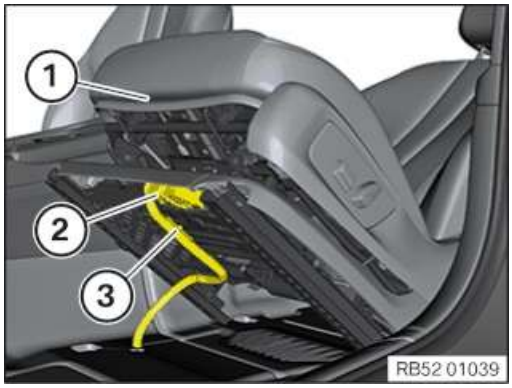
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove front head restraint



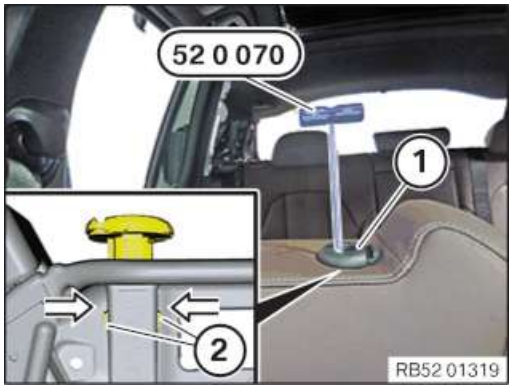
- Press the lock (2) and remove the head restraint (1) from the backrest toward the top.

3 – Removing the guide sleeve for the front head restraint

NOTICE

The description is for one component only. The procedure is identical for all further components.

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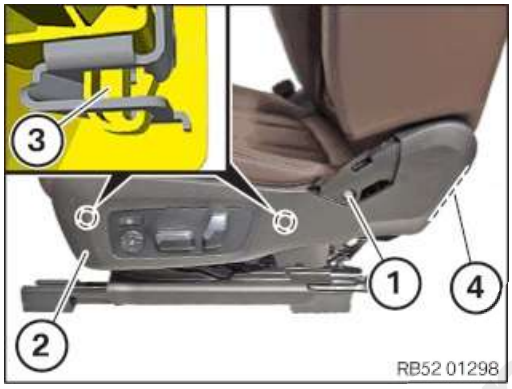


- Push the latch mechanisms (2) inward in direction of the arrow with the special tool .
- Remove the guide sleeve (1) towards the top.

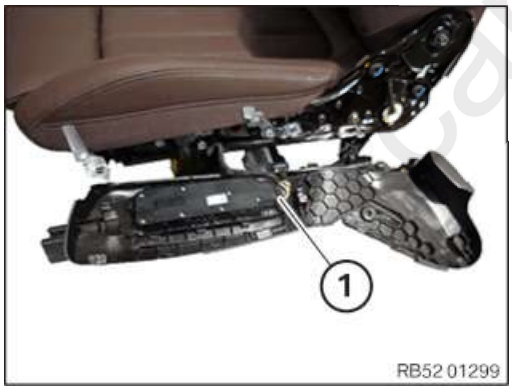
4 – Remove outer cover on front seat



- Unclip the cover (1).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

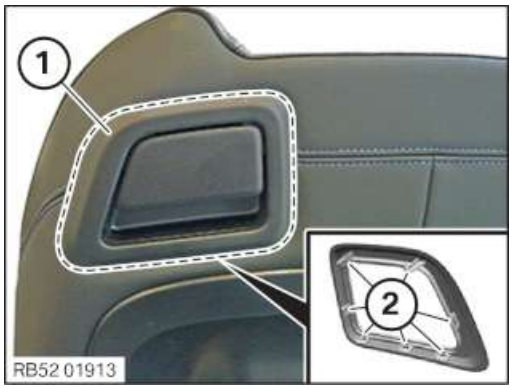
5 – Remove inner cover on front seat



- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

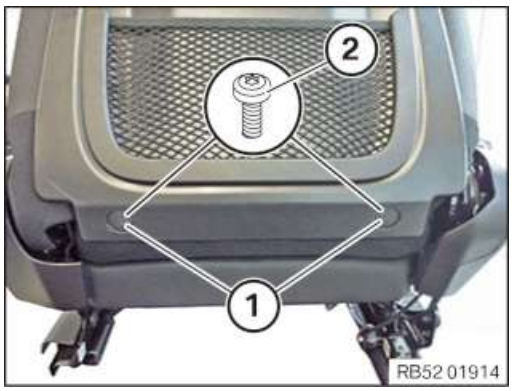
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6 – Removing the cover for the backrest release

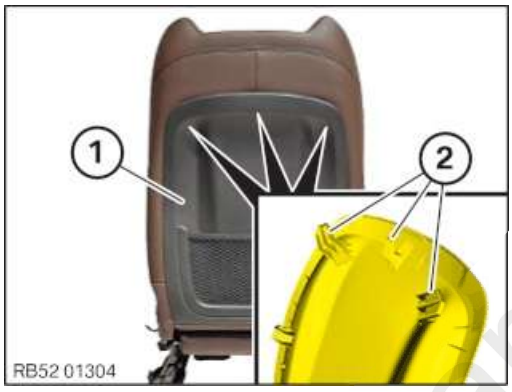


- Unclip and remove cover (1) for the backrest release in the marked area from latch mechanisms (2) using a suitable tool.

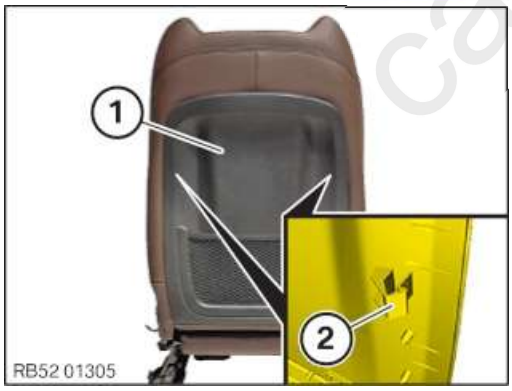
7 – Removing rear panel on the front seat backrest



- Unclip the cover caps (1) with a suitable tool.
- Loosen screws (2).



- Slide the rear panel (1) down and guide it out at the guides (2).



- Unclip the rear panel (1) from the clamps (2) and remove.

8 – Removing the backrest cover with the cushion for the front seat

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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!

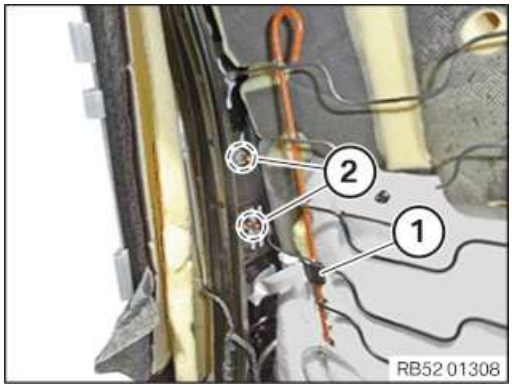
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Detach the backrest cover (1) in this area (2).
- Unhook seat cover (3).

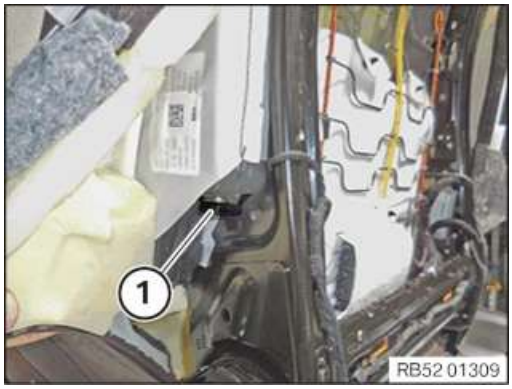


- Unclip clips (1).
- Unlock plug connection (2) and disconnect.



- Detach the holder (1).
- Loosen nuts (2).

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- Unlock plug connection (1) and disconnect.



- Carefully guide out backrest cover (1) in the marked area (2).
- Remove the backrest cover (1) with the cushion damage-free in marked area (2).
- Guide out the backrest cover (1) with cushion complete with the side airbag in the direction of the arrow.

9 – Remove side airbag from front seat

WARNING

Airbag unit.

Danger! Life-threatening injuries!

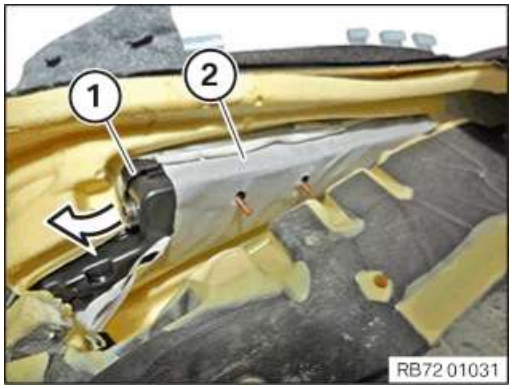
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

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.



- Pull the side airbag (1) out in the direction of arrow from the seat cover bag (2) on the backrest cover.

10 – Remove thigh support

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10 – Remove thigh support

Prerequisite

The thigh support is completely extended.

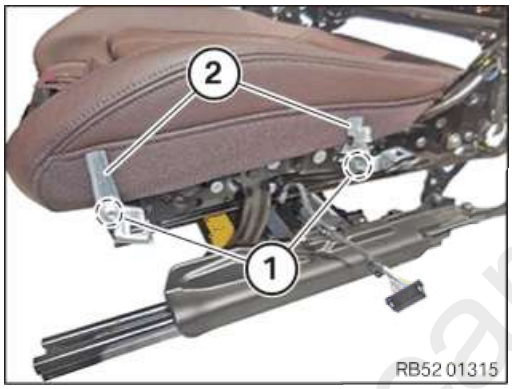


- Detach the seat cover (1) in this area (2).

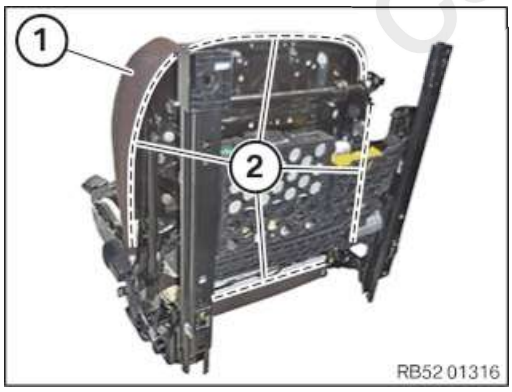


- Loosen the screws (1) and remove the thigh support (2).
- If necessary, disconnect the existing plug connection.

11 – Removing the seat cover with the cushion for the front seat



- Loosen screws (1) and remove the holder (2).



- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Unlock and disconnect the existing plug connections if required and unclip the cable clip .

MAIN WORK

12 – Remove the backrest cover from front seat-backrest

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- Loosen all clamp on the trim wires (1).
- Remove the backrest cover (2) from the upholstery.
- Completely remove clamps from the backrest cover (2) and the cushion.

13 – Remove the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Loosen all clamp on the trim wires (1).
- Remove any remaining clamp from the seat cover and the upholstery.
- Thread out the rubber band (2).



- Detach all clamps on the trim wires 1.
- Remove any remaining clamp from the seat cover (2) and the upholstery.
- Remove the seat cover (2) from the upholstery.

14 – Installing the seat cover for the front seat

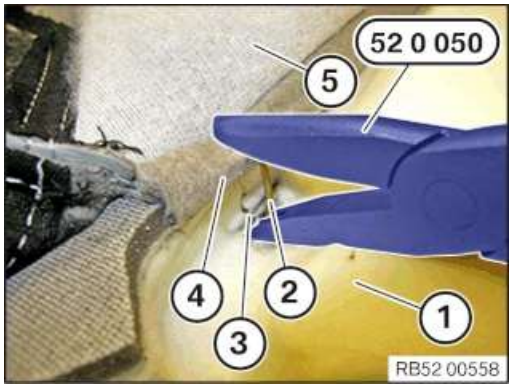
NOTICE

Description is for left component only. Procedure on the right side is identical.

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- Place the seat cover (2) on the cushion.
- Secure all trim wires (1) with the clamps.



- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.
- Carefully bend the clamps (2).



- Position the trim wire in the insert ducts (1).
- Position the rubber band (2).

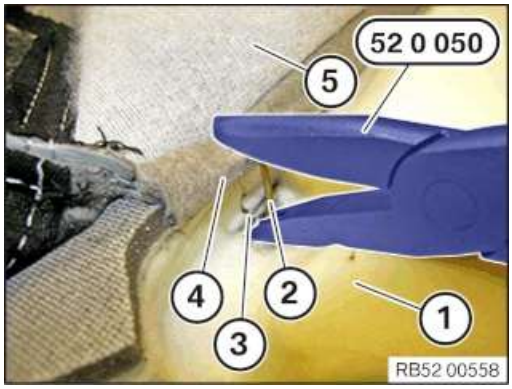


- Correctly position the insert ducts.



- The clamps must be placed in the order (1) to (4) as described in the following step.

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TECHNICAL INFORMATION

When installing the tacking channel, the wires of the seat heating and feed line must not be damaged by the clamps.

- Renew the clamps (2).

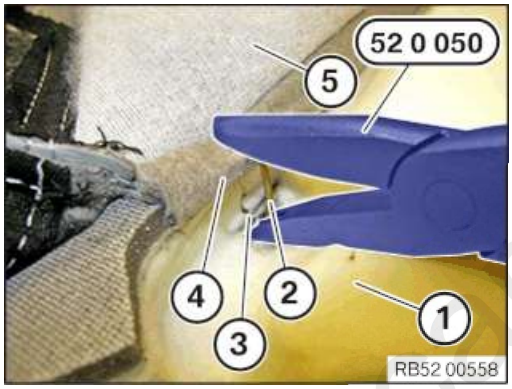
  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.

  Carefully bend the clamps (2).

15 – Install the backrest cover of the front seat backrest



- Place the backrest cover (2) onto the upholstery.
- Secure all trim wires (1) with the clamps.

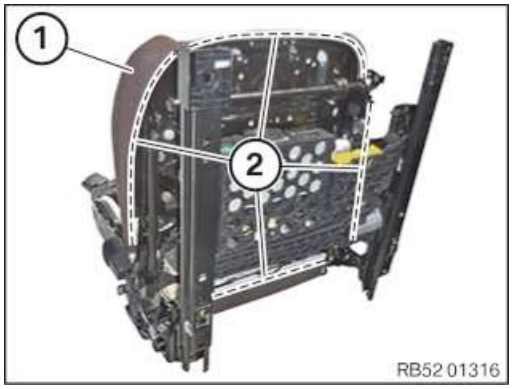


- Renew the clamps (2).

  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround the trim wire (3) of the cushion (1) and the trim wire (4) of the backrest cover (5) with the clamp (2) and bend the clamp (2) to close it.

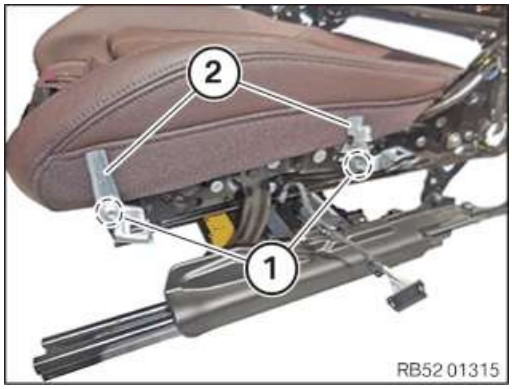
POSTPROCESSES

16 – Fit the seat cover with the cushion for the front seat



- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Connect and lock existing connectors and clip in the cable clip if necessary.

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- Position all the holders (2) and tighten the screws (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

17 – Install thigh support

Prerequisite

The thigh support is completely extended.



- Connect the existing plug connections.
- Position the thigh support (2) and tighten the bolts (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm



- Attach the seat cover (1) in this area (2).

18 – Install side airbag on front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

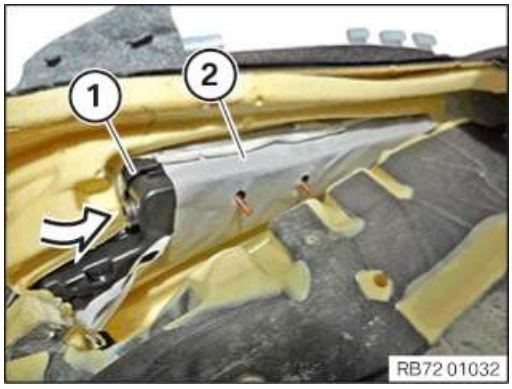
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WARNING

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



- Feed the side airbag (1) in the direction of arrow into the seat cover pocket (2) on the backrest cover and position it correctly.

19 – Install the backrest cover with the cushion for the front seat

WARNING

Airbag unit.

Danger! Life-threatening injuries!

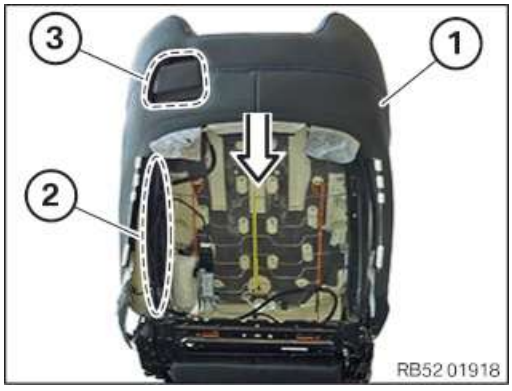
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

WARNING

Pyrotechnic components.

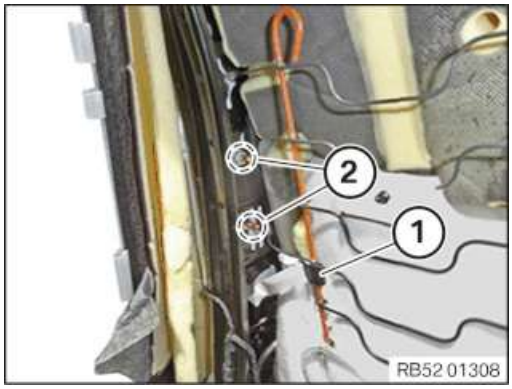
Danger! Life-threatening injuries!

- 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.



- Position backrest cover (1) with the cushion without damaging it in marked area (2).
- Position the backrest cover (1) completely with the side airbag in the direction of the arrow.
- Position the stud bolt of the side airbag in the area (2) correctly.
- Position backrest cover (1) correctly in the marked area (3).

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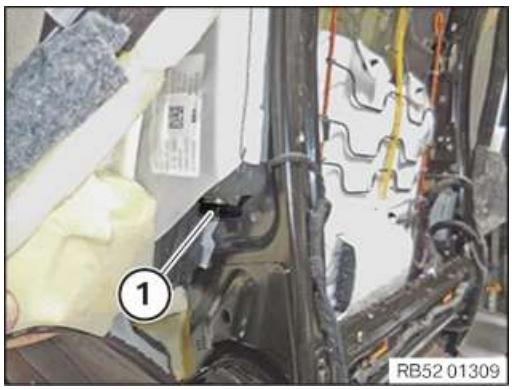


- Attach the holder (1).
- Renew nuts (2).

  Parts: Nuts
- Tighten nuts (2).

Airbag on backrest frame

Nut	Renew nut.	Tightening torque	6,5 Nm



- Connect connectors (1) and lock.

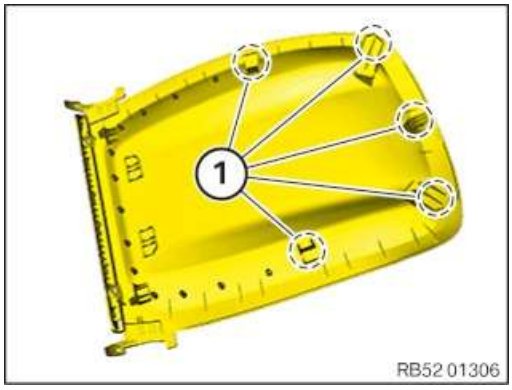


- Clip in clips (1).
- Connect connectors (2) and lock.



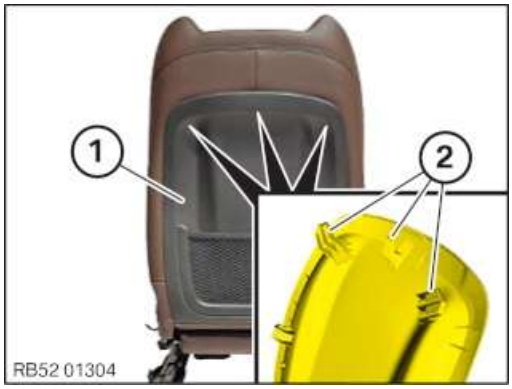
- Attach the backrest cover (1) in this area (2).
- Hook the seat cover (3).

20 – Installing rear panel on the front seat backrest



- Check the guides and clamps (1) for damage and renew the rear panel as needed.

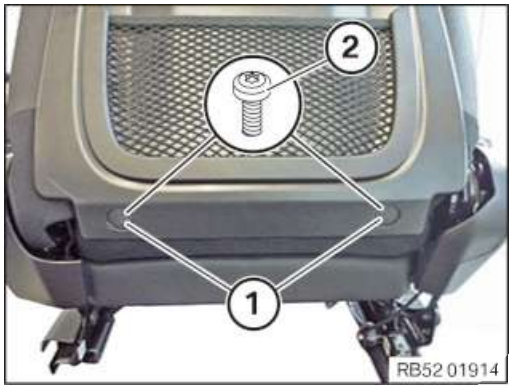
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- Thread the rear panel (1) in at the clamps (2).



- Position the rear panel (1) and clip it in at the clamps (2).



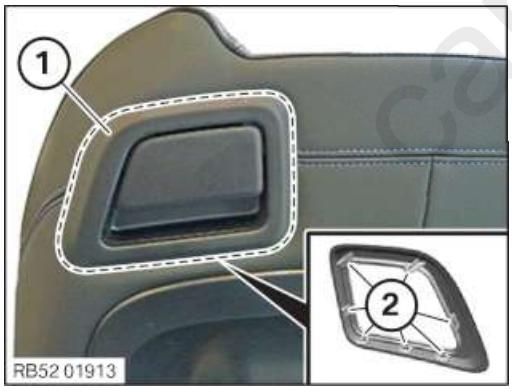
- Tighten the screws (2).

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Clip in cover caps (1).

21 – Installing a cover for backrest release



- Position the cover for backrest release (1) correctly in the marked area.
- Clip in the latch mechanism (2) of the cover for backrest release (1).

22 – Installing the inner cover on front seat



- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

Seat trim to seat frame

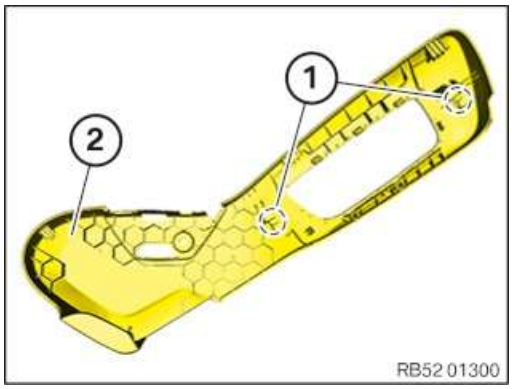
Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

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23 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw	Tightening torque	2.5 Nm

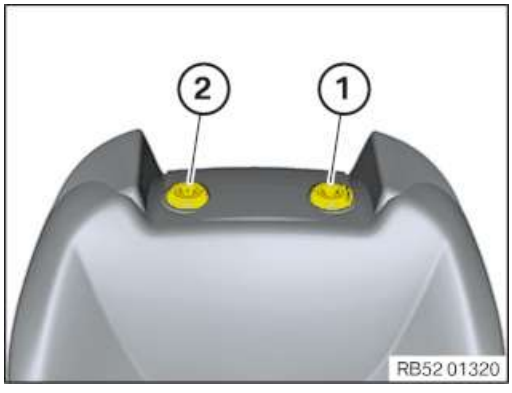
Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Clip in the cover (1).

24 – Install the guide sleeve for the front head restraint



- Pay attention to the installation position:

  Insert the guide sleeve (1) **with** unlocking towards the left in the direction of travel.

  Insert the guide sleeve (2) **without** unlocking towards the right in the direction of travel.

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NOTICE

The description is for one component only. The procedure is identical for all further components.

- Insert the guide sleeve (1) into the rear seat backrest in the direction of arrow from the top and lock it.

  You have to feel the guide sleeve (1) engage.

25 – Install the front head restraint



- Insert the head restraint (1) in the direction of the arrow into the guides (2).
- Slide the head restraint (1) in until the lock (3) is securely engaged.

26 – Install front seat

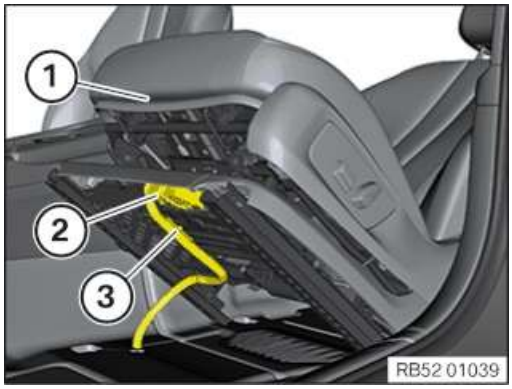
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

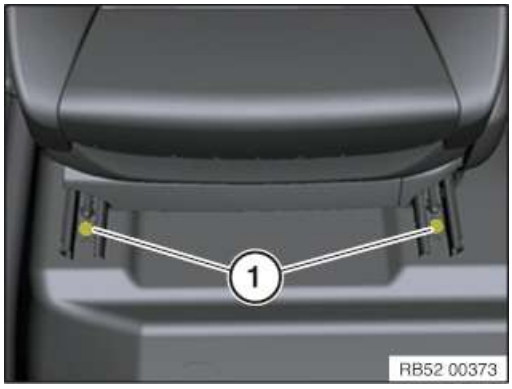


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



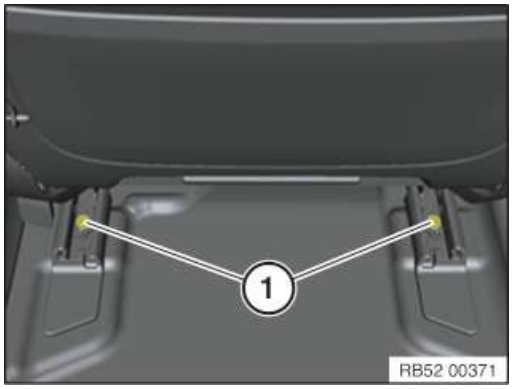
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Seat trim to seat frame — Used in step 162223

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 17

Screw		Tightening torque	2 Nm

Airbag on backrest frame — Used in step 19

Nut	Renew nut.	Tightening torque	6,5 Nm

Rear panel on rear seat backrest — Used in step 20

Screw		Tightening torque	3 Nm

Inner seat trim to seat frame — Used in step 22

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame — Used in step 23

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 26

Nut M8		Tightening torque	19 Nm

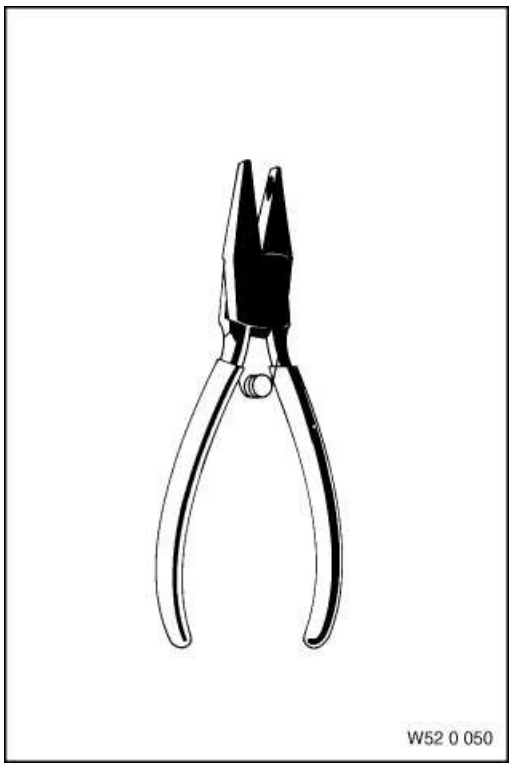
Seat to body — Used in step 26

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

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0 492 668 (52 0 050) Pliers



Common	Used in step 1415
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	126

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	126

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126

61 20 900 Disconnecting and connecting battery earth lead	126
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61 20 900 Disconnecting and connecting battery earth lead	126
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	126
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	126
61 20 900 Disconnecting and connecting battery earth lead	126
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61 20 900 Disconnecting and connecting battery earth lead 126
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52 16 402 Replacing seat cover for driver's seat

PRELIMINARY WORK

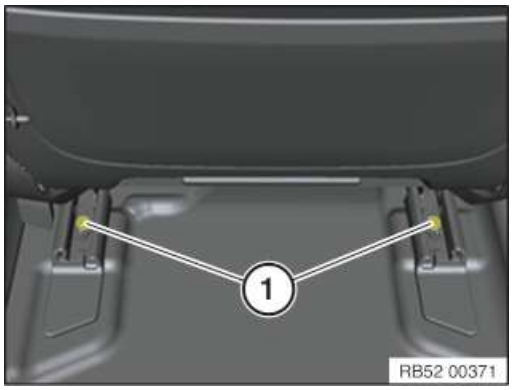
1 – Remove front seat

WARNING

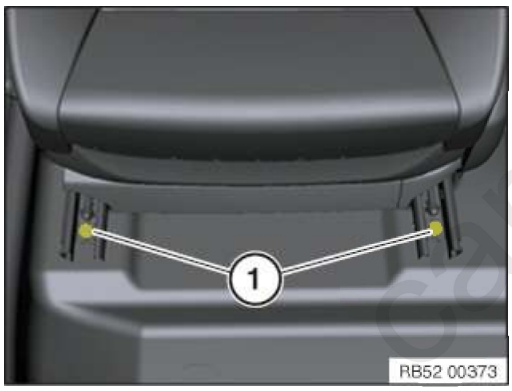
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

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WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

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Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

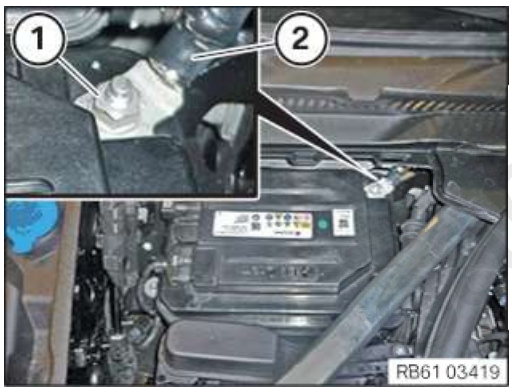
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

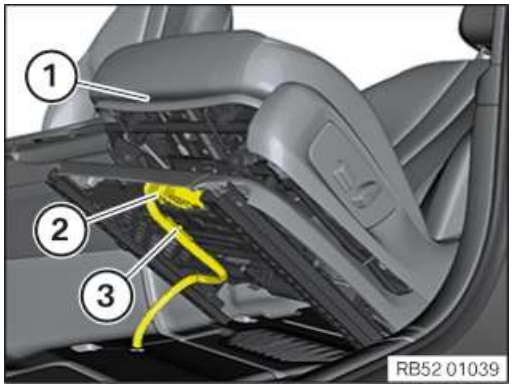
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove outer cover on front seat



- Unclip the cover (1).

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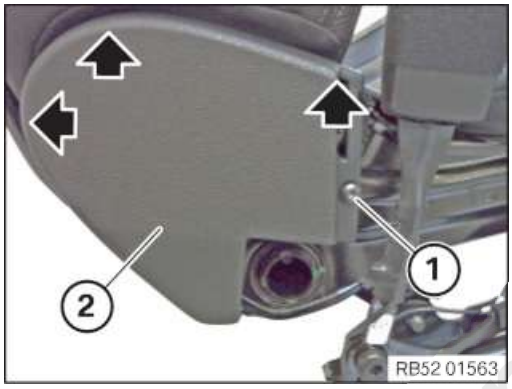


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



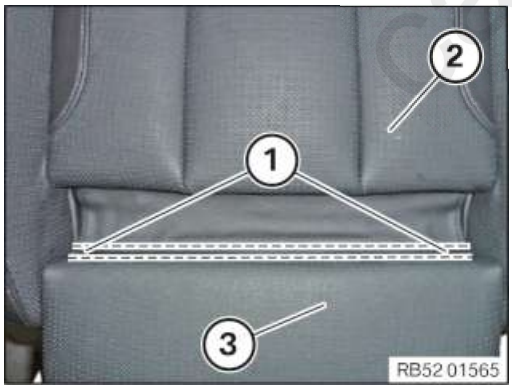
- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

3 – Remove inner cover on front seat



- Loosen screw (1).
- Guide out the cover (2) at the arrows.

4 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).



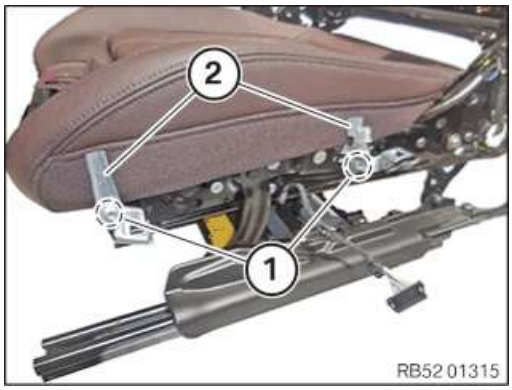
- Loosen screws (1).
- Feed the thigh support (2) out.

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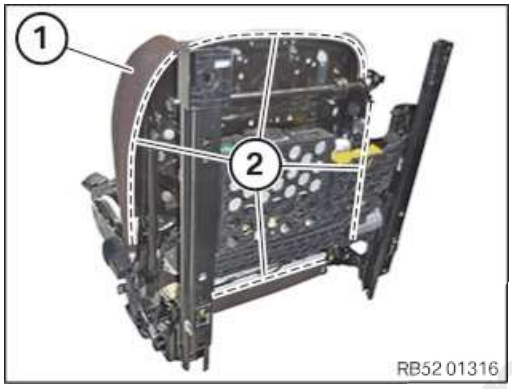


- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

5 – Remove seat cover with padding for driver's seat



- Loosen screws (1) and remove holder (2).



- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Disconnect the existing plug connection where required and unclip the cable clips.

MAIN WORK

6 – Remove the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Loosen all clamp on the trim wires (1).
- Remove any remaining clamp from the seat cover and the upholstery.
- Thread out the rubber band (2).

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- Detach all clamps on the trim wires 1.
- Remove any remaining clamp from the seat cover (2) and the upholstery.
- Remove the seat cover (2) from the upholstery.

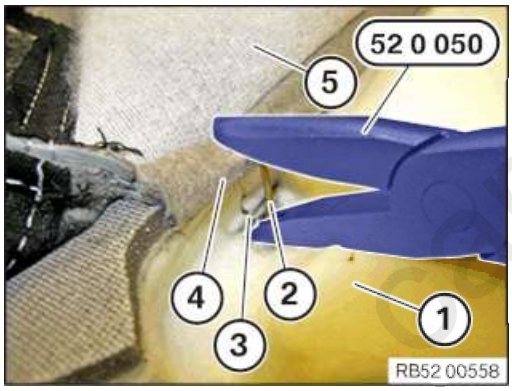
7 – Installing the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Place the seat cover (2) on the cushion.
- Secure all trim wires (1) with the clamps.



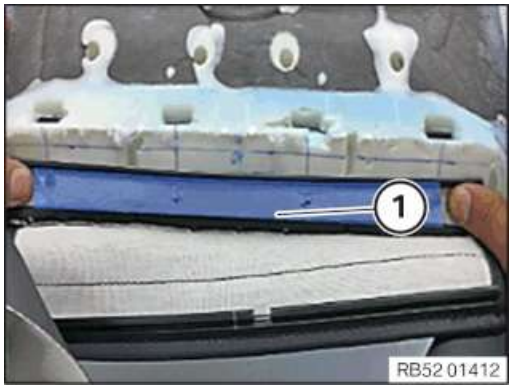
- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.
- Carefully bend the clamps (2).



- Position the trim wire in the insert ducts (1).
- Position the rubber band (2).

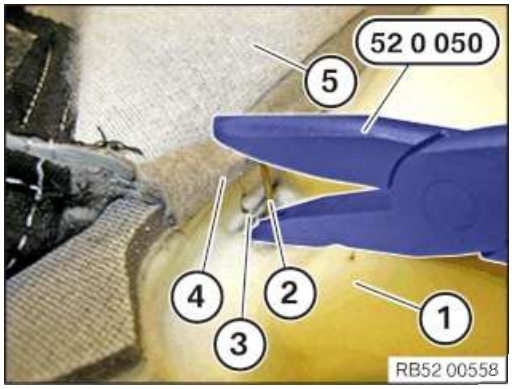
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- Correctly position the insert ducts.



- The clamps must be placed in the order (1) to (4) as described in the following step.



TECHNICAL INFORMATION

When installing the tacking channel, the wires of the seat heating and feed line must not be damaged by the clamps.

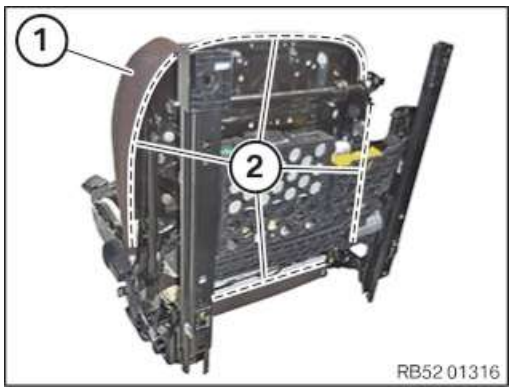
- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.

  Carefully bend the clamps (2).

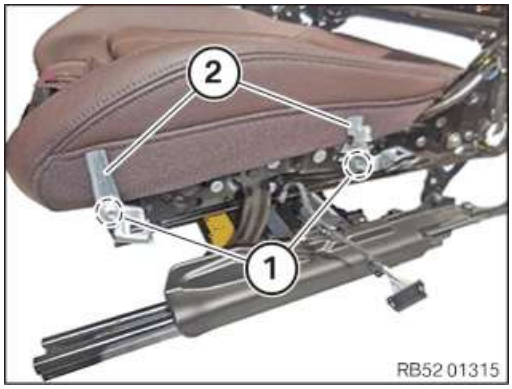
POSTPROCESSES

8 – Installing seat cover with cushion for driver's seat



- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Where applicable, connect the existing plug connections and clip in the cable clips.

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- Position holder (2) and tighten screws (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

9 – Install thigh support



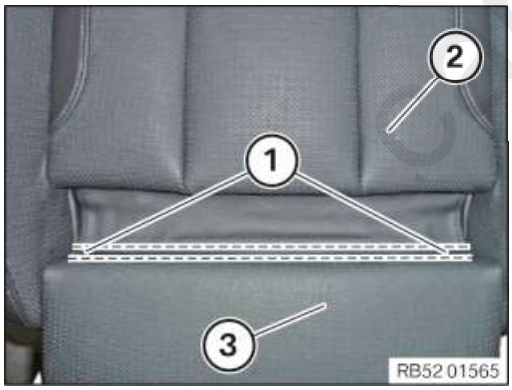
- Position the thigh support (2).
- Connect connectors (1) and lock.



- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

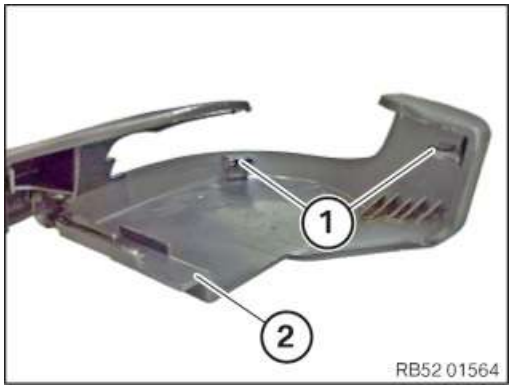
Thigh support to front seat

Screw	Tightening torque	2 Nm

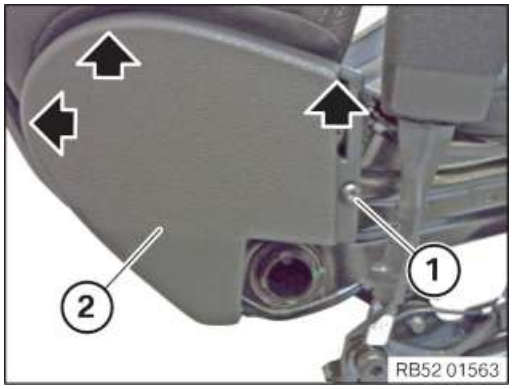


- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

10 – Installing the inner cover on the front seat



- Check guides (1) of cover (2) for damage, renew the cover if necessary.

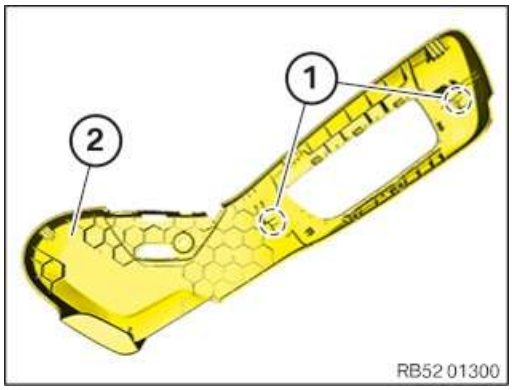


- Guide in the cover (2) on the arrows and position correctly.
- Tighten down screw (1).

Inner cover on seat frame

Screw		Tightening torque	2.5 Nm

11 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Clip in the cover (1).

12 – Install front seat

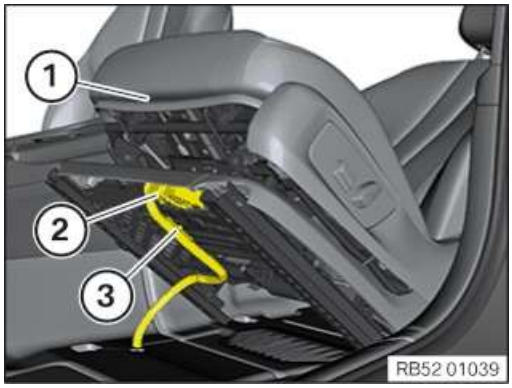
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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

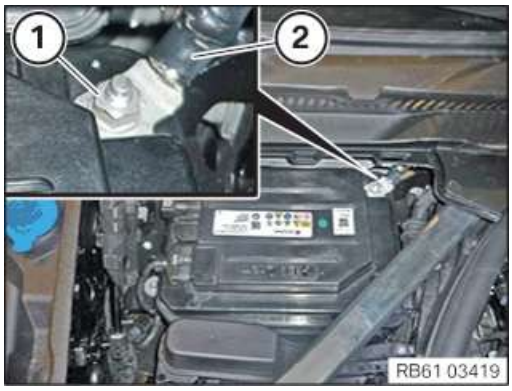
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

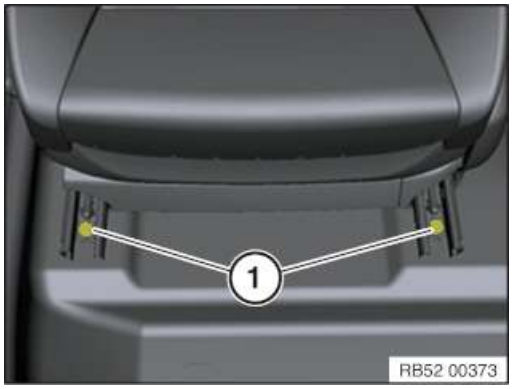


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

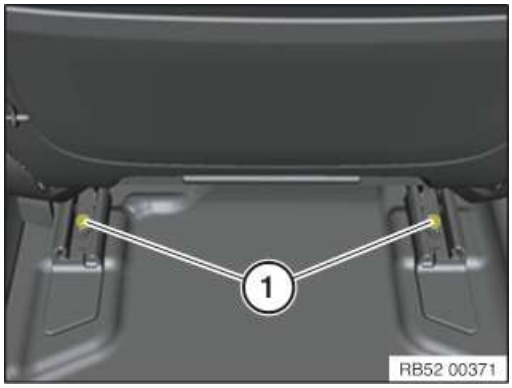


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Seat trim to seat frame — Used in step 811

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 9

Screw		Tightening torque	2 Nm

Inner cover on seat frame — Used in step 10

Screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame — Used in step 11

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 12

Nut M8		Tightening torque	19 Nm

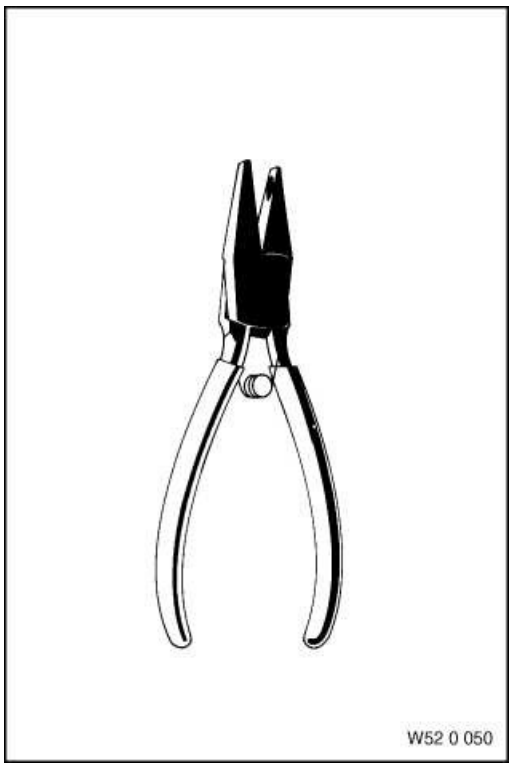
Seat to body — Used in step 12

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

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0 492 668 (52 0 050) Pliers



Common		Used in step 7
Usage	For securing clamps on seat cover	
Included in the tool or work		
Storage location	C14	
Replaced by		
In connection with		
SI-Number	52 06 87 (808)	

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	112

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	112

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112
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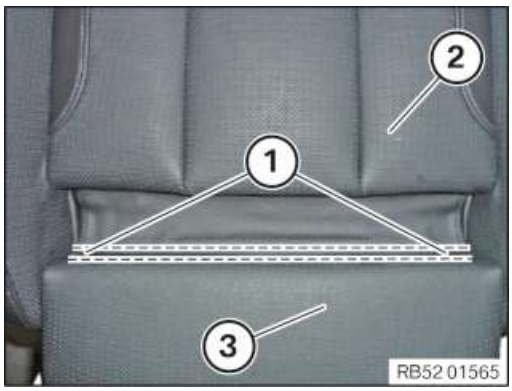
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112
61 20 900 Disconnecting and connecting battery earth lead	112

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52 16 417 Replacing the facing for the thigh support on the left or right front seat

PRELIMINARY WORK

1 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).



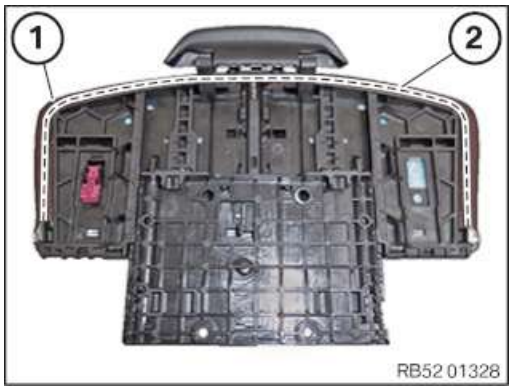
- Loosen screws (1).
- Feed the thigh support (2) out.



- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

MAIN WORK

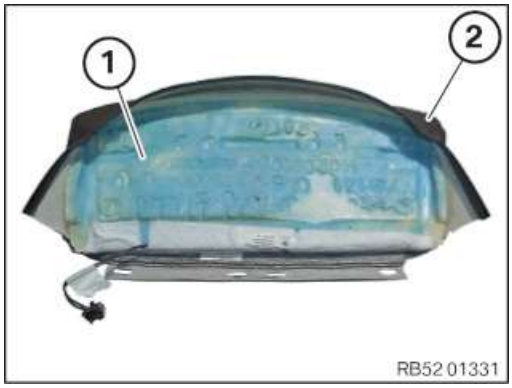
2 – Removing the cushion for the front seat thigh support



- Unhook the thigh support cover (1) in the area (2).

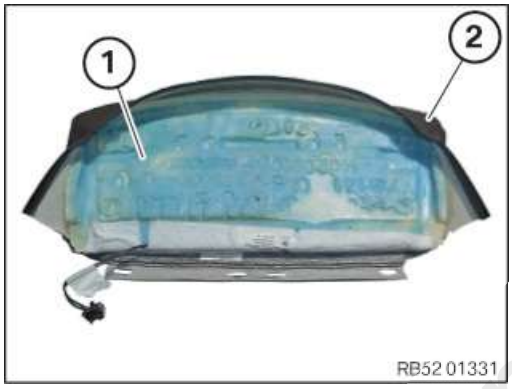


- Guide out the connector (1) and fold the thigh support cover (2) upwards.
- Detach the thigh support cover (2) in the area (3).



- Feed the cushion (1) out of the seat cover (2).

3 – Installing the cushion for the thigh support of the front seat



- Guide the upholstery (1) into the cover (2).



- Guide in the connector (1) and position the thigh support cover (2).
- Attach the thigh support cover (2) in area (3).



- Attach the thigh support cover (1) in area (2).

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4 – Install thigh support



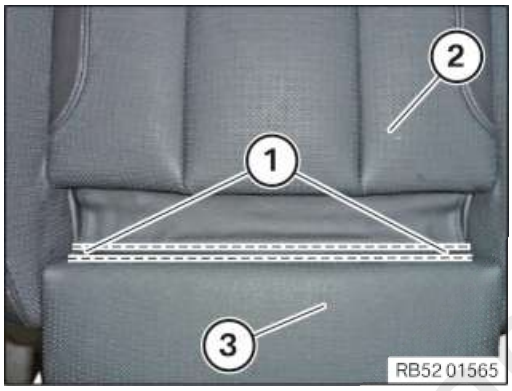
- Position the thigh support (2).
- Connect connectors (1) and lock.



- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm



- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

Additional Information

Overview of Tightening Torques

Thigh support to front seat Used in step 4

Screw		Tightening torque	2 Nm

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52 16 425 Replacing upholstery for driver's seat

PRELIMINARY WORK

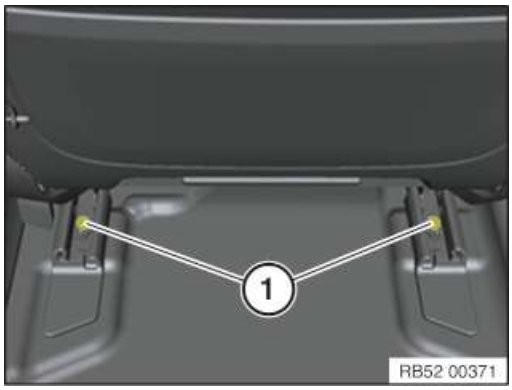
1 – Remove front seat

WARNING

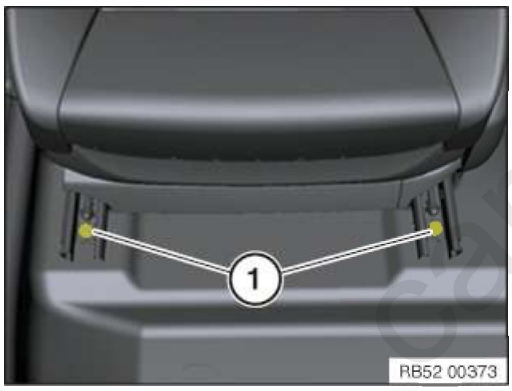
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

carmanuals.com

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

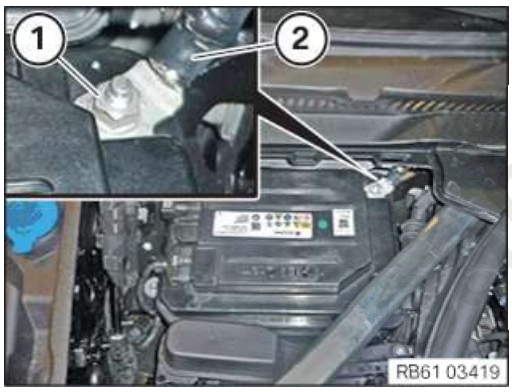
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

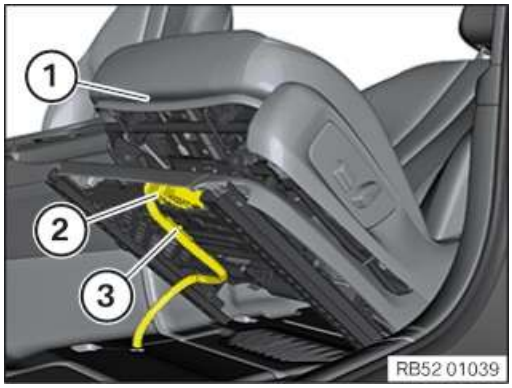
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove outer cover on front seat



- Unclip the cover (1).

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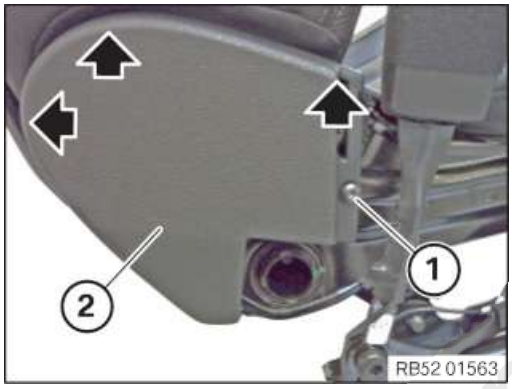


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



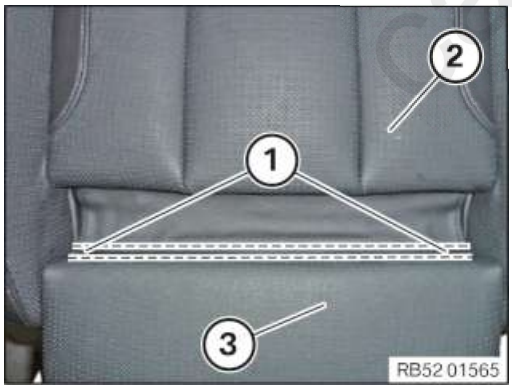
- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

3 – Remove inner cover on front seat



- Loosen screw (1).
- Guide out the cover (2) at the arrows.

4 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).



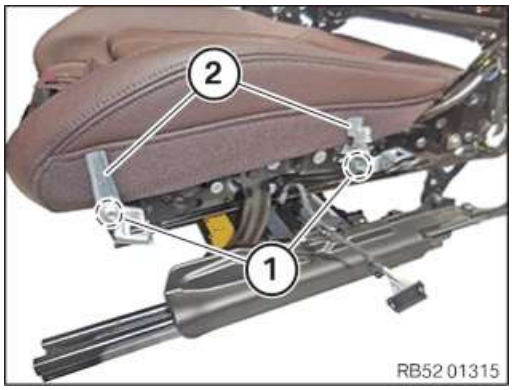
- Loosen screws (1).
- Feed the thigh support (2) out.

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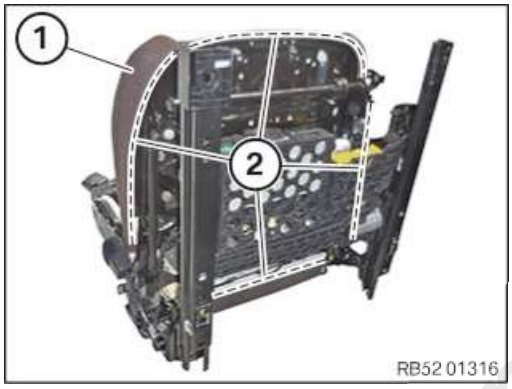


- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

5 – Remove seat cover with padding for driver's seat



- Loosen screws (1) and remove holder (2).



- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Disconnect the existing plug connection where required and unclip the cable clips.

6 – Remove the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Loosen all clamp on the trim wires (1).
- Remove any remaining clamp from the seat cover and the upholstery.
- Thread out the rubber band (2).

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- Detach all clamps on the trim wires 1.
- Remove any remaining clamp from the seat cover (2) and the upholstery.
- Remove the seat cover (2) from the upholstery.

MAIN WORK

7 – Renewing the foam pad for the driver's seat

TECHNICAL INFORMATION

The heating mat is bonded to the foam pad and cannot be disassembled without damaging it.
When replacing, new heating mat must always be fitted with new foam pads.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **Equipment specification with seat heating**

  Position the heating mat (1) on the cushion and align.

  Bond the heating mat (1) to the cushion in these areas (2).

POSTPROCESSES

8 – Installing the seat cover for the front seat

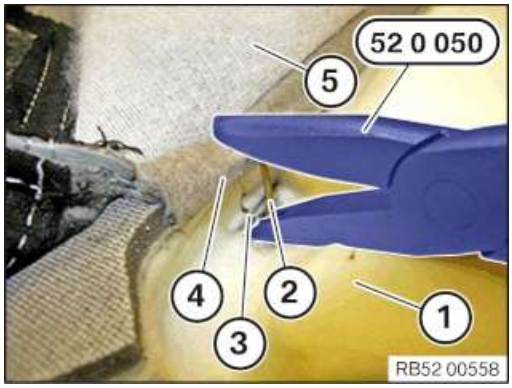
NOTICE

Description is for left component only. Procedure on the right side is identical.

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- Place the seat cover (2) on the cushion.
- Secure all trim wires (1) with the clamps.



- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.
- Carefully bend the clamps (2).



- Position the trim wire in the insert ducts (1).
- Position the rubber band (2).

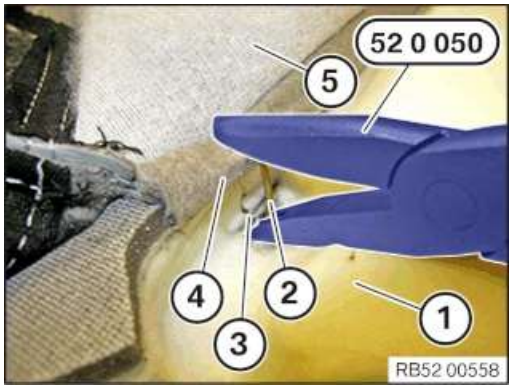


- Correctly position the insert ducts.



- The clamps must be placed in the order (1) to (4) as described in the following step.

carsdiagn.com



TECHNICAL INFORMATION

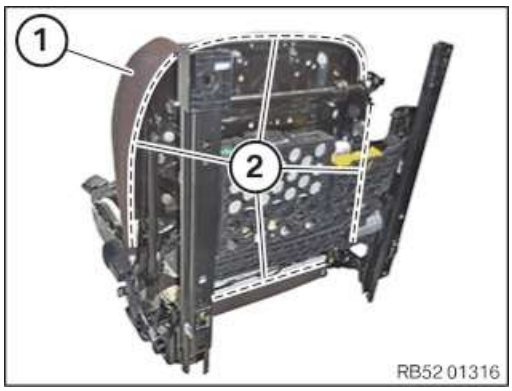
When installing the tacking channel, the wires of the seat heating and feed line must not be damaged by the clamps.

- Renew the clamps (2).

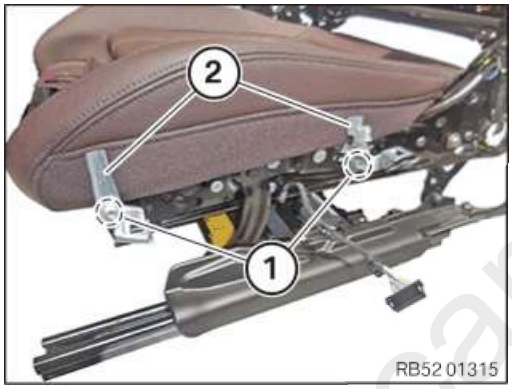
  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.

  Carefully bend the clamps (2).

9 – Installing seat cover with cushion for driver's seat



- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Where applicable, connect the existing plug connections and clip in the cable clips.



- Position holder (2) and tighten screws (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

10 – Install thigh support



- Position the thigh support (2).
- Connect connectors (1) and lock.

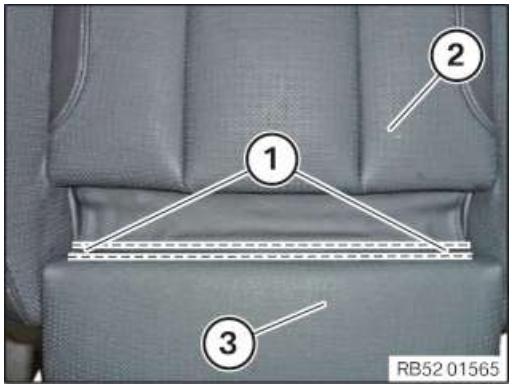
cardiagn.com



- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

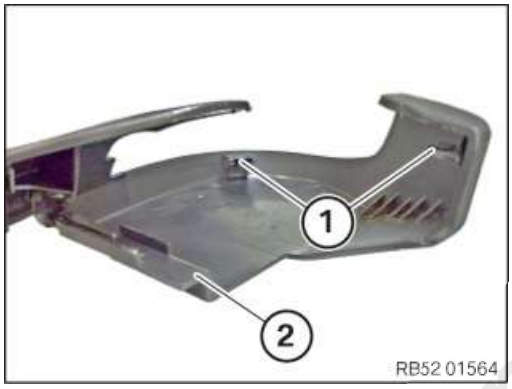
Thigh support to front seat

Screw		Tightening torque	2 Nm

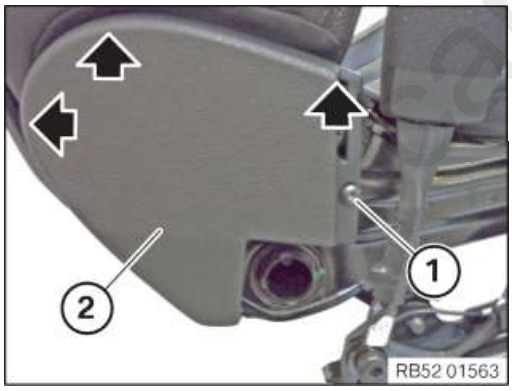


- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

11 – Installing the inner cover on the front seat



- Check guides (1) of cover (2) for damage, renew the cover if necessary.

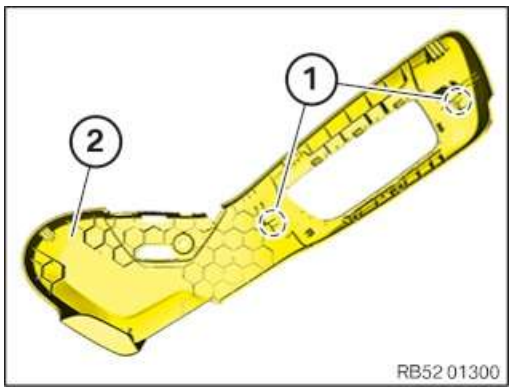


- Guide in the cover (2) on the arrows and position correctly.
- Tighten down screw (1).

Inner cover on seat frame

Screw		Tightening torque	2.5 Nm

12 – Install outer cover on front seat

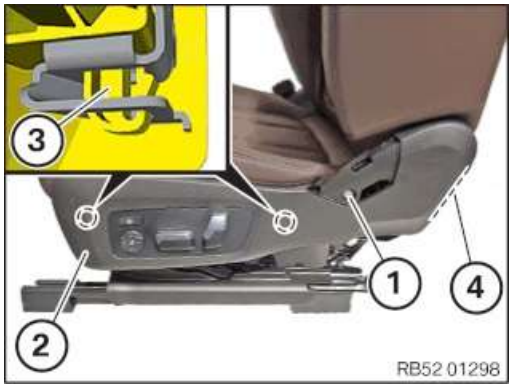


- Check the locking units (1) for damages, and replace the cover if necessary (2).

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- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Clip in the cover (1).

13 – Install front seat

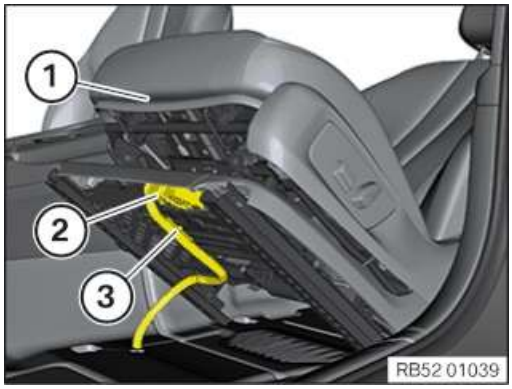
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

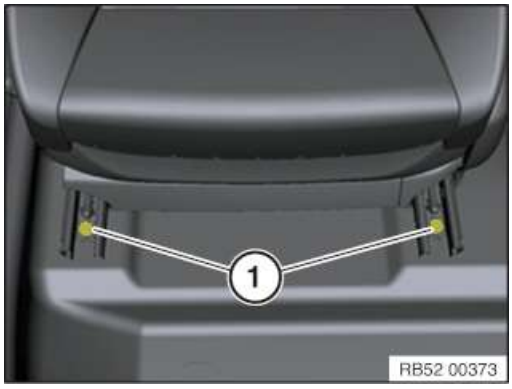


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



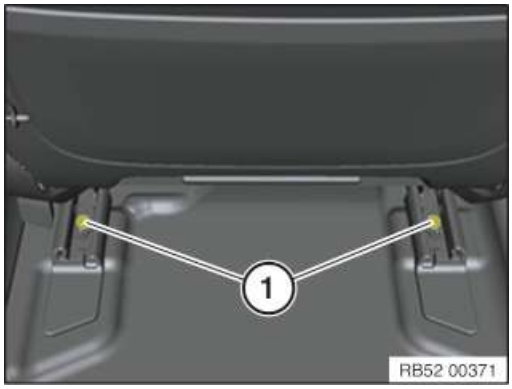
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Seat trim to seat frame — Used in step 912

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 10

Screw		Tightening torque	2 Nm

Inner cover on seat frame — Used in step 11

Screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame — Used in step 12

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 13

Nut M8		Tightening torque	19 Nm

Seat to body — Used in step 13

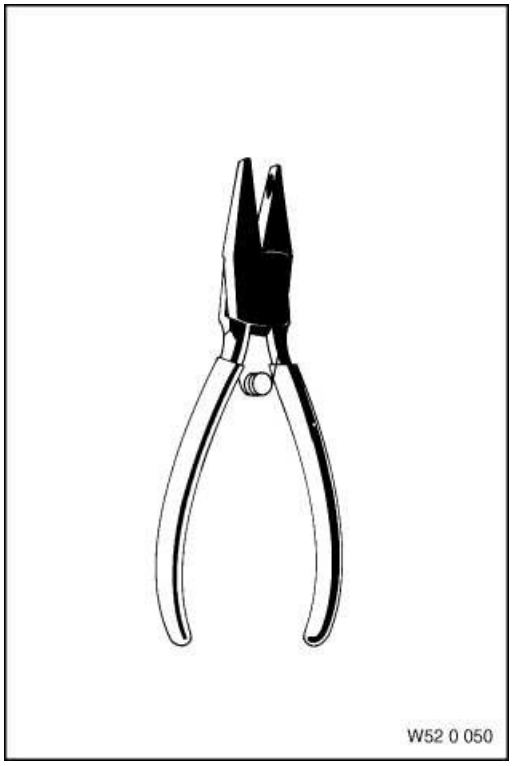
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 492 668 (52 0 050) Pliers

Used in step 8

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Common	
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	113

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	113

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	113
61 20 900 Disconnecting and connecting battery earth lead	113
61 20 900 Disconnecting and connecting battery earth lead	113
61 20 900 Disconnecting and connecting battery earth lead	113
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	113
61 20 900 Disconnecting and connecting battery earth lead	113
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	113
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	113
61 20 900 Disconnecting and connecting battery earth lead	113
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61 20 900 Disconnecting and connecting battery earth lead	113
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52 16 422 Replacing upholstery for driver's seat backrest

PRELIMINARY WORK

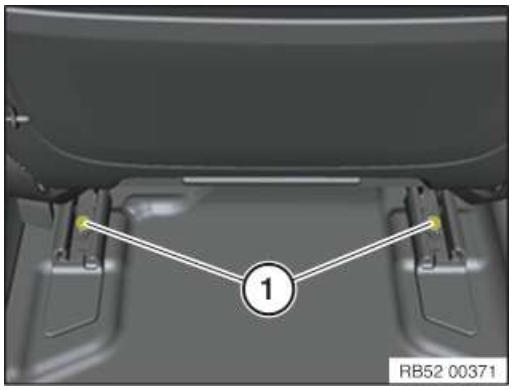
1 – Remove front seat

WARNING

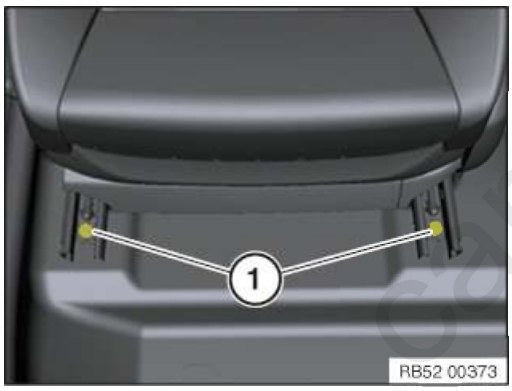
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

carmanuals.com

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

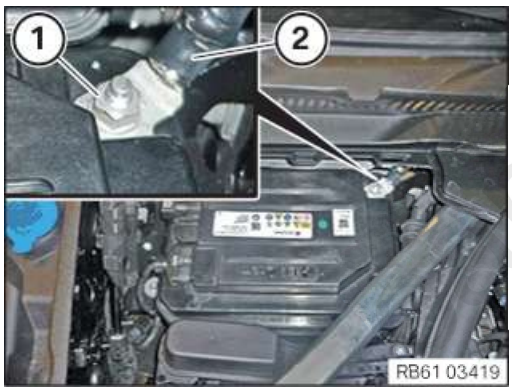
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

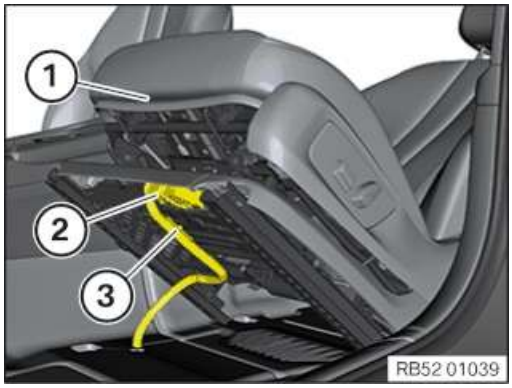
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove front head restraint



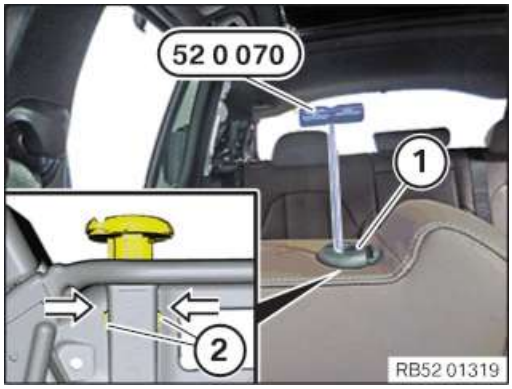
- Press the lock (2) and remove the head restraint (1) from the backrest toward the top.

3 – Removing the guide sleeve for the front head restraint

NOTICE

The description is for one component only. The procedure is identical for all further components.

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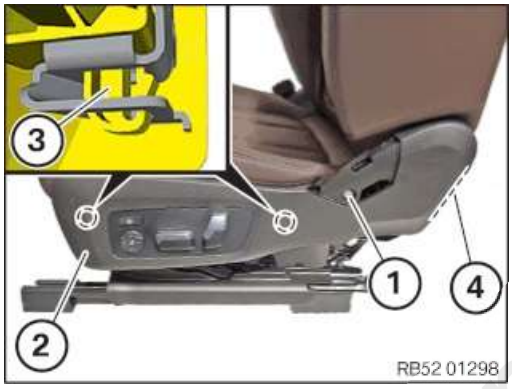


- Push the latch mechanisms (2) inward in direction of the arrow with the special tool .
- Remove the guide sleeve (1) towards the top.

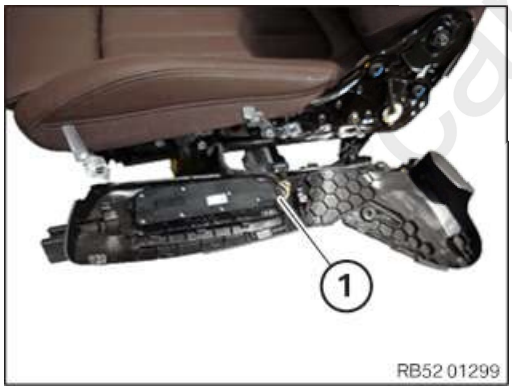
4 – Remove outer cover on front seat



- Unclip the cover (1).



- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

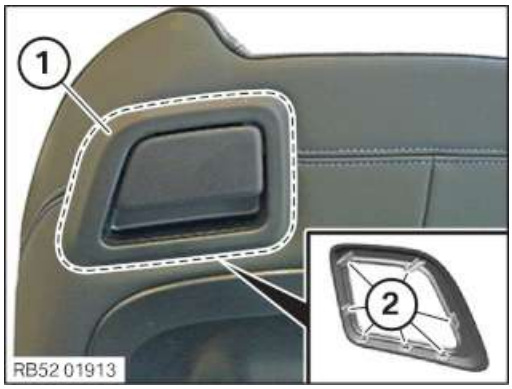
5 – Remove inner cover on front seat



- Loosen screw (1).
- Guide the cover (2) out to the rear and remove.

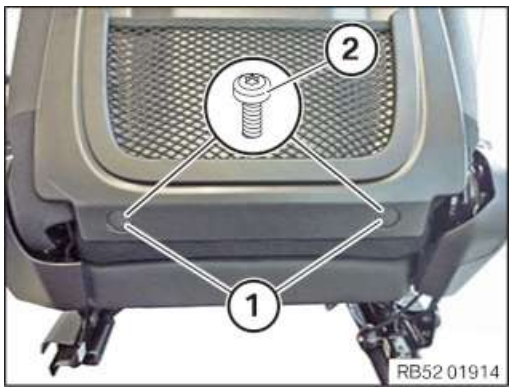
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6 – Removing the cover for the backrest release

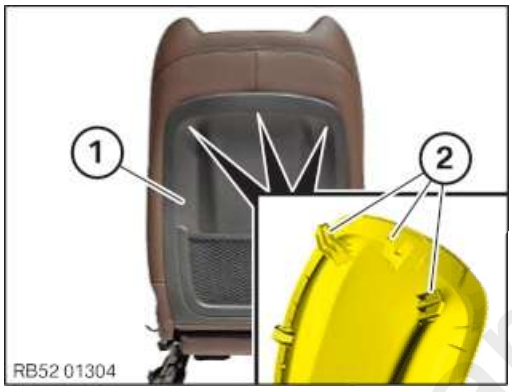


- Unclip and remove cover (1) for the backrest release in the marked area from latch mechanisms (2) using a suitable tool.

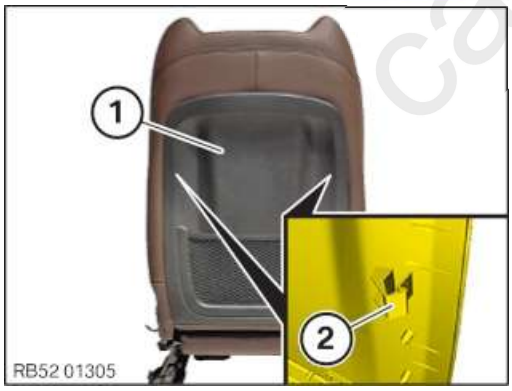
7 – Removing rear panel on the front seat backrest



- Unclip the cover caps (1) with a suitable tool.
- Loosen screws (2).



- Slide the rear panel (1) down and guide it out at the guides (2).



- Unclip the rear panel (1) from the clamps (2) and remove.

8 – Removing the backrest cover with the cushion for the front seat

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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!

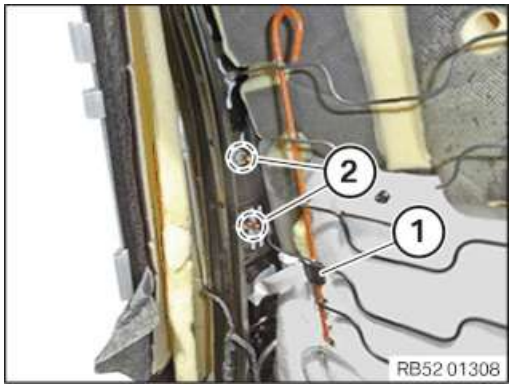
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Detach the backrest cover (1) in this area (2).
- Unhook seat cover (3).

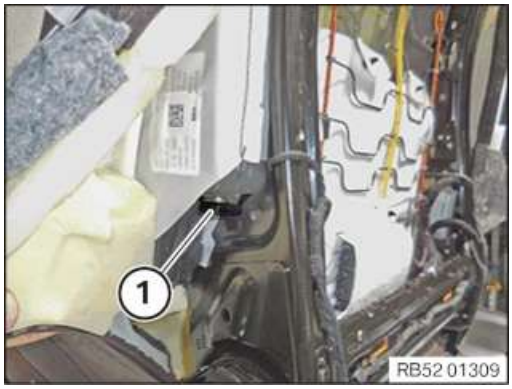


- Unclip clips (1).
- Unlock plug connection (2) and disconnect.



- Detach the holder (1).
- Loosen nuts (2).

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- Unlock plug connection (1) and disconnect.



- Carefully guide out backrest cover (1) in the marked area (2).
- Remove the backrest cover (1) with the cushion damage-free in marked area (2).
- Guide out the backrest cover (1) with cushion complete with the side airbag in the direction of the arrow.

9 – Remove side airbag from front seat

WARNING

Airbag unit.

Danger! Life-threatening injuries!

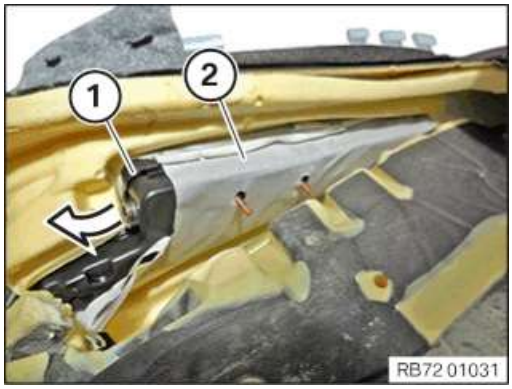
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

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.



- Pull the side airbag (1) out in the direction of arrow from the seat cover bag (2) on the backrest cover.

10 – Remove the backrest cover from front seat-backrest

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10 – Remove the backrest cover from front seat-back. ...



- Loosen all clamp on the trim wires (1).
- Remove the backrest cover (2) from the upholstery.
- Completely remove clamps from the backrest cover (2) and the cushion.

MAIN WORK

11 – Renewing the cushion for the front seat backrest

TECHNICAL INFORMATION

The heating mat is bonded to the foam pad and cannot be disassembled without damaging it.
When replacing, new heating mat must always be fitted with new foam pads.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **Equipment specification with seat heating**

  Position and align the heating mat (1) on the upholstery (2).

  Bond the heating mat (1) with the upholstery (2).

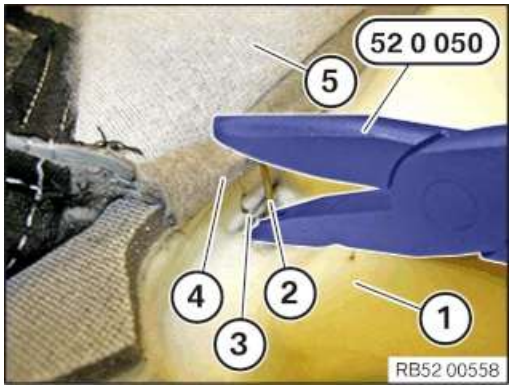
POSTPROCESSES

12 – Install the backrest cover of the front seat backrest



- Place the backrest cover (2) onto the upholstery.
- Secure all trim wires (1) with the clamps.

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- Renew the clamps (2).

  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround the trim wire (3) of the cushion (1) and the trim wire (4) of the backrest cover (5) with the clamp (2) and bend the clamp (2) to close it.

13 – Install side airbag on front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

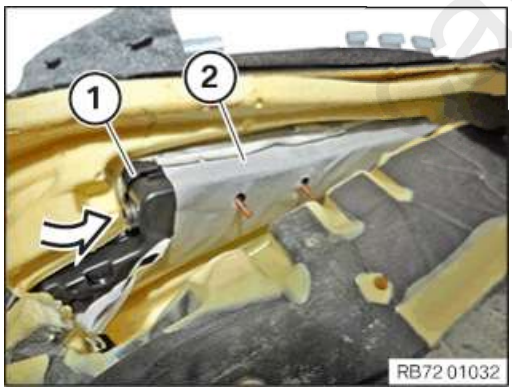
- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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



- Feed the side airbag (1) in the direction of arrow into the seat cover pocket (2) on the backrest cover and position it correctly.

14 – Install the backrest cover with the cushion for the front seat

WARNING

Airbag unit.

Danger! Life-threatening injuries!

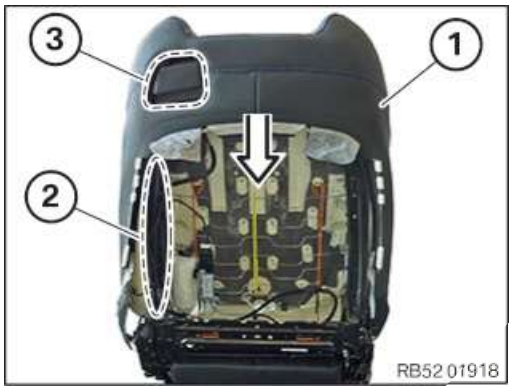
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators

WARNING

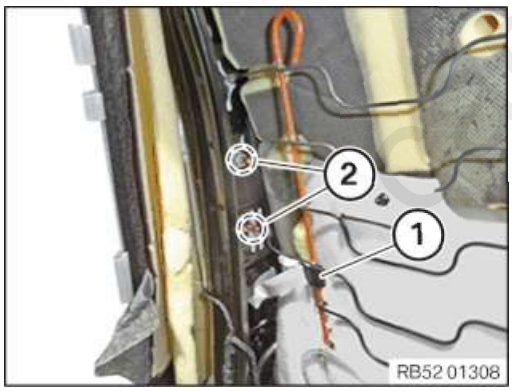
Pyrotechnic components.

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.



- Position backrest cover (1) with the cushion without damaging it in marked area (2).
- Position the backrest cover (1) completely with the side airbag in the direction of the arrow.
- Position the stud bolt of the side airbag in the area (2) correctly.
- Position backrest cover (1) correctly in the marked area (3).

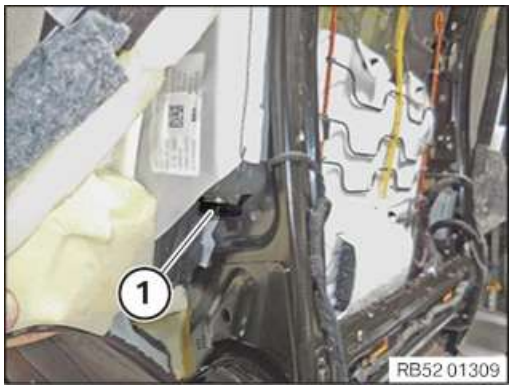


- Attach the holder (1).
- Renew nuts (2).

  Parts: Nuts
- Tighten nuts (2).

Airbag on backrest frame

Nut	Renew nut.	Tightening torque	6,5 Nm



- Connect connectors (1) and lock.

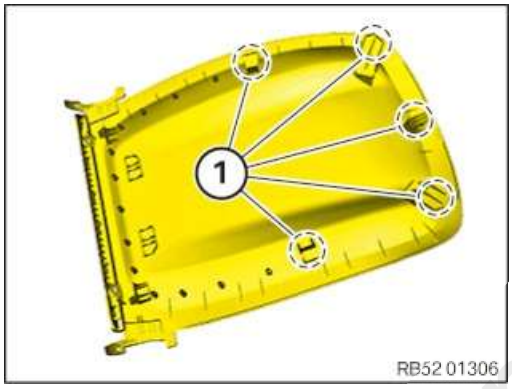


- Clip in clips (1).
- Connect connectors (2) and lock.

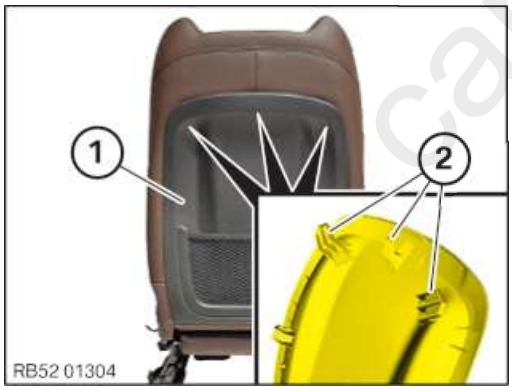


- Attach the backrest cover (1) in this area (2).
- Hook the seat cover (3).

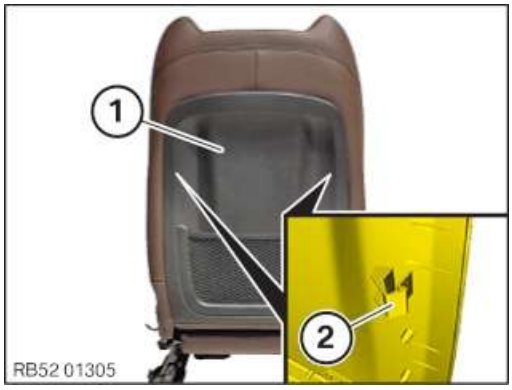
15 – Installing rear panel on the front seat backrest



- Check the guides and clamps (1) for damage and renew the rear panel as needed.

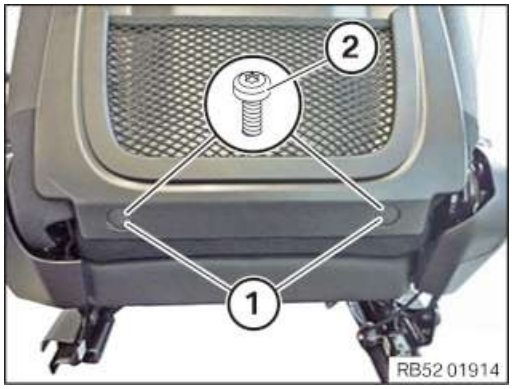


- Thread the rear panel (1) in at the clamps (2).



- Position the rear panel (1) and clip it in at the clamps (2).

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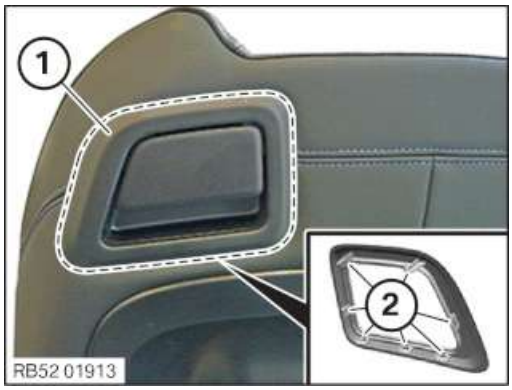
- Tighten the screws (2).

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

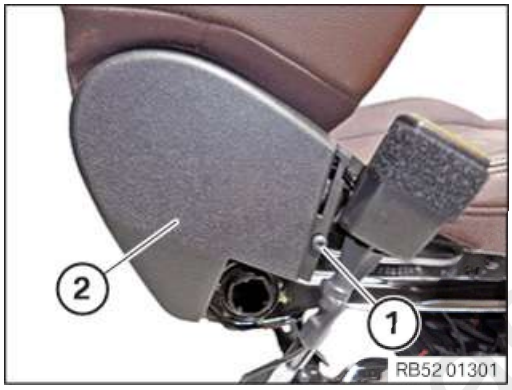
- Clip in cover caps (1).

16 – Installing a cover for backrest release



- Position the cover for backrest release (1) correctly in the marked area.
- Clip in the latch mechanism (2) of the cover for backrest release (1).

17 – Installing the inner cover on front seat



- Feed in the cover (2) from the rear and position it.
- Tighten down screw (1).

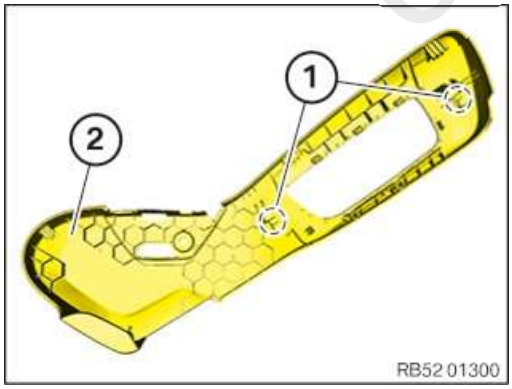
Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

18 – Install outer cover on front seat

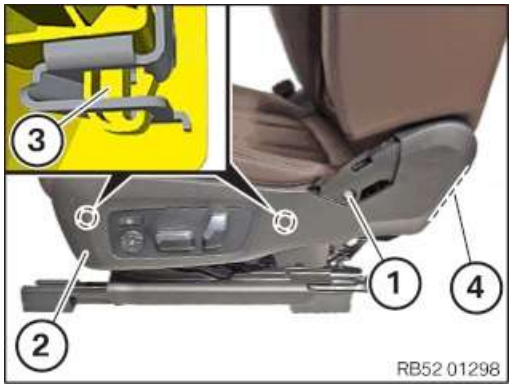


- Check the locking units (1) for damages, and replace the cover if necessary (2).

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- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

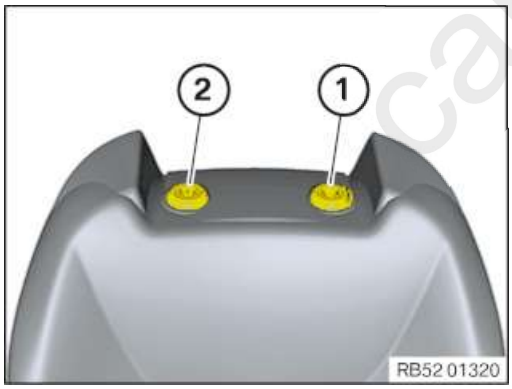
Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Clip in the cover (1).

19 – Install the guide sleeve for the front head restraint



- Pay attention to the installation position:

  Insert the guide sleeve (1) **with** unlocking towards the left in the direction of travel.

  Insert the guide sleeve (2) **without** unlocking towards the right in the direction of travel.



NOTICE

The description is for one component only. The procedure is identical for all further components.

- Insert the guide sleeve (1) into the rear seat backrest in the direction of arrow from the top and lock it.

  You have to feel the guide sleeve (1) engage.

20 – Install the front head restraint

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- Insert the head restraint (1) in the direction of the arrow into the guides (2).
- Slide the head restraint (1) in until the lock (3) is securely engaged.

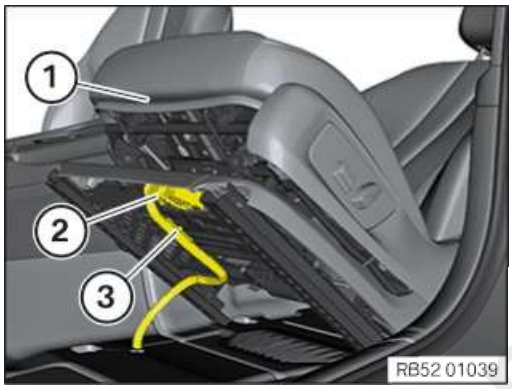
21 – Install front seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

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- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

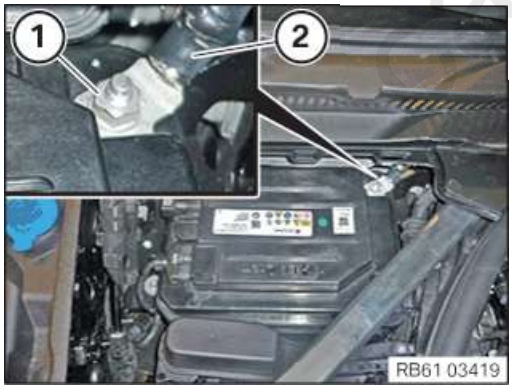
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

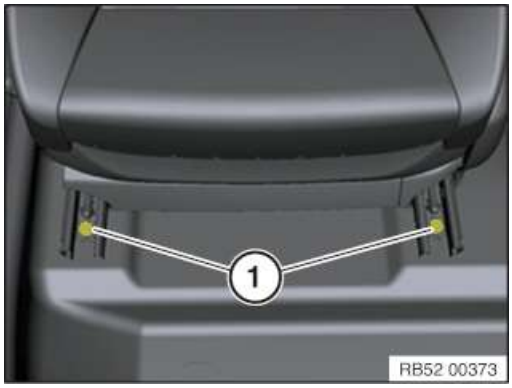


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

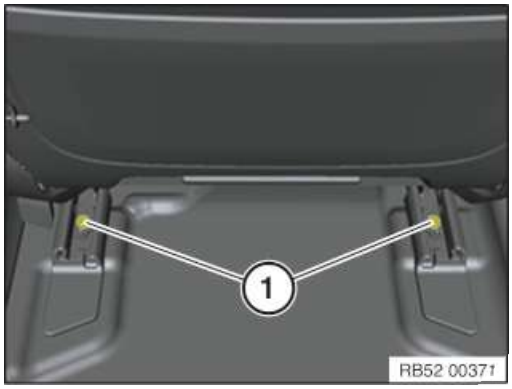


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Airbag on backrest frame Used in step 14

Nut	Renew nut.	Tightening torque	6,5 Nm

Rear panel on rear seat backrest Used in step 15

Screw		Tightening torque	3 Nm

Seat trim to seat frame Used in step 1718

Sheet metal screw		Tightening torque	2.5 Nm

Inner seat trim to seat frame Used in step 17

Oval-head screw	Renew screw.	Tightening torque	3.3 Nm

Outer seat trim to seat frame Used in step 18

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery Used in step 21

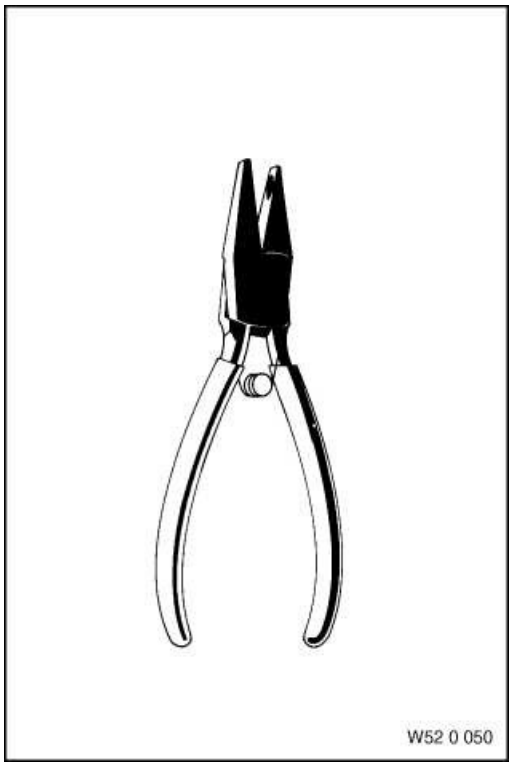
Nut M8		Tightening torque	19 Nm

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Seat to body			Used in step 21
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 492 668 (52 0 050) Pliers



Common		Used in step 12
Usage	For securing clamps on seat cover	
Included in the tool or work		
Storage location	C14	
Replaced by		
In connection with		
SI-Number	52 06 87 (808)	

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	121

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	121

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	121
61 20 900 Disconnecting and connecting battery earth lead	121
61 20 900 Disconnecting and connecting battery earth lead	121
61 20 900 Disconnecting and connecting battery earth lead	121
61 20 900 Disconnecting and connecting battery earth lead	121
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	121
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	121
61 20 900 Disconnecting and connecting battery earth lead	121
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	121
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	121
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61 20 900 Disconnecting and connecting battery earth lead	121
61 20 900 Disconnecting and connecting battery earth lead	121
61 20 900 Disconnecting and connecting battery earth lead	121

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52 16 426 Replacing upholstery for front passenger seat

NOTICE

Description is for left component only. Procedure on the right side is identical.

PRELIMINARY WORK

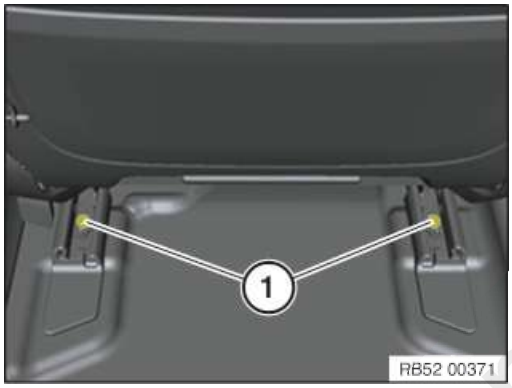
1 – Remove front seat

WARNING

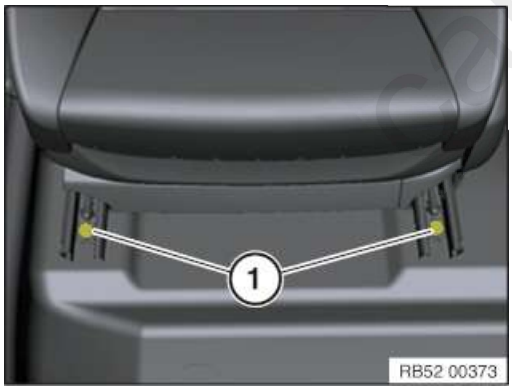
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Loosen screws (1).



- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Completely retract the steering column

  Adjust the steering column completely upwards.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

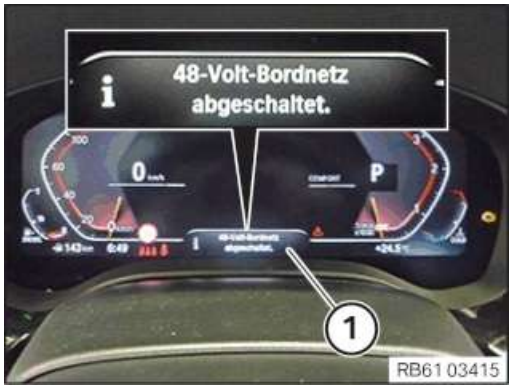
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.

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WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

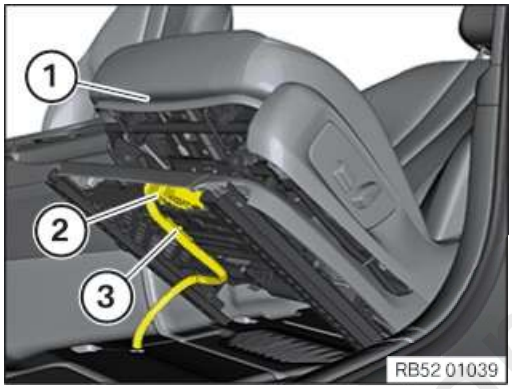
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Remove outer cover on front seat

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- Unclip the cover (1).

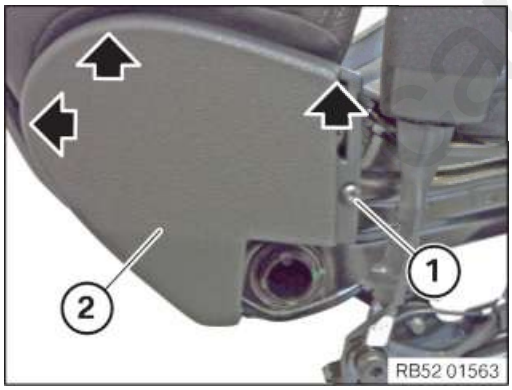


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



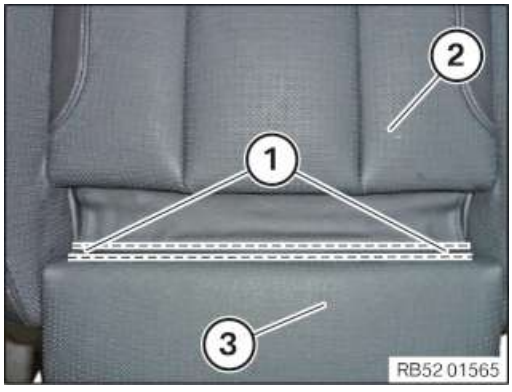
- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

3 – Remove inner cover on front seat



- Loosen screw (1).
- Guide out the cover (2) at the arrows.

4 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).

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- Loosen screws (1).
- Feed the thigh support (2) out.



- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

MAIN WORK

POSTPROCESSES

5 – Install thigh support



- Position the thigh support (2).
- Connect connectors (1) and lock.

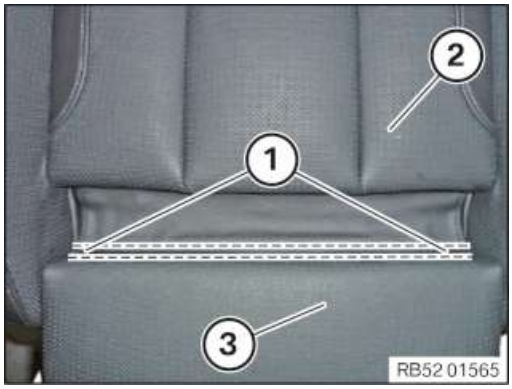


- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

Thigh support to front seat

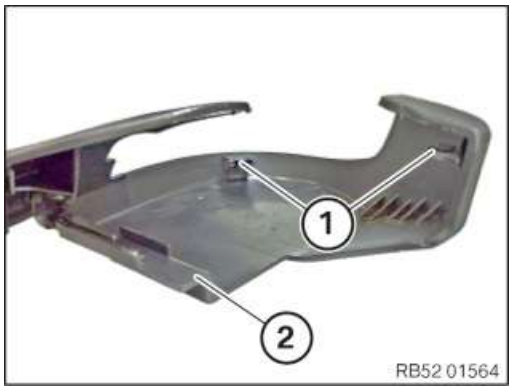
Screw		Tightening torque	2 Nm

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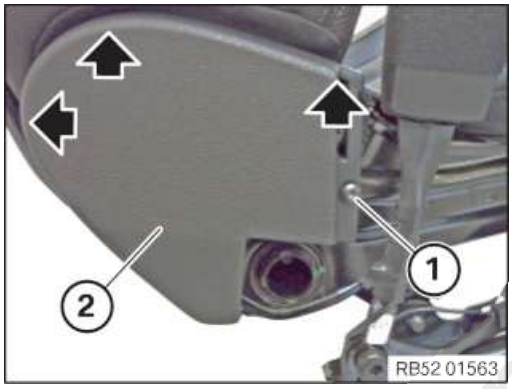


- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

6 – Installing the inner cover on the front seat



- Check guides (1) of cover (2) for damage, renew the cover if necessary.

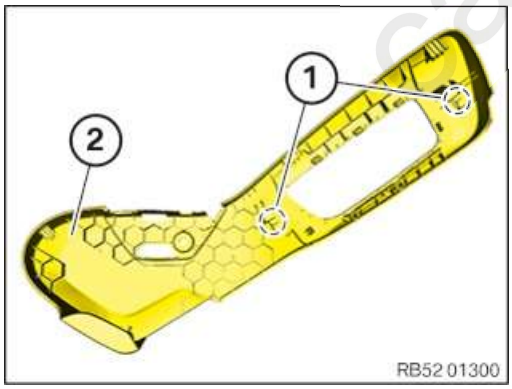


- Guide in the cover (2) on the arrows and position correctly.
- Tighten down screw (1).

Inner cover on seat frame

Screw	Tightening torque	2.5 Nm

7 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.

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- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Clip in the cover (1).

8 – Install front seat

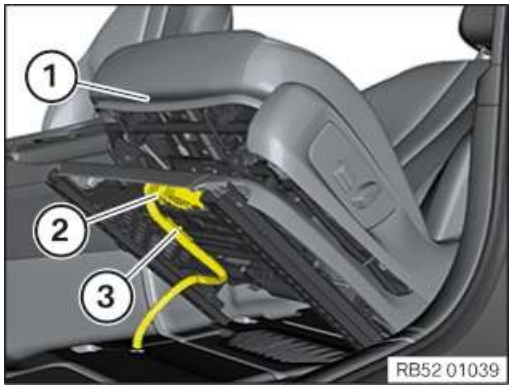
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

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- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

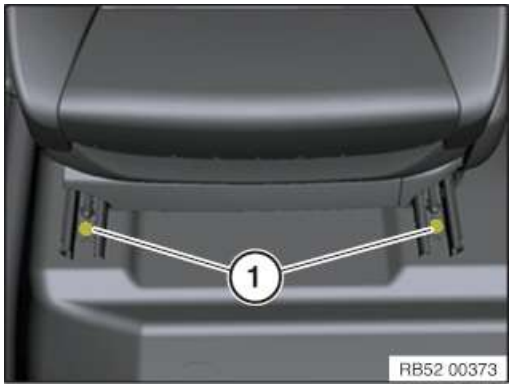


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.



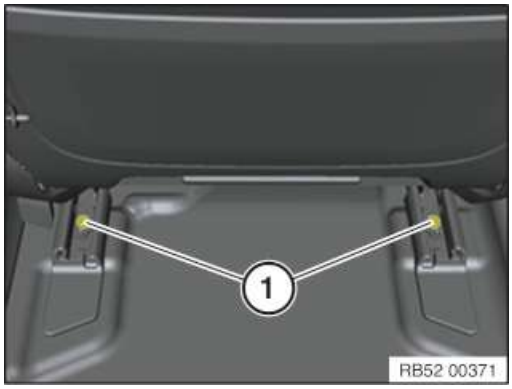
- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Thigh support to front seat — Used in step 5

Screw		Tightening torque	2 Nm

Inner cover on seat frame — Used in step 6

Screw		Tightening torque	2.5 Nm

Seat trim to seat frame — Used in step 7

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame — Used in step 7

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 8

Nut M8		Tightening torque	19 Nm

Seat to body — Used in step 8

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	18

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	18

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	18
61 20 900 Disconnecting and connecting battery earth lead	18
61 20 900 Disconnecting and connecting battery earth lead	18
61 20 900 Disconnecting and connecting battery earth lead	18
61 20 900 Disconnecting and connecting battery earth lead	18
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61 20 900 Disconnecting and connecting battery earth lead	18
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	18
61 20 900 Disconnecting and connecting battery earth lead	18
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	18
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	18
61 20 900 Disconnecting and connecting battery earth lead	18
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61 20 900 Disconnecting and connecting battery earth lead	18

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52 19 065 Remove and install / replace lumbar support on front seat

PRELIMINARY WORK

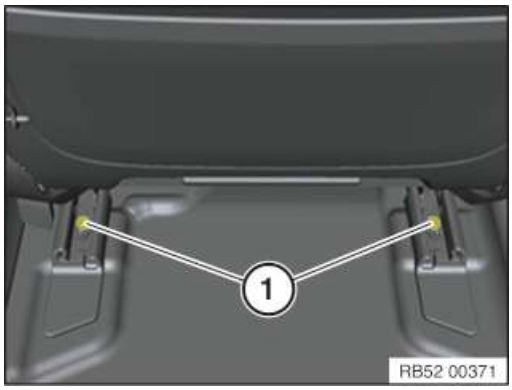
1 – Remove driver's seat.

WARNING

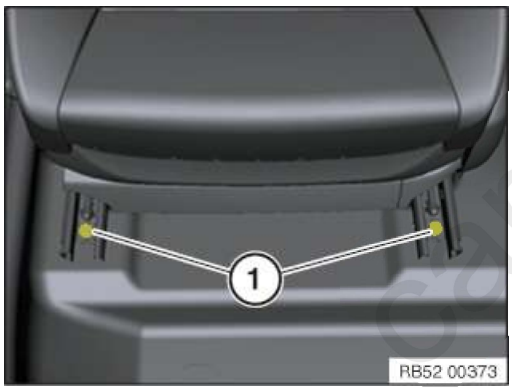
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Move front seat forwards.
- Loosen screws (1).



- Move front seat rearwards.
- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Move the steering column to the fully retracted position and move upwards fully.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

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WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

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Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

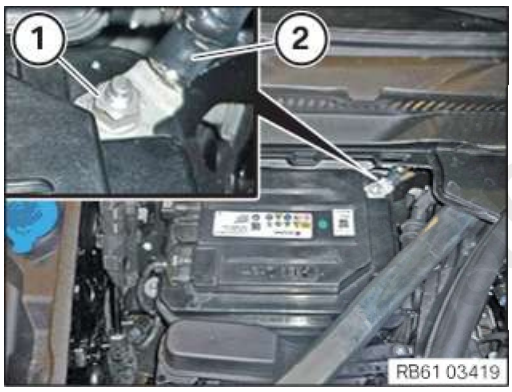
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

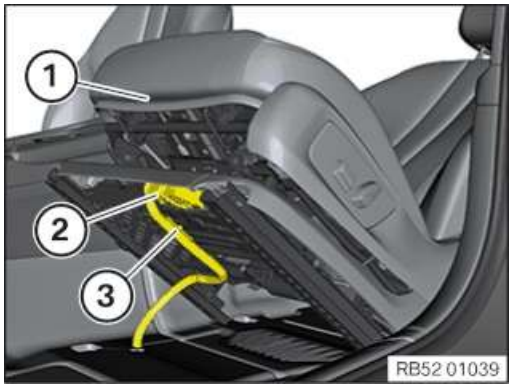
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Mounting the front seat to the universal seat mount

TECHNICAL INFORMATION

Use of the universal seat mount is recommended for carrying out expert repairs.

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- Mount special tool on special tool 0 495 187 (00 2 300).

CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

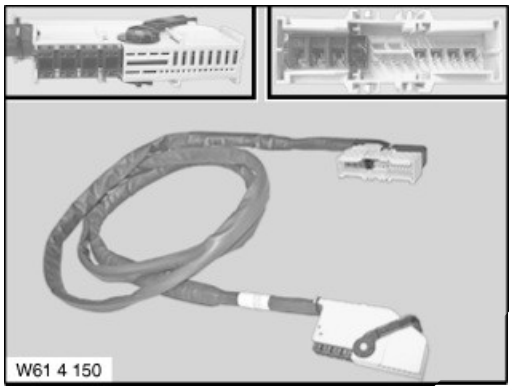
- Mount the front seat onto the special tool .

  To ensure a correct and professional repair, it is recommended to use special tool 0 495 187 (00 2 300) and .

▸ **Connect the removed front seat to the wiring harness.**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- The special tool will be required to connect the wiring harness of the vehicle and the removed front seat to adjust the front seat when it is in removed state.



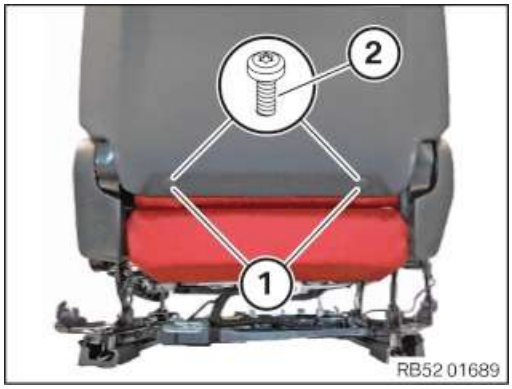
- Connect special tool to the wiring harness of the vehicle and the removed front seat to adjust the front seat.

3 – Remove rear panel on front seat backrest

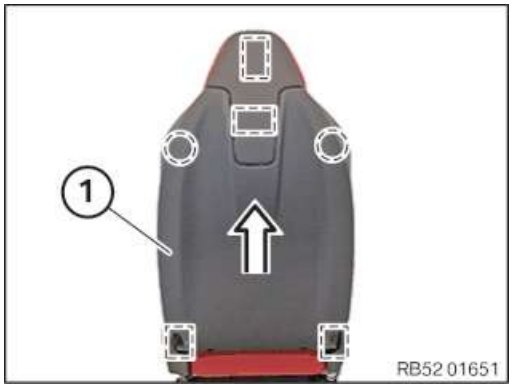


- Loosen screw (1).

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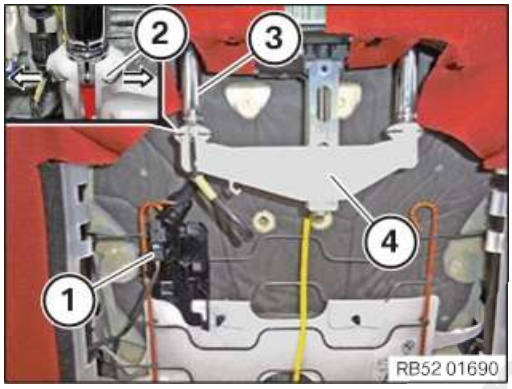


- Remove cover caps (1) with a suitable tool.
- Release screws (2) underneath.



- Carefully unclip rear panel on front seat backrest (1) at marked points and feed out in direction of arrow.

4 – Removing the head restraint

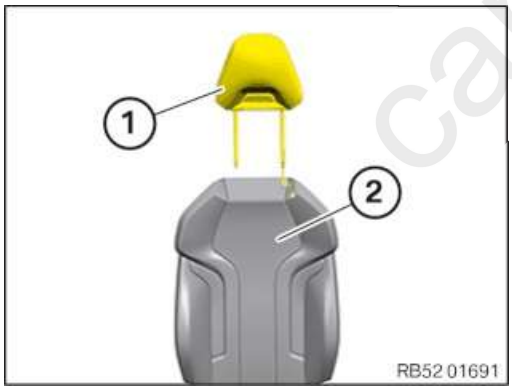


- Unlock plug connection (1) and disconnect.

TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

- Lightly pull clamps (2) in the direction of the arrow. Detach the head rest (3) from the drive (4).



- Carefully remove the head rest with cable (1) from the front seat (2).

5 – Remove outer cover on front seat



- Unclip the cover (1).

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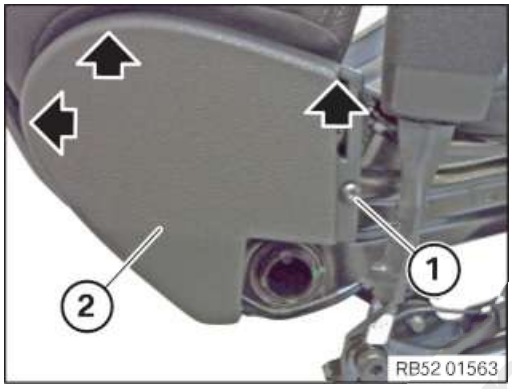


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



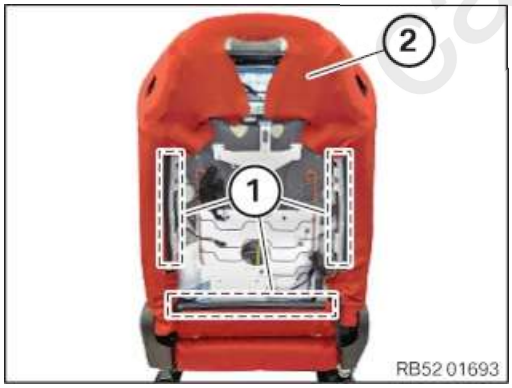
- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

6 – Remove inner cover on front seat



- Loosen screw (1).
- Guide out the cover (2) at the arrows.

7 – Removing the backrest cover with cushion



- Unclip edge stripping (1) in the marked area using suitable tool.
- Carefully detach seat cover (2) from backrest frame at all other attachment points.



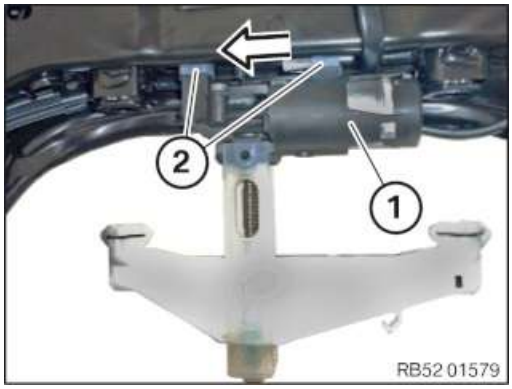
- Carefully disconnect seat cover with upholstery (1) from seat frame (2).
- If necessary, unlock existing plug connections and disconnect.

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8 – Remove head restraint height adjuster motor



- Unlock plug connection (1) and disconnect.



- Remove the drive for the head restraint height adjuster (1) at the attachment points (2) in the direction of the arrow.

MAIN WORK

9 – Remove lumbar support on front seat

Prerequisite

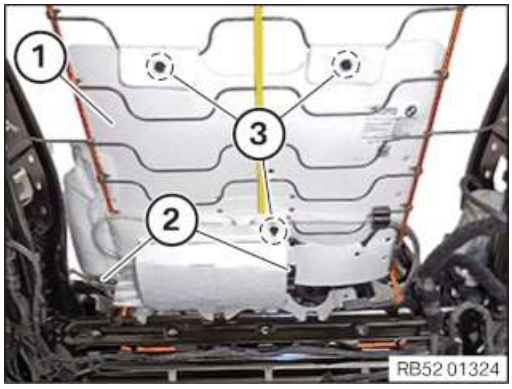
The lumbar support and the backrest width adjustment are completely depressurised.



NOTICE

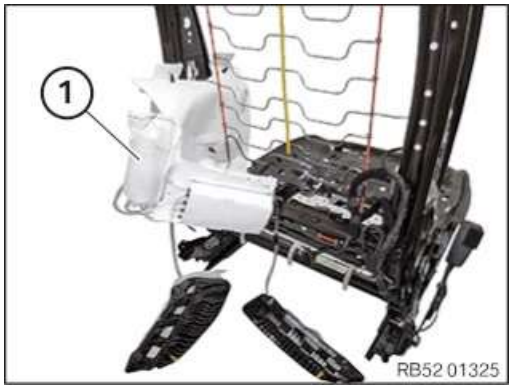
Perform the operations on the left and right side.

- Unscrew the bolts (1) and guide out the air cushion of the backrest width adjustment left/right.



- Disconnect the plug connections (2) and unclip available cable clips.
- Unclip the lumbar support (1) at the clips (3) and feed out the retaining tabs.

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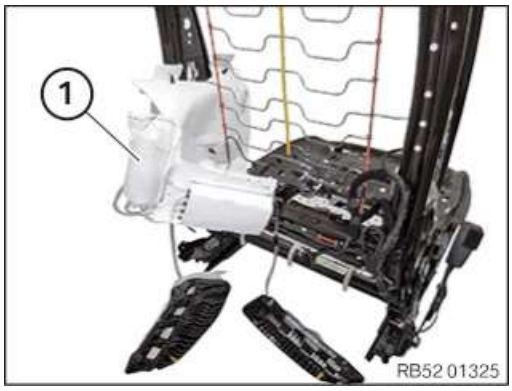


- Carefully guide out the lumbar support (1) complete with pump unit and valve block on the side as shown.

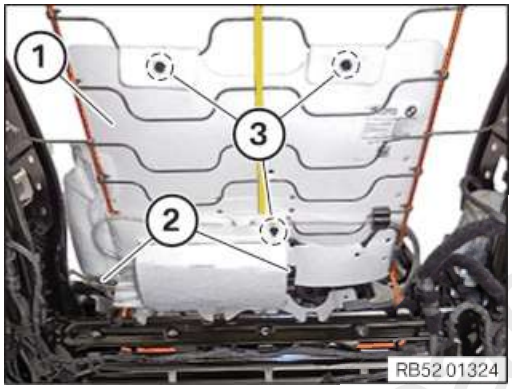
10 – Install lumbar support on front seat

Prerequisite

The lumbar support and the backrest width adjustment are completely depressurised.



- Carefully guide in the lumbar support (1) complete with pump unit and valve block as shown.



- Position the lumbar support (1) at the clips (3) and clip it in.
- Connect the plug connections (2) and clip in the existing cable clips.



NOTICE

Perform the operations on the left and right side.

- Position the air cushion of the backrest width adjustment (2) left/right and tighten the bolts (1).

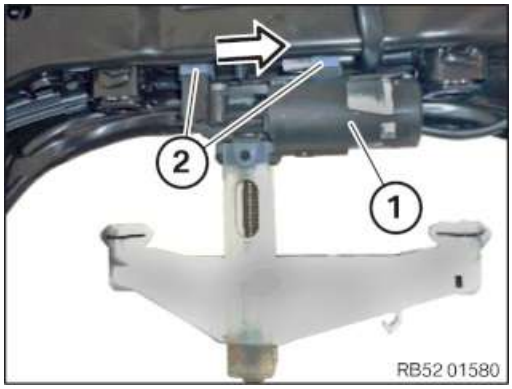
Backrest width adjustment on backrest frame

Oval-head screw with collar		Tightening torque	2.5 Nm

POSTPROCESSES

11 – Installing the drive for head restraint height adjustment

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TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

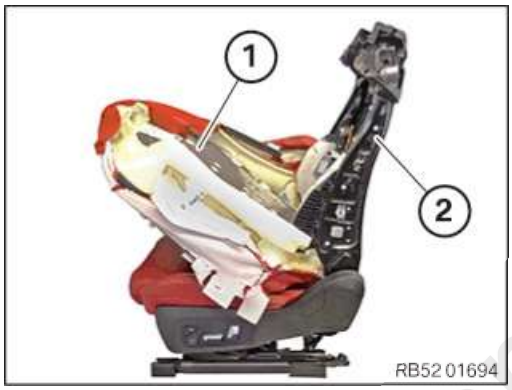
- Renew drivetrain for head restraint height adjustment (1).

  Parts: Drive unit for head restraint height adjustment
- Installing drive for head restraint height adjustment (1) at the attachment points (2) in the direction of arrow.

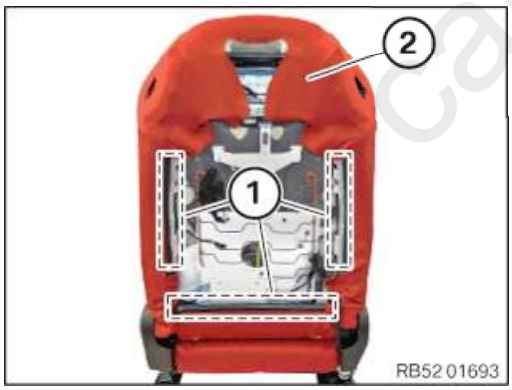


- Connect connectors (1) and lock.

12 – Installing the backrest cover with cushion



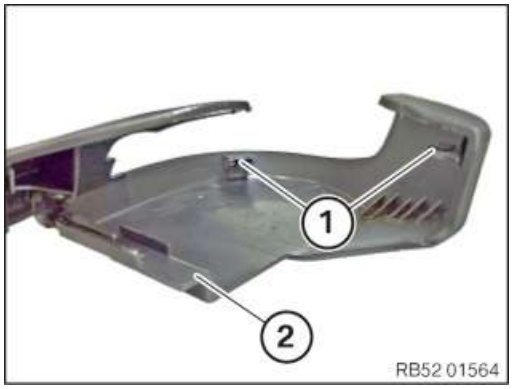
- Position backrest cover with cushion (1) as pictured on backrest frame (2).
- If necessary, connect and lock available plug connections.



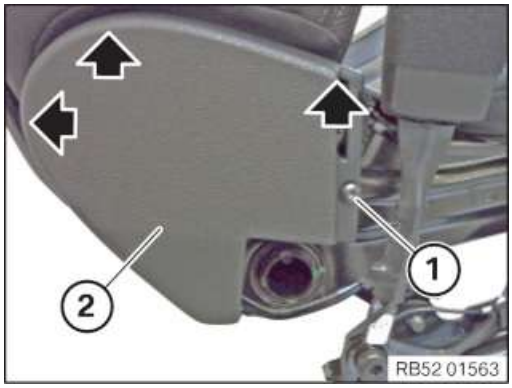
- Position seat cover (2) correctly and hook in at all attachment points.
- Clip in edge stripping (1) in the marked area.

13 – Installing the inner cover on the front seat

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- Check guides (1) of cover (2) for damage, renew the cover if necessary.

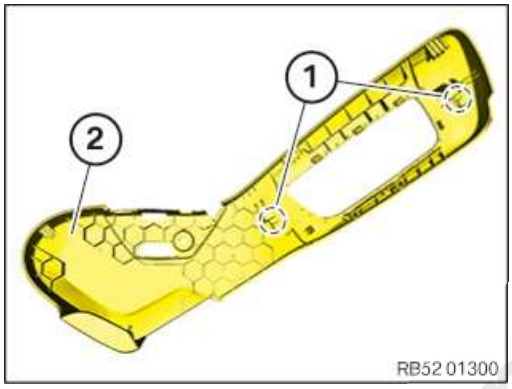


- Guide in the cover (2) on the arrows and position correctly.
- Tighten down screw (1).

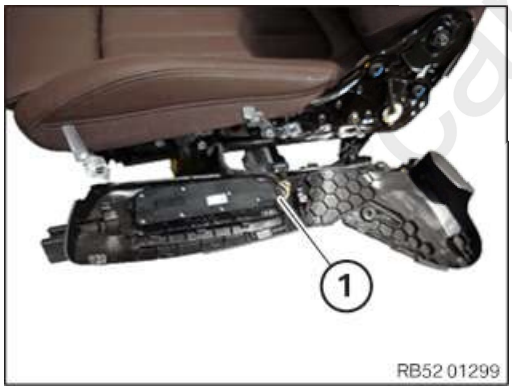
Inner cover on seat frame

Screw		Tightening torque	2.5 Nm

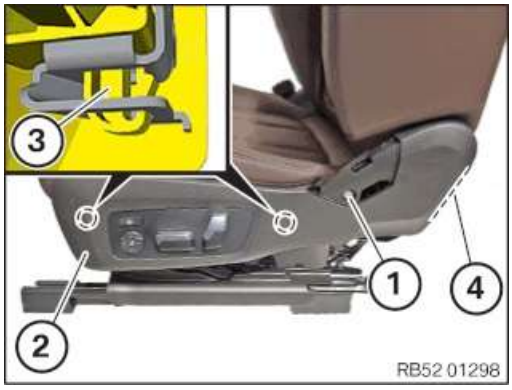
14 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

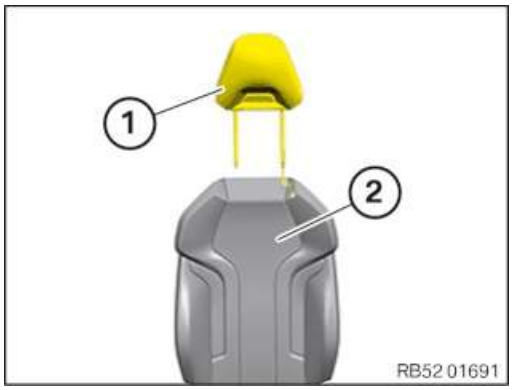
Screw		Tightening torque	3.5 Nm

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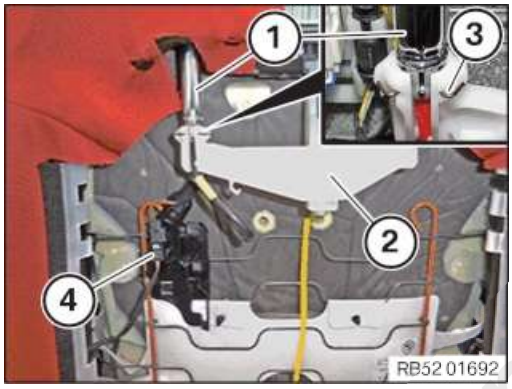


- Clip in the cover (1).

15 – Installing the head restraint



- Carefully feed head restraint with cable (1) into front seat (2).



- Clip head restraint (1) into drive (2).

  The clamps (3) must engage audibly.
- Check the correct fit of the head restraint (1) in the clamps (3).
- Connect and lock plug connection (4) and clip into cable clip.

Check

- Check the correct latch mechanism of the head restraint with a pulling test.
- Pull the head restraint upwards by hand.

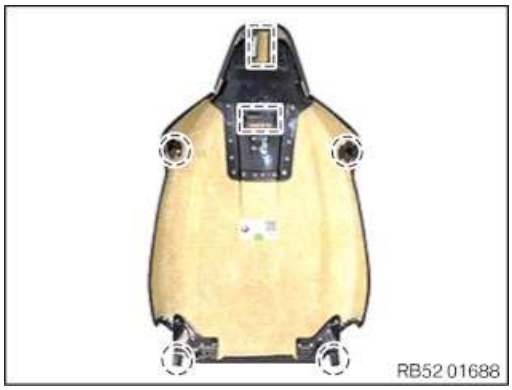
Result

» The head restraint cannot be pulled off.

Measure

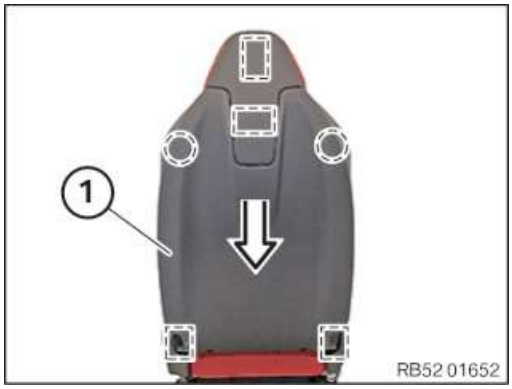
- Continue installation.

16 – Install the rear panel on the front seat backrest

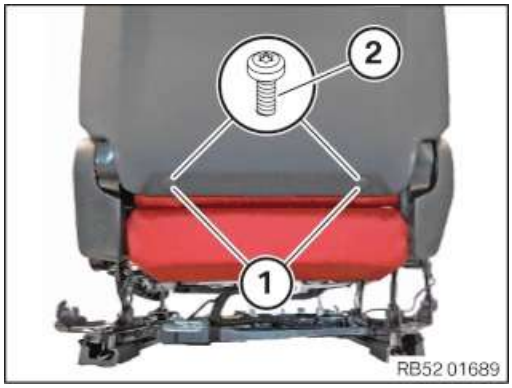


- Check guides and latch mechanisms in marked areas for damage.

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- Position rear panel on front seat backrest (1) correctly and clip into place in arrow direction.



- Position screws (2) correctly and tighten.

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Position cover caps (1) correctly and clip in.



- Tighten down screw (1).

Release handle to backrest frame

Screw		Tightening torque	2,7 Nm

17 – Removing the seat from the universal seat mount

▶ **Disconnecting the removed front seat from the wiring harness**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- Disconnect special tool from the wiring harness of the vehicle and the removed front seat.

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CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Remove front seat from the special tool .

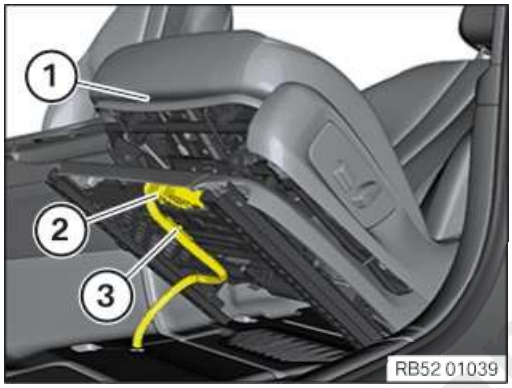
18 – Install driver's seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- *Check all plug connections for completeness, correct fit and locking where required.*
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

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- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

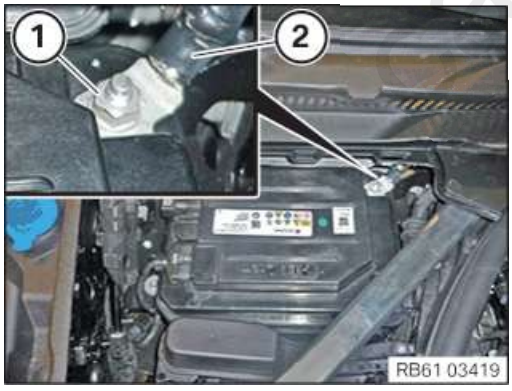
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

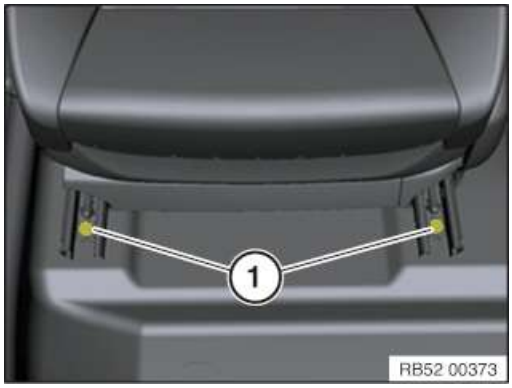


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

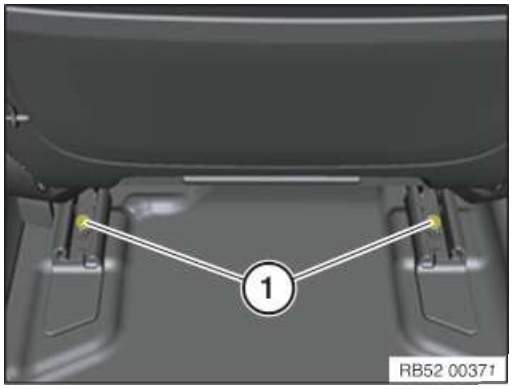


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Backrest width adjustment on backrest frame — Used in step 10

Oval-head screw with collar		Tightening torque	2.5 Nm

Inner cover on seat frame — Used in step 13

Screw		Tightening torque	2.5 Nm

Seat trim to seat frame — Used in step 14

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame — Used in step 14

Screw		Tightening torque	3.5 Nm

Rear panel on rear seat backrest — Used in step 16

Screw		Tightening torque	3 Nm

Release handle to backrest frame — Used in step 16

Screw		Tightening torque	2,7 Nm

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Negative battery cable to 48-V battery Used in step 18

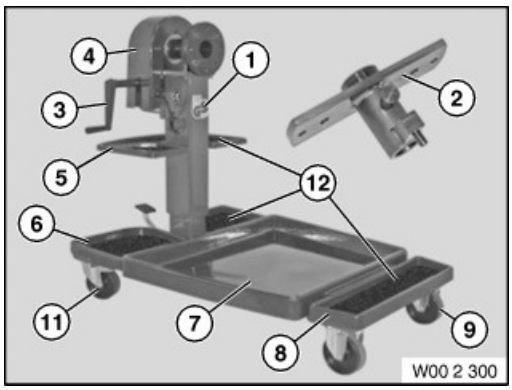
Nut M8		Tightening torque	19 Nm

Seat to body Used in step 18

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 495 187 (00 2 300) Assembly stand



Common Used in step 2

Usage	Assembly stand with universal flange for mounting engines from S85
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 04 (155)

Consisting of

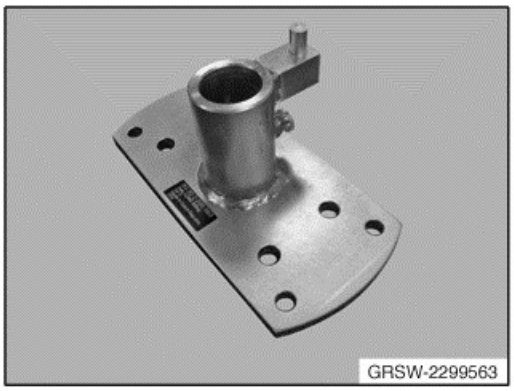
Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 495 188 (00 2 301)		**Assembly stand** available only as complete assembly stand 83 30 0 495 187.	
2	0 495 189 (00 2 302)	2 299 563	**Tool** (Universal flange). Do not use any more!!! Technically locked. Is replaced by a new flange with part number 83 30 2 299 563. All flanges delivered by the end of 2011 will be replaced free of charge. From 2012, only the new flange will be supplied. Also applies to the complete engine mounting stand 00 2 300.	
3	0 495 200 (00 2 303)		**Crank**	
4	0 495 201 (00 2 304)		**Cover** (Protective hood)	
5	0 495 202 (00 2 305)		**oddments tray** (Oddments tray for small parts)	
6	0 495 203 (00 2 306)		**Shaped element** (Rear shaped pan)	
7	0 495 204 (00 2 307)		**Collection pan** (Oil collection pan)	
8	0 495 205 (00 2 308)		**Shaped element** (Front shaped pan)	

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9	0 495 206 (00 2 309)		**Wheel** (Front wheel (without stop))	
10	0 495 207 (00 2 311)		**Wheel** (Rear wheel (with stop))	
11	0 495 208 (00 2 312)		**Mat** (Checker mat set)	
2	2 299 563		**Adapter** New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.	

Replacement tools:

2 299 563 Adapter



Common	Used in step 2
Usage	New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.
Included in the tool or work	0 495 187
Storage location	
Replaced by	
In connection with	
SI-Number	

Links

Repair instructions (PRE)	**Used in step**
Notes on 48-V battery	118

General repair instructions	**Used in step**
72 00 ... Safety regulations for handling components with gas generators	118

Repair instructions	**Used in step**
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
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61 20 900 Disconnecting and connecting battery earth lead	118
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61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
72 12 ... Unlocking/locking airbag plug connections	712

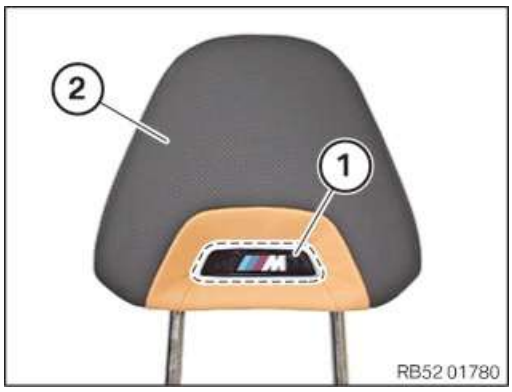
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52 19 381 Remove and install/replace emblem in left or right head restraint

NOTICE

For a better overview the removed condition is shown here.

1 – Removing badge in head restraint



- Remove badge (1) with a suitable tool in the marked area from head restraint (2).



- Unlock plug connection (1) and disconnect.
- Remove badge (2).

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52 19 396 Remove and install/replace front left or right head restraint guide

PRELIMINARY WORK

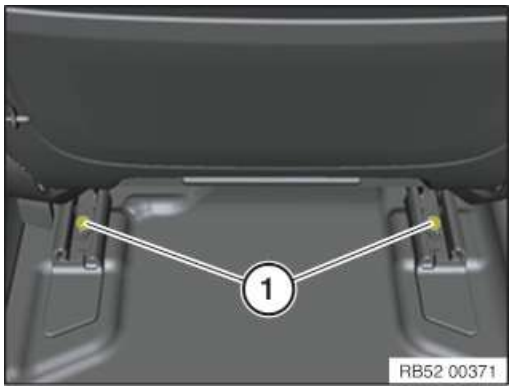
1 – Remove driver's seat.

WARNING

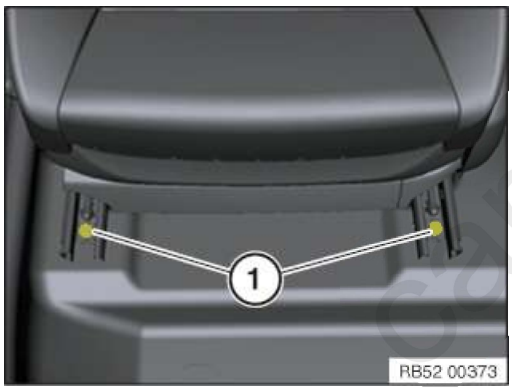
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Move front seat forwards.
- Loosen screws (1).



- Move front seat rearwards.
- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Move the steering column to the fully retracted position and move upwards fully.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

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WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

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Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

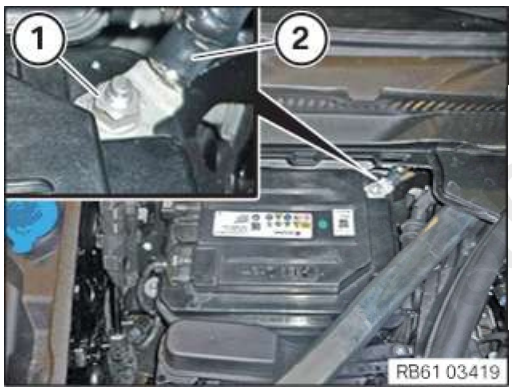
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

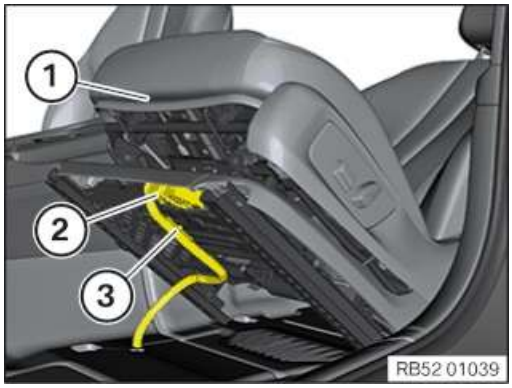
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Mounting the front seat to the universal seat mount

TECHNICAL INFORMATION

Use of the universal seat mount is recommended for carrying out expert repairs.

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- Mount special tool on special tool 0 495 187 (00 2 300).

CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

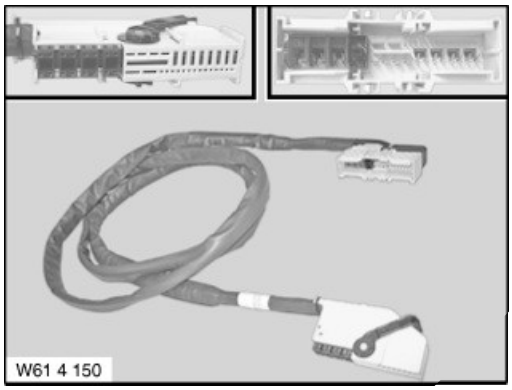
- Mount the front seat onto the special tool .

  To ensure a correct and professional repair, it is recommended to use special tool 0 495 187 (00 2 300) and .

▸ **Connect the removed front seat to the wiring harness.**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- The special tool will be required to connect the wiring harness of the vehicle and the removed front seat to adjust the front seat when it is in removed state.



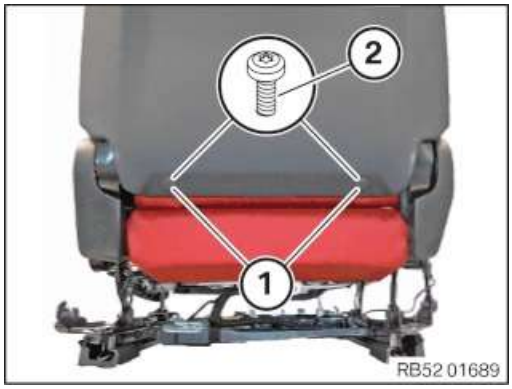
- Connect special tool to the wiring harness of the vehicle and the removed front seat to adjust the front seat.

3 – Remove rear panel on front seat backrest

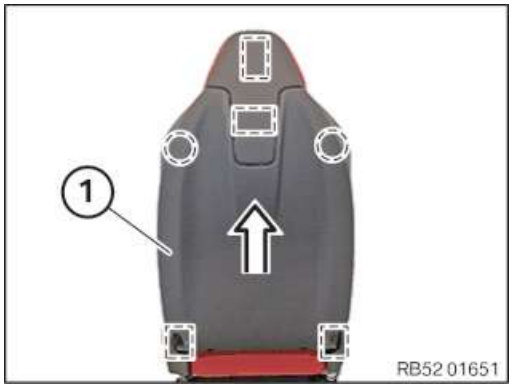


- Loosen screw (1).

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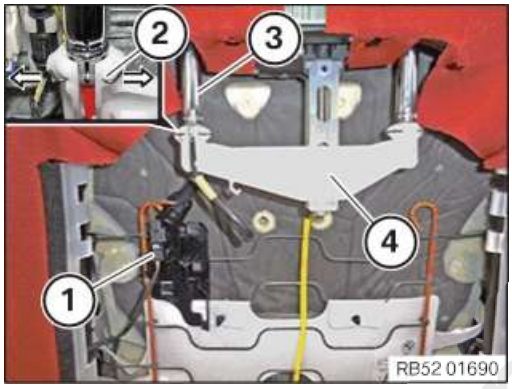


- Remove cover caps (1) with a suitable tool.
- Release screws (2) underneath.



- Carefully unclip rear panel on front seat backrest (1) at marked points and feed out in direction of arrow.

4 – Removing the head restraint

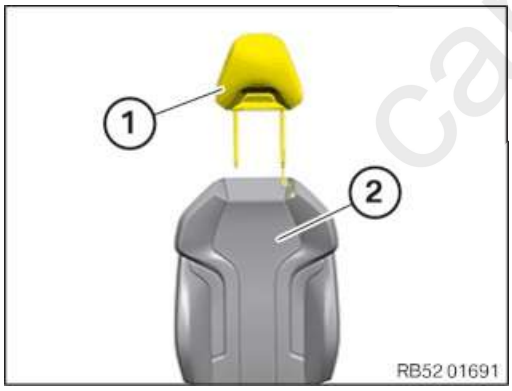


- Unlock plug connection (1) and disconnect.

TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

- Lightly pull clamps (2) in the direction of the arrow. Detach the head rest (3) from the drive (4).



- Carefully remove the head rest with cable (1) from the front seat (2).

5 – Remove outer cover on front seat



- Unclip the cover (1).

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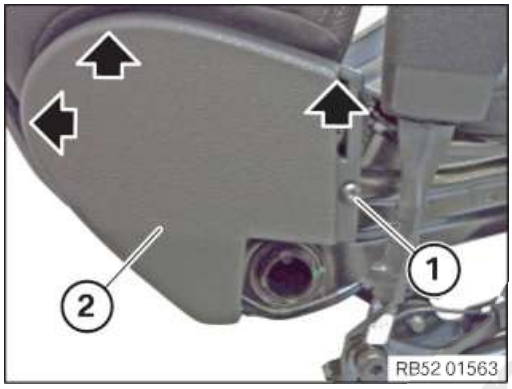


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



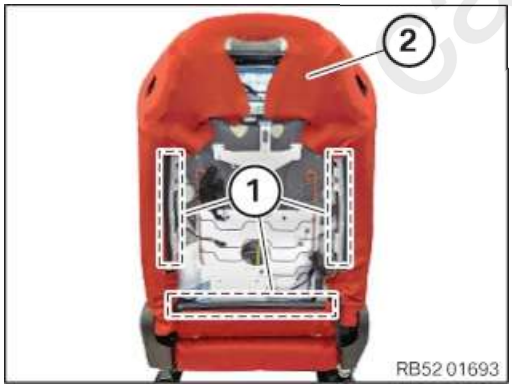
- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

6 – Remove inner cover on front seat



- Loosen screw (1).
- Guide out the cover (2) at the arrows.

7 – Removing the backrest cover with cushion



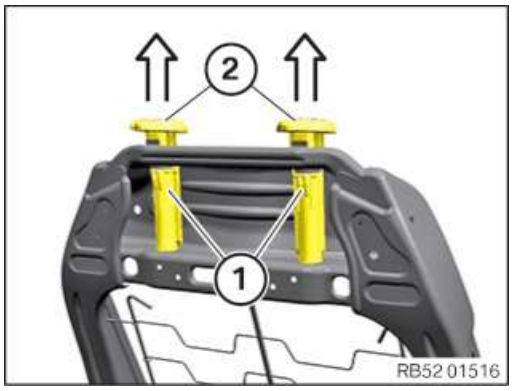
- Unclip edge stripping (1) in the marked area using suitable tool.
- Carefully detach seat cover (2) from backrest frame at all other attachment points.



- Carefully disconnect seat cover with upholstery (1) from seat frame (2).
- If necessary, unlock existing plug connections and disconnect.

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8 – Remove head restraint guide

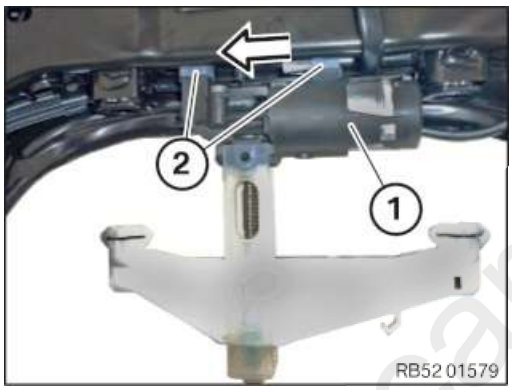


- Unlock locks (1) and remove the headrest guides (2) in the direction of the arrow.

9 – Remove head restraint height adjuster motor

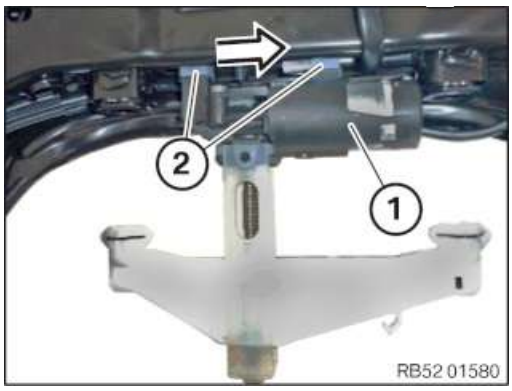


- Unlock plug connection (1) and disconnect.



- Remove the drive for the head restraint height adjuster (1) at the attachment points (2) in the direction of the arrow.

10 – Installing the drive for head restraint height adjustment



TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

- Renew drivetrain for head restraint height adjustment (1).

  Parts: Drive unit for head restraint height adjustment

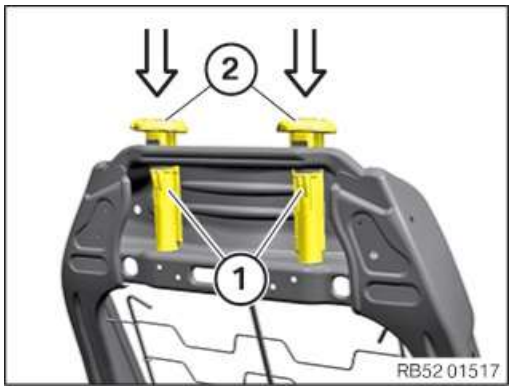
- Installing drive for head restraint height adjustment (1) at the attachment points (2) in the direction of arrow.

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- Connect connectors (1) and lock.

11 – Install the head restraint guide



- Correctly position the head restraint guides (2) and install in direction of arrow.

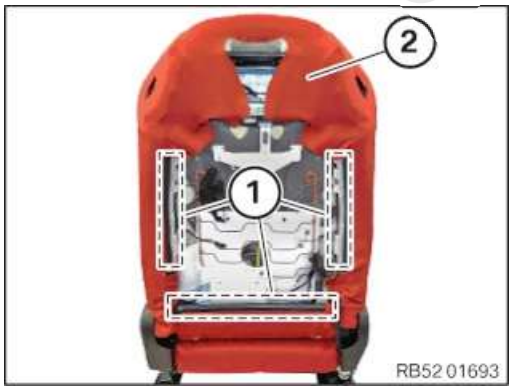
  The head restraint guides (2) are marked at the top against incorrect assembly with an arrow in the direction of travel.
- The latch mechanisms (1) must engage audibly.

POSTPROCESSES

12 – Installing the backrest cover with cushion



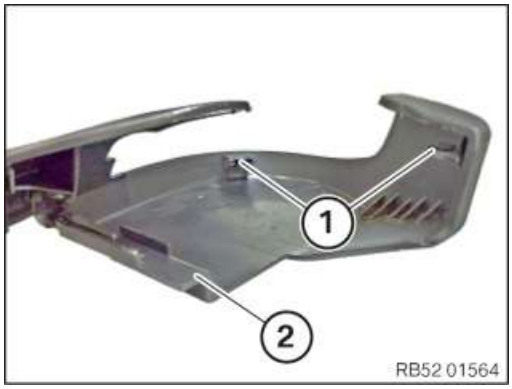
- Position backrest cover with cushion (1) as pictured on backrest frame (2).
- If necessary, connect and lock available plug connections.



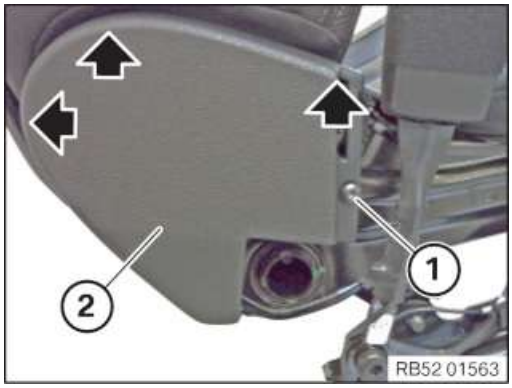
- Position seat cover (2) correctly and hook in at all attachment points.
- Clip in edge stripping (1) in the marked area.

13 – Installing the inner cover on the front seat

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- Check guides (1) of cover (2) for damage, renew the cover if necessary.

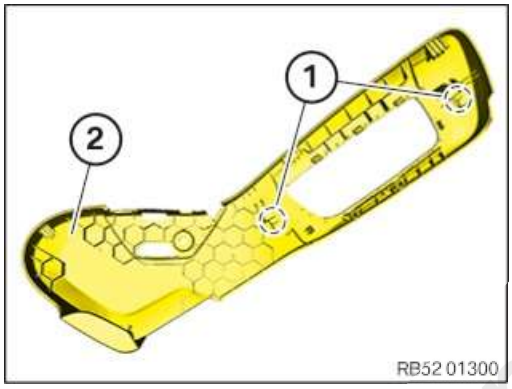


- Guide in the cover (2) on the arrows and position correctly.
- Tighten down screw (1).

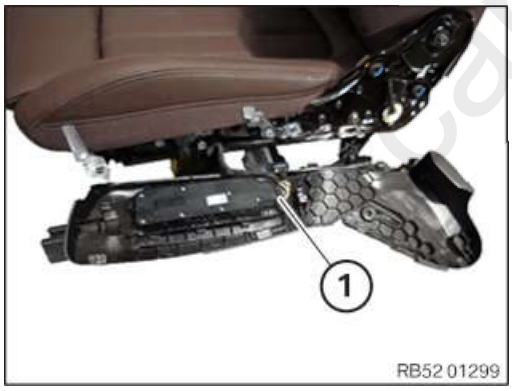
Inner cover on seat frame

Screw		Tightening torque	2.5 Nm

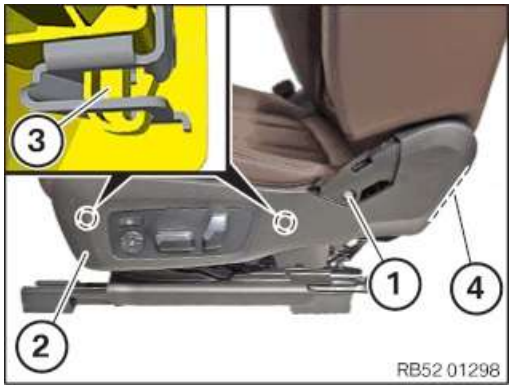
14 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

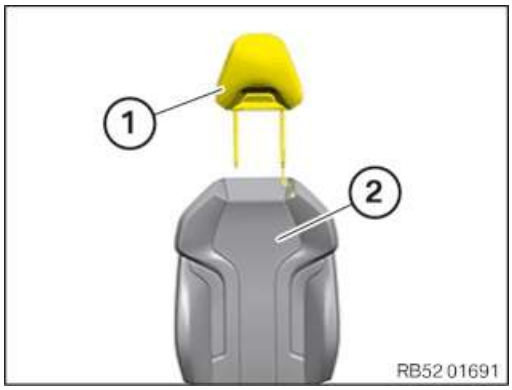
Screw		Tightening torque	3.5 Nm

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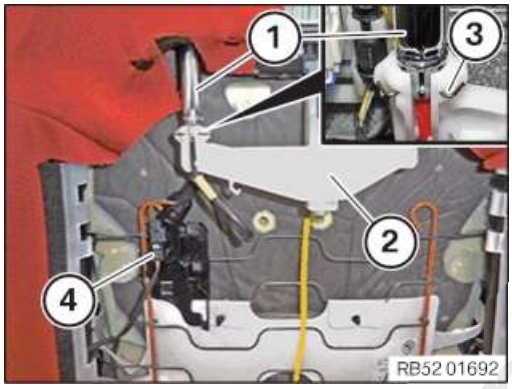


- Clip in the cover (1).

15 – Installing the head restraint



- Carefully feed head restraint with cable (1) into front seat (2).



- Clip head restraint (1) into drive (2).
  The clamps (3) must engage audibly.
- Check the correct fit of the head restraint (1) in the clamps (3).
- Connect and lock plug connection (4) and clip into cable clip.

Check

- Check the correct latch mechanism of the head restraint with a pulling test.
- Pull the head restraint upwards by hand.

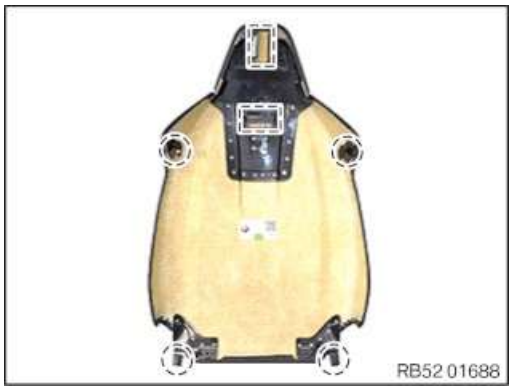
Result

» The head restraint cannot be pulled off.

Measure

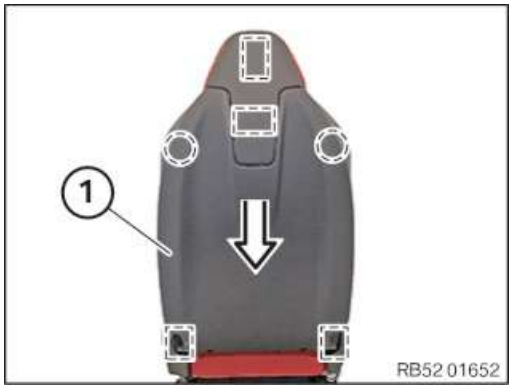
- Continue installation.

16 – Install the rear panel on the front seat backrest

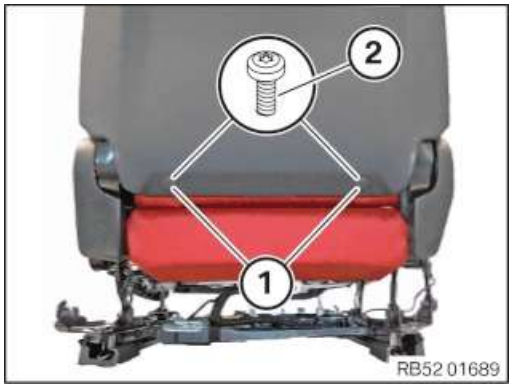


- Check guides and latch mechanisms in marked areas for damage.

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- Position rear panel on front seat backrest (1) correctly and clip into place in arrow direction.



- Position screws (2) correctly and tighten.

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Position cover caps (1) correctly and clip in.



- Tighten down screw (1).

Release handle to backrest frame

Screw		Tightening torque	2,7 Nm

17 – Removing the seat from the universal seat mount

▶ **Disconnecting the removed front seat from the wiring harness**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- Disconnect special tool from the wiring harness of the vehicle and the removed front seat.

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CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Remove front seat from the special tool .

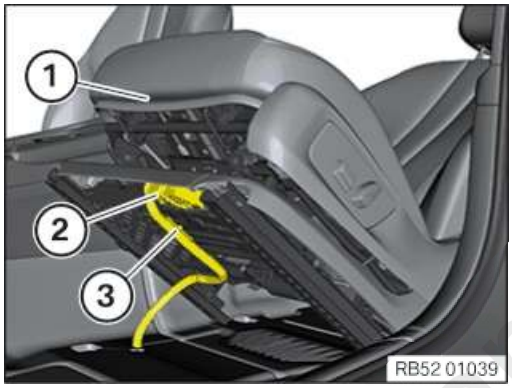
18 – Install driver's seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- *Check all plug connections for completeness, correct fit and locking where required.*
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

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- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

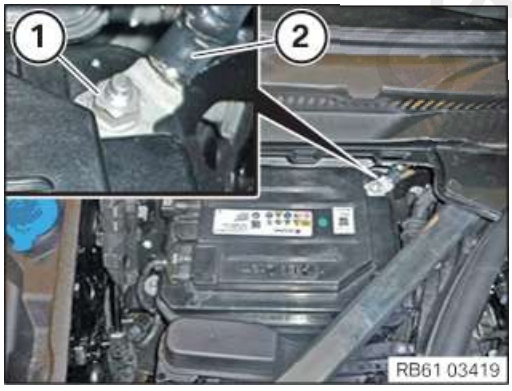
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

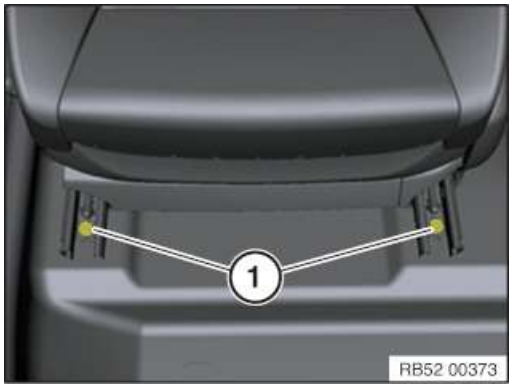


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

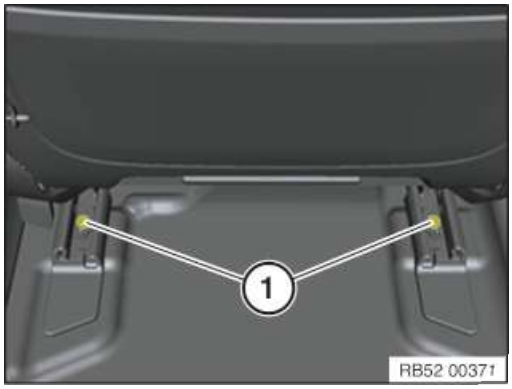


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Inner cover on seat frame Used in step 13

Screw		Tightening torque	2.5 Nm

Seat trim to seat frame Used in step 14

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame Used in step 14

Screw		Tightening torque	3.5 Nm

Rear panel on rear seat backrest Used in step 16

Screw		Tightening torque	3 Nm

Release handle to backrest frame Used in step 16

Screw		Tightening torque	2,7 Nm

Negative battery cable to 48-V battery Used in step 18

Nut M8		Tightening torque	19 Nm

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Seat to body Used in step 18

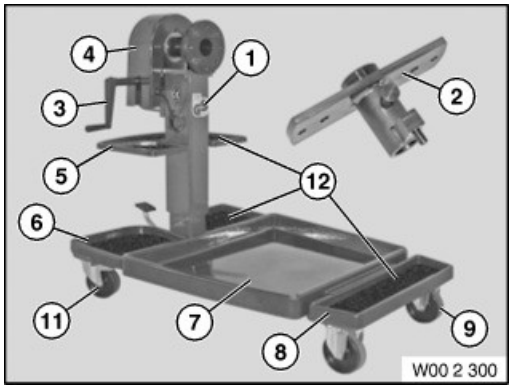
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 495 187 (00 2 300) Assembly stand

Used in step 2

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Common

Usage	Assembly stand with universal flange for mounting engines from S85
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 04 (155)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 495 188 (00 2 301)		**Assembly stand** available only as complete assembly stand 83 30 0 495 187.	
2	0 495 189 (00 2 302)	2 299 563	**Tool** (Universal flange). Do not use any more!!! Technically locked. Is replaced by a new flange with part number 83 30 2 299 563. All flanges delivered by the end of 2011 will be replaced free of charge. From 2012, only the new flange will be supplied. Also applies to the complete engine mounting stand 00 2 300.	
3	0 495 200 (00 2 303)		**Crank**	
4	0 495 201 (00 2 304)		**Cover** (Protective hood)	
5	0 495 202 (00 2 305)		**oddments tray** (Oddments tray for small parts)	
6	0 495 203 (00 2 306)		**Shaped element** (Rear shaped pan)	
7	0 495 204 (00 2 307)		**Collection pan** (Oil collection pan)	
8	0 495 205 (00 2 308)		**Shaped element** (Front shaped pan)	
9	0 495 206 (00 2 309)		**Wheel** (Front wheel (without stop))	
10	0 495 207 (00 2 311)		**Wheel** (Rear wheel (with stop))	
11	0 495 208 (00 2 312)		**Mat** (Checker mat set)	
2	2 299 563		**Adapter** New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.	

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Replacement tools:

2 299 563 Adapter



Common	Used in step 2
Usage	New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.
Included in the tool or work	0 495 187
Storage location	
Replaced by	
In connection with	
SI-Number	

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	118

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	118

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
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61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead	118

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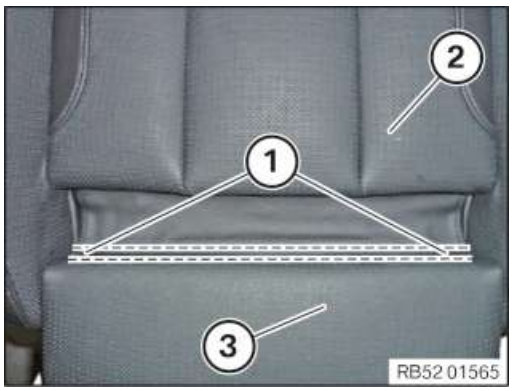
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
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61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
72 12 ... Unlocking/locking airbag plug connections	712

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52 19 403 Removing and installing / replacing thigh support cover on the left or right front seat

PRELIMINARY WORK

1 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).



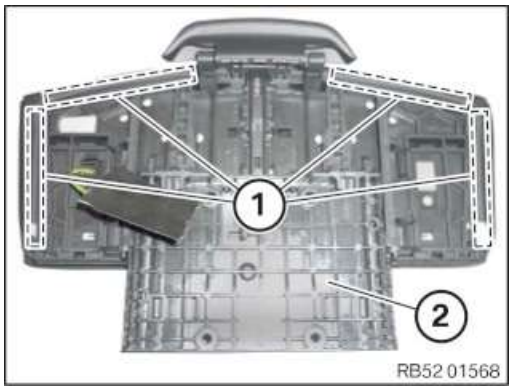
- Loosen screws (1).
- Feed the thigh support (2) out.



- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

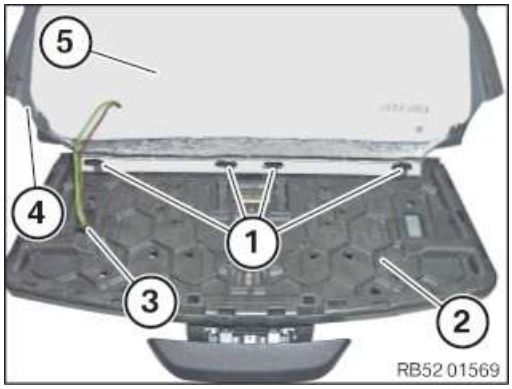
MAIN WORK

2 – Remove padding for thigh support

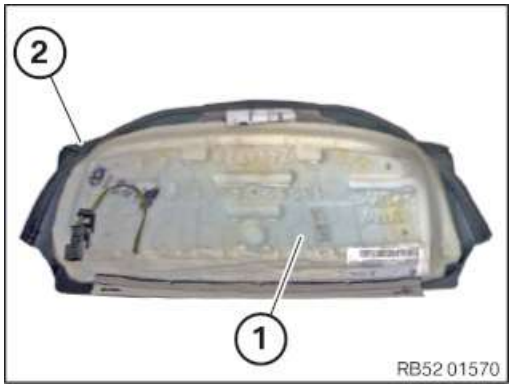


- Remove the welt (1) from the thigh support holder (2).

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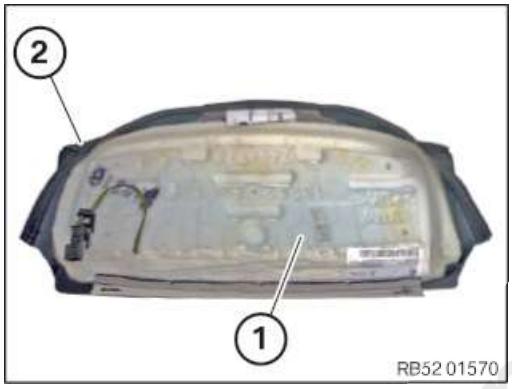


- Remove the thigh support holder (2) from the guides (1).
- Unclip the cable clip (3).
- Remove the thigh support cover (4) with cushion for the thigh support (5).

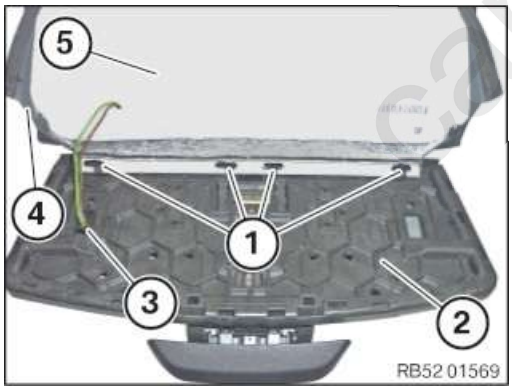


- Remove the cushion for the thigh support (1) from the thigh support cover (2).

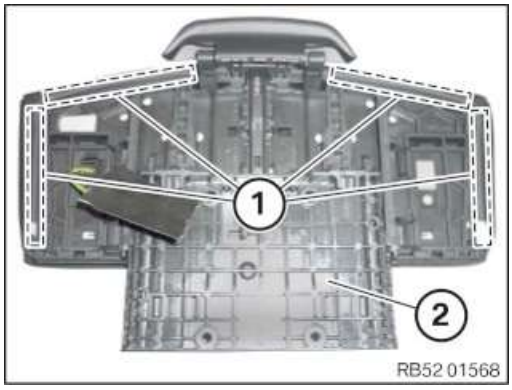
3 – Fit upholstery for thigh support



- Feed the cushion for the thigh support (1) into the thigh support cover (2).



- Position the thigh support cover (4) with cushion for the thigh support (5).
- Fit the thigh support holder (2) on the guides (1).
- Clip in the cable clip (3).
- Correctly position the thigh support cover (4) with cushion (5).



- Fit the welt (1) on the thigh support holder (2).

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4 – Install thigh support



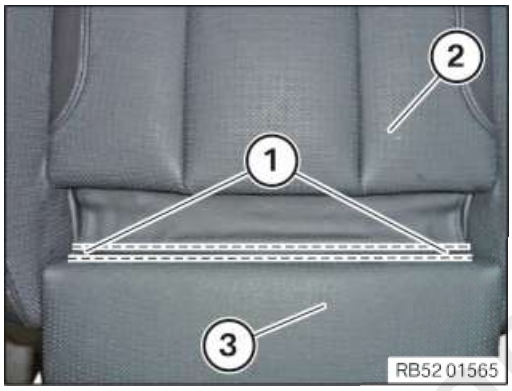
- Position the thigh support (2).
- Connect connectors (1) and lock.



- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm



- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

Additional Information

Overview of Tightening Torques

Thigh support to front seat Used in step 4

Screw		Tightening torque	2 Nm

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52 19 390 Removing and installing or replacing front left or right head rest

NOTICE

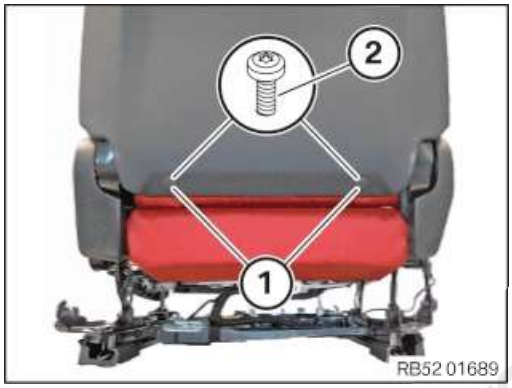
For a better overview the removed condition is shown here.

PRELIMINARY WORK

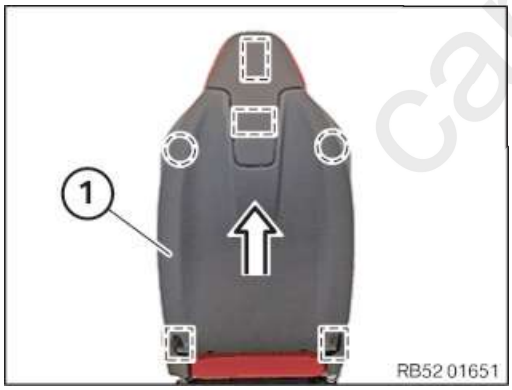
1 – Remove rear panel on front seat backrest



- Loosen screw (1).

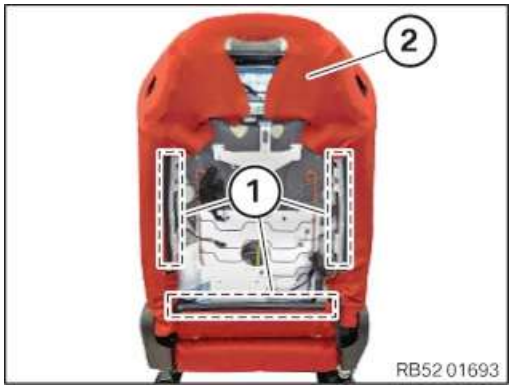


- Remove cover caps (1) with a suitable tool.
- Release screws (2) underneath.



- Carefully unclip rear panel on front seat backrest (1) at marked points and feed out in direction of arrow.

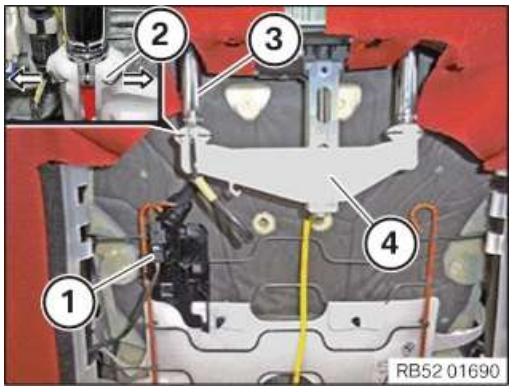
2 – Partly detach backrest cover with cushion



- Unclip edge stripping (1) in the marked area with a suitable tool.
- Carefully detach seat cover (2) at all further attachment points from backrest frame.

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3 – Removing the head restraint

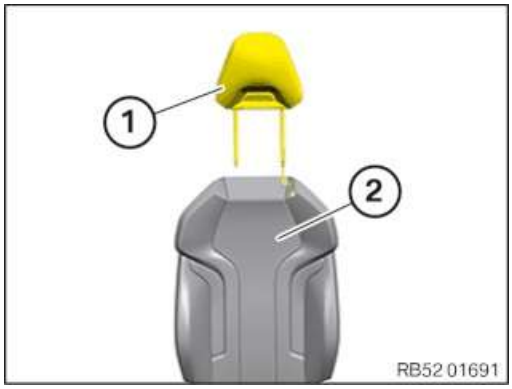


- Unlock plug connection (1) and disconnect.

TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

- Lightly pull clamps (2) in the direction of the arrow. Detach the head rest (3) from the drive (4).

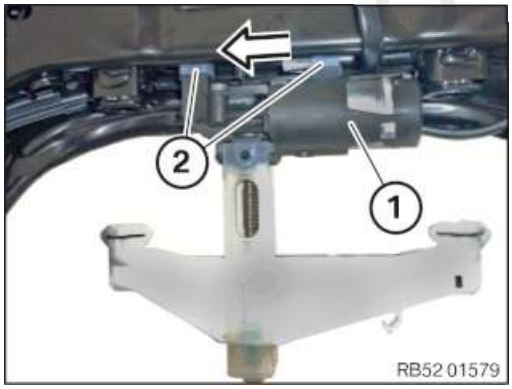


- Carefully remove the head rest with cable (1) from the front seat (2).

4 – Remove head restraint height adjuster motor



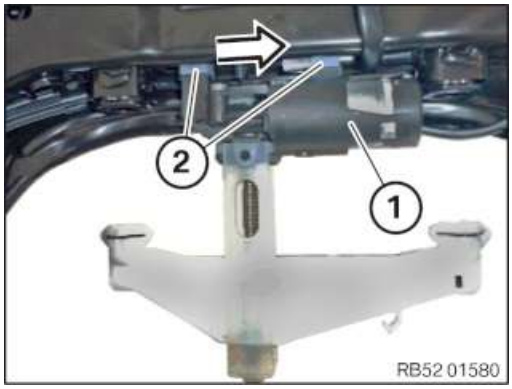
- Unlock plug connection (1) and disconnect.



- Remove the drive for the head restraint height adjuster (1) at the attachment points (2) in the direction of the arrow.

5 – Installing the drive for head restraint height adjustment

carsdiagn.com



TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

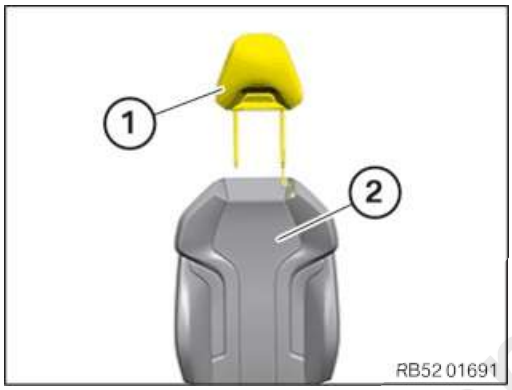
- Renew drivetrain for head restraint height adjustment (1).

  Parts: Drive unit for head restraint height adjustment
- Installing drive for head restraint height adjustment (1) at the attachment points (2) in the direction of arrow.

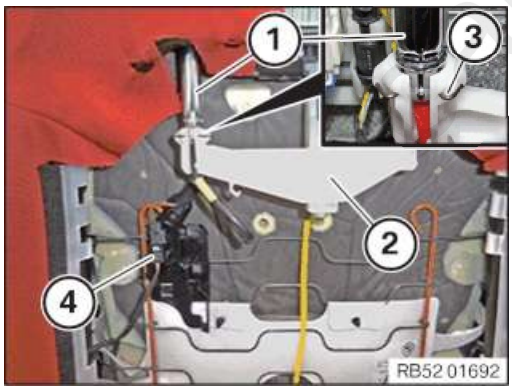


- Connect connectors (1) and lock.

6 – Installing the head restraint



- Carefully feed head restraint with cable (1) into front seat (2).



- Clip head restraint (1) into drive (2).

  The clamps (3) must engage audibly.
- Check the correct fit of the head restraint (1) in the clamps (3).
- Connect and lock plug connection (4) and clip into cable clip.

Check

- Check the correct latch mechanism of the head restraint with a pulling test.
- Pull the head restraint upwards by hand.

Result

» The head restraint cannot be pulled off.

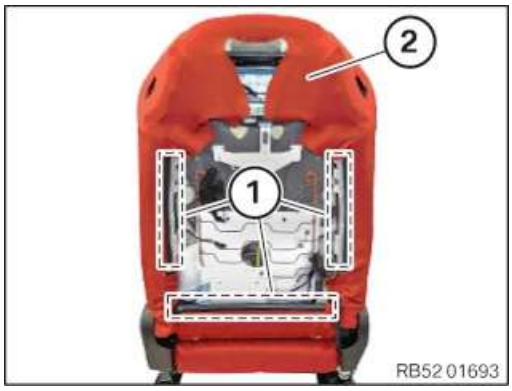
Measure

- Continue installation.

POSTPROCESSES

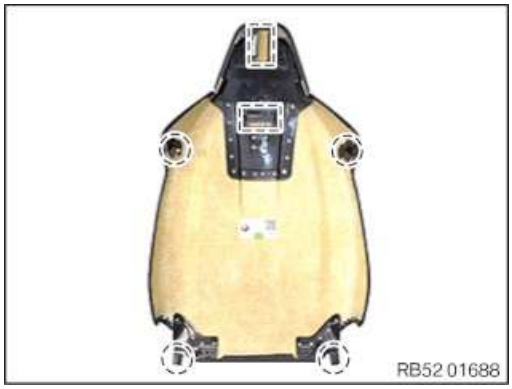
rdiagn.com

7 – Installing the backrest cover with cushion

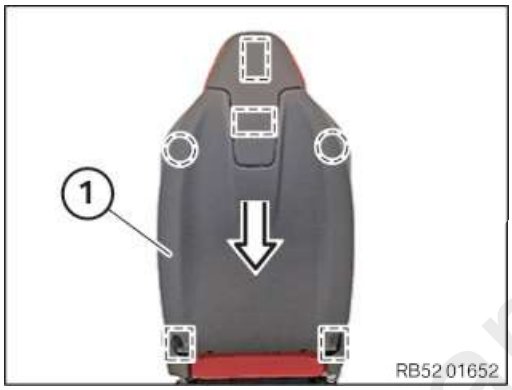


- Position seat cover (2) correctly and attach at all attachment points.
- Clip in edge stripping (1) in the marked area.

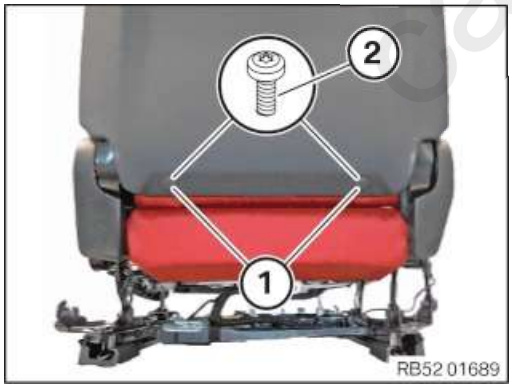
8 – Install the rear panel on the front seat backrest



- Check guides and latch mechanisms in marked areas for damage.



- Position rear panel on front seat backrest (1) correctly and clip into place in arrow direction.



- Position screws (2) correctly and tighten.

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Position cover caps (1) correctly and clip in.



- Tighten down screw (1).

Release handle to backrest frame

Screw		Tightening torque	2,7 Nm

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Additional Information

Overview of Tightening Torques

Rear panel on rear seat backrest — Used in step 8

Screw		Tightening torque	3 Nm

Release handle to backrest frame — Used in step 8

Screw		Tightening torque	2,7 Nm

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52 19 198 Removing and installing or replacing rear panel on left or right front seat backrest

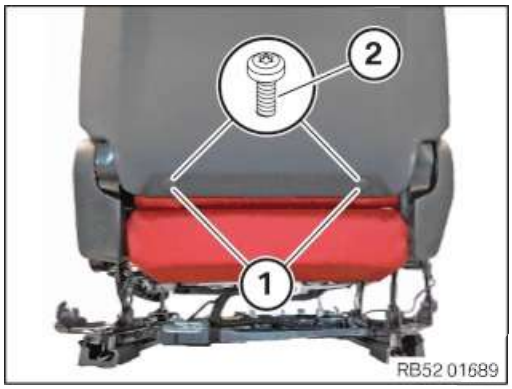
NOTICE

For a better overview the removed condition is shown here.

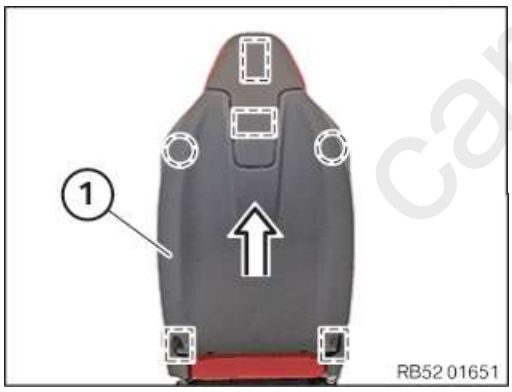
1 – Remove rear panel on front seat backrest



- Loosen screw (1).



- Remove cover caps (1) with a suitable tool.
- Release screws (2) underneath.



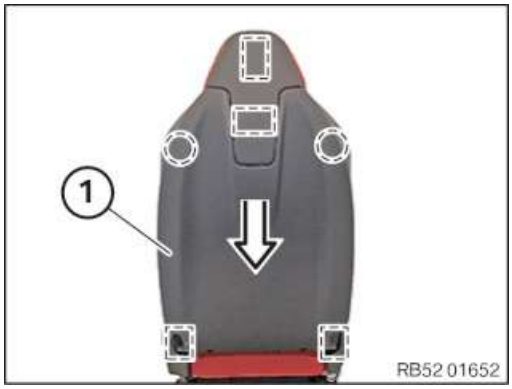
- Carefully unclip rear panel on front seat backrest (1) at marked points and feed out in direction of arrow.

2 – Install the rear panel on the front seat backrest

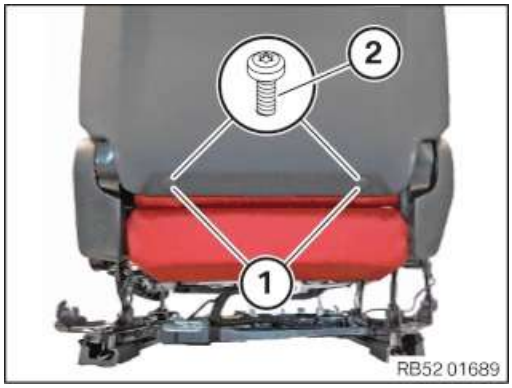


- Check guides and latch mechanisms in marked areas for damage.

cardiagn.com



- Position rear panel on front seat backrest (1) correctly and clip into place in arrow direction.



- Position screws (2) correctly and tighten.

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Position cover caps (1) correctly and clip in.



- Tighten down screw (1).

Release handle to backrest frame

Screw		Tightening torque	2,7 Nm

Additional Information

Overview of Tightening Torques

Rear panel on rear seat backrest Used in step 2

Screw		Tightening torque	3 Nm

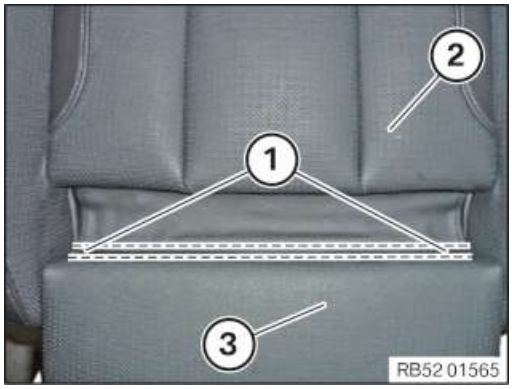
Release handle to backrest frame Used in step 2

Screw		Tightening torque	2,7 Nm

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52 19 048 Removing and installing thigh support on left or right front seat

1 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).



- Loosen screws (1).
- Feed the thigh support (2) out.



- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

2 – Install thigh support



- Position the thigh support (2).
- Connect connectors (1) and lock.

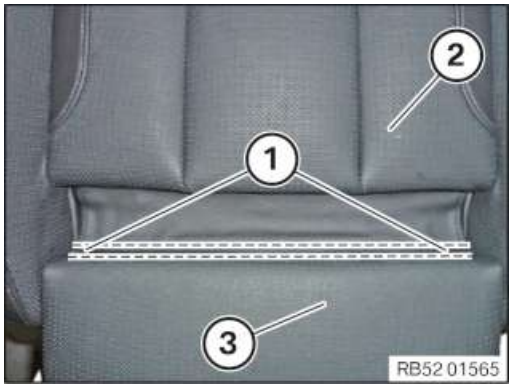
cardiagn.com



- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm



- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

Additional Information

Overview of Tightening Torques

Thigh support to front seat Used in step 2

Screw		Tightening torque	2 Nm

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52 19 031 Removing and installing/replacing backrest frame for driver's seat

PRELIMINARY WORK

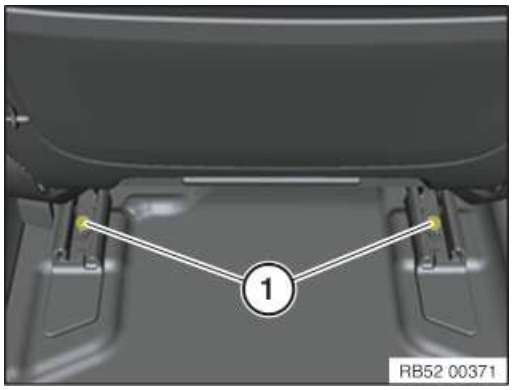
1 – Remove driver's seat.

WARNING

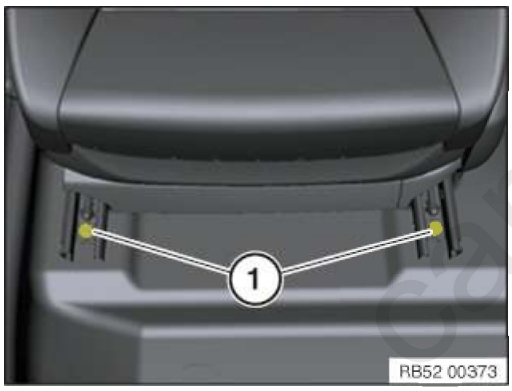
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Move front seat forwards.
- Loosen screws (1).



- Move front seat rearwards.
- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Move the steering column to the fully retracted position and move upwards fully.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

carmanuals.com

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

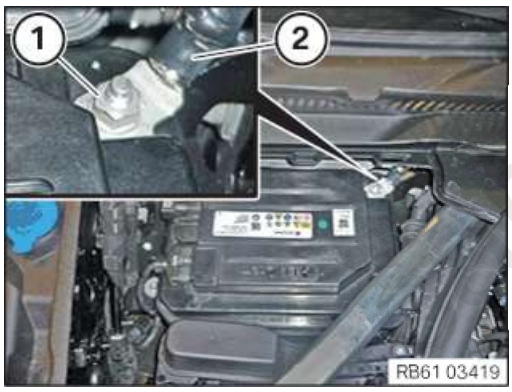
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

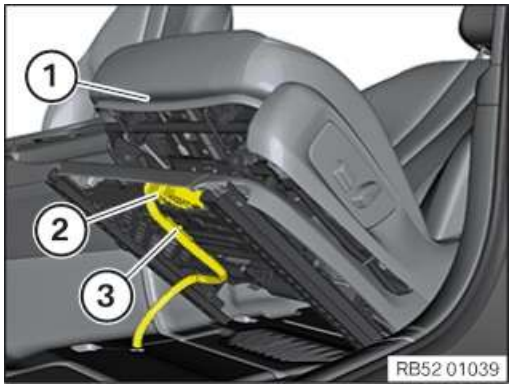
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Mounting the front seat to the universal seat mount

TECHNICAL INFORMATION

Use of the universal seat mount is recommended for carrying out expert repairs.

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- Mount special tool on special tool 0 495 187 (00 2 300).

CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

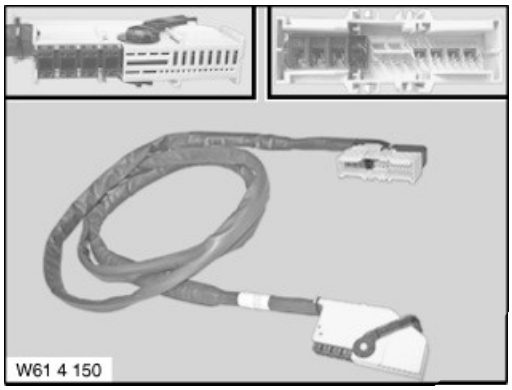
- Mount the front seat onto the special tool .

  To ensure a correct and professional repair, it is recommended to use special tool 0 495 187 (00 2 300) and .

▸ **Connect the removed front seat to the wiring harness.**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- The special tool will be required to connect the wiring harness of the vehicle and the removed front seat to adjust the front seat when it is in removed state.



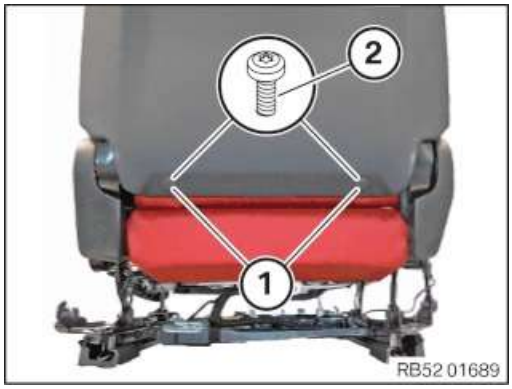
- Connect special tool to the wiring harness of the vehicle and the removed front seat to adjust the front seat.

3 – Remove rear panel on front seat backrest

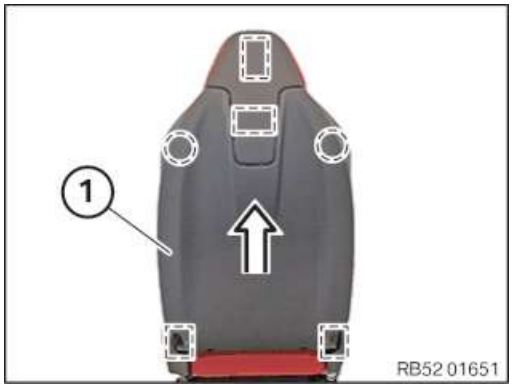


- Loosen screw (1).

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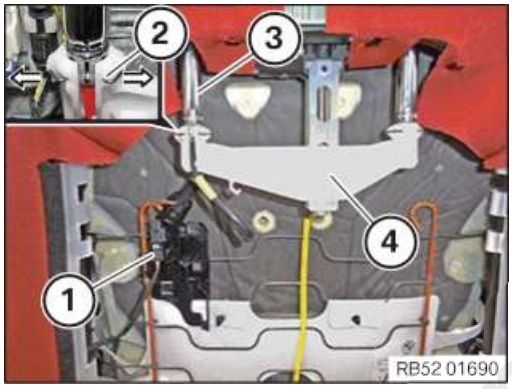


- Remove cover caps (1) with a suitable tool.
- Release screws (2) underneath.



- Carefully unclip rear panel on front seat backrest (1) at marked points and feed out in direction of arrow.

4 – Removing the head restraint

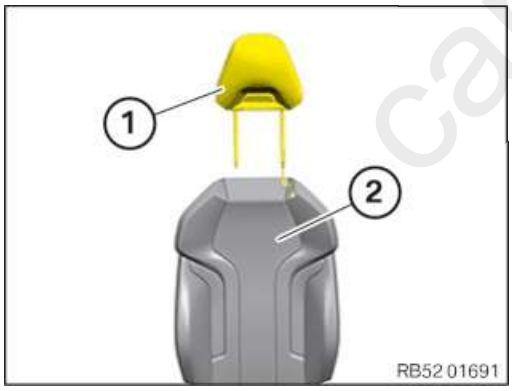


- Unlock plug connection (1) and disconnect.

TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

- Lightly pull clamps (2) in the direction of the arrow. Detach the head rest (3) from the drive (4).



- Carefully remove the head rest with cable (1) from the front seat (2).

5 – Remove outer cover on front seat



- Unclip the cover (1).

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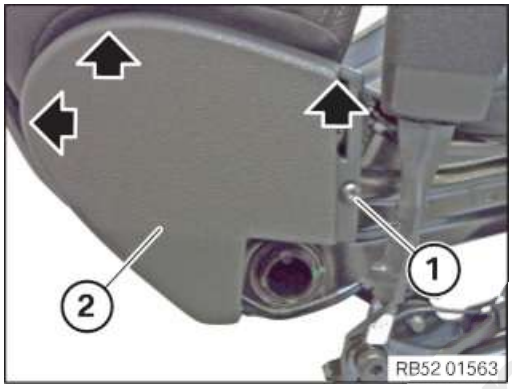


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



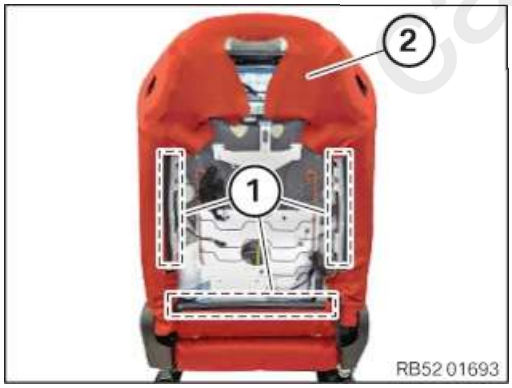
- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

6 – Remove inner cover on front seat



- Loosen screw (1).
- Guide out the cover (2) at the arrows.

7 – Removing the backrest cover with cushion



- Unclip edge stripping (1) in the marked area using suitable tool.
- Carefully detach seat cover (2) from backrest frame at all other attachment points.



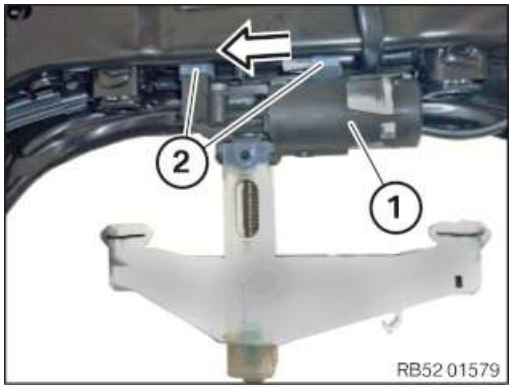
- Carefully disconnect seat cover with upholstery (1) from seat frame (2).
- If necessary, unlock existing plug connections and disconnect.

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8 – Remove head restraint height adjuster motor



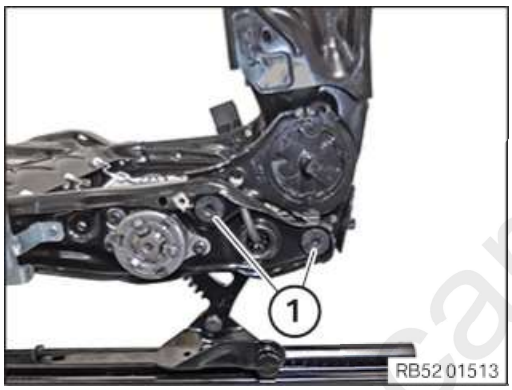
- Unlock plug connection (1) and disconnect.



- Remove the drive for the head restraint height adjuster (1) at the attachment points (2) in the direction of the arrow.

MAIN WORK

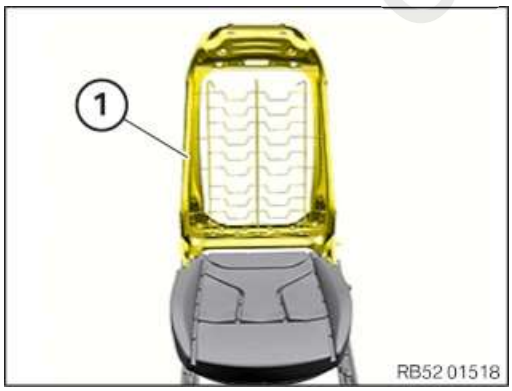
9 – Removing backrest frame



NOTICE

The operations shown only for one side must be carried out on both sides.

- Loosen screws (1).



- Remove the backrest frame (1).

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

- Loosen all mounting parts from the backrest frame (1).

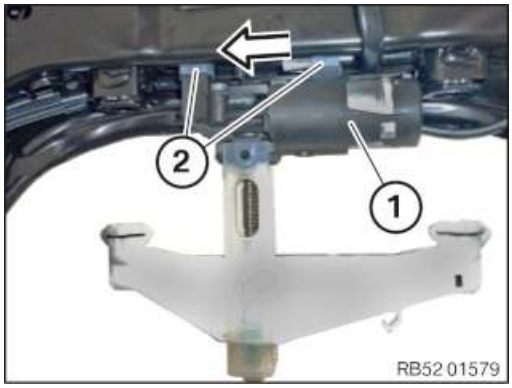
10 – When replacing the backrest frame: Remount components

▸ **Remove head restraint height adjuster motor**

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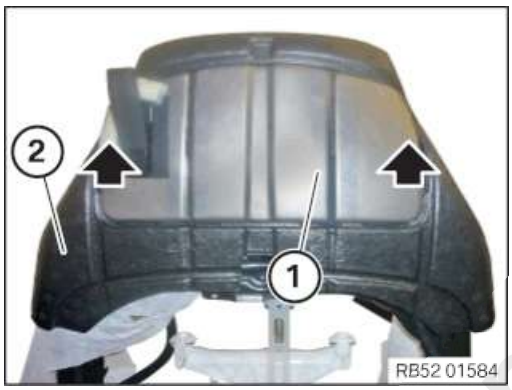


- Unlock plug connection (1) and disconnect.



- Remove the drive for the head restraint height adjuster (1) at the attachment points (2) in the direction of the arrow.

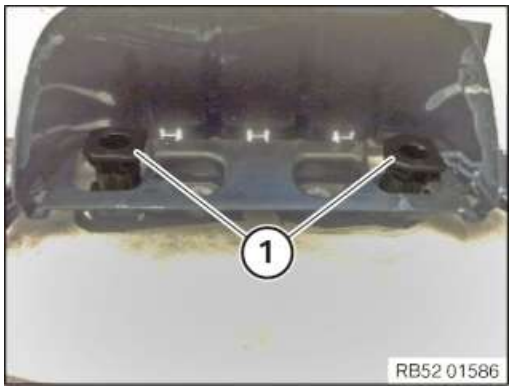
▸ **Remove the front head restraint guides**



- Unclip the cover (1) at the arrows and guide out.
- Remove cover (2).



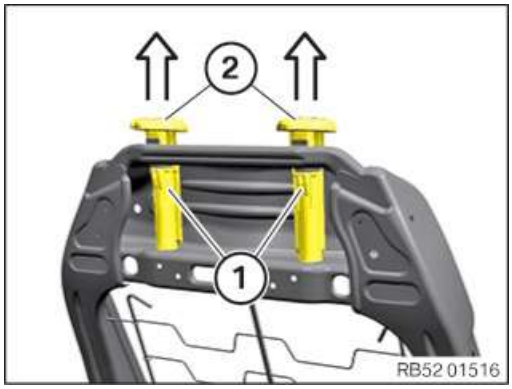
- Loosen the latch mechanisms (1).



- Guide out the head restraint guides(1).

▸ **Remove head restraint guide**

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- Unlock locks (1) and remove the headrest guides (2) in the direction of the arrow.

▸ **Remove lumbar support on front seat**

Prerequisite

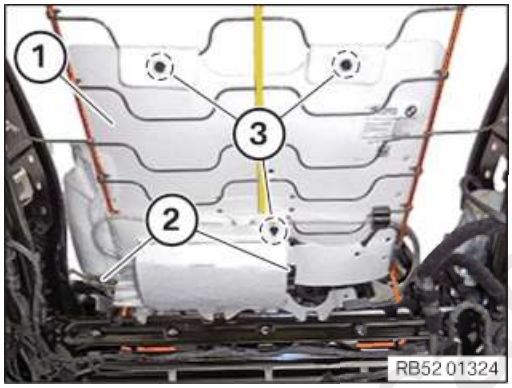
The lumbar support and the backrest width adjustment are completely depressurised.



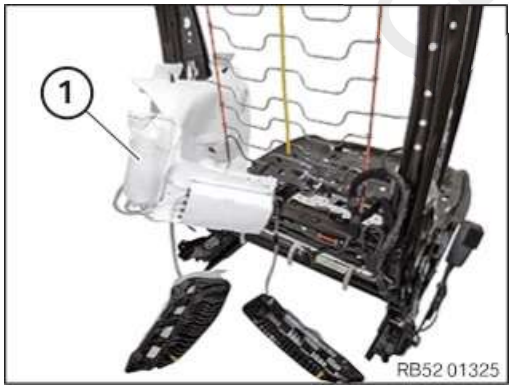
NOTICE

Perform the operations on the left and right side.

- Unscrew the bolts (1) and guide out the air cushion of the backrest width adjustment left/right.



- Disconnect the plug connections (2) and unclip available cable clips.
- Unclip the lumbar support (1) at the clips (3) and feed out the retaining tabs.

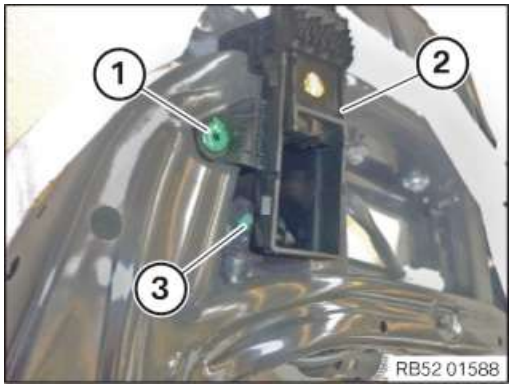


- Carefully guide out the lumbar support (1) complete with pump unit and valve block on the side as shown.

▸ **Removing the release mechanism on the front seat**

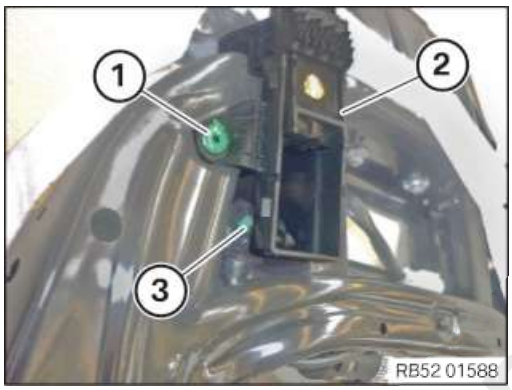


- Release latch mechanisms (arrows) and remove cover cap (1).



- Drill out blind rivets (1) on the front and rear side of the backrest frame.
- Guide out release mechanism on the front seat (2).
- Guide out cable for release mechanism on the front seat (3) and remove release mechanism on the front seat (2).

▸ **Installing the release mechanism on the front seat**



- Position unlocking mechanism on the front seat (2) and feed Bowden cable in for unlocking mechanism on the front seat (3).
- Correctly position unlocking mechanism on the front seat (2).
- Renew blind rivets (1).

  Parts: Blind rivet
- Attach unlocking mechanism on the front seat (2) to the front and rear of the seat back frame using blind rivets (1).



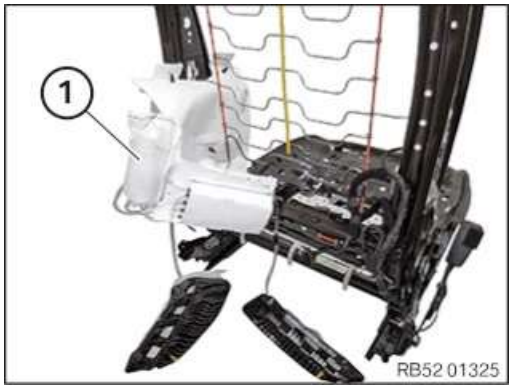
- Press protective cap (1) until the latch mechanism (arrows) snap into place.

▸ **Install lumbar support on front seat**

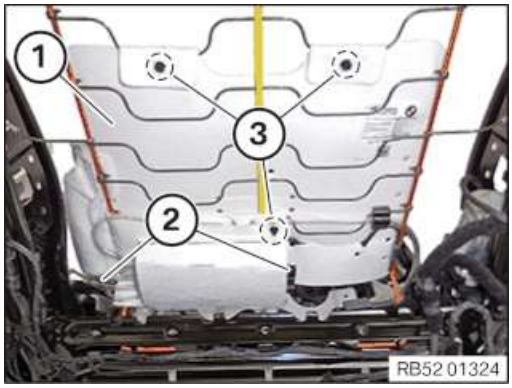
Prerequisite

The lumbar support and the backrest width adjustment are completely depressurised.

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- Carefully guide in the lumbar support (1) complete with pump unit and valve block as shown.



- Position the lumbar support (1) at the clips (3) and clip it in.
- Connect the plug connections (2) and clip in the existing cable clips.



NOTICE

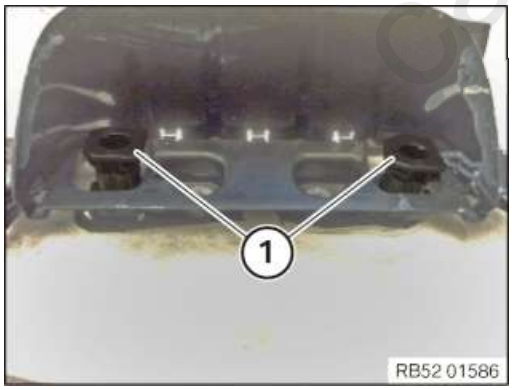
Perform the operations on the left and right side.

- Position the air cushion of the backrest width adjustment (2) left/right and tighten the bolts (1).

Backrest width adjustment on backrest frame

Oval-head screw with collar		Tightening torque	2.5 Nm

▸ Installing front head restraint guide

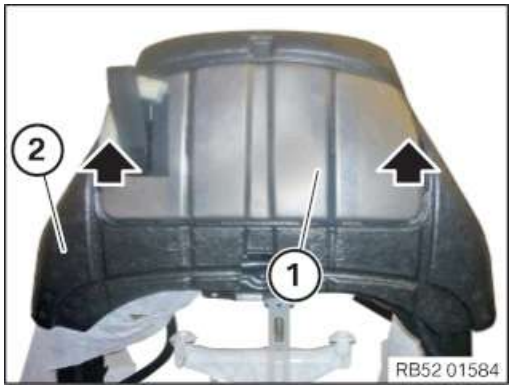


- Guide in and position head restraint guide (1).



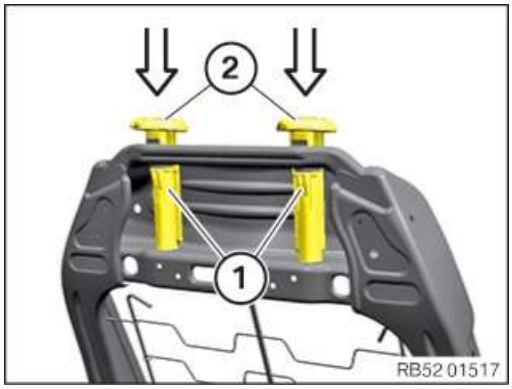
- Make sure that the latch mechanisms (1) are engaged correctly.

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- Insert the cover (2).
- Feed in the cover (1) and clip it in at the arrows.

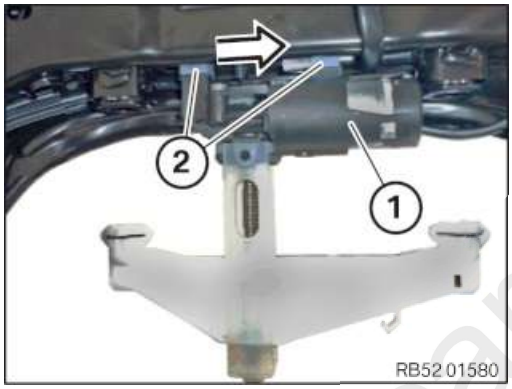
▸ **Install the head restraint guide**



- Correctly position the head restraint guides (2) and install in direction of arrow.

  The head restraint guides (2) are marked at the top against incorrect assembly with an arrow in the direction of travel.
- The latch mechanisms (1) must engage audibly.

▸ **Installing the drive for head restraint height adjustment**



TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

- Renew drivetrain for head restraint height adjustment (1).

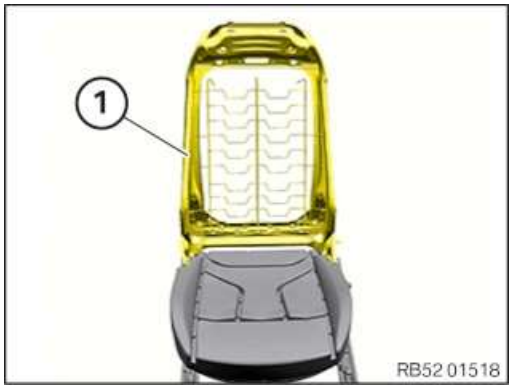
  Parts: Drive unit for head restraint height adjustment
- Installing drive for head restraint height adjustment (1) at the attachment points (2) in the direction of arrow.



- Connect connectors (1) and lock.

11 – Install backrest frame

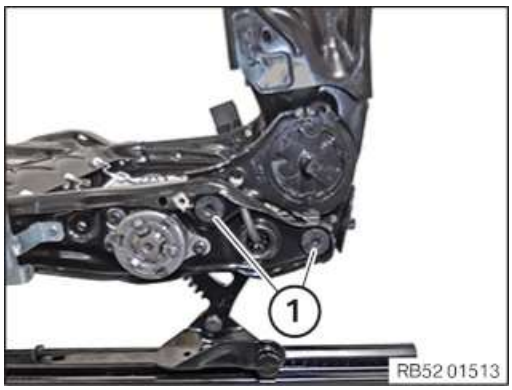
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TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

- Position and secure all add-on parts on the backrest frame (1) .
- Correctly position the backrest frame (1).



NOTICE

The operations shown only for one side must be carried out on both sides.

- Renew screws (1).

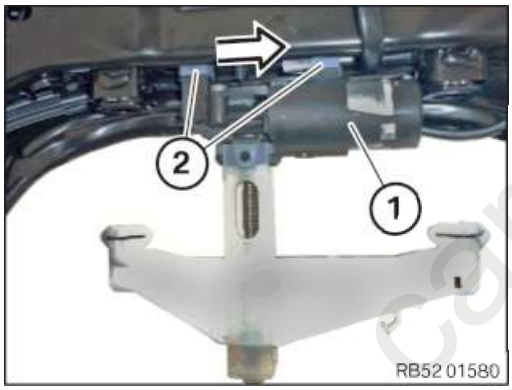
  Parts: Bolts
- Tighten the screws (1).

Seat frame on backrest frame

Screw	Renew screw.	Tightening torque	44 Nm

POSTPROCESSES

12 – Installing the drive for head restraint height adjustment

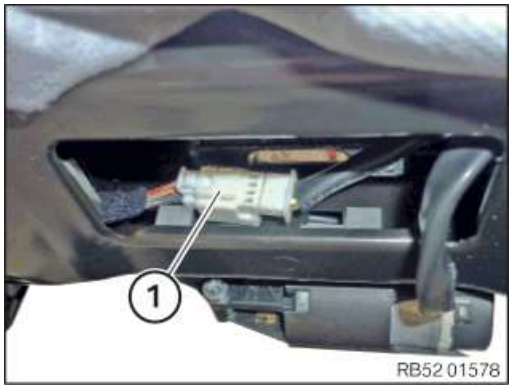


TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

- Renew drivetrain for head restraint height adjustment (1).

  Parts: Drive unit for head restraint height adjustment
- Installing drive for head restraint height adjustment (1) at the attachment points (2) in the direction of arrow.



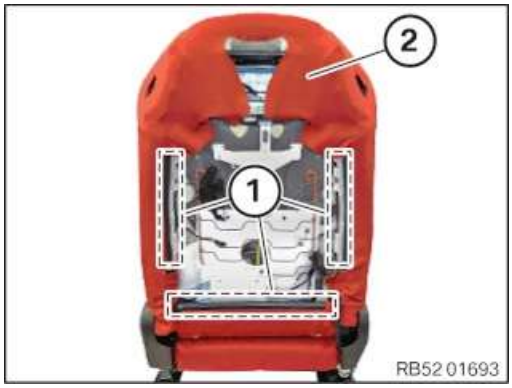
- Connect connectors (1) and lock.

13 – Installing the backrest cover with cushion

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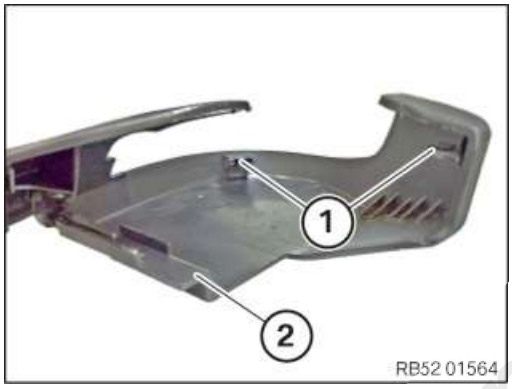


- Position backrest cover with cushion (1) as pictured on backrest frame (2).
- If necessary, connect and lock available plug connections.

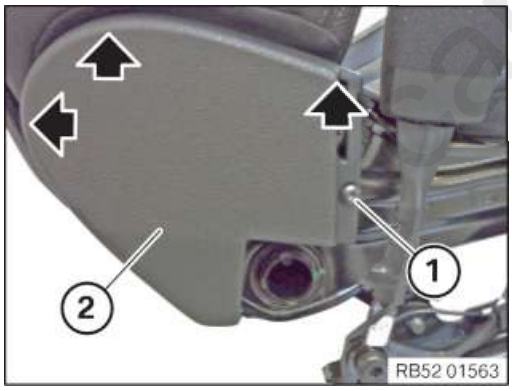


- Position seat cover (2) correctly and hook in at all attachment points.
- Clip in edge stripping (1) in the marked area.

14 – Installing the inner cover on the front seat



- Check guides (1) of cover (2) for damage, renew the cover if necessary.

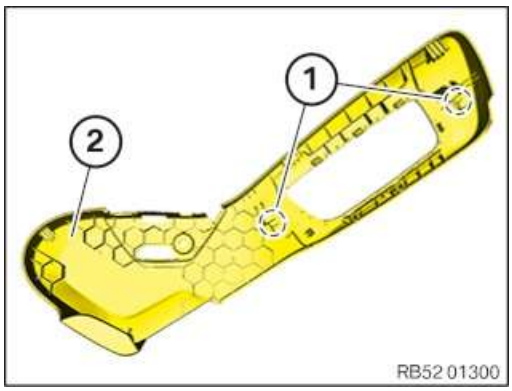


- Guide in the cover (2) on the arrows and position correctly.
- Tighten down screw (1).

Inner cover on seat frame

Screw		Tightening torque	2.5 Nm

15 – Install outer cover on front seat

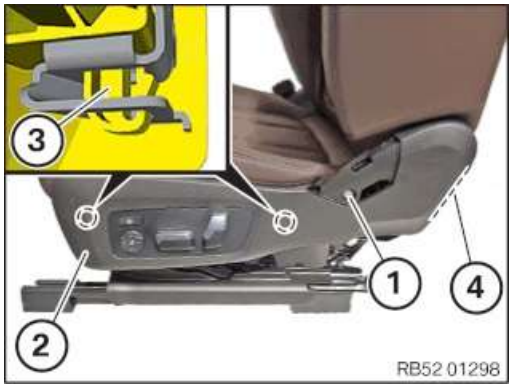


- Check the locking units (1) for damages, and replace the cover if necessary (2).

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- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm

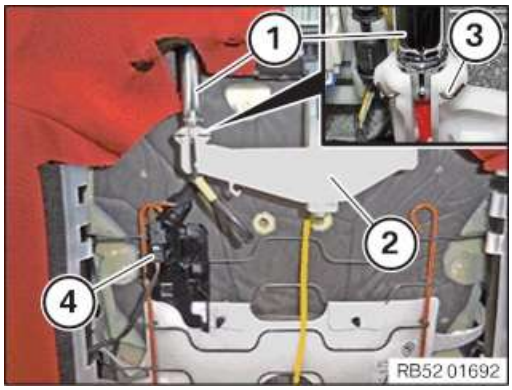


- Clip in the cover (1).

16 – Installing the head restraint



- Carefully feed head restraint with cable (1) into front seat (2).



- Clip head restraint (1) into drive (2).
  The clamps (3) must engage audibly.
- Check the correct fit of the head restraint (1) in the clamps (3).
- Connect and lock plug connection (4) and clip into cable clip.

Check

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- Check the correct latch mechanism of the head restraint with a pulling test.
- Pull the head restraint upwards by hand.

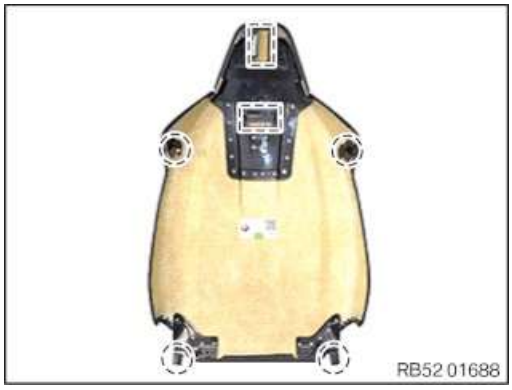
Result

» The head restraint cannot be pulled off.

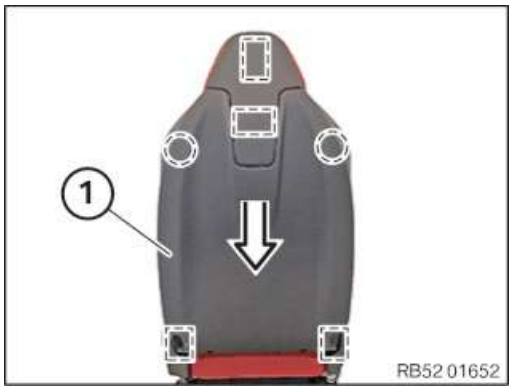
Measure

- Continue installation.

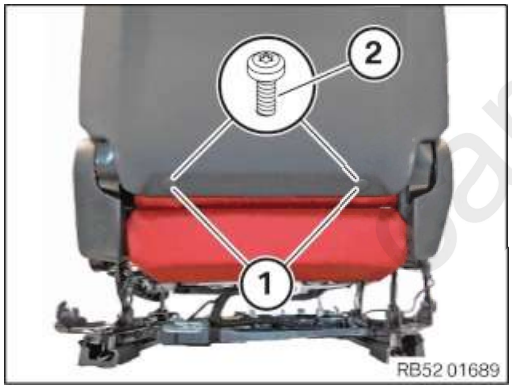
17 – Install the rear panel on the front seat backrest



- Check guides and latch mechanisms in marked areas for damage.



- Position rear panel on front seat backrest (1) correctly and clip into place in arrow direction.



- Position screws (2) correctly and tighten.

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Position cover caps (1) correctly and clip in.



- Tighten down screw (1).

Release handle to backrest frame

Screw		Tightening torque	2,7 Nm

18 – Removing the seat from the universal seat mount

▸ **Disconnecting the removed front seat from the wiring harness**

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TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- Disconnect special tool from the wiring harness of the vehicle and the removed front seat.



CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Remove front seat from the special tool .

19 – Install driver's seat

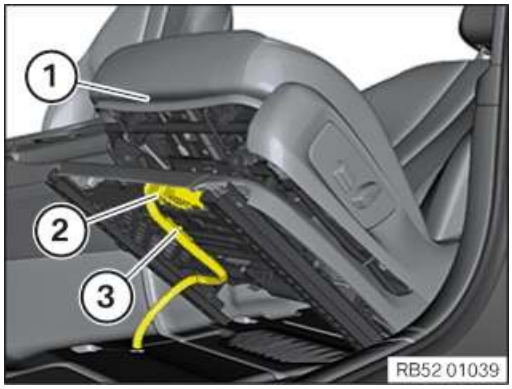
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- *Check all plug connections for completeness, correct fit and locking where required.*
- Attach the cable clip (3).

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▸ **Connecting all battery earth leads**

- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

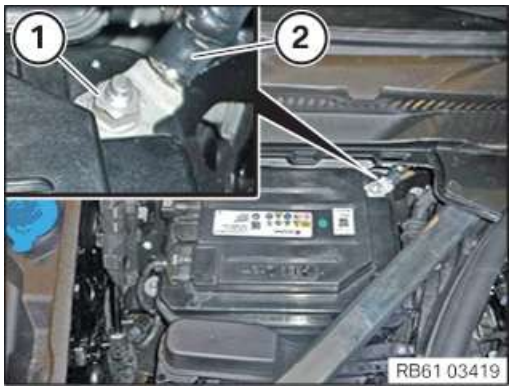
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

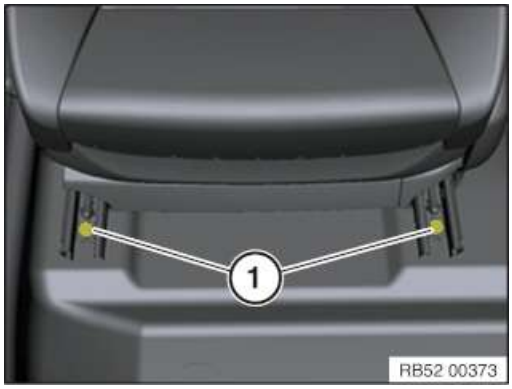


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

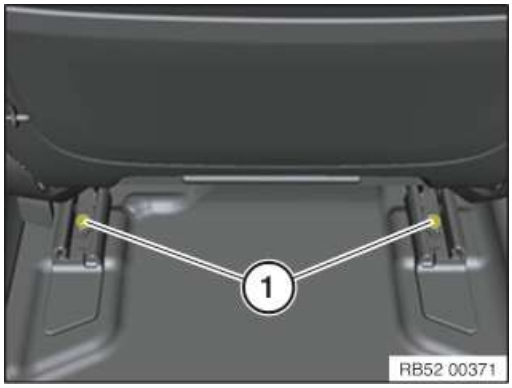


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Backrest width adjustment on backrest frame — Used in step 10

Oval-head screw with collar		Tightening torque	2.5 Nm

Seat frame on backrest frame — Used in step 11

Screw	Renew screw.	Tightening torque	44 Nm

Inner cover on seat frame — Used in step 14

Screw		Tightening torque	2.5 Nm

Seat trim to seat frame — Used in step 15

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame — Used in step 15

Screw		Tightening torque	3.5 Nm

Rear panel on rear seat backrest — Used in step 17

Screw		Tightening torque	3 Nm

Release handle to backrest frame — Used in step 17

Screw		Tightening torque	2,7 Nm

Negative battery cable to 48-V battery — Used in step 19

Nut M8		Tightening torque	19 Nm

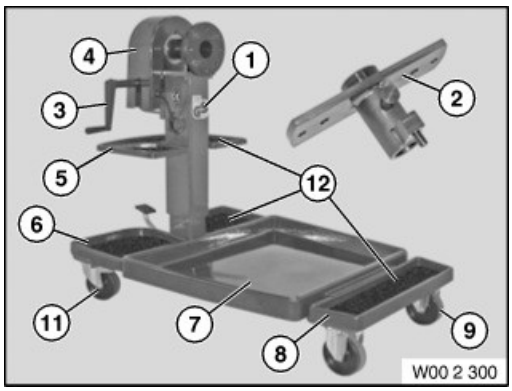
Seat to body — Used in step 19

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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Overview of Special Tools

0 495 187 (00 2 300) Assembly stand



Common Used in step 2

Usage	Assembly stand with universal flange for mounting engines from S85
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 04 (155)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 495 188 (00 2 301)		**Assembly stand** available only as complete assembly stand 83 30 0 495 187.	
2	0 495 189 (00 2 302)	2 299 563	**Tool** (Universal flange). Do not use any more!!! Technically locked. Is replaced by a new flange with part number 83 30 2 299 563. All flanges delivered by the end of 2011 will be replaced free of charge. From 2012, only the new flange will be supplied. Also applies to the complete engine mounting stand 00 2 300.	
3	0 495 200 (00 2 303)		**Crank**	
4	0 495 201 (00 2 304)		**Cover** (Protective hood)	
5	0 495 202 (00 2 305)		**oddments tray** (Oddments tray for small parts)	
6	0 495 203 (00 2 306)		**Shaped element** (Rear shaped pan)	
7	0 495 204 (00 2 307)		**Collection pan** (Oil collection pan)	
8	0 495 205 (00 2 308)		**Shaped element** (Front shaped pan)	
9	0 495 206 (00 2 309)		**Wheel** (Front wheel (without stop))	
10	0 495 207 (00 2 311)		**Wheel** (Rear wheel (with stop))	
11	0 495 208 (00 2 312)		**Mat** (Checker mat set)	

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2	2 299 563	**Adapter** New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.

Replacement tools:

2 299 563 Adapter



Common	Used in step 2
Usage	New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.
Included in the tool or work	0 495 187
Storage location	
Replaced by	
In connection with	
SI-Number	

Links

Repair instructions (PRE)	**Used in step**
Notes on 48-V battery	119

General repair instructions	**Used in step**
72 00 ... Safety regulations for handling components with gas generators	119

Repair instructions	**Used in step**
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	119
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61 20 900 Disconnecting and connecting battery earth lead 119
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 119
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 119
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 119
61 20 900 Disconnecting and connecting battery earth lead 119
61 20 900 Disconnecting and connecting battery earth lead 119
61 20 900 Disconnecting and connecting battery earth lead 119
72 12 ... Unlocking/locking airbag plug connections 713

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52 19 017 Removing and installing/replacing seat frame on driver's seat

PRELIMINARY WORK

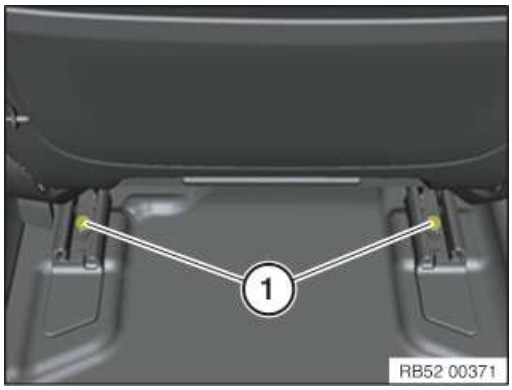
1 – Remove driver's seat.

WARNING

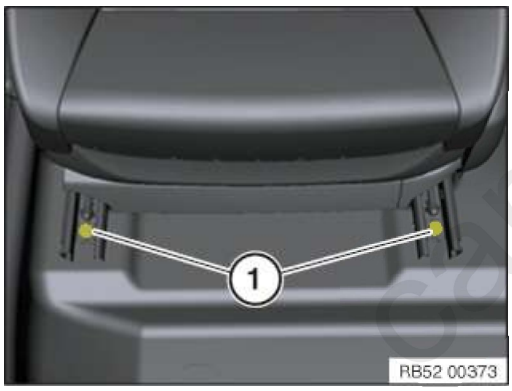
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Move front seat forwards.
- Loosen screws (1).



- Move front seat rearwards.
- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Move the steering column to the fully retracted position and move upwards fully.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

carmanuals.com

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

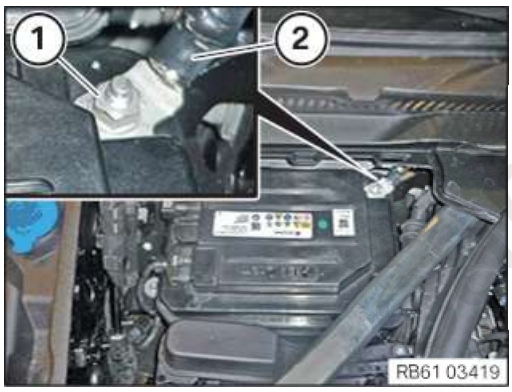
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

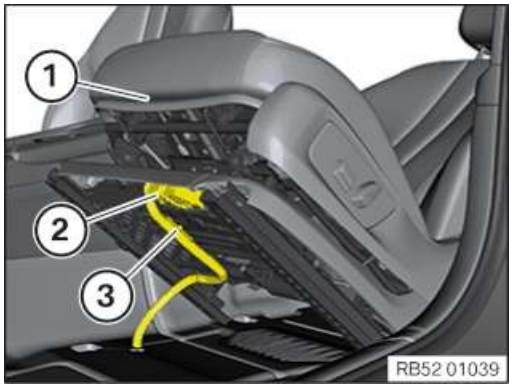
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Mounting the front seat to the universal seat mount

TECHNICAL INFORMATION

Use of the universal seat mount is recommended for carrying out expert repairs.

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- Mount special tool on special tool 0 495 187 (00 2 300).

CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

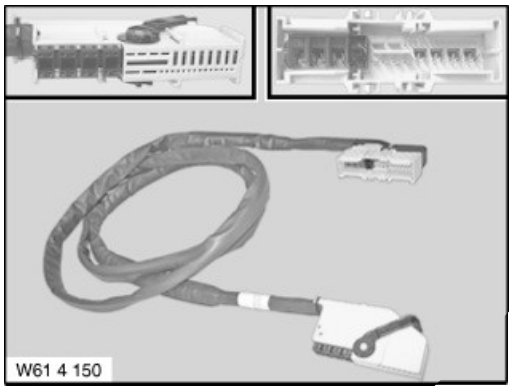
- Mount the front seat onto the special tool .

  To ensure a correct and professional repair, it is recommended to use special tool 0 495 187 (00 2 300) and .

▸ **Connect the removed front seat to the wiring harness.**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- The special tool will be required to connect the wiring harness of the vehicle and the removed front seat to adjust the front seat when it is in removed state.



- Connect special tool to the wiring harness of the vehicle and the removed front seat to adjust the front seat.

3 – Remove outer cover on front seat



- Unclip the cover (1).

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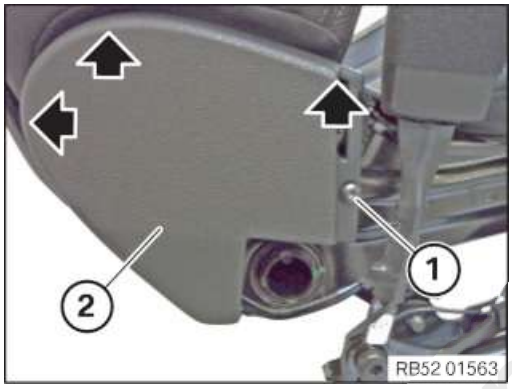


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



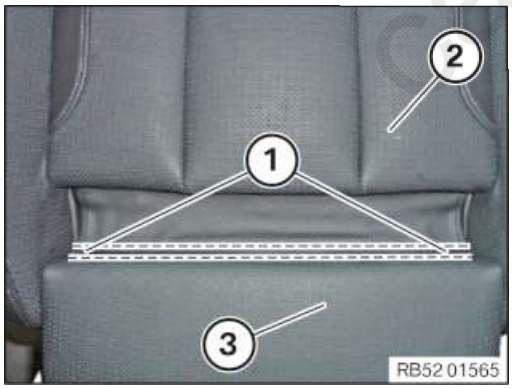
- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

4 – Remove inner cover on front seat



- Loosen screw (1).
- Guide out the cover (2) at the arrows.

5 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).



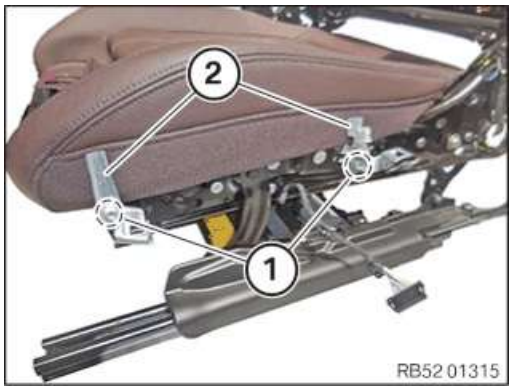
- Loosen screws (1).
- Feed the thigh support (2) out.

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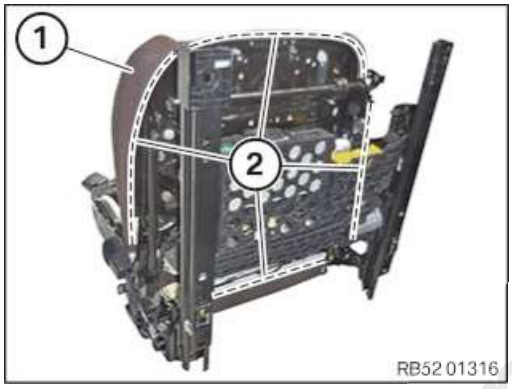


- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

6 – Remove seat cover with padding for driver's seat



- Loosen screws (1) and remove holder (2).



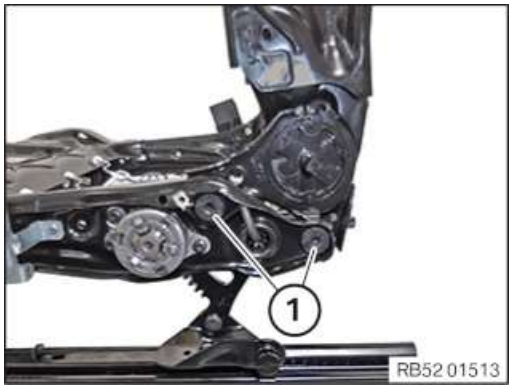
- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Disconnect the existing plug connection where required and unclip the cable clips.

MAIN WORK

7 – Removing the seat frame

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

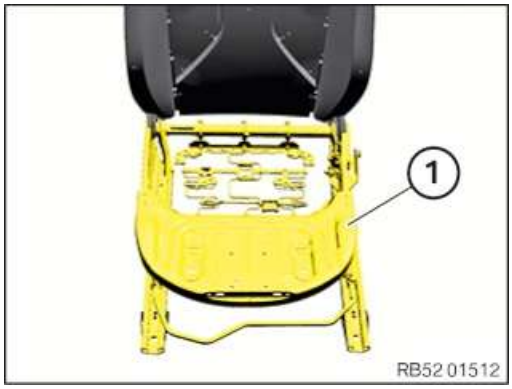


NOTICE

The operations shown only for one side must be carried out on both sides.

- Loosen screws (1).

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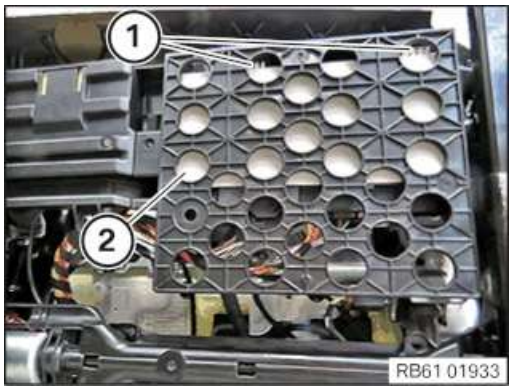
- Remove seat frame (1).

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

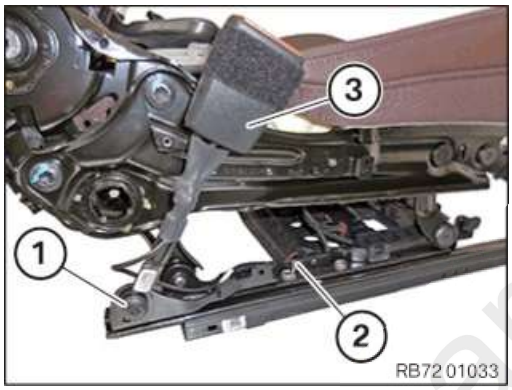
- Release all the mounted parts from seat frame (1).

8 – When replacing the seat frame of driver seat: Remount components



- Unlock and disconnect all plug connections of the SMFA control unit (2).
- Unlock the retaining lugs (1).
- Pull the SMFA control unit (2) forward.

▸ **Removing front lower strap**



- Loosen screw (1).
- Disconnect the plug connection (2) and unclip available cable clips.
- Guide out and remove the lower strap (3) .

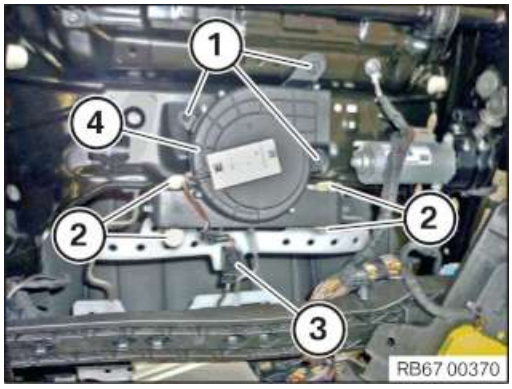
▸ **Removing the seat cushion surface fan**

Prerequisite

The front seat is adjusted as far backwards and up as it will go.

NOTICE

To provide a better overview: Illustration of surrounding parts in removed state.



- Loosen the attachment points (1).
- Detach latch mechanisms (2).
- Unlock plug connection (3) and disconnect.
- Feed out the fan (4) for the seat cushion surface.

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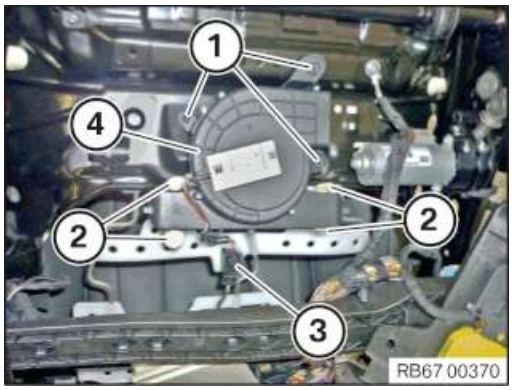
▸ **Installing the fan for the seat cushion surface**

Prerequisite

The front seat is adjusted as far backwards and up as it will go.

NOTICE

To provide a better overview: Illustration of surrounding parts in removed state.

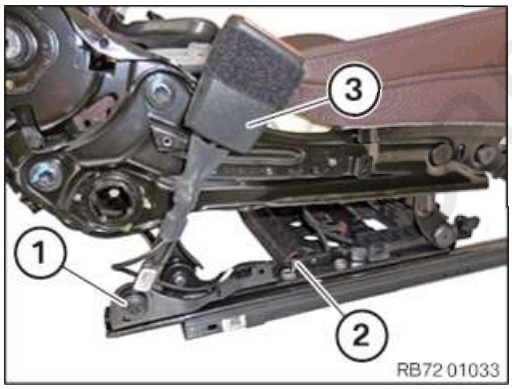


- Connect connectors (3) and lock.
- Guide in the fan (4) for seat cushion surface and position correctly.
- Mount latch mechanisms (2).
- Connect attachment points (1).

▸ **Installing the front lower strap**

TECHNICAL INFORMATION

Clean all belt bolted connections with micro-encapsulated external and internal threads.
Swarf or other residues must not remain in the components.
If a micro-encapsulated screw is reused, it must be filled with screw locking agent: **Loctite 243, intermediate strength**.
The screw connection must be completed within a period of 10 minutes, as after this period the hardening starts.



TECHNICAL INFORMATION

Component is encoded against incorrect assembly.

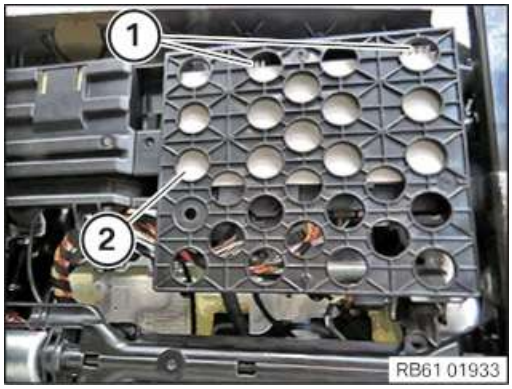
- Thread in the lower strap (3) and position it.
- Renew the screw (1).

  Parts: Screw
- Tighten down screw (1).

Lower strap to seat mechanism

M10 screw	Renew screw.	Tightening torque	38 Nm

- Connect the plug connection (2) and clip in the existing cable clips.

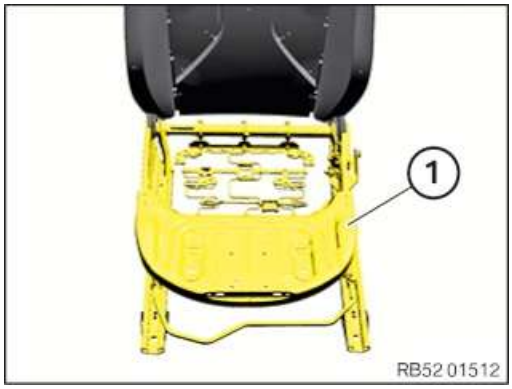


- Press the SMFA control unit (2) into the holder until the retaining lugs (1) engage.
- Connect all associated connectors of SMFA control unit (2) and lock.

9 – Installing the seat frame

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

- Position and secure all add-on parts on the seat frame (1) .
- Correctly position seat frame(1).



NOTICE

The operations shown only for one side must be carried out on both sides.

- Renew screws (1).

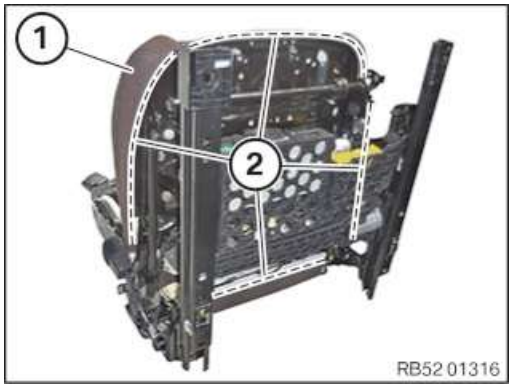
  Parts: Screws
- Tighten the screws (1).

Seat frame on backrest frame

Screw	Renew screw.	Tightening torque	44 Nm

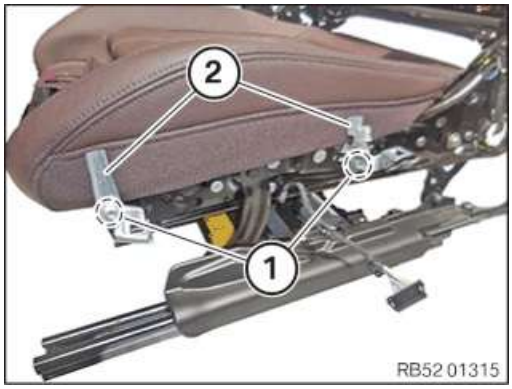
POSTPROCESSES

10 – Installing seat cover with cushion for driver's seat



- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Where applicable, connect the existing plug connections and clip in the cable clips.

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- Position holder (2) and tighten screws (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

11 – Install thigh support



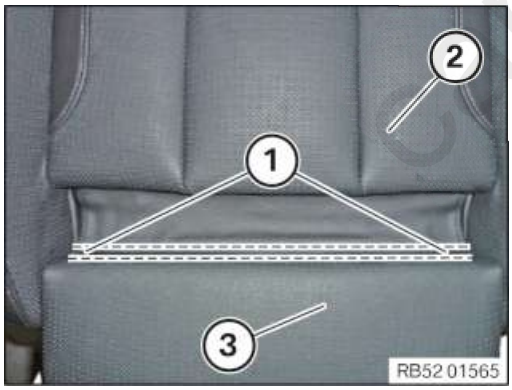
- Position the thigh support (2).
- Connect connectors (1) and lock.



- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

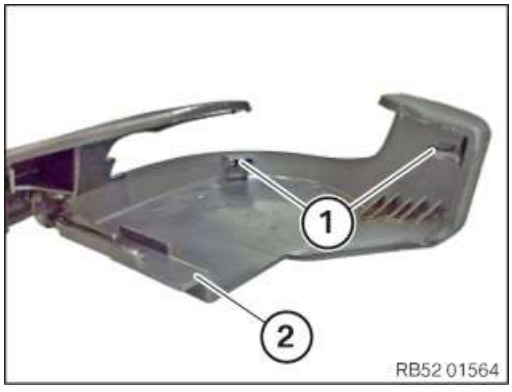
Thigh support to front seat

Screw	Tightening torque	2 Nm

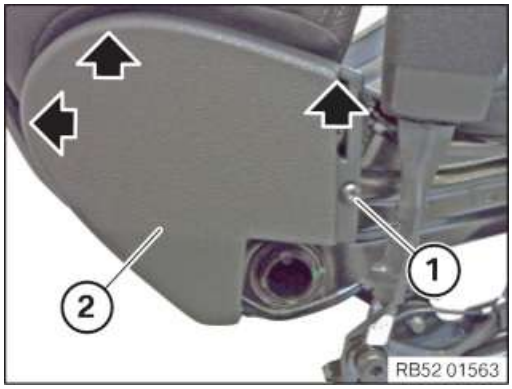


- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

12 – Installing the inner cover on the front seat



- Check guides (1) of cover (2) for damage, renew the cover if necessary.

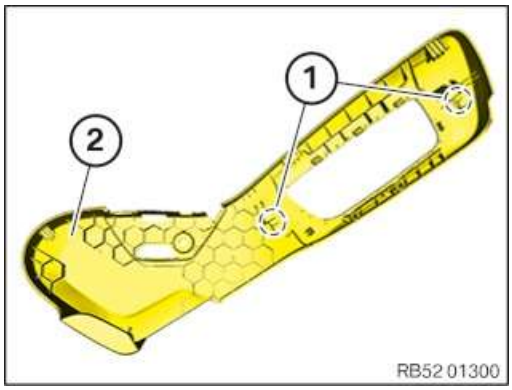


- Guide in the cover (2) on the arrows and position correctly.
- Tighten down screw (1).

Inner cover on seat frame

Screw		Tightening torque	2.5 Nm

13 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Clip in the cover (1).

14 – Removing the seat from the universal seat mount

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▸ **Disconnecting the removed front seat from the wiring harness**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- Disconnect special tool from the wiring harness of the vehicle and the removed front seat.



CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Remove front seat from the special tool .

15 – Install driver's seat

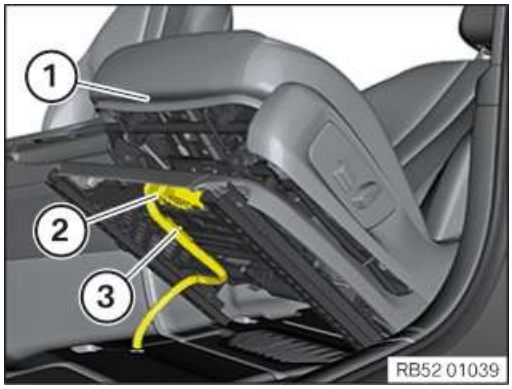
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- *Check all plug connections for completeness, correct fit and locking where required.*
- Attach the cable clip (3).



▸ **Connecting all battery earth leads**

- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

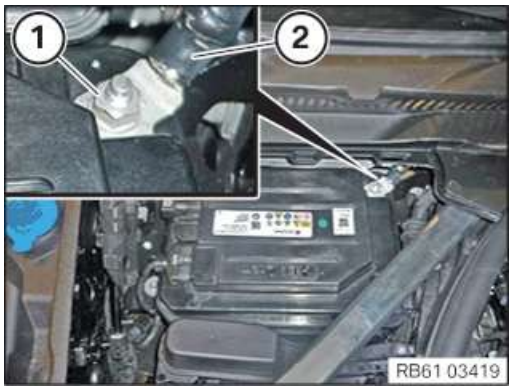
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

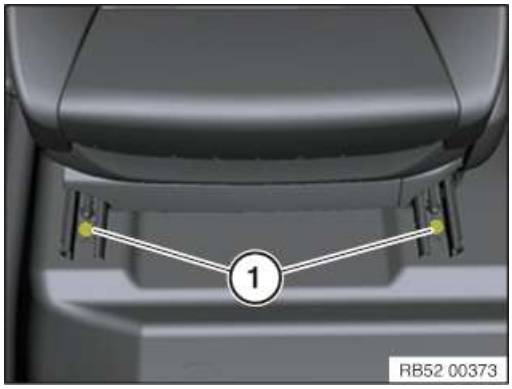


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

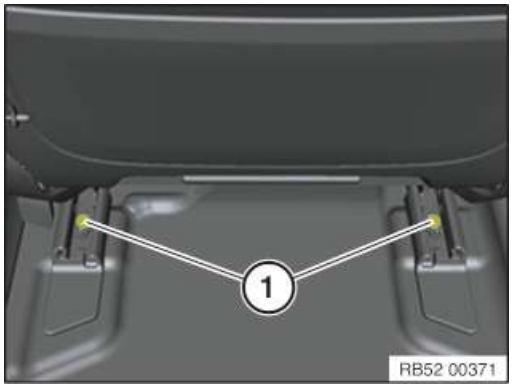


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Lower strap to seat mechanism — Used in step 8

M10 screw	Renew screw.	Tightening torque	38 Nm

Seat frame on backrest frame — Used in step 9

Screw	Renew screw.	Tightening torque	44 Nm

Seat trim to seat frame — Used in step 1013

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 11

Screw		Tightening torque	2 Nm

Inner cover on seat frame — Used in step 12

Screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame — Used in step 13

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 15

Nut M8		Tightening torque	19 Nm

Seat to body — Used in step 15

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

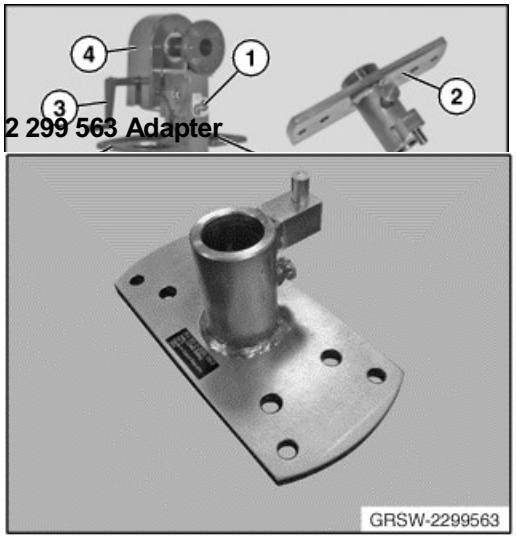
Overview of Special Tools

cardiagn.com

0 495 187 (00 2 300) Assembly stand

Used in step 2

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2 299 563 Adapter

Common

Usage	Assembly stand with universal flange for mounting engines from S85
Included in the tool or work	

Used in step 2

Common

Usage	New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.
Included in the tool or work	0 495 187
In connection with	
Storage location	
Replaced by	

Consisting of

Pos	SI-Number	In connection with number	by	Designation	with
1	0 495 188 (00 2 301)			**Assembly stand** available only as complete assembly stand 83 30 0 495 187.	
2	0 495 189 (00 2 302)		2 299 563	**Tool** locked. Is replaced by a new flange with part	Used in step
3	0 495 200 (00 2			**Cover**	
4	0 495 201 (00 2			**oddments tray** (Oddments tray for small	
5	0 495 202 (00 2			**Collection pan**	
8	0 495 205 (00 2			**Shaped element**	
9	0 495 206 (00 2 309)			**Wheel** (Front wheel (without stop))	
10	0 495 207 (00 2 311)			**Wheel** (Rear wheel (with stop))	
11	312)			(Checker mat set)	
2	2 299 563			New adapter for the engine assembly stand. 495 189 - 00 2 302.	

Links

Repair instructions (PRE)

Notes on 48-V battery	115

General repair instructions

72 00 ... Safety regulations for handling components with gas generators	115

Repair instructions

61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	115
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	115
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52 19 026 Removing/installing/replacing driver's seat and backrest frame

PRELIMINARY WORK

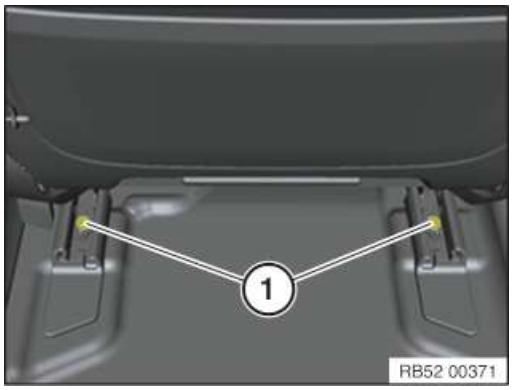
1 – Remove driver's seat.

WARNING

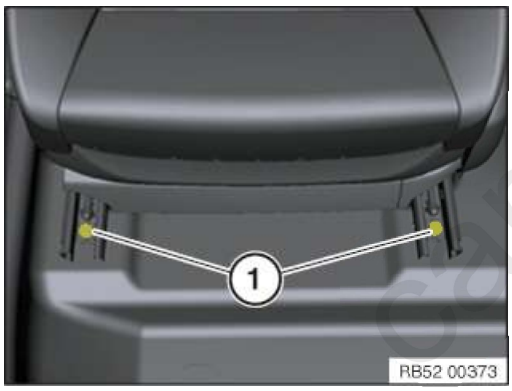
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Move front seat forwards.
- Loosen screws (1).



- Move front seat rearwards.
- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Move the steering column to the fully retracted position and move upwards fully.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

carmanuals.com

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

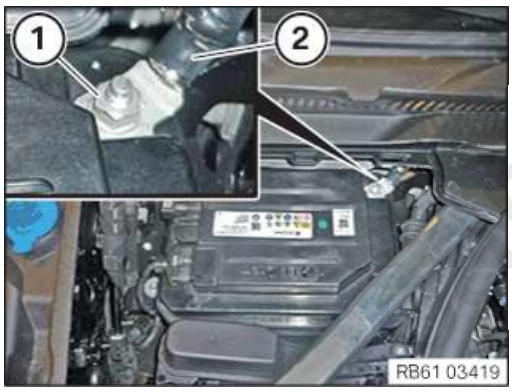
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

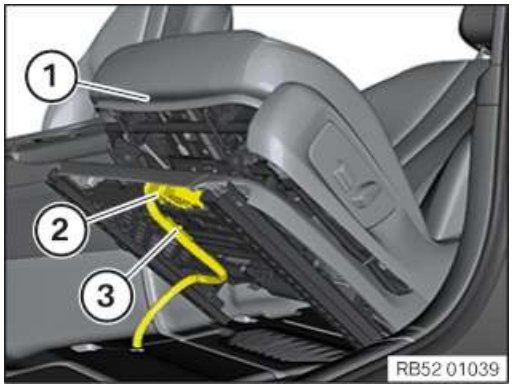
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Mounting the front seat to the universal seat mount

TECHNICAL INFORMATION

Use of the universal seat mount is recommended for carrying out expert repairs.

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- Mount special tool on special tool 0 495 187 (00 2 300).

CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

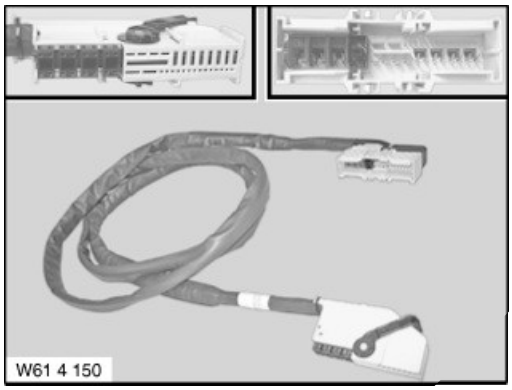
- Mount the front seat onto the special tool .

  To ensure a correct and professional repair, it is recommended to use special tool 0 495 187 (00 2 300) and .

▸ **Connect the removed front seat to the wiring harness.**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- The special tool will be required to connect the wiring harness of the vehicle and the removed front seat to adjust the front seat when it is in removed state.



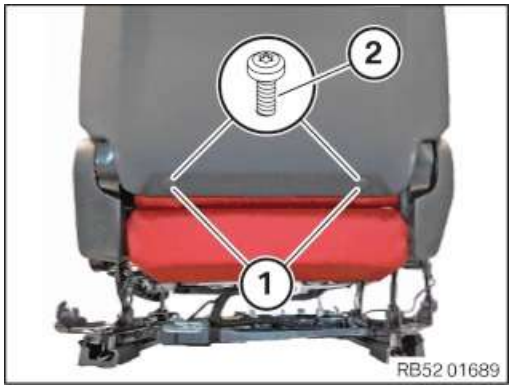
- Connect special tool to the wiring harness of the vehicle and the removed front seat to adjust the front seat.

3 – Remove rear panel on front seat backrest

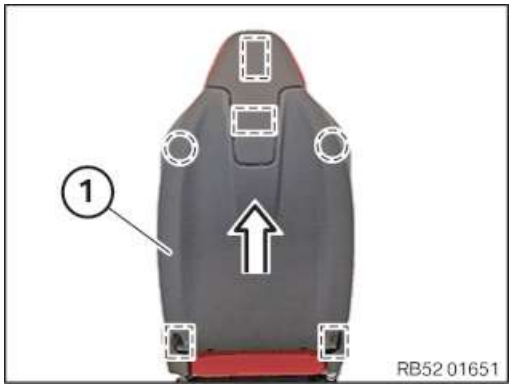


- Loosen screw (1).

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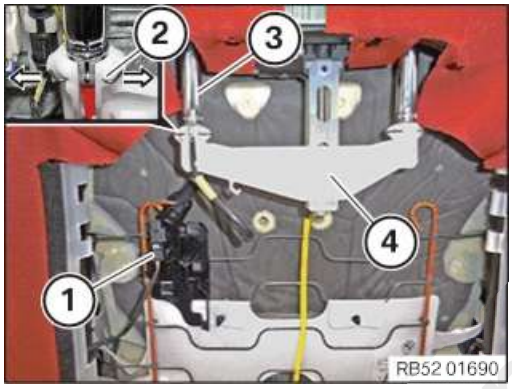


- Remove cover caps (1) with a suitable tool.
- Release screws (2) underneath.



- Carefully unclip rear panel on front seat backrest (1) at marked points and feed out in direction of arrow.

4 – Removing the head restraint

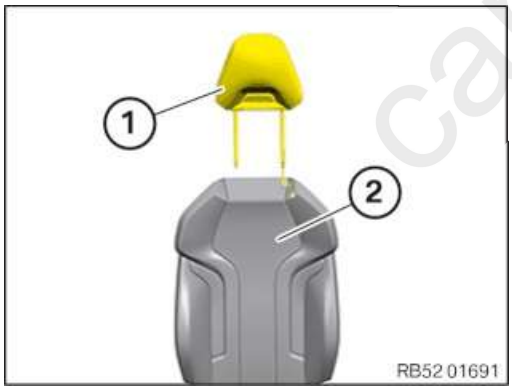


- Unlock plug connection (1) and disconnect.

TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

- Lightly pull clamps (2) in the direction of the arrow. Detach the head rest (3) from the drive (4).



- Carefully remove the head rest with cable (1) from the front seat (2).

5 – Remove outer cover on front seat



- Unclip the cover (1).

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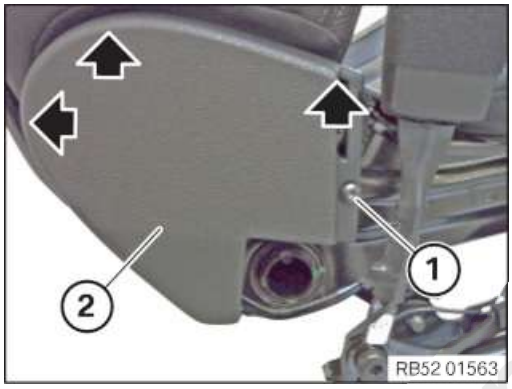


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



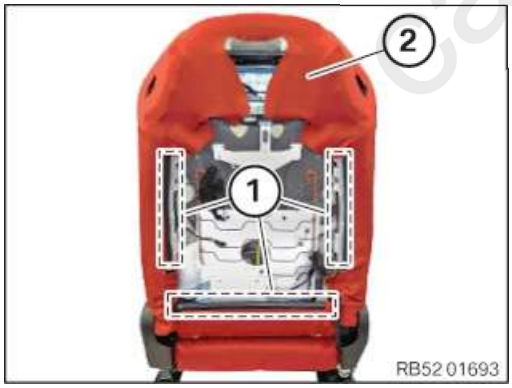
- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

6 – Remove inner cover on front seat



- Loosen screw (1).
- Guide out the cover (2) at the arrows.

7 – Removing the backrest cover with cushion



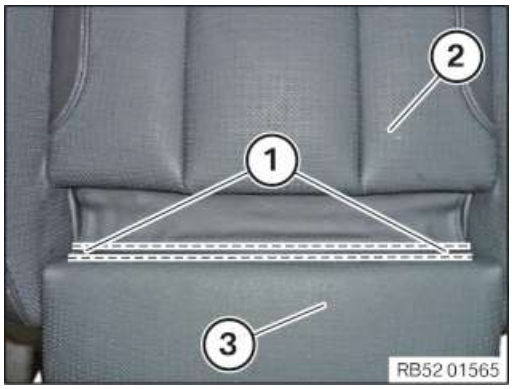
- Unclip edge stripping (1) in the marked area using suitable tool.
- Carefully detach seat cover (2) from backrest frame at all other attachment points.



- Carefully disconnect seat cover with upholstery (1) from seat frame (2).
- If necessary, unlock existing plug connections and disconnect.

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8 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).

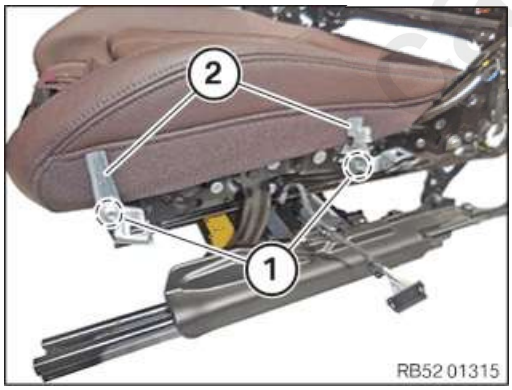


- Loosen screws (1).
- Feed the thigh support (2) out.

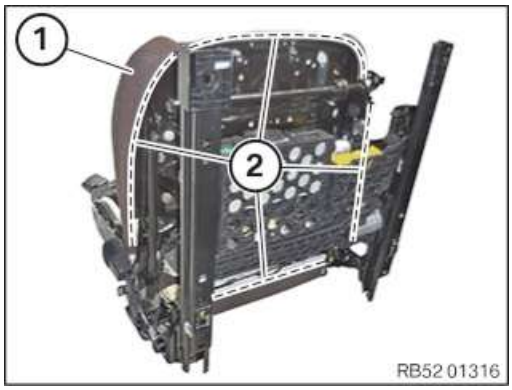


- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

9 – Remove seat cover with padding for driver's seat



- Loosen screws (1) and remove holder (2).



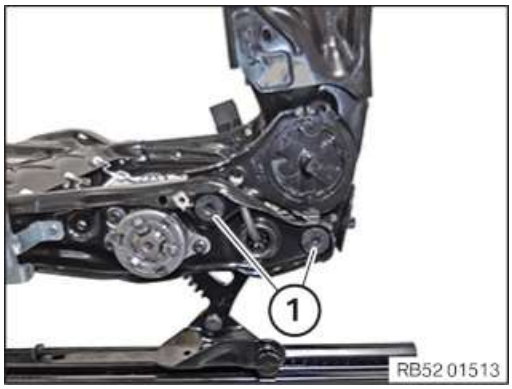
- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Disconnect the existing plug connection where required and unclip the cable clips.

carsdiagn.com

10 – Removing the seat frame

NOTICE

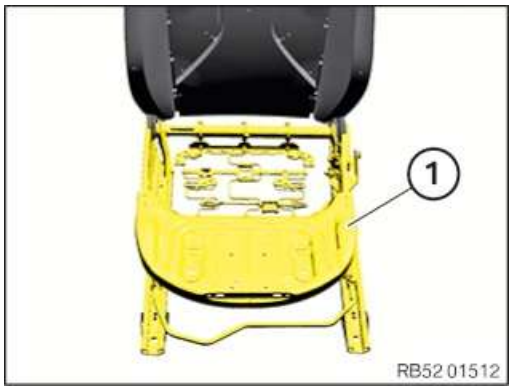
Schematic diagram is for example purposes. Some parts may differ in certain details.



NOTICE

The operations shown only for one side must be carried out on both sides.

- Loosen screws (1).



- Remove seat frame (1).

TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

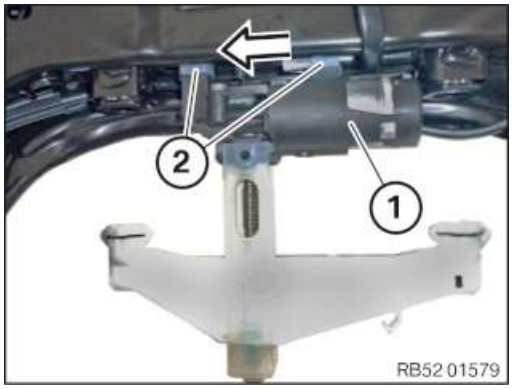
- Release all the mounted parts from seat frame (1).

11 – When replacing the backrest frame: Remount components

▸ **Remove head restraint height adjuster motor**

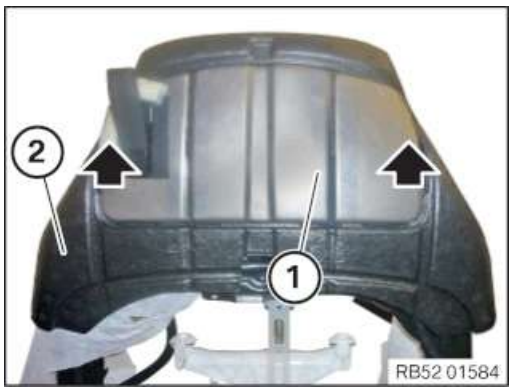


- Unlock plug connection (1) and disconnect.



- Remove the drive for the head restraint height adjuster (1) at the attachment points (2) in the direction of the arrow.

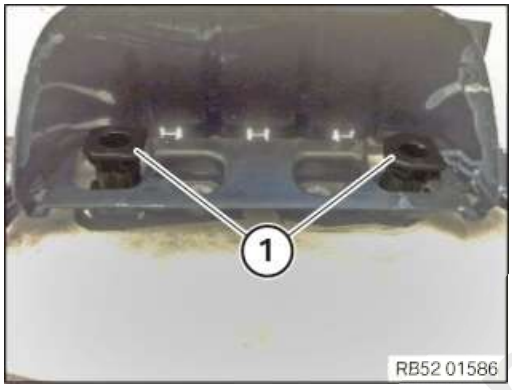
▸ **Remove the front head restraint guides**



- Unclip the cover (1) at the arrows and guide out.
- Remove cover (2).



- Loosen the latch mechanisms (1).



- Guide out the head restraint guides(1).

▸ **Remove head restraint guide**



- Unlock locks (1) and remove the headrest guides (2) in the direction of the arrow.

▸ **Remove lumbar support on front seat**

Prerequisite

The lumbar support and the backrest width adjustment are completely depressurised.

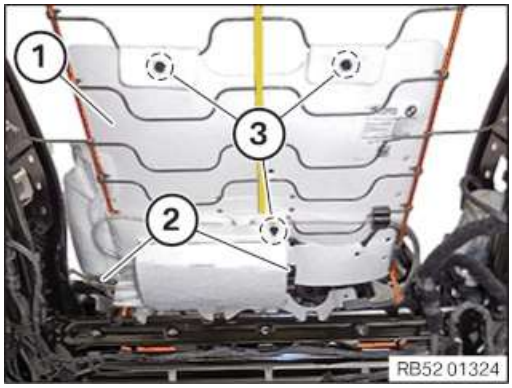
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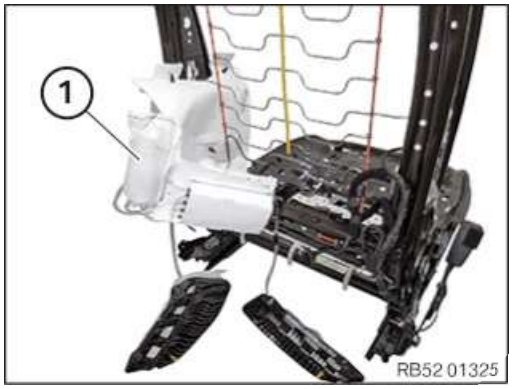
NOTICE

Perform the operations on the left and right side.

- Unscrew the bolts (1) and guide out the air cushion of the backrest width adjustment left/right.



- Disconnect the plug connections (2) and unclip available cable clips.
- Unclip the lumbar support (1) at the clips (3) and feed out the retaining tabs.

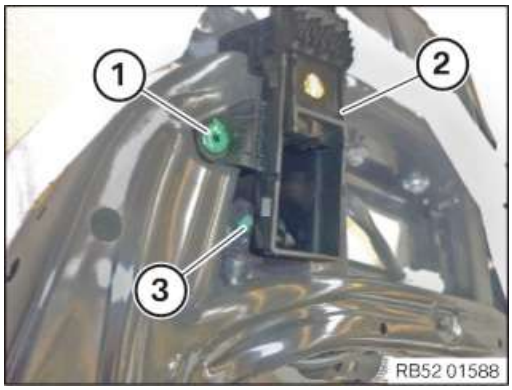


- Carefully guide out the lumbar support (1) complete with pump unit and valve block on the side as shown.

▸ Removing the release mechanism on the front seat



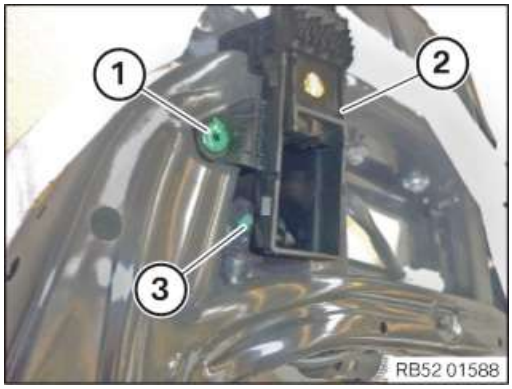
- Release latch mechanisms (arrows) and remove cover cap (1).



- Drill out blind rivets (1) on the front and rear side of the backrest frame.
- Guide out release mechanism on the front seat (2).
- Guide out cable for release mechanism on the front seat (3) and remove release mechanism on the front seat (2).

▸ Installing the release mechanism on the front seat

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- Position unlocking mechanism on the front seat (2) and feed Bowden cable in for unlocking mechanism on the front seat (3).
- Correctly position unlocking mechanism on the front seat (2).
- Renew blind rivets (1).

  Parts: Blind rivet
- Attach unlocking mechanism on the front seat (2) to the front and rear of the seat back frame using blind rivets (1).

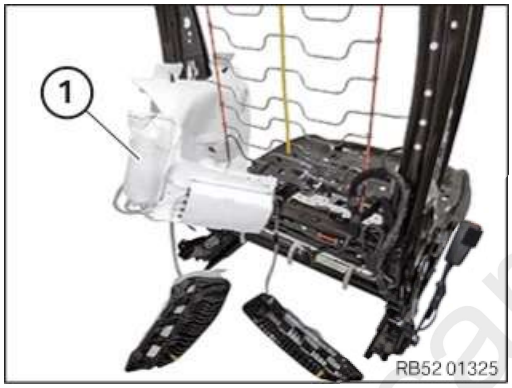


- Press protective cap (1) until the latch mechanism (arrows) snap into place.

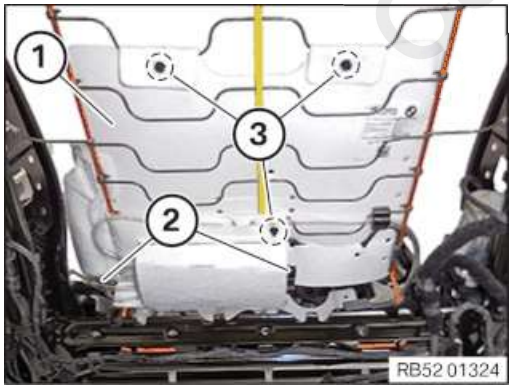
▸ **Install lumbar support on front seat**

Prerequisite

The lumbar support and the backrest width adjustment are completely depressurised.



- Carefully guide in the lumbar support (1) complete with pump unit and valve block as shown.



- Position the lumbar support (1) at the clips (3) and clip it in.
- Connect the plug connections (2) and clip in the existing cable clips.

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NOTICE

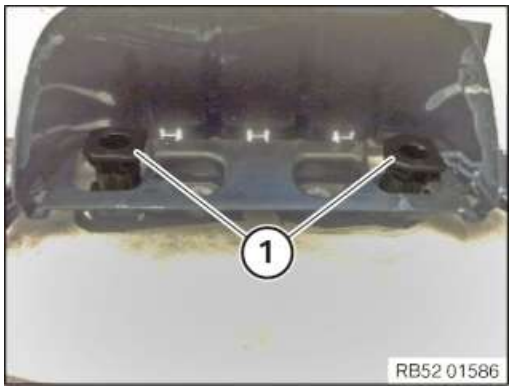
Perform the operations on the left and right side.

- Position the air cushion of the backrest width adjustment (2) left/right and tighten the bolts (1).

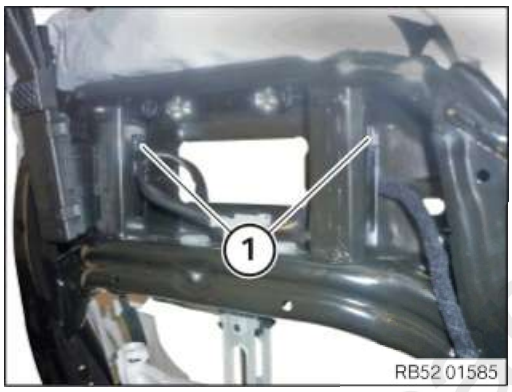
Backrest width adjustment on backrest frame

Oval-head screw with collar		Tightening torque	2.5 Nm

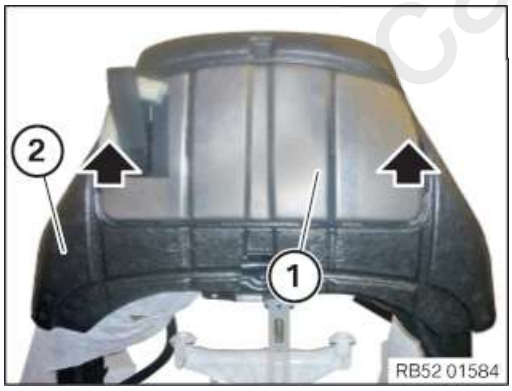
▸ **Installing front head restraint guide**



- Guide in and position head restraint guide (1).



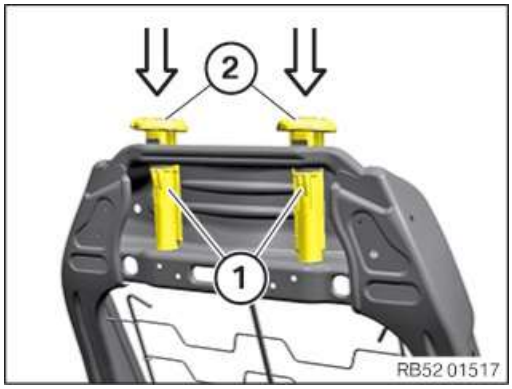
- Make sure that the latch mechanisms (1) are engaged correctly.



- Insert the cover (2).
- Feed in the cover (1) and clip it in at the arrows.

▸ **Install the head restraint guide**

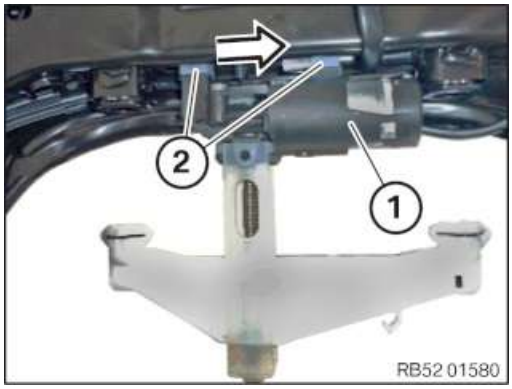
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- Correctly position the head restraint guides (2) and install in direction of arrow.

  The head restraint guides (2) are marked at the top against incorrect assembly with an arrow in the direction of travel.
- The latch mechanisms (1) must engage audibly.

▸ **Installing the drive for head restraint height adjustment**



TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

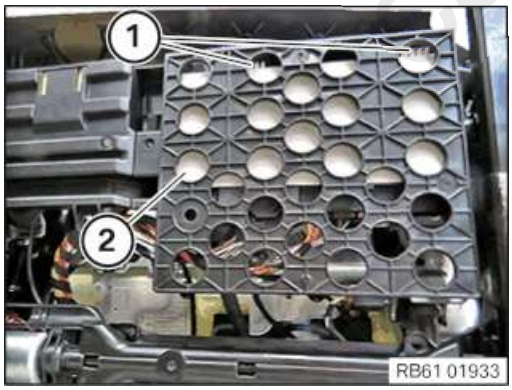
- Renew drivetrain for head restraint height adjustment (1).

  Parts: Drive unit for head restraint height adjustment
- Installing drive for head restraint height adjustment (1) at the attachment points (2) in the direction of arrow.



- Connect connectors (1) and lock.

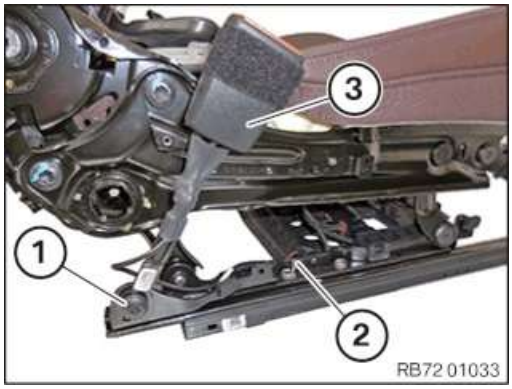
12 – When replacing the seat frame of driver seat: Remount components



- Unlock and disconnect all plug connections of the SMFA control unit (2).
- Unlock the retaining lugs (1).
- Pull the SMFA control unit (2) forward.

▸ **Removing front lower strap**

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- Loosen screw (1).
- Disconnect the plug connection (2) and unclip available cable clips.
- Guide out and remove the lower strap (3) .

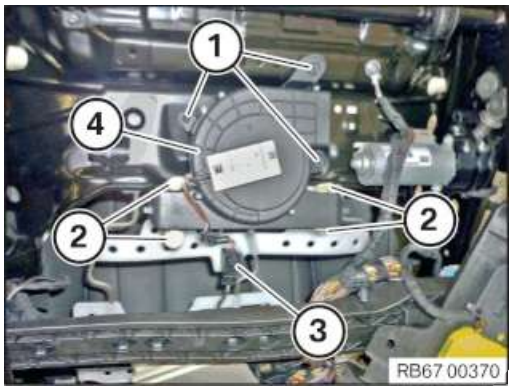
▸ Removing the seat cushion surface fan

Prerequisite

The front seat is adjusted as far backwards and up as it will go.

NOTICE

To provide a better overview: Illustration of surrounding parts in removed state.



- Loosen the attachment points (1).
- Detach latch mechanisms (2).
- Unlock plug connection (3) and disconnect.
- Feed out the fan (4) for the seat cushion surface.

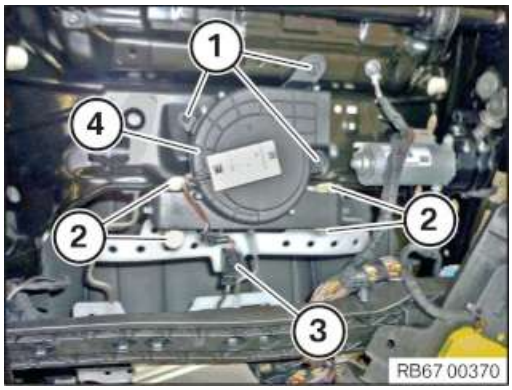
▸ Installing the fan for the seat cushion surface

Prerequisite

The front seat is adjusted as far backwards and up as it will go.

NOTICE

To provide a better overview: Illustration of surrounding parts in removed state.



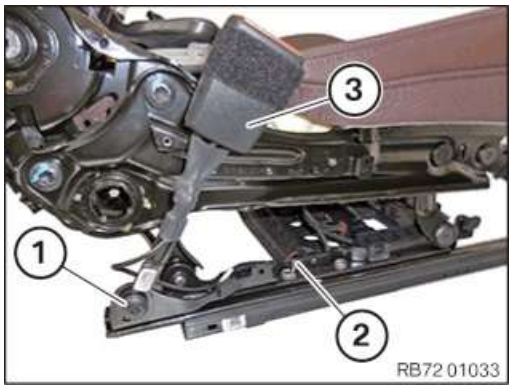
- Connect connectors (3) and lock.
- Guide in the fan (4) for seat cushion surface and position correctly.
- Mount latch mechanisms (2).
- Connect attachment points (1).

▸ Installing the front lower strap

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TECHNICAL INFORMATION

Clean all belt bolted connections with micro-encapsulated external and internal threads.
Swarf or other residues must not remain in the components.
If a micro-encapsulated screw is reused, it must be filled with screw locking agent: **Loctite 243, intermediate strength**.
The screw connection must be completed within a period of 10 minutes, as after this period the hardening starts.



TECHNICAL INFORMATION

Component is encoded against incorrect assembly.

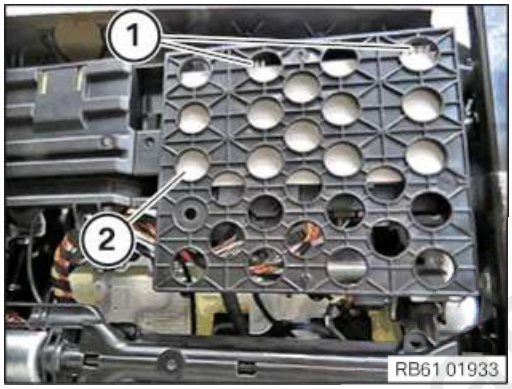
- Thread in the lower strap (3) and position it.
- Renew the screw (1).

  Parts: Screw
- Tighten down screw (1).

Lower strap to seat mechanism

M10 screw	Renew screw.	Tightening torque	38 Nm

- Connect the plug connection (2) and clip in the existing cable clips.

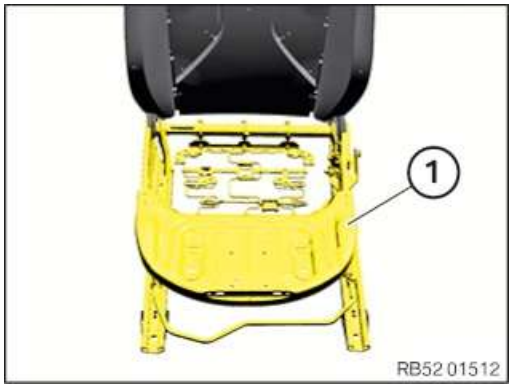


- Press the SMFA control unit (2) into the holder until the retaining lugs (1) engage.
- Connect all associated connectors of SMFA control unit (2) and lock.

13 – Installing the seat frame

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

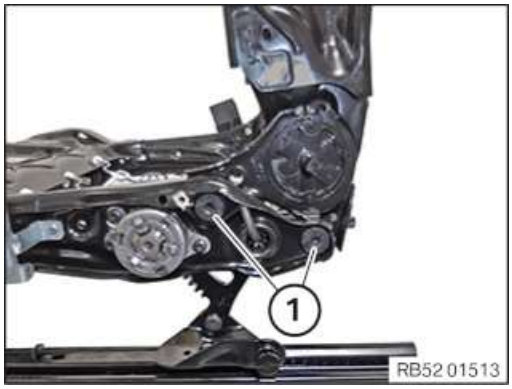


TECHNICAL INFORMATION

Different variants may be installed depending on the vehicle equipment.

- Position and secure all add-on parts on the seat frame (1) .
- Correctly position seat frame(1).

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NOTICE

The operations shown only for one side must be carried out on both sides.

- Renew screws (1).

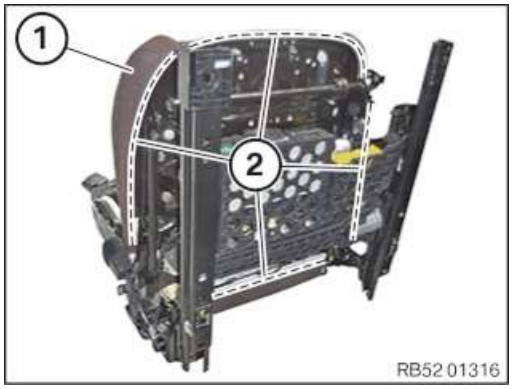
  Parts: Screws
- Tighten the screws (1).

Seat frame on backrest frame

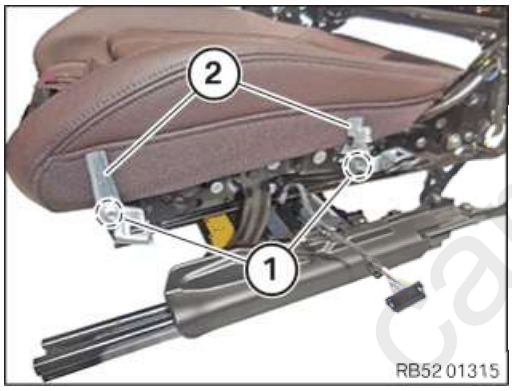
Screw	Renew screw.	Tightening torque	44 Nm

POSTPROCESSES

14 – Installing seat cover with cushion for driver's seat



- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Where applicable, connect the existing plug connections and clip in the cable clips.



- Position holder (2) and tighten screws (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

15 – Install thigh support



- Position the thigh support (2).
- Connect connectors (1) and lock.

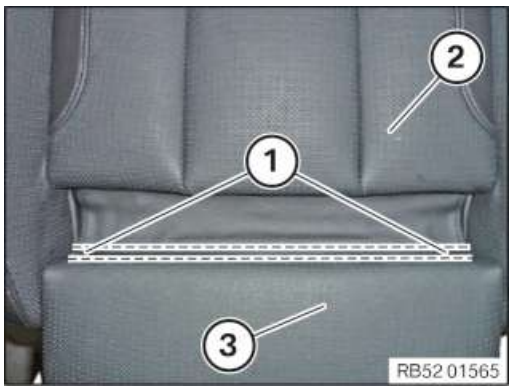
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- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm

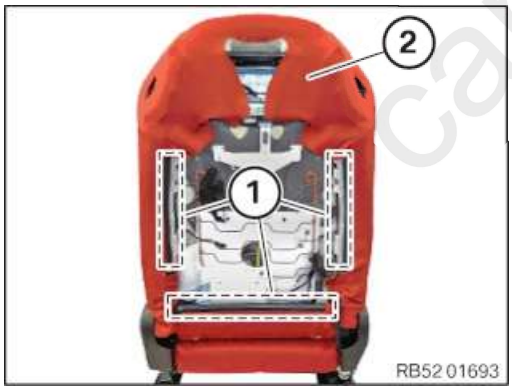


- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

16 – Installing the backrest cover with cushion



- Position backrest cover with cushion (1) as pictured on backrest frame (2).
- If necessary, connect and lock available plug connections.



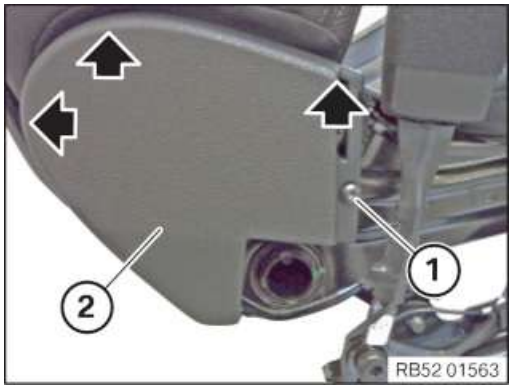
- Position seat cover (2) correctly and hook in at all attachment points.
- Clip in edge stripping (1) in the marked area.

17 – Installing the inner cover on the front seat



- Check guides (1) of cover (2) for damage, renew the cover if necessary.

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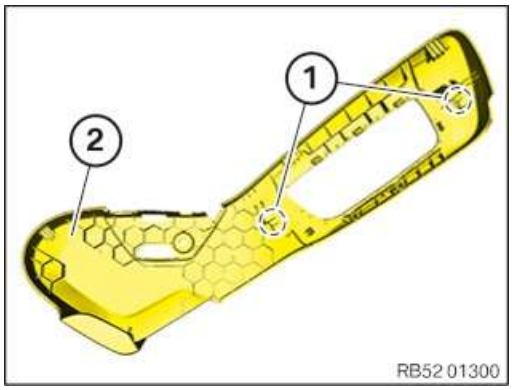


- Guide in the cover (2) on the arrows and position correctly.
- Tighten down screw (1).

Inner cover on seat frame

Screw		Tightening torque	2.5 Nm

18 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

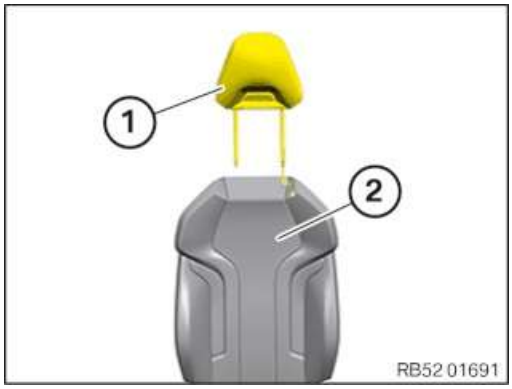
Screw		Tightening torque	3.5 Nm



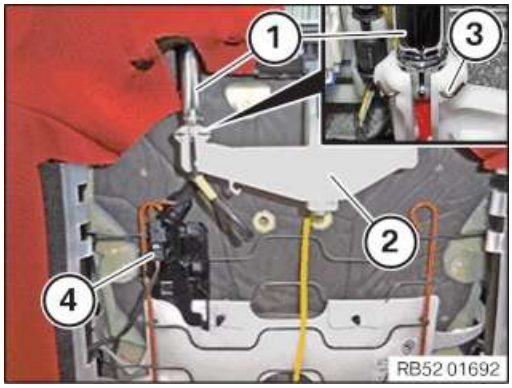
- Clip in the cover (1).

19 – Installing the head restraint

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- Carefully feed head restraint with cable (1) into front seat (2).



- Clip head restraint (1) into drive (2).

  The clamps (3) must engage audibly.
- Check the correct fit of the head restraint (1) in the clamps (3).
- Connect and lock plug connection (4) and clip into cable clip.

Check

- Check the correct latch mechanism of the head restraint with a pulling test.
- Pull the head restraint upwards by hand.

Result

» The head restraint cannot be pulled off.

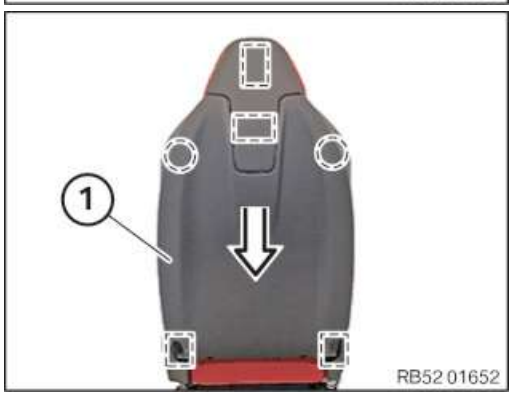
Measure

- Continue installation.

20 – Install the rear panel on the front seat backrest

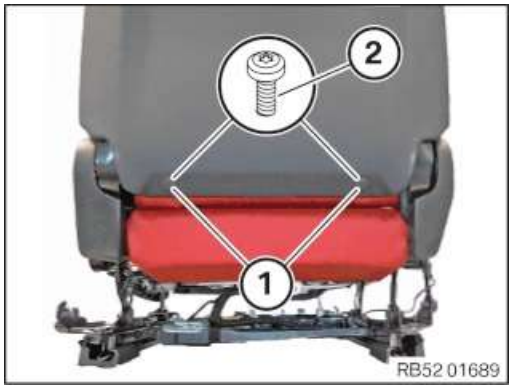


- Check guides and latch mechanisms in marked areas for damage.



- Position rear panel on front seat backrest (1) correctly and clip into place in arrow direction.

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- Position screws (2) correctly and tighten.

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Position cover caps (1) correctly and clip in.



- Tighten down screw (1).

Release handle to backrest frame

Screw		Tightening torque	2,7 Nm

21 – Removing the seat from the universal seat mount

▸ **Disconnecting the removed front seat from the wiring harness**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- Disconnect special tool from the wiring harness of the vehicle and the removed front seat.



CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Remove front seat from the special tool .

22 – Install driver's seat

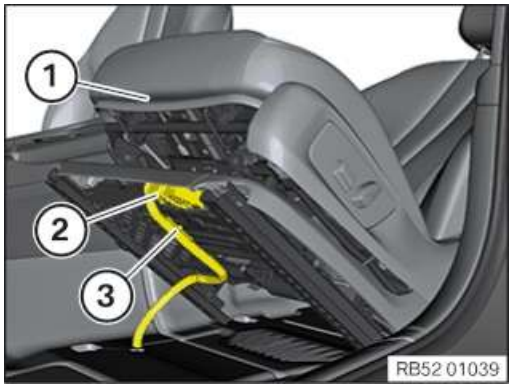
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WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- *Check all plug connections for completeness, correct fit and locking where required.*
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

- See additional information.



▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

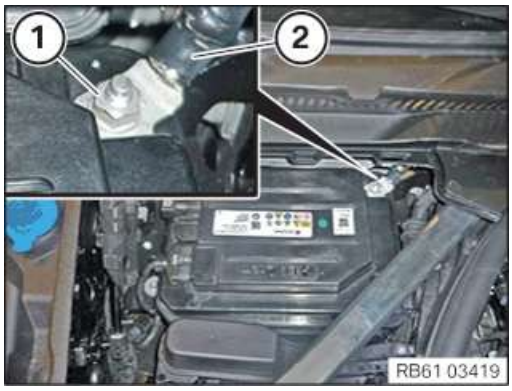
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

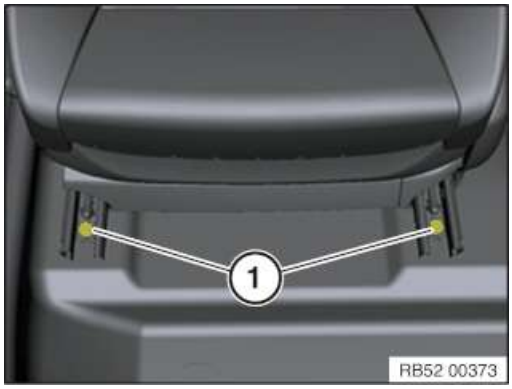


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

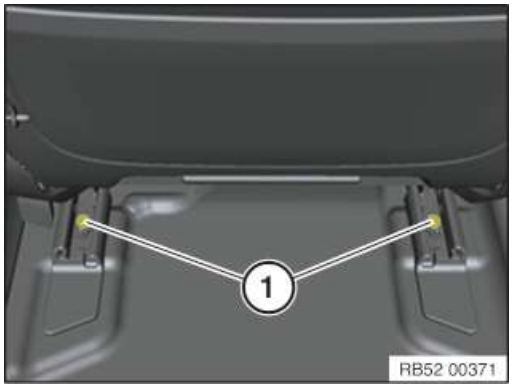


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Backrest width adjustment on backrest frame — Used in step 11

Oval-head screw with collar		Tightening torque	2.5 Nm

Lower strap to seat mechanism — Used in step 12

M10 screw	Renew screw.	Tightening torque	38 Nm

Seat frame on backrest frame — Used in step 13

Screw	Renew screw.	Tightening torque	44 Nm

Seat trim to seat frame — Used in step 1418

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 15

Screw		Tightening torque	2 Nm

Inner cover on seat frame — Used in step 17

Screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame — Used in step 18

Screw		Tightening torque	3.5 Nm

Rear panel on rear seat backrest — Used in step 20

Screw		Tightening torque	3 Nm

Release handle to backrest frame — Used in step 20

Screw		Tightening torque	2,7 Nm

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Negative battery cable to 48-V battery Used in step 22

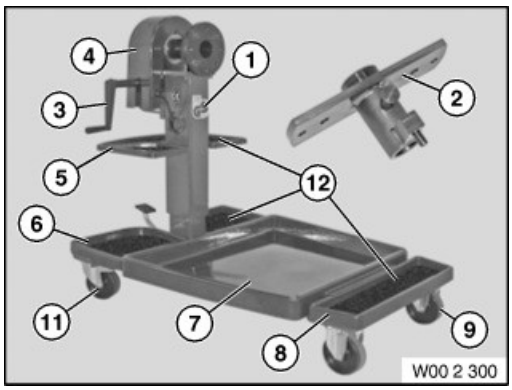
Nut M8		Tightening torque	19 Nm

Seat to body Used in step 22

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 495 187 (00 2 300) Assembly stand



Common Used in step 2

Usage	Assembly stand with universal flange for mounting engines from S85
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 04 (155)

Consisting of

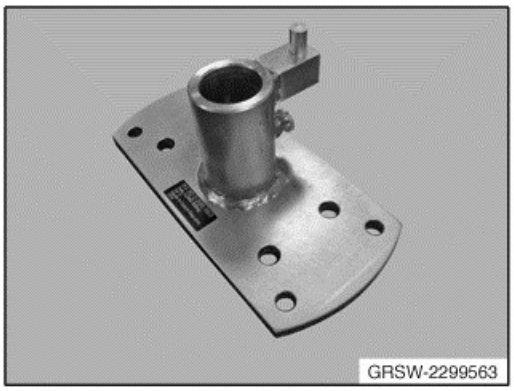
Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 495 188 (00 2 301)		**Assembly stand** available only as complete assembly stand 83 30 0 495 187.	
2	0 495 189 (00 2 302)	2 299 563	**Tool** (Universal flange). Do not use any more!!! Technically locked. Is replaced by a new flange with part number 83 30 2 299 563. All flanges delivered by the end of 2011 will be replaced free of charge. From 2012, only the new flange will be supplied. Also applies to the complete engine mounting stand 00 2 300.	
3	0 495 200 (00 2 303)		**Crank**	
4	0 495 201 (00 2 304)		**Cover** (Protective hood)	
5	0 495 202 (00 2 305)		**oddments tray** (Oddments tray for small parts)	
6	0 495 203 (00 2 306)		**Shaped element** (Rear shaped pan)	
7	0 495 204 (00 2 307)		**Collection pan** (Oil collection pan)	
8	0 495 205 (00 2 308)		**Shaped element** (Front shaped pan)	

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9	0 495 206 (00 2 309)		**Wheel** (Front wheel (without stop))	
10	0 495 207 (00 2 311)		**Wheel** (Rear wheel (with stop))	
11	0 495 208 (00 2 312)		**Mat** (Checker mat set)	
2	2 299 563		**Adapter** New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.	

Replacement tools:

2 299 563 Adapter



Common	Used in step 2
Usage	New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.
Included in the tool or work	0 495 187
Storage location	
Replaced by	
In connection with	
SI-Number	

Links

Repair instructions (PRE)	**Used in step**
Notes on 48-V battery	122

General repair instructions	**Used in step**
72 00 ... Safety regulations for handling components with gas generators	122

Repair instructions	**Used in step**
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	122
61 20 900 Disconnecting and connecting battery earth lead	122
61 20 900 Disconnecting and connecting battery earth lead	122
61 20 900 Disconnecting and connecting battery earth lead	122
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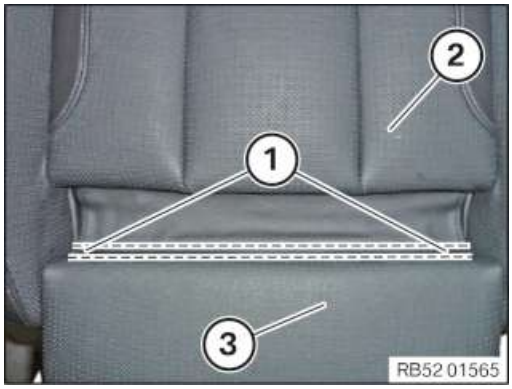
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72 12 ... Unlocking/locking airbag plug connections 716

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52 19 049 Replace thigh support on left or right front seat

PRELIMINARY WORK

1 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).

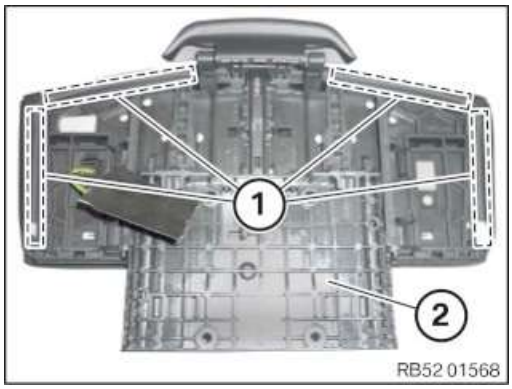


- Loosen screws (1).
- Feed the thigh support (2) out.



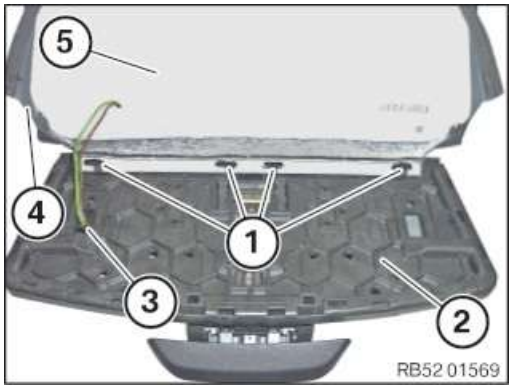
- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

2 – Remove padding for thigh support

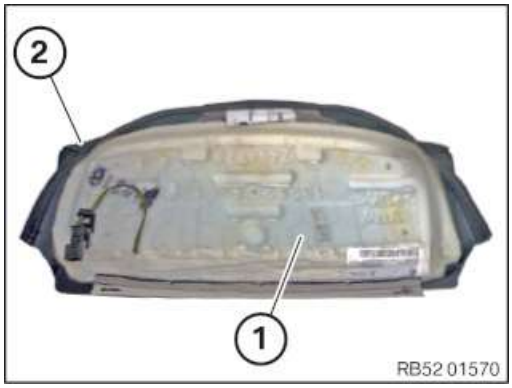


- Remove the welt (1) from the thigh support holder (2).

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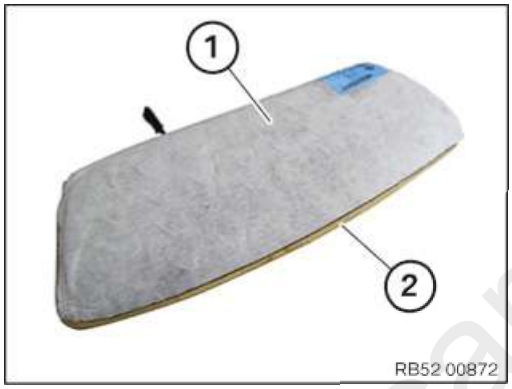
- Remove the thigh support holder (2) from the guides (1).
- Unclip the cable clip (3).
- Remove the thigh support cover (4) with cushion for the thigh support (5).



- Remove the cushion for the thigh support (1) from the thigh support cover (2).

MAIN WORK

3 – Renewing heating element for thigh support of front seat



TECHNICAL INFORMATION

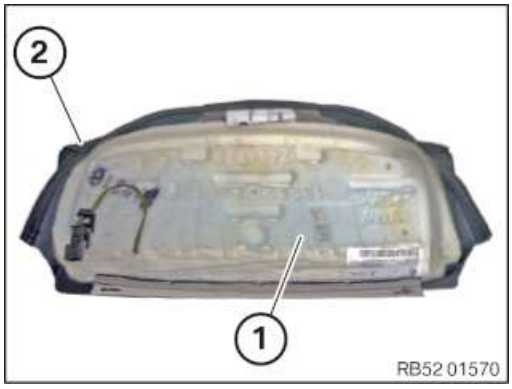
The heating mat is bonded to the foam pad and cannot be disassembled without damaging it.

When replacing, new heating mat must always be fitted with new foam pads.

- Remove the protective film from the heating element (1).
- Bond the heating element (1) on the cushion (2).

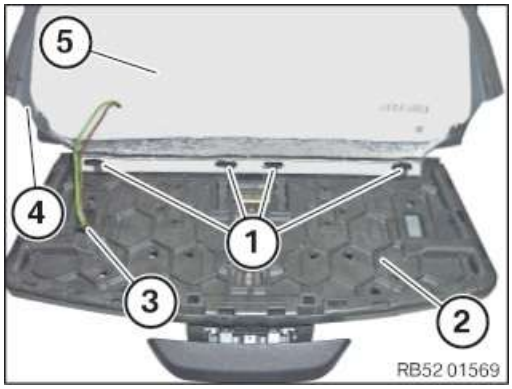
POSTPROCESSES

4 – Fit upholstery for thigh support

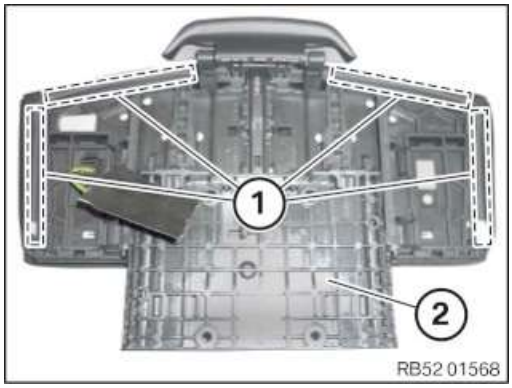


- Feed the cushion for the thigh support (1) into the thigh support cover (2).

carbon.com



- Position the thigh support cover (4) with cushion for the thigh support (5).
- Fit the thigh support holder (2) on the guides (1).
- Clip in the cable clip (3).
- Correctly position the thigh support cover (4) with cushion (5).



- Fit the welt (1) on the thigh support holder (2).

5 – Install thigh support



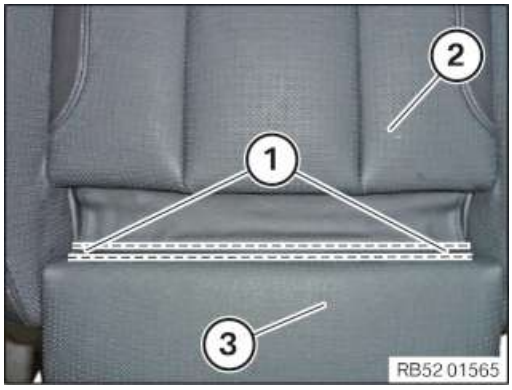
- Position the thigh support (2).
- Connect connectors (1) and lock.



- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

Thigh support to front seat

Screw		Tightening torque	2 Nm



- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

Additional Information

cardiagn.com

Overview of Tightening Torques

Thigh support to front seat

Used in step 5

Screw		Tightening torque	2 Nm

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52 19 407 Replacing backrest cover for driver's seat

PRELIMINARY WORK

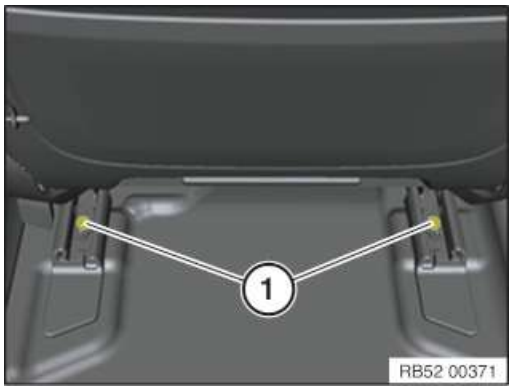
1 – Remove driver's seat.

WARNING

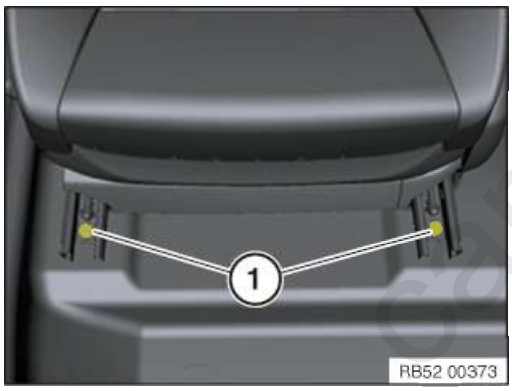
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Move front seat forwards.
- Loosen screws (1).



- Move front seat rearwards.
- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Move the steering column to the fully retracted position and move upwards fully.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

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WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

ardiagn.com

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

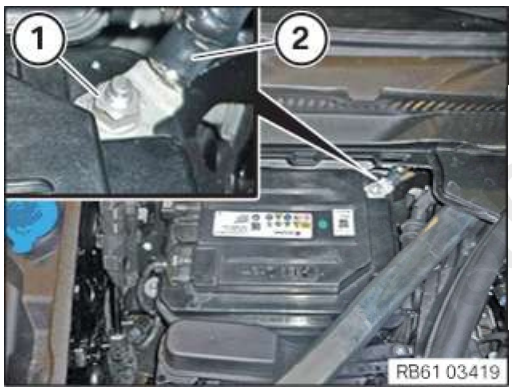
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

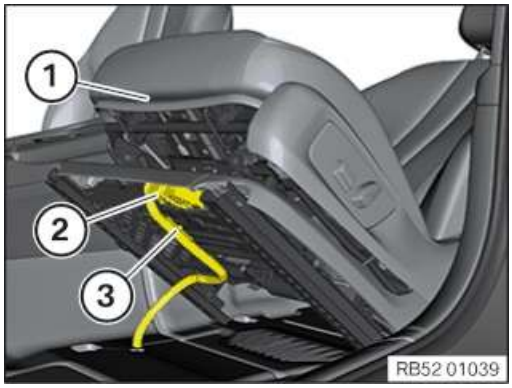
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Mounting the front seat to the universal seat mount

TECHNICAL INFORMATION

Use of the universal seat mount is recommended for carrying out expert repairs.

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- Mount special tool on special tool 0 495 187 (00 2 300).

CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

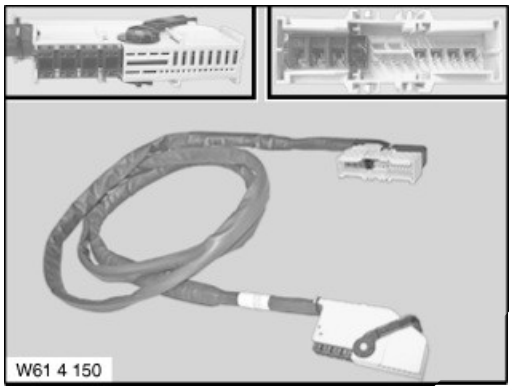
- Mount the front seat onto the special tool .

  To ensure a correct and professional repair, it is recommended to use special tool 0 495 187 (00 2 300) and .

▸ **Connect the removed front seat to the wiring harness.**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- The special tool will be required to connect the wiring harness of the vehicle and the removed front seat to adjust the front seat when it is in removed state.



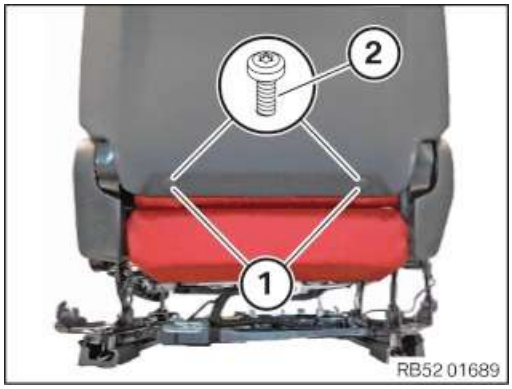
- Connect special tool to the wiring harness of the vehicle and the removed front seat to adjust the front seat.

3 – Remove rear panel on front seat backrest

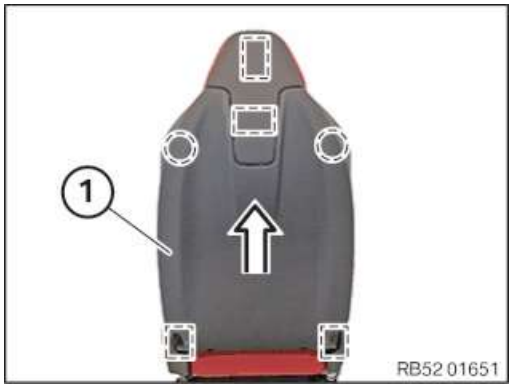


- Loosen screw (1).

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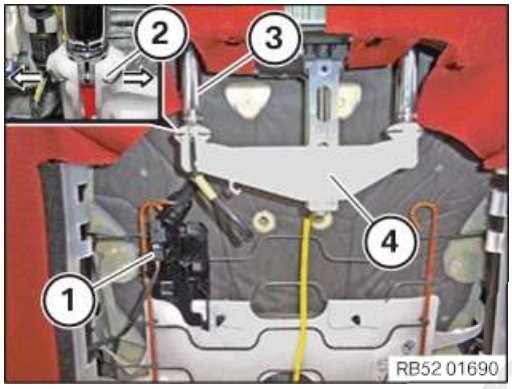


- Remove cover caps (1) with a suitable tool.
- Release screws (2) underneath.



- Carefully unclip rear panel on front seat backrest (1) at marked points and feed out in direction of arrow.

4 – Removing the head restraint

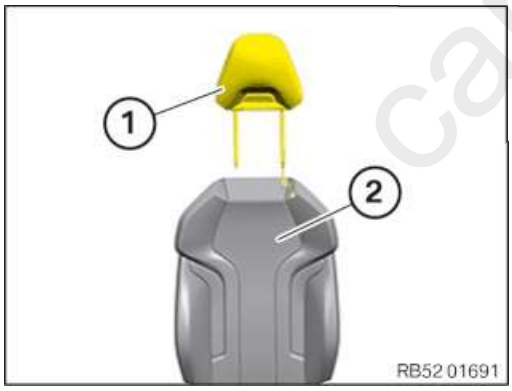


- Unlock plug connection (1) and disconnect.

TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

- Lightly pull clamps (2) in the direction of the arrow. Detach the head rest (3) from the drive (4).



- Carefully remove the head rest with cable (1) from the front seat (2).

5 – Remove outer cover on front seat



- Unclip the cover (1).

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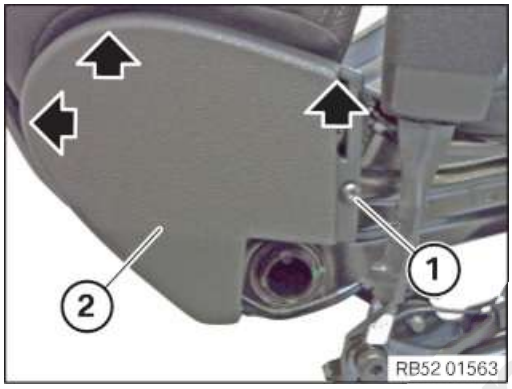


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



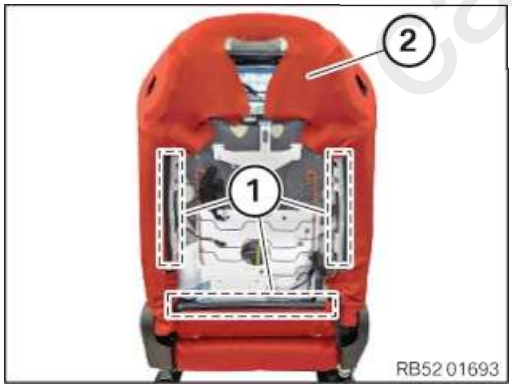
- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

6 – Remove inner cover on front seat



- Loosen screw (1).
- Guide out the cover (2) at the arrows.

7 – Removing the backrest cover with cushion



- Unclip edge stripping (1) in the marked area using suitable tool.
- Carefully detach seat cover (2) from backrest frame at all other attachment points.



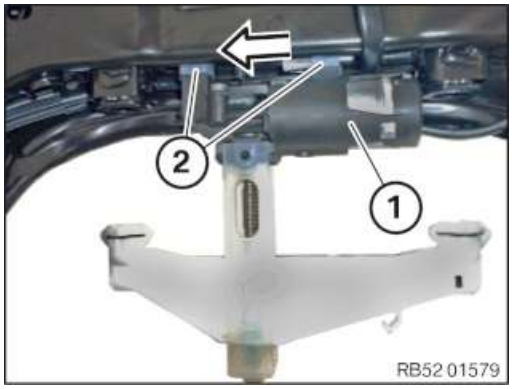
- Carefully disconnect seat cover with upholstery (1) from seat frame (2).
- If necessary, unlock existing plug connections and disconnect.

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8 – Remove head restraint height adjuster motor



- Unlock plug connection (1) and disconnect.



- Remove the drive for the head restraint height adjuster (1) at the attachment points (2) in the direction of the arrow.

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MAIN WORK

9 – Remove the backrest cover from front seat-backrest

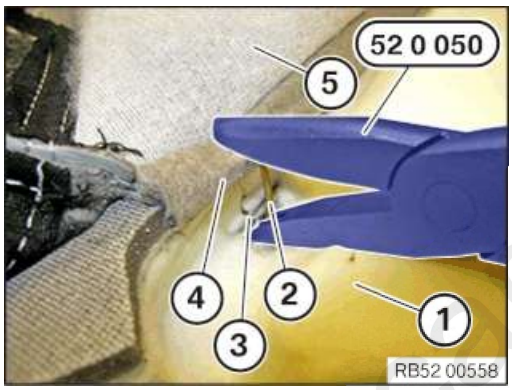


- Loosen all clamp on the trim wires (1).
- Remove the backrest cover (2) from the upholstery.
- Completely remove clamps from the backrest cover (2) and the cushion.

10 – Install the backrest cover of the front seat backrest



- Place the backrest cover (2) onto the upholstery.
- Secure all trim wires (1) with the clamps.

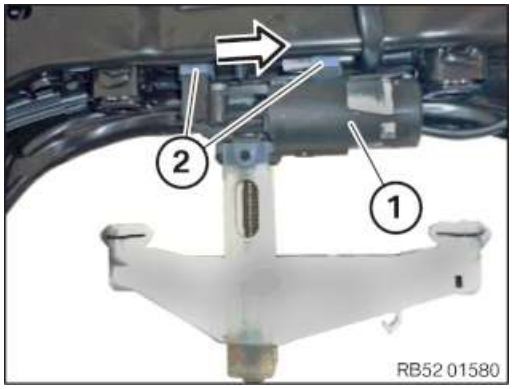


- Renew the clamps (2).

  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround the trim wire (3) of the cushion (1) and the trim wire (4) of the backrest cover (5) with the clamp (2) and bend the clamp (2) to close it.

POSTPROCESSES

11 – Installing the drive for head restraint height adjustment



TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

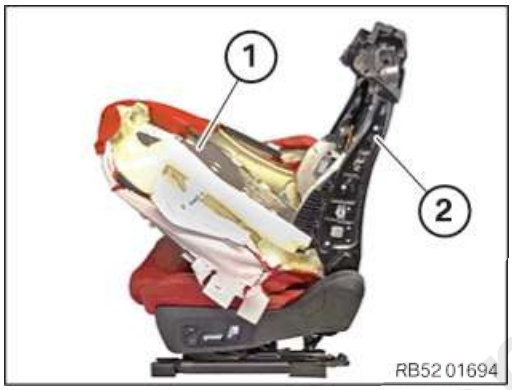
- Renew drivetrain for head restraint height adjustment (1).

  Parts: Drive unit for head restraint height adjustment
- Installing drive for head restraint height adjustment (1) at the attachment points (2) in the direction of arrow.

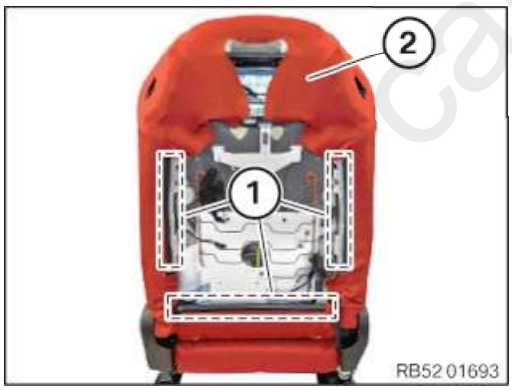


- Connect connectors (1) and lock.

12 – Installing the backrest cover with cushion



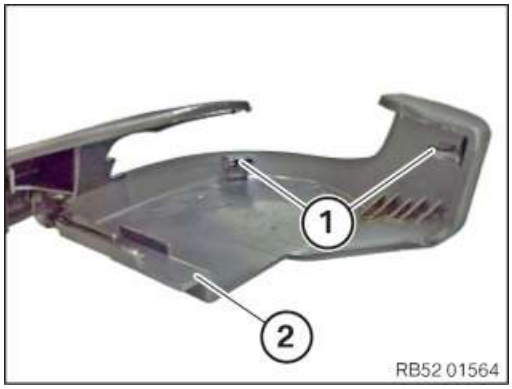
- Position backrest cover with cushion (1) as pictured on backrest frame (2).
- If necessary, connect and lock available plug connections.



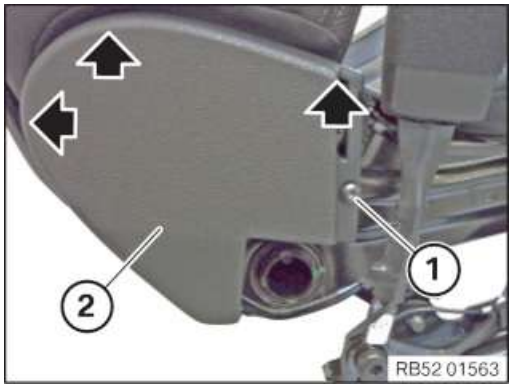
- Position seat cover (2) correctly and hook in at all attachment points.
- Clip in edge stripping (1) in the marked area.

13 – Installing the inner cover on the front seat

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- Check guides (1) of cover (2) for damage, renew the cover if necessary.

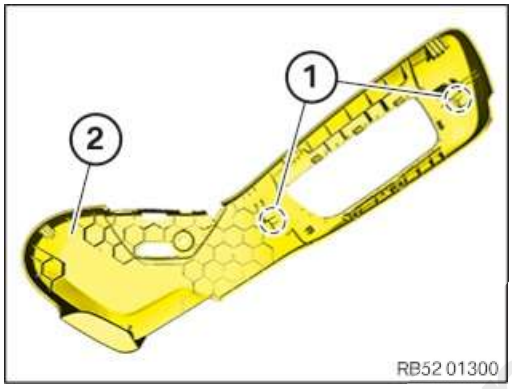


- Guide in the cover (2) on the arrows and position correctly.
- Tighten down screw (1).

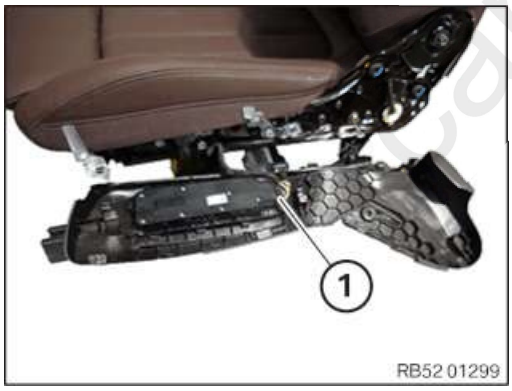
Inner cover on seat frame

Screw		Tightening torque	2.5 Nm

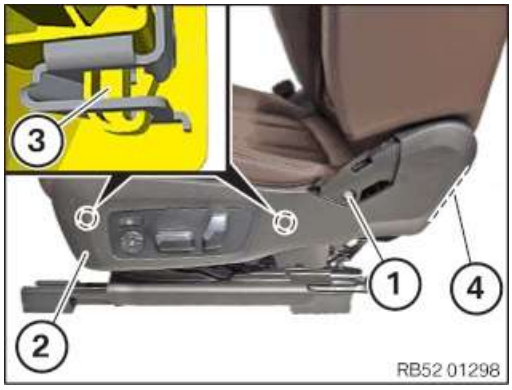
14 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

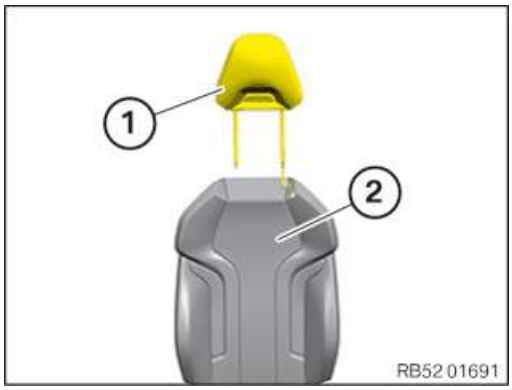
Screw		Tightening torque	3.5 Nm

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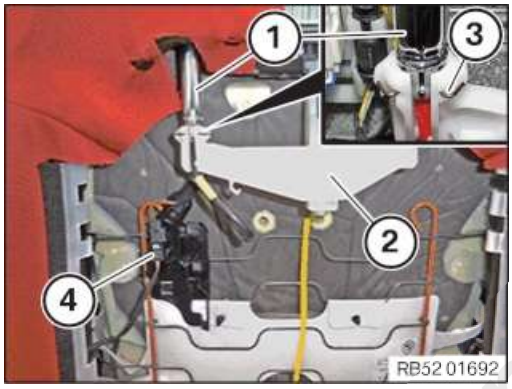


- Clip in the cover (1).

15 – Installing the head restraint



- Carefully feed head restraint with cable (1) into front seat (2).



- Clip head restraint (1) into drive (2).

  The clamps (3) must engage audibly.
- Check the correct fit of the head restraint (1) in the clamps (3).
- Connect and lock plug connection (4) and clip into cable clip.

Check

- Check the correct latch mechanism of the head restraint with a pulling test.
- Pull the head restraint upwards by hand.

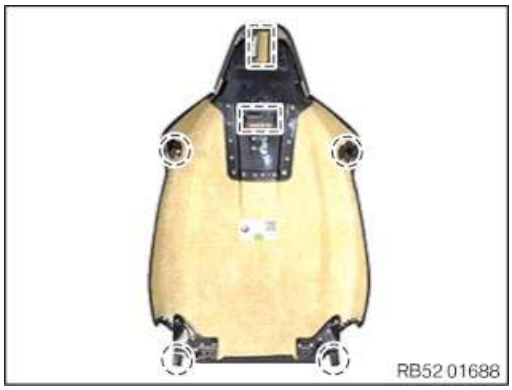
Result

» The head restraint cannot be pulled off.

Measure

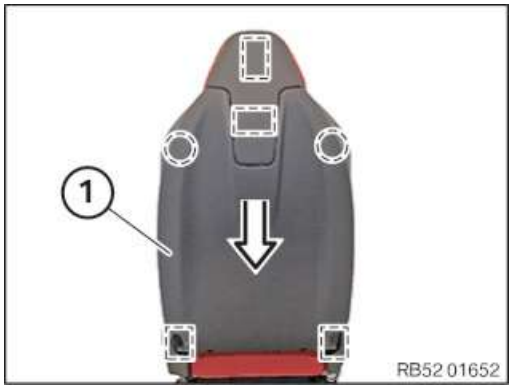
- Continue installation.

16 – Install the rear panel on the front seat backrest

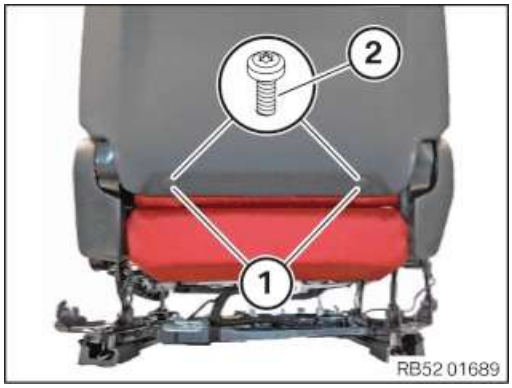


- Check guides and latch mechanisms in marked areas for damage.

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- Position rear panel on front seat backrest (1) correctly and clip into place in arrow direction.



- Position screws (2) correctly and tighten.

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Position cover caps (1) correctly and clip in.



- Tighten down screw (1).

Release handle to backrest frame

Screw		Tightening torque	2,7 Nm

17 – Removing the seat from the universal seat mount

▶ **Disconnecting the removed front seat from the wiring harness**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- Disconnect special tool from the wiring harness of the vehicle and the removed front seat.

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CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Remove front seat from the special tool .

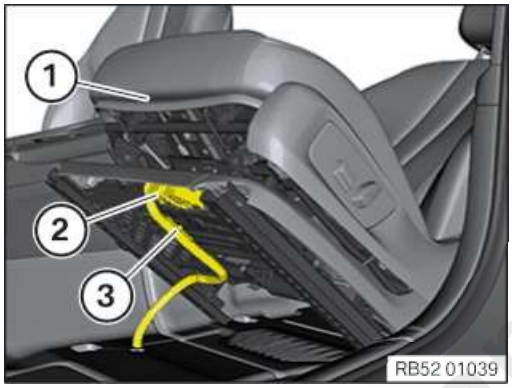
18 – Install driver's seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- *Check all plug connections for completeness, correct fit and locking where required.*
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

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- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

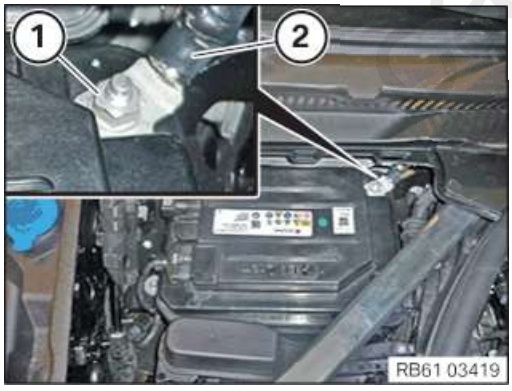
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

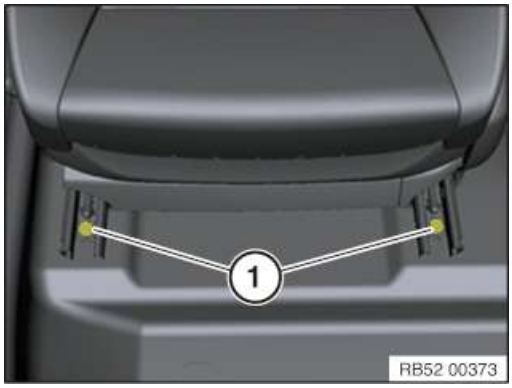


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

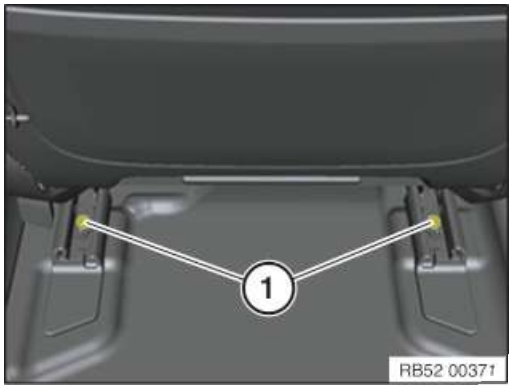


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Inner cover on seat frame Used in step 13

Screw		Tightening torque	2.5 Nm

Seat trim to seat frame Used in step 14

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame Used in step 14

Screw		Tightening torque	3.5 Nm

Rear panel on rear seat backrest Used in step 16

Screw		Tightening torque	3 Nm

Release handle to backrest frame Used in step 16

Screw		Tightening torque	2,7 Nm

Negative battery cable to 48-V battery Used in step 18

Nut M8		Tightening torque	19 Nm

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Seat to body Used in step 18

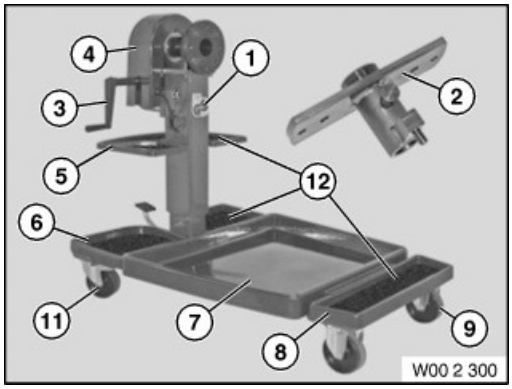
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 495 187 (00 2 300) Assembly stand

Used in step 2

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Common

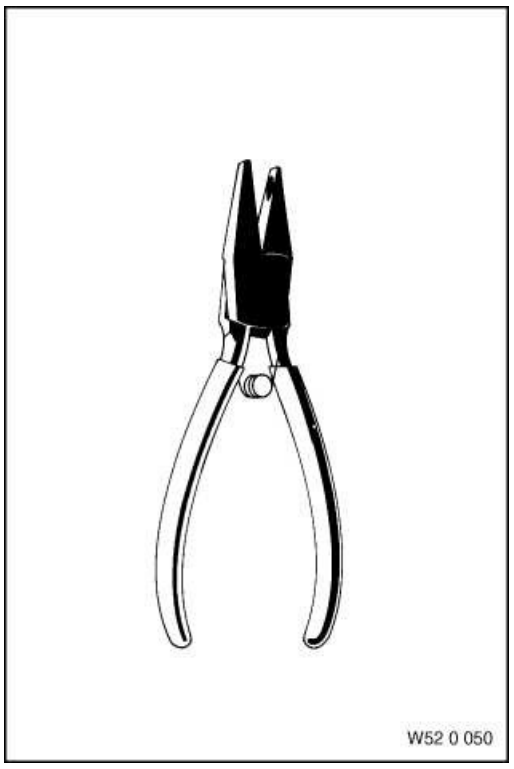
Usage	Assembly stand with universal flange for mounting engines from S85
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 04 (155)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 495 188 (00 2 301)		**Assembly stand** available only as complete assembly stand 83 30 0 495 187.	
2	0 495 189 (00 2 302)	2 299 563	**Tool** (Universal flange). Do not use any more!!! Technically locked. Is replaced by a new flange with part number 83 30 2 299 563. All flanges delivered by the end of 2011 will be replaced free of charge. From 2012, only the new flange will be supplied. Also applies to the complete engine mounting stand 00 2 300.	
3	0 495 200 (00 2 303)		**Crank**	
4	0 495 201 (00 2 304)		**Cover** (Protective hood)	
5	0 495 202 (00 2 305)		**oddments tray** (Oddments tray for small parts)	
6	0 495 203 (00 2 306)		**Shaped element** (Rear shaped pan)	
7	0 495 204 (00 2 307)		**Collection pan** (Oil collection pan)	
8	0 495 205 (00 2 308)		**Shaped element** (Front shaped pan)	
9	0 495 206 (00 2 309)		**Wheel** (Front wheel (without stop))	
10	0 495 207 (00 2 311)		**Wheel** (Rear wheel (with stop))	
11	0 495 208 (00 2 312)		**Mat** (Checker mat set)	
2	2 299 563		**Adapter** New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.	

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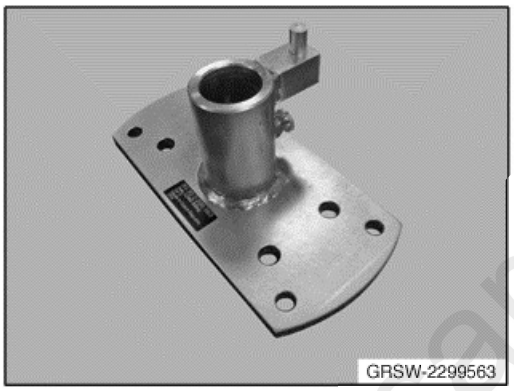
0 492 668 (52 0 050) Pliers



Common	Used in step 10
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

Replacement tools:

2 299 563 Adapter



Common	Used in step 2
Usage	New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.
Included in the tool or work	0 495 187
Storage location	
Replaced by	
In connection with	
SI-Number	

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	118

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	118

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
61 20 900 Disconnecting and connecting battery earth lead	118
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 118
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle) 118
61 20 900 Disconnecting and connecting battery earth lead 118
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61 20 900 Disconnecting and connecting battery earth lead 118
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52 19 402 Replacing seat cover for driver's seat

PRELIMINARY WORK

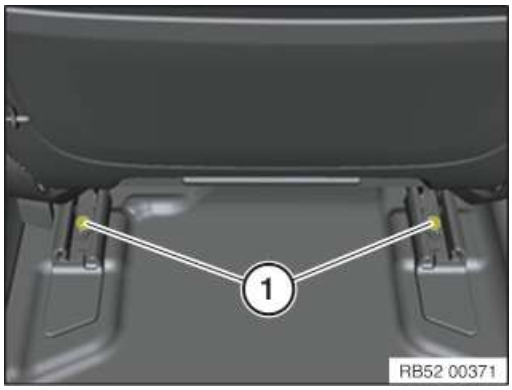
1 – Remove driver's seat.

WARNING

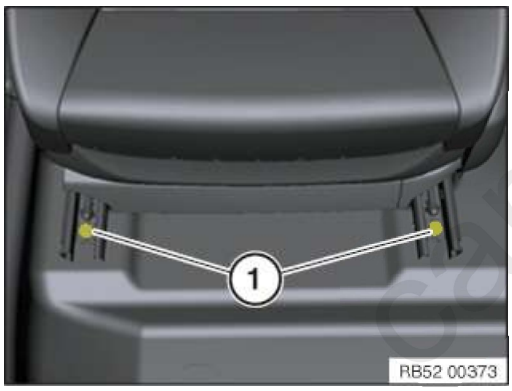
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Move front seat forwards.
- Loosen screws (1).



- Move front seat rearwards.
- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Move the steering column to the fully retracted position and move upwards fully.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

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WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

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Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

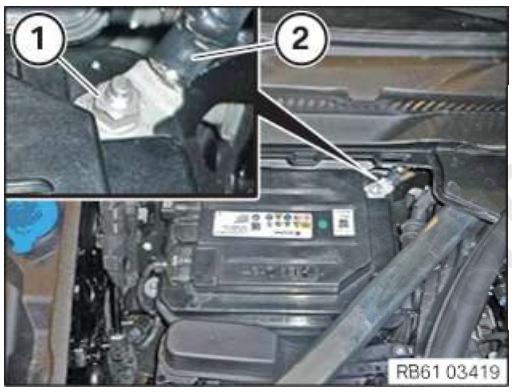
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

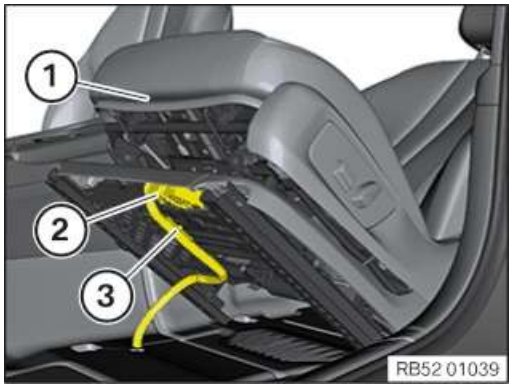
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Mounting the front seat to the universal seat mount

TECHNICAL INFORMATION

Use of the universal seat mount is recommended for carrying out expert repairs.

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- Mount special tool on special tool 0 495 187 (00 2 300).

CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

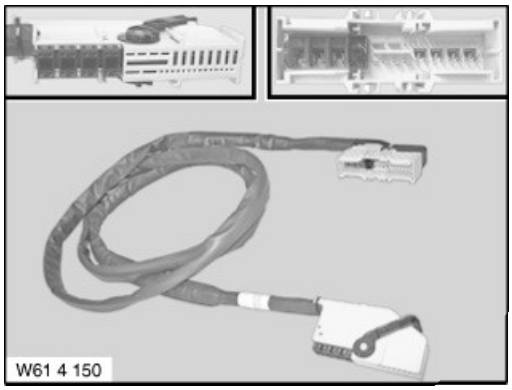
- Mount the front seat onto the special tool .

  To ensure a correct and professional repair, it is recommended to use special tool 0 495 187 (00 2 300) and .

▸ **Connect the removed front seat to the wiring harness.**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- The special tool will be required to connect the wiring harness of the vehicle and the removed front seat to adjust the front seat when it is in removed state.



- Connect special tool to the wiring harness of the vehicle and the removed front seat to adjust the front seat.

3 – Remove outer cover on front seat



- Unclip the cover (1).

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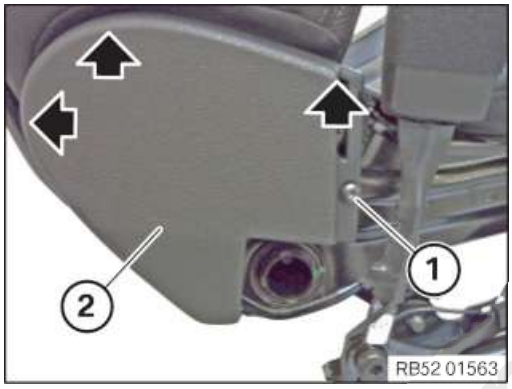


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



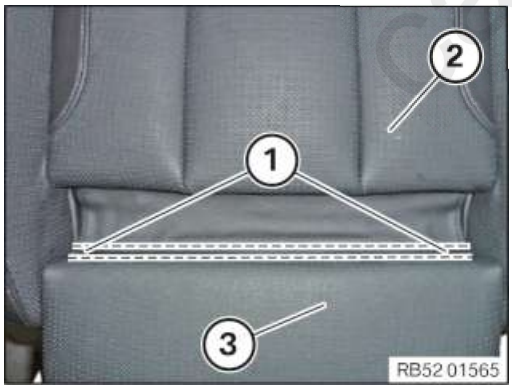
- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

4 – Remove inner cover on front seat



- Loosen screw (1).
- Guide out the cover (2) at the arrows.

5 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).



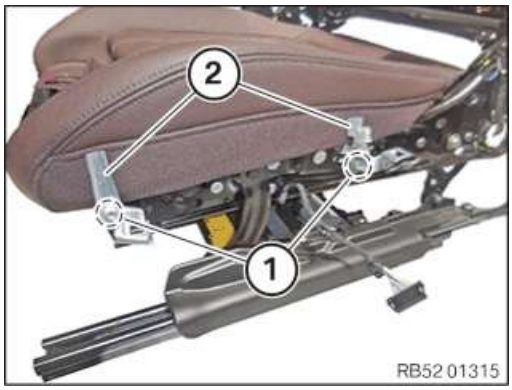
- Loosen screws (1).
- Feed the thigh support (2) out.

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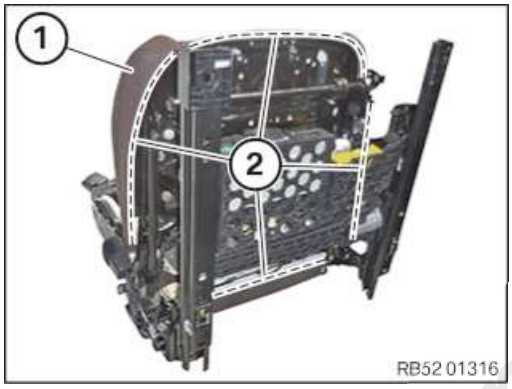


- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

6 – Remove seat cover with padding for driver's seat



- Loosen screws (1) and remove holder (2).



- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Disconnect the existing plug connection where required and unclip the cable clips.

MAIN WORK

7 – Remove the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Loosen all clamp on the trim wires (1).
- Remove any remaining clamp from the seat cover and the upholstery.
- Thread out the rubber band (2).

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- Detach all clamps on the trim wires 1.
- Remove any remaining clamp from the seat cover (2) and the upholstery.
- Remove the seat cover (2) from the upholstery.

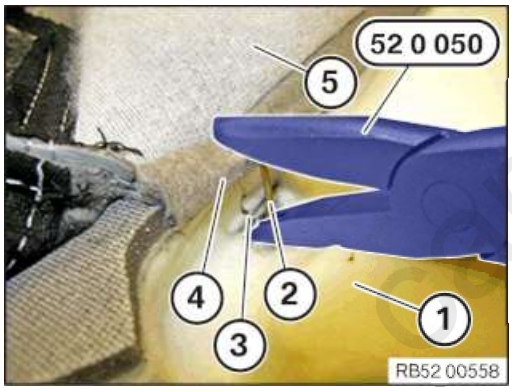
8 – Installing the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Place the seat cover (2) on the cushion.
- Secure all trim wires (1) with the clamps.



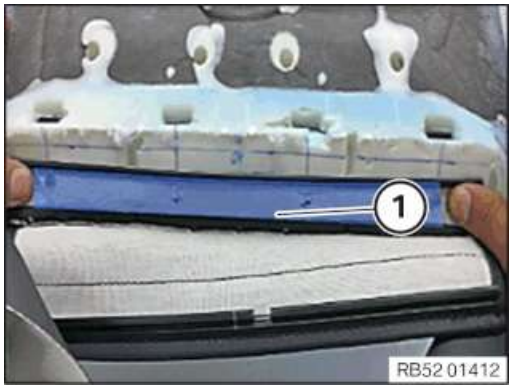
- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.
- Carefully bend the clamps (2).



- Position the trim wire in the insert ducts (1).
- Position the rubber band (2).

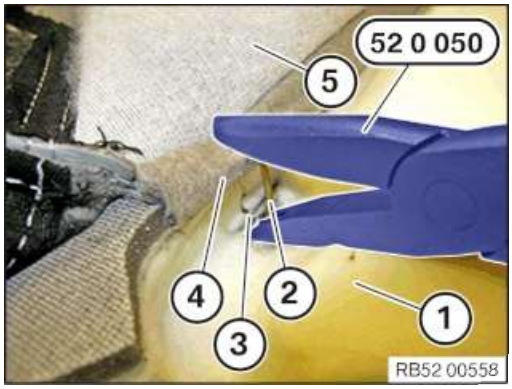
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- Correctly position the insert ducts.



- The clamps must be placed in the order (1) to (4) as described in the following step.



TECHNICAL INFORMATION

When installing the tacking channel, the wires of the seat heating and feed line must not be damaged by the clamps.

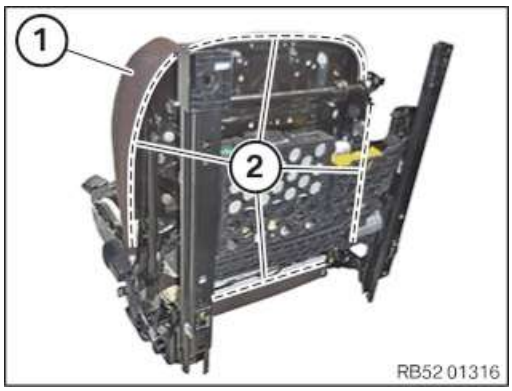
- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.

  Carefully bend the clamps (2).

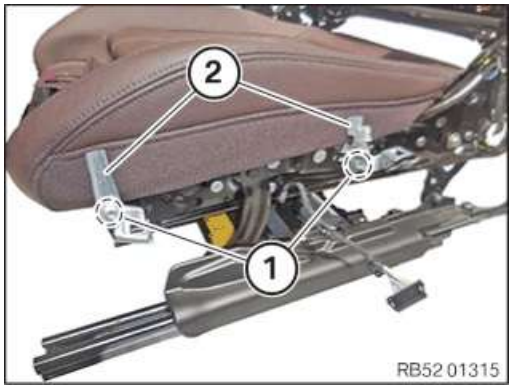
POSTPROCESSES

9 – Installing seat cover with cushion for driver's seat



- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Where applicable, connect the existing plug connections and clip in the cable clips.

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- Position holder (2) and tighten screws (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

10 – Install thigh support



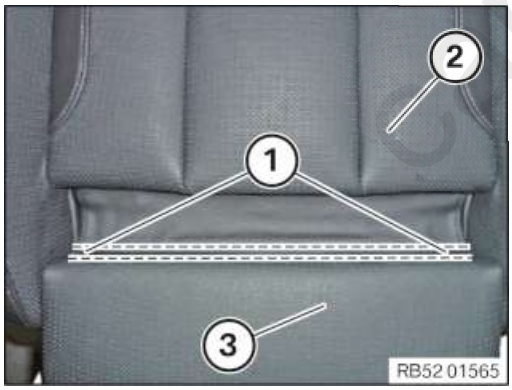
- Position the thigh support (2).
- Connect connectors (1) and lock.



- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

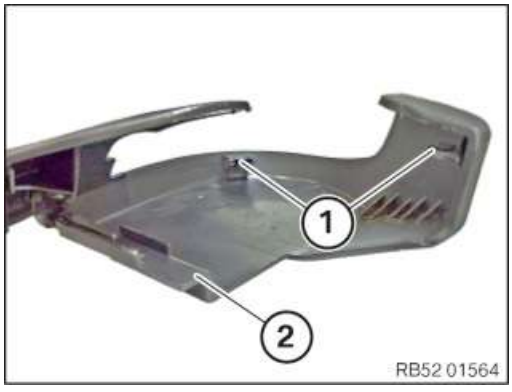
Thigh support to front seat

Screw	Tightening torque	2 Nm

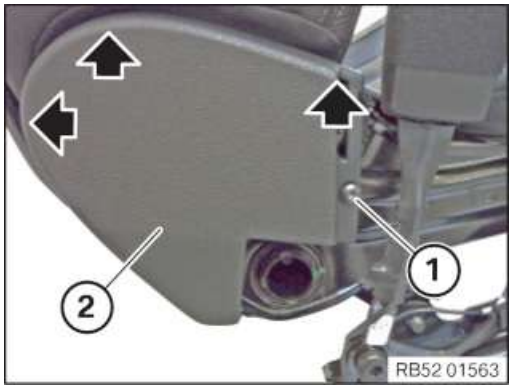


- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

11 – Installing the inner cover on the front seat



- Check guides (1) of cover (2) for damage, renew the cover if necessary.

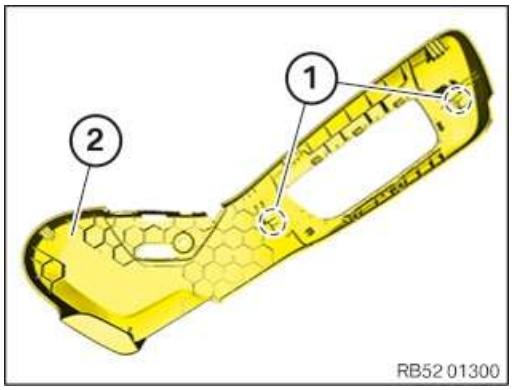


- Guide in the cover (2) on the arrows and position correctly.
- Tighten down screw (1).

Inner cover on seat frame

Screw		Tightening torque	2.5 Nm

12 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Clip in the cover (1).

13 – Removing the seat from the universal seat mount

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▸ **Disconnecting the removed front seat from the wiring harness**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- Disconnect special tool from the wiring harness of the vehicle and the removed front seat.



CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Remove front seat from the special tool .

14 – Install driver's seat

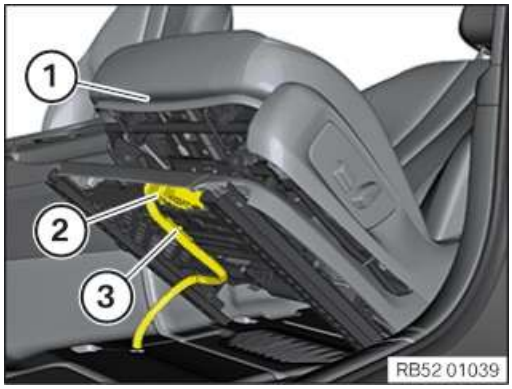
WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.

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RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- *Check all plug connections for completeness, correct fit and locking where required.*
- Attach the cable clip (3).



▸ **Connecting all battery earth leads**

- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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RISK OF DAMAGE

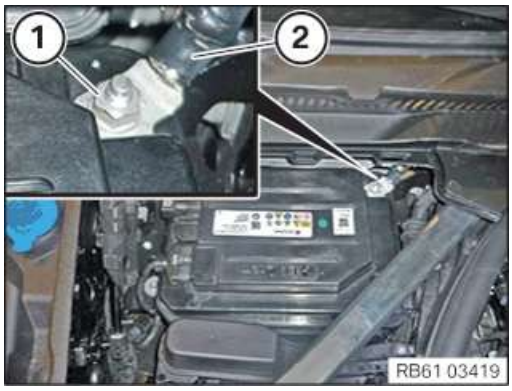
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

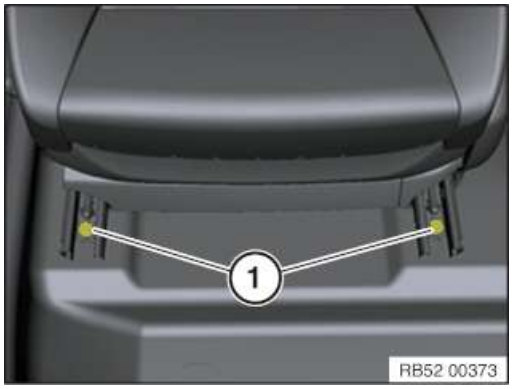


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

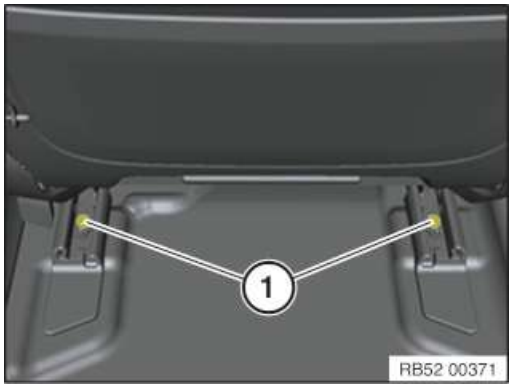


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Seat trim to seat frame — Used in step 912

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 10

Screw		Tightening torque	2 Nm

Inner cover on seat frame — Used in step 11

Screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame — Used in step 12

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 14

Nut M8		Tightening torque	19 Nm

Seat to body — Used in step 14

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

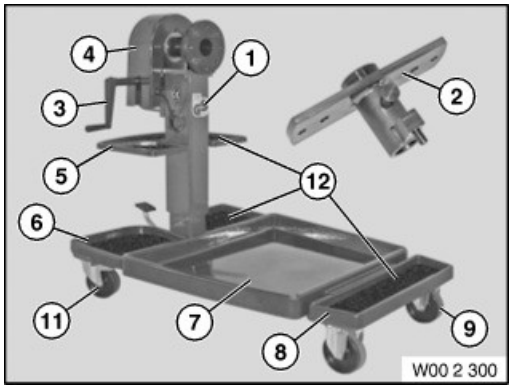
Overview of Special Tools

0 495 187 (00 2 300) Assembly stand

Common — Used in step 2

Usage	Assembly stand with universal flange for mounting engines from S85
Included in the tool or work	

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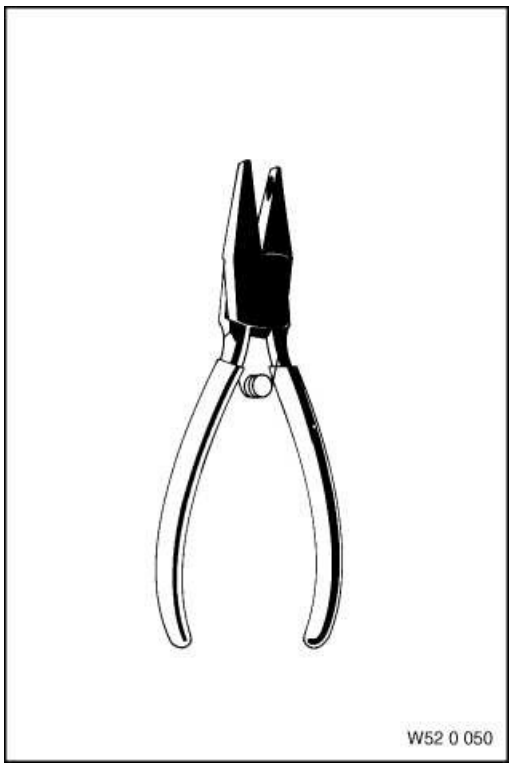
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 04 (155)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 495 188 (00 2 301)		**Assembly stand** available only as complete assembly stand 83 30 0 495 187.	
2	0 495 189 (00 2 302)	2 299 563	**Tool** (Universal flange). Do not use any more!!! Technically locked. Is replaced by a new flange with part number 83 30 2 299 563. All flanges delivered by the end of 2011 will be replaced free of charge. From 2012, only the new flange will be supplied. Also applies to the complete engine mounting stand 00 2 300.	
3	0 495 200 (00 2 303)		**Crank**	
4	0 495 201 (00 2 304)		**Cover** (Protective hood)	
5	0 495 202 (00 2 305)		**oddments tray** (Oddments tray for small parts)	
6	0 495 203 (00 2 306)		**Shaped element** (Rear shaped pan)	
7	0 495 204 (00 2 307)		**Collection pan** (Oil collection pan)	
8	0 495 205 (00 2 308)		**Shaped element** (Front shaped pan)	
9	0 495 206 (00 2 309)		**Wheel** (Front wheel (without stop))	
10	0 495 207 (00 2 311)		**Wheel** (Rear wheel (with stop))	
11	0 495 208 (00 2 312)		**Mat** (Checker mat set)	
2	2 299 563		**Adapter** New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.	

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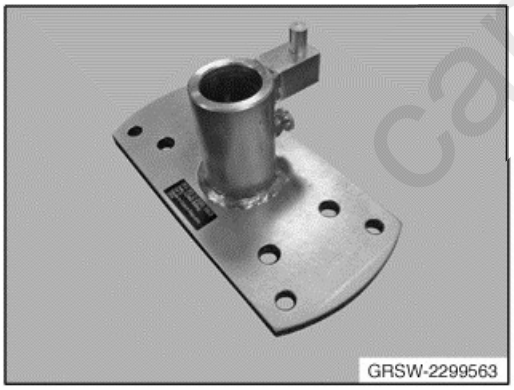
0 492 668 (52 0 050) Pliers



Common	Used in step 8
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

Replacement tools:

2 299 563 Adapter



Common	Used in step 2
Usage	New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.
Included in the tool or work	0 495 187
Storage location	
Replaced by	
In connection with	
SI-Number	

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	114

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	114

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	114

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61 20 900 Disconnecting and connecting battery earth lead	114
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	114
61 20 900 Disconnecting and connecting battery earth lead	114
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	114
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	114
61 20 900 Disconnecting and connecting battery earth lead	114
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61 20 900 Disconnecting and connecting battery earth lead 114
61 20 900 Disconnecting and connecting battery earth lead 114

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52 19 425 Replacing upholstery for driver's seat

PRELIMINARY WORK

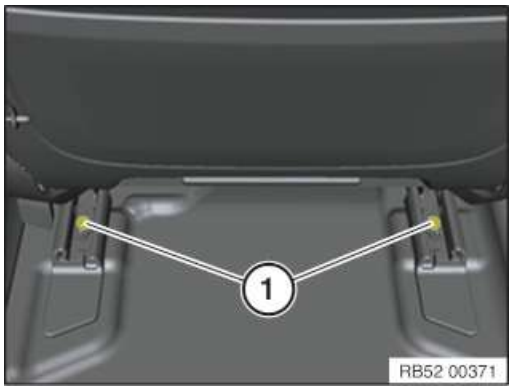
1 – Remove driver's seat.

WARNING

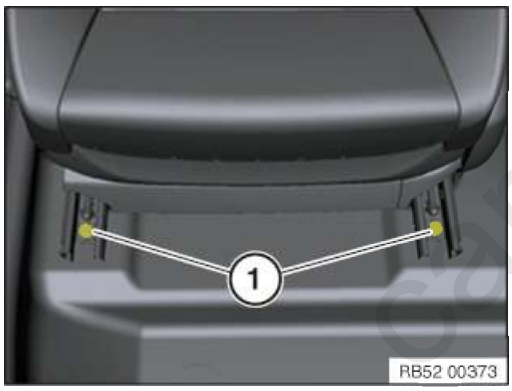
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Move front seat forwards.
- Loosen screws (1).



- Move front seat rearwards.
- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Move the steering column to the fully retracted position and move upwards fully.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

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WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

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Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

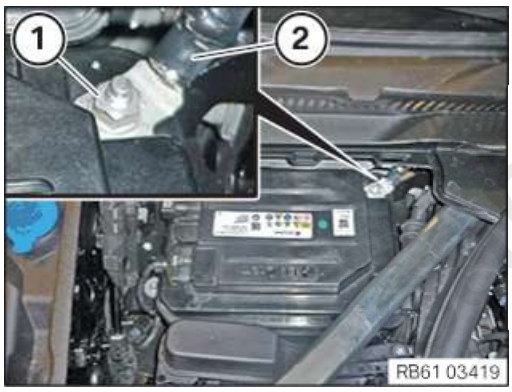
Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.



WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

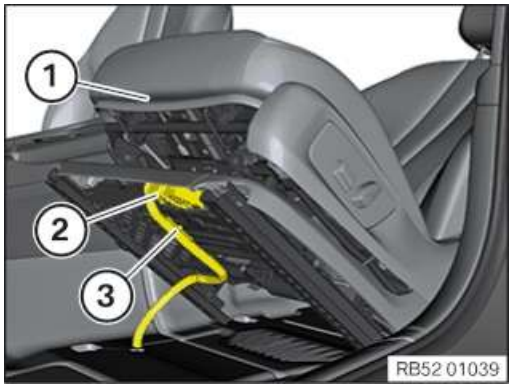
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Mounting the front seat to the universal seat mount

TECHNICAL INFORMATION

Use of the universal seat mount is recommended for carrying out expert repairs.

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- Mount special tool on special tool 0 495 187 (00 2 300).

CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

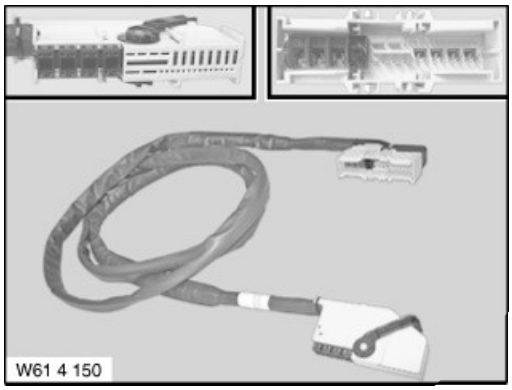
- Mount the front seat onto the special tool .

  To ensure a correct and professional repair, it is recommended to use special tool 0 495 187 (00 2 300) and .

▸ **Connect the removed front seat to the wiring harness.**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- The special tool will be required to connect the wiring harness of the vehicle and the removed front seat to adjust the front seat when it is in removed state.



- Connect special tool to the wiring harness of the vehicle and the removed front seat to adjust the front seat.

3 – Remove outer cover on front seat



- Unclip the cover (1).

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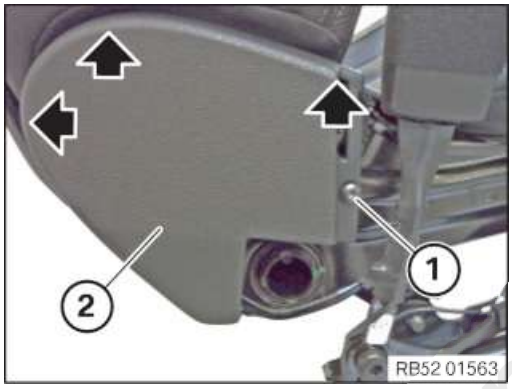


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



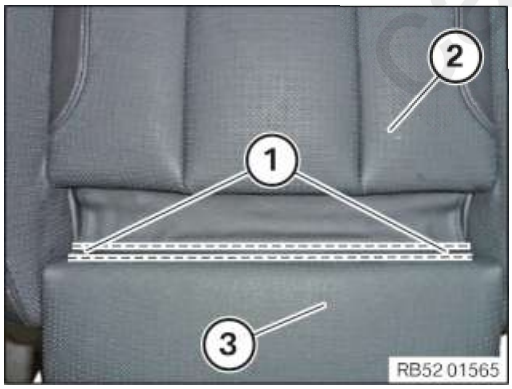
- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

4 – Remove inner cover on front seat



- Loosen screw (1).
- Guide out the cover (2) at the arrows.

5 – Remove thigh support



- Move the thigh support (3) completely to the front.
- Unhook the piping (1) on the seat cover (2) from the thigh support (3).



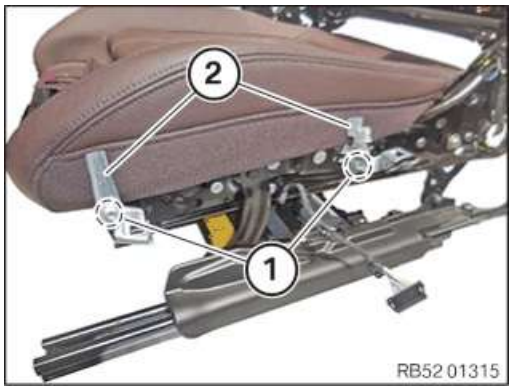
- Loosen screws (1).
- Feed the thigh support (2) out.

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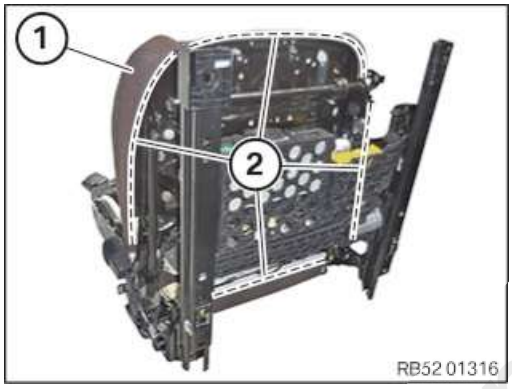


- Unlock plug connection (1) and disconnect.
- Remove thigh support (2).

6 – Remove seat cover with padding for driver's seat



- Loosen screws (1) and remove holder (2).



- Detach the seat cover (1) in the areas (2).
- Feed out the seat cover (1) with the cushion and remove.
- Disconnect the existing plug connection where required and unclip the cable clips.

7 – Remove the seat cover for the front seat

NOTICE

Description is for left component only. Procedure on the right side is identical.



- Loosen all clamp on the trim wires (1).
- Remove any remaining clamp from the seat cover and the upholstery.
- Thread out the rubber band (2).

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- Detach all clamps on the trim wires 1.
- Remove any remaining clamp from the seat cover (2) and the upholstery.
- Remove the seat cover (2) from the upholstery.

MAIN WORK

8 – Renewing the foam pad for the driver's seat

TECHNICAL INFORMATION

The heating mat is bonded to the foam pad and cannot be disassembled without damaging it.
When replacing, new heating mat must always be fitted with new foam pads.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **Equipment specification with seat heating**

  Position the heating mat (1) on the cushion and align.

  Bond the heating mat (1) to the cushion in these areas (2).

POSTPROCESSES

9 – Installing the seat cover for the front seat

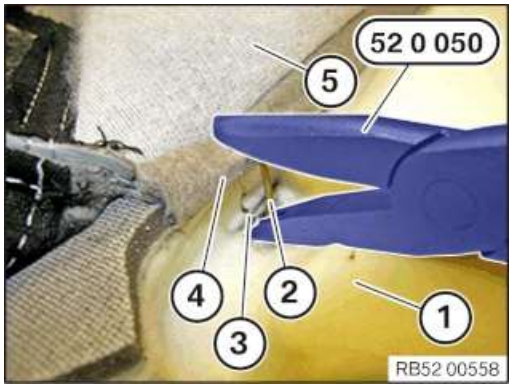
NOTICE

Description is for left component only. Procedure on the right side is identical.

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- Place the seat cover (2) on the cushion.
- Secure all trim wires (1) with the clamps.



- Renew the clamps (2).

  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.
- Carefully bend the clamps (2).



- Position the trim wire in the insert ducts (1).
- Position the rubber band (2).

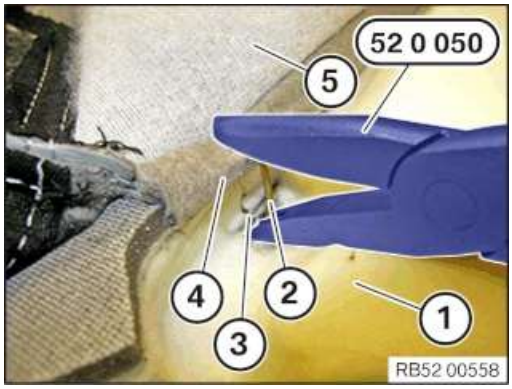


- Correctly position the insert ducts.



- The clamps must be placed in the order (1) to (4) as described in the following step.

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TECHNICAL INFORMATION

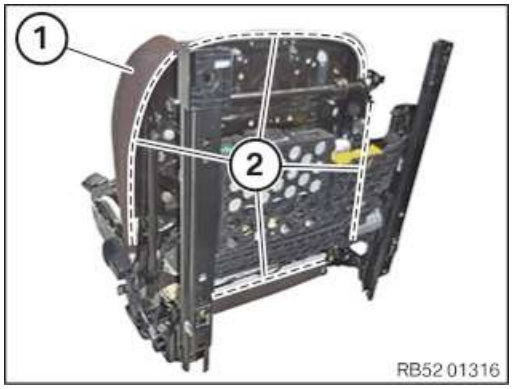
When installing the tacking channel, the wires of the seat heating and feed line must not be damaged by the clamps.

- Renew the clamps (2).

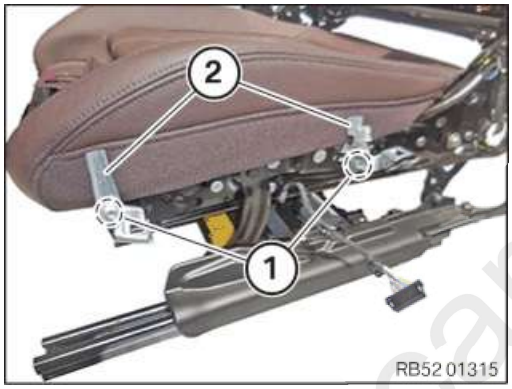
  Parts: Clamps
- Insert the clamps (2) with the special tool 0 492 668 (52 0 050).
- Cover the trim wire (3) of the cushion (1) and the trim wire (4) of the upholstery cloth (2) with the clamps.

  Carefully bend the clamps (2).

10 – Installing seat cover with cushion for driver's seat



- Feed in the seat cover (1) with the cushion and position.
- Attach the seat cover (1) in the areas (2).
- Where applicable, connect the existing plug connections and clip in the cable clips.



- Position holder (2) and tighten screws (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

11 – Install thigh support



- Position the thigh support (2).
- Connect connectors (1) and lock.

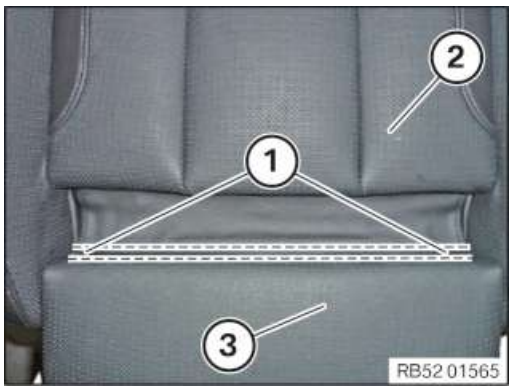
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- Guide in the thigh support (2) and position correctly.
- Tighten the screws (1).

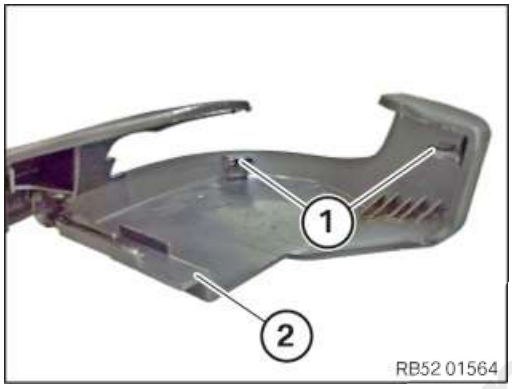
Thigh support to front seat

Screw		Tightening torque	2 Nm

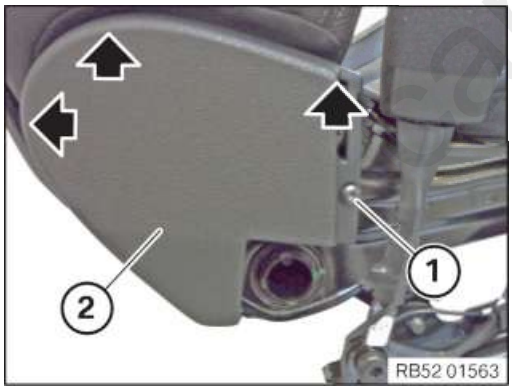


- Attach the edge stripping (1) of the seat cover (2) on the thigh support (3).

12 – Installing the inner cover on the front seat



- Check guides (1) of cover (2) for damage, renew the cover if necessary.

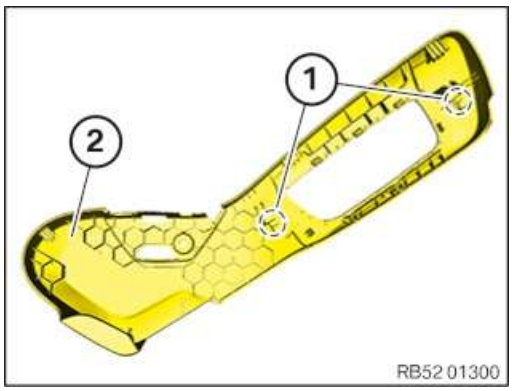


- Guide in the cover (2) on the arrows and position correctly.
- Tighten down screw (1).

Inner cover on seat frame

Screw		Tightening torque	2.5 Nm

13 – Install outer cover on front seat

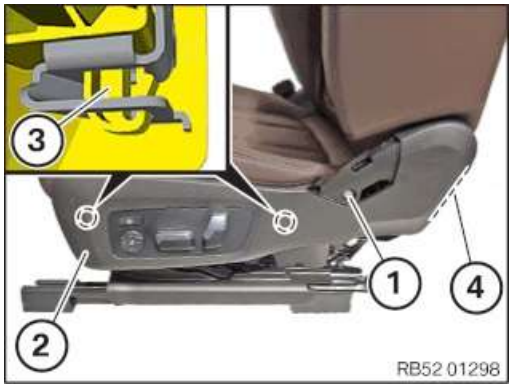


- Check the locking units (1) for damages, and replace the cover if necessary (2).

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- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

Screw		Tightening torque	3.5 Nm



- Clip in the cover (1).

14 – Removing the seat from the universal seat mount

▸ **Disconnecting the removed front seat from the wiring harness**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- Disconnect special tool from the wiring harness of the vehicle and the removed front seat.

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CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Remove front seat from the special tool .

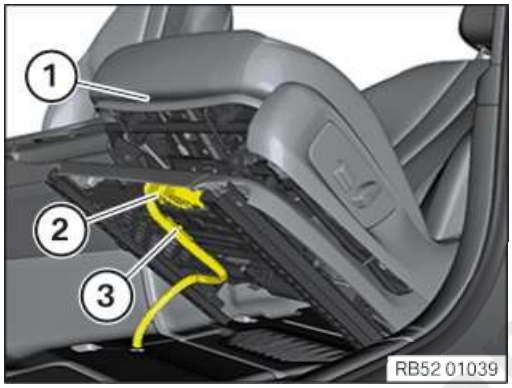
15 – Install driver's seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- *Check all plug connections for completeness, correct fit and locking where required.*
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

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- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

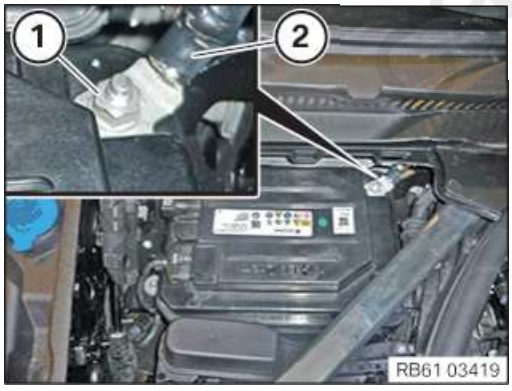
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

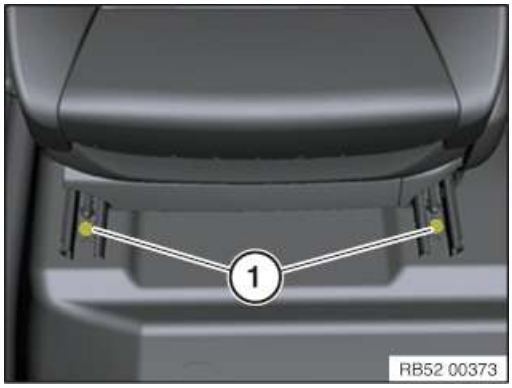


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

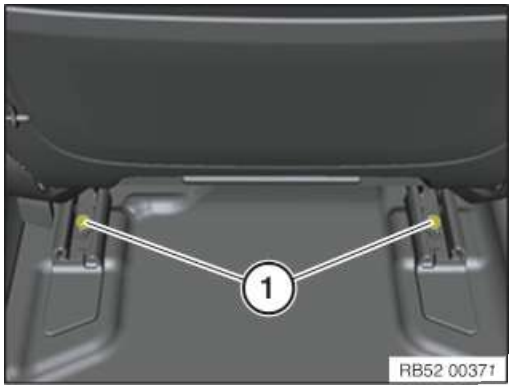


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Seat trim to seat frame — Used in step 1013

Sheet metal screw		Tightening torque	2.5 Nm

Thigh support to front seat — Used in step 11

Screw		Tightening torque	2 Nm

Inner cover on seat frame — Used in step 12

Screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame — Used in step 13

Screw		Tightening torque	3.5 Nm

Negative battery cable to 48-V battery — Used in step 15

Nut M8		Tightening torque	19 Nm

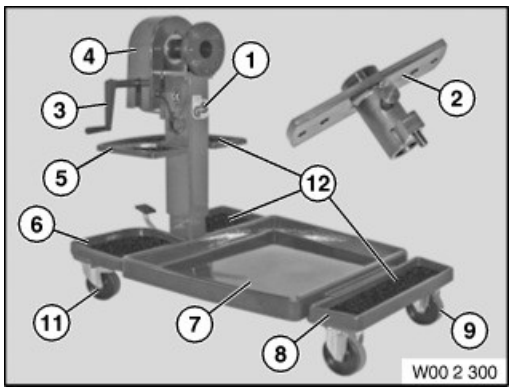
Seat to body — Used in step 15

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

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Overview of Special Tools

0 495 187 (00 2 300) Assembly stand



Common Used in step 2

Usage	Assembly stand with universal flange for mounting engines from S85
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 04 (155)

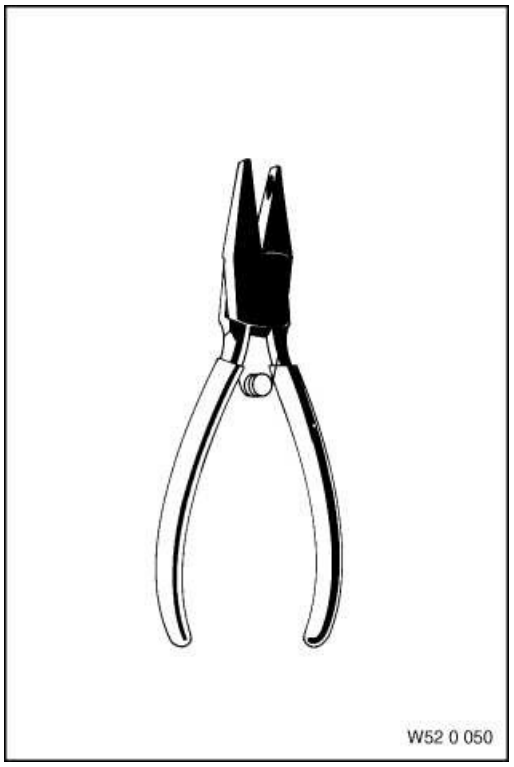
Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 495 188 (00 2 301)		**Assembly stand** available only as complete assembly stand 83 30 0 495 187.	
2	0 495 189 (00 2 302)	2 299 563	**Tool** (Universal flange). Do not use any more!!! Technically locked. Is replaced by a new flange with part number 83 30 2 299 563. All flanges delivered by the end of 2011 will be replaced free of charge. From 2012, only the new flange will be supplied. Also applies to the complete engine mounting stand 00 2 300.	
3	0 495 200 (00 2 303)		**Crank**	
4	0 495 201 (00 2 304)		**Cover** (Protective hood)	
5	0 495 202 (00 2 305)		**oddments tray** (Oddments tray for small parts)	
6	0 495 203 (00 2 306)		**Shaped element** (Rear shaped pan)	
7	0 495 204 (00 2 307)		**Collection pan** (Oil collection pan)	
8	0 495 205 (00 2 308)		**Shaped element** (Front shaped pan)	
9	0 495 206 (00 2 309)		**Wheel** (Front wheel (without stop))	
10	0 495 207 (00 2 311)		**Wheel** (Rear wheel (with stop))	
11	0 495 208 (00 2 312)		**Mat** (Checker mat set)	

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	2	2 299 563	**Adapter** New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.

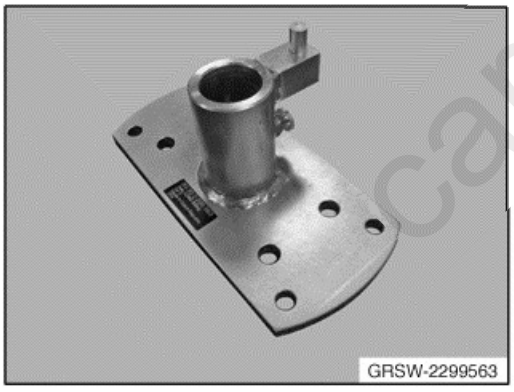
0 492 668 (52 0 050) Pliers



Common	Used in step 9
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

Replacement tools:

2 299 563 Adapter



Common	Used in step 2
Usage	New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.
Included in the tool or work	0 495 187
Storage location	
Replaced by	
In connection with	
SI-Number	

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	115

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	115

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	115
61 20 900 Disconnecting and connecting battery earth lead	115

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61 20 900 Disconnecting and connecting battery earth lead	115
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	115
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	115
61 20 900 Disconnecting and connecting battery earth lead	115
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	115
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	115
61 20 900 Disconnecting and connecting battery earth lead

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52 19 422 Replacing upholstery for driver's seat backrest

NOTICE

For a better overview the removed condition is shown here.

PRELIMINARY WORK

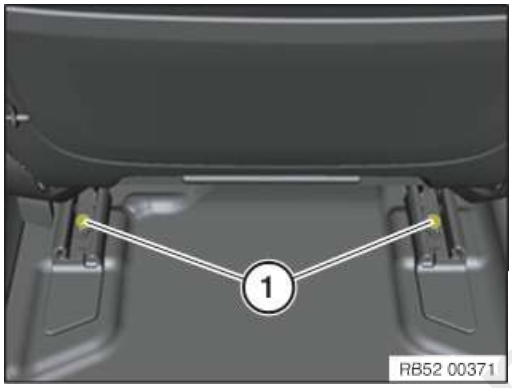
1 – Remove driver's seat.

WARNING

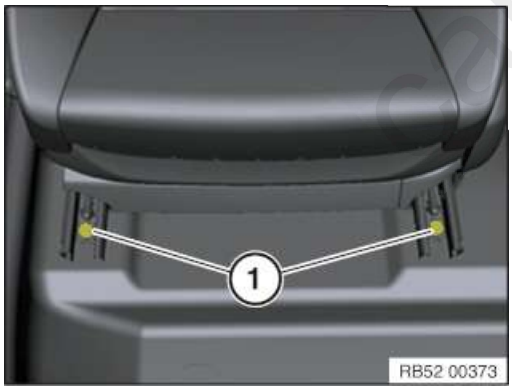
Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



- Move front seat forwards.
- Loosen screws (1).



- Move front seat rearwards.
- Loosen screws (1).
- Adjust the front seat to the centre position.
- **When removing the driver's seat:**

  Move the steering column to the fully retracted position and move upwards fully.

▸ **Deactivating the 48 V electrical system**

Prerequisite

Ignition is switched off.

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WARNING

Deactivation of the 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no battery charger** is connected to the jump start terminal point in the engine compartment.
- For vehicles with additional electrical systems (48 V electrical system, high-voltage vehicle electrical system), it is mandatory to deactivate them **before** disconnecting the vehicle battery.

WARNING

Deactivation of the 48 V electrical system.

Risk of short circuits! Risk of fire!

- Make sure that **no charger** is connected to the jump start support point in the engine compartment.

RISK OF DAMAGE

Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.

TECHNICAL INFORMATION

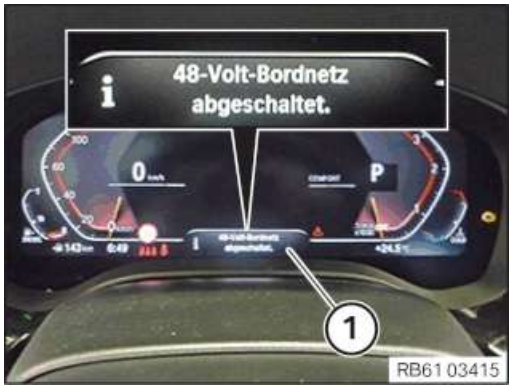
Follow notes for 48-V battery. See further information 6120 ... Notes on 48-V battery.



- Deactivate the 48V electrical system by opening the bonnet.

  The deactivation takes place automatically.

Check



TECHNICAL INFORMATION

Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check isolation from the supply in the instrument cluster in PAD mode.

desired state

- The Check Control message "48V electrical system switched off." (1) is displayed.

Result

» **The absence of voltage** cannot be determined by means of the Check Control message "48V electrical system switched off:" (1). Work is not permitted to be started.

Measure

- Carry out the service function "48 V electrical system deactivation".
  - Vehicle management > Service functions > Voltage supply > Deactivate 48 V electrical system

  Only when the Check Control message “48 V electrical system switched off.” (1) is displayed in the instrument cluster is it permitted to disconnect the 12 V battery.

  If the absence of voltage is not indicated clearly, contact Technical Support.

Result

» The Check Control message signals that the 48V electrical system has been switched off.

Measure

- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal.

  The work “Disconnecting the negative battery cable of the 48-V battery” can be started.



- Unlock and disconnect plug connection (1) of the CAN bus.
- Release the clip (2).



- Loosen nut (1).
- Pull off negative battery cable (2) of the 48-V battery from the negative battery terminal, set it aside and secure it.

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WARNING

Unprotected battery terminals.

Risk of short circuits! Risk of fire!

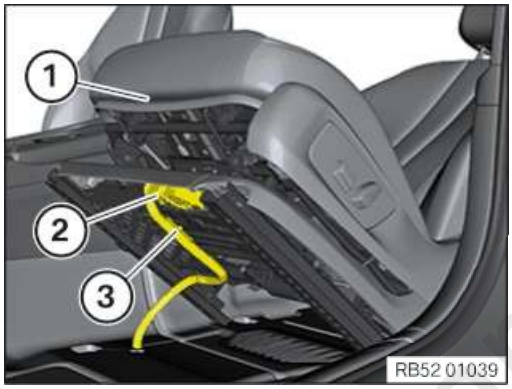
- Cover the vehicle battery.

- Cover the vehicle battery with the special tool as shown.
- Position the battery earth lead (1) as shown.

▸ **Disconnecting all battery earth leads**



- See additional information.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.
- Place front seat (1) to the rear.
- Unlock plug connection (2) and disconnect.
- Loosen the cable clip (3).

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift out front seat (1) with the assistance of a second person.

2 – Mounting the front seat to the universal seat mount

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TECHNICAL INFORMATION

Use of the universal seat mount is recommended for carrying out expert repairs.



- Mount special tool on special tool 0 495 187 (00 2 300).

CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

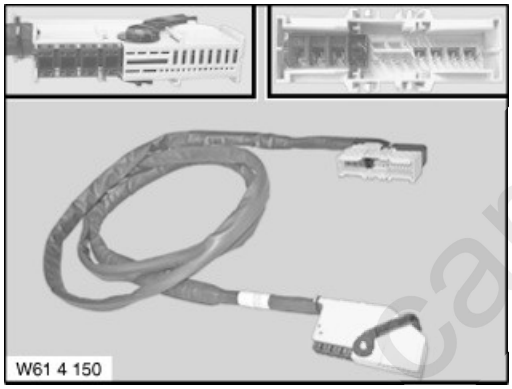
- Mount the front seat onto the special tool .

  To ensure a correct and professional repair, it is recommended to use special tool 0 495 187 (00 2 300) and .

▸ **Connect the removed front seat to the wiring harness.**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- The special tool will be required to connect the wiring harness of the vehicle and the removed front seat to adjust the front seat when it is in removed state.



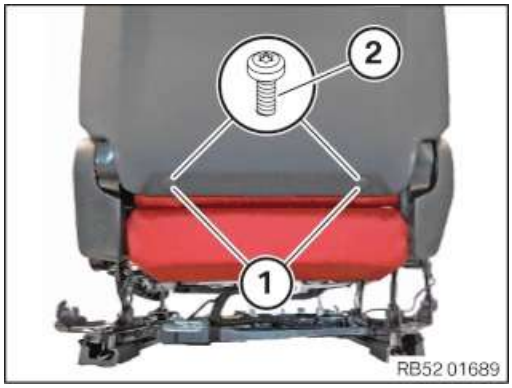
- Connect special tool to the wiring harness of the vehicle and the removed front seat to adjust the front seat.

3 – Remove rear panel on front seat backrest

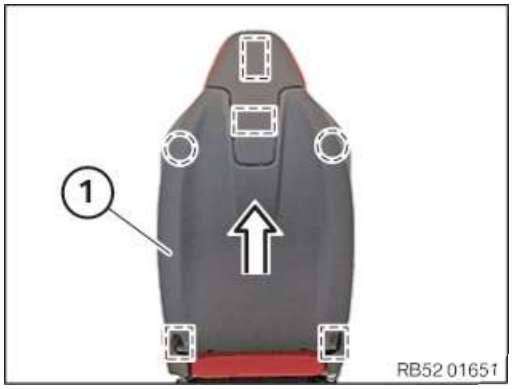
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- Loosen screw (1).

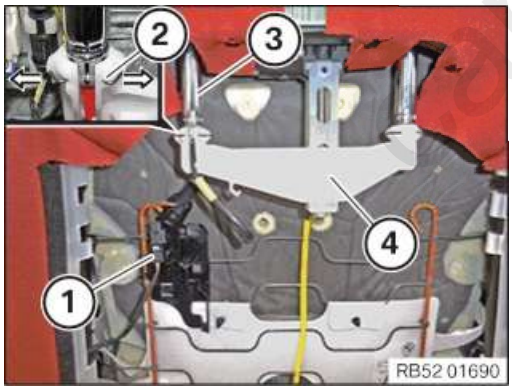


- Remove cover caps (1) with a suitable tool.
- Release screws (2) underneath.



- Carefully unclip rear panel on front seat backrest (1) at marked points and feed out in direction of arrow.

4 – Removing the head restraint

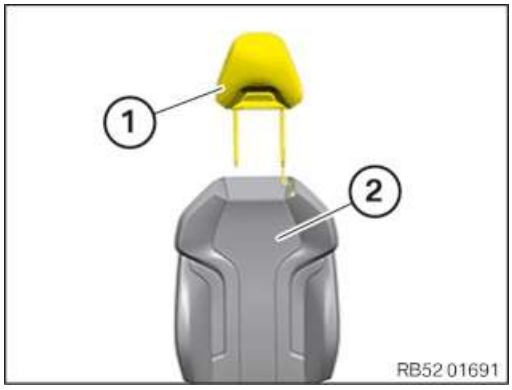


- Unlock plug connection (1) and disconnect.

TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

- Lightly pull clamps (2) in the direction of the arrow. Detach the head rest (3) from the drive (4).



- Carefully remove the head rest with cable (1) from the front seat (2).

5 – Remove outer cover on front seat

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- Unclip the cover (1).

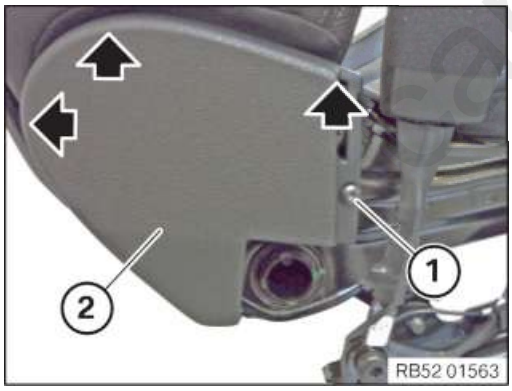


- Loosen screw (1).
- Disengage the cover (2) at the latch mechanisms (3) toward the top.
- Guide out and remove the cover (2) in the area (4).



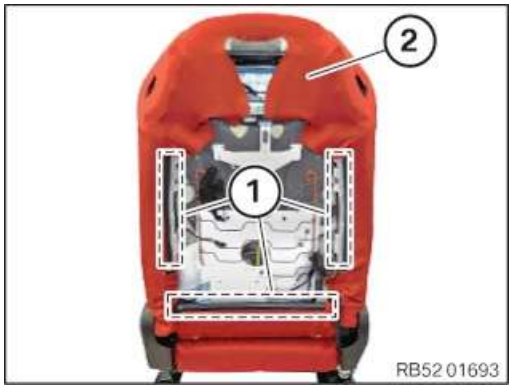
- Disconnect plug connection (1) and, if necessary, unclip the cable clip.

6 – Remove inner cover on front seat



- Loosen screw (1).
- Guide out the cover (2) at the arrows.

7 – Removing the backrest cover with cushion



- Unclip edge stripping (1) in the marked area using suitable tool.
- Carefully detach seat cover (2) from backrest frame at all other attachment points.

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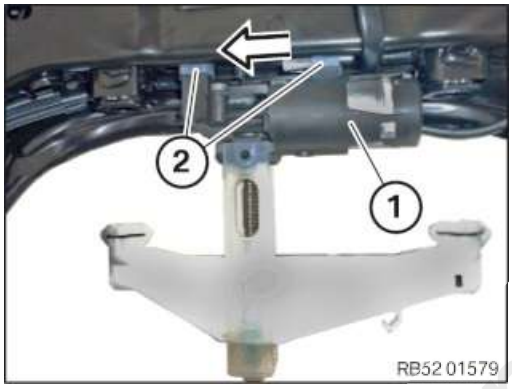


- Carefully disconnect seat cover with upholstery (1) from seat frame (2).
- If necessary, unlock existing plug connections and disconnect.

8 – Remove head restraint height adjuster motor



- Unlock plug connection (1) and disconnect.



- Remove the drive for the head restraint height adjuster (1) at the attachment points (2) in the direction of the arrow.

9 – Remove the backrest cover from front seat-backrest



- Loosen all clamp on the trim wires (1).
- Remove the backrest cover (2) from the upholstery.
- Completely remove clamps from the backrest cover (2) and the cushion.

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MAIN WORK

10 – Renewing the cushion for the front seat backrest

TECHNICAL INFORMATION

The heating mat is bonded to the foam pad and cannot be disassembled without damaging it.
When replacing, new heating mat must always be fitted with new foam pads.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



- **Equipment specification with seat heating**

  Position and align the heating mat (1) on the upholstery (2).

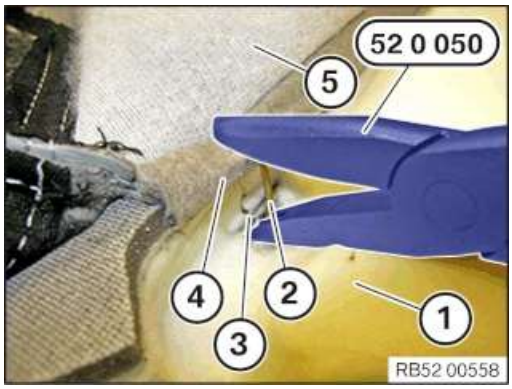
  Bond the heating mat (1) with the upholstery (2).

POSTPROCESSES

11 – Install the backrest cover of the front seat backrest



- Place the backrest cover (2) onto the upholstery.
- Secure all trim wires (1) with the clamps.

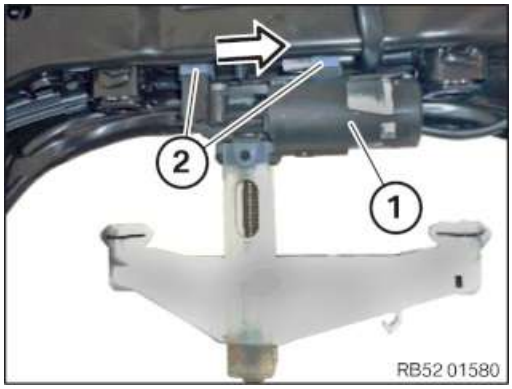


- Renew the clamps (2).

  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround the trim wire (3) of the cushion (1) and the trim wire (4) of the backrest cover (5) with the clamp (2) and bend the clamp (2) to close it.

12 – Installing the drive for head restraint height adjustment

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TECHNICAL INFORMATION

The drivetrain for the head restraint height adjustment must be replaced as soon as the head restraint is removed.

- Renew drivetrain for head restraint height adjustment (1).

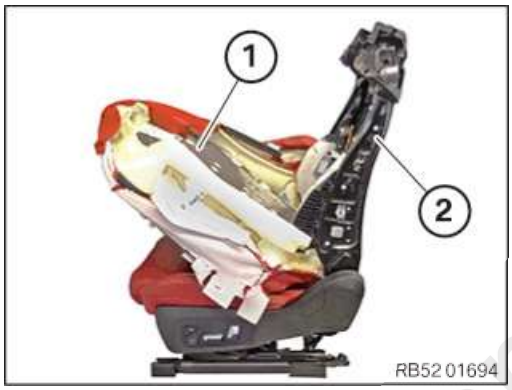
  Parts: Drive unit for head restraint height adjustment

- Installing drive for head restraint height adjustment (1) at the attachment points (2) in the direction of arrow.

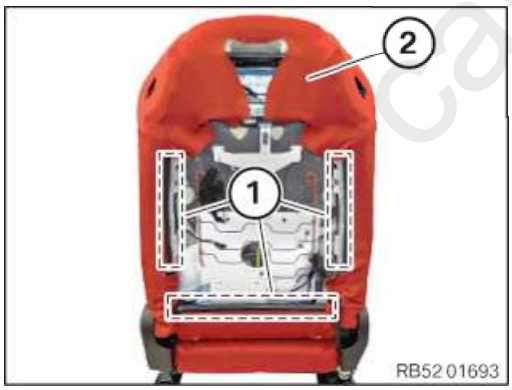


- Connect connectors (1) and lock.

13 – Installing the backrest cover with cushion



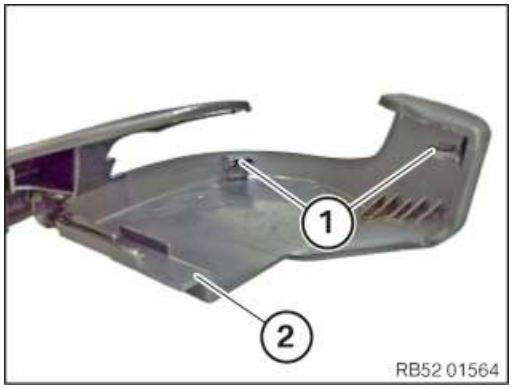
- Position backrest cover with cushion (1) as pictured on backrest frame (2).
- If necessary, connect and lock available plug connections.



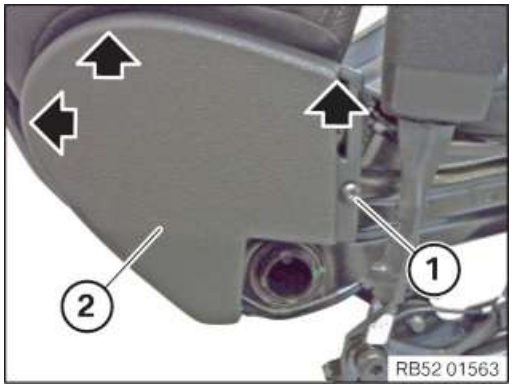
- Position seat cover (2) correctly and hook in at all attachment points.
- Clip in edge stripping (1) in the marked area.

14 – Installing the inner cover on the front seat

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- Check guides (1) of cover (2) for damage, renew the cover if necessary.

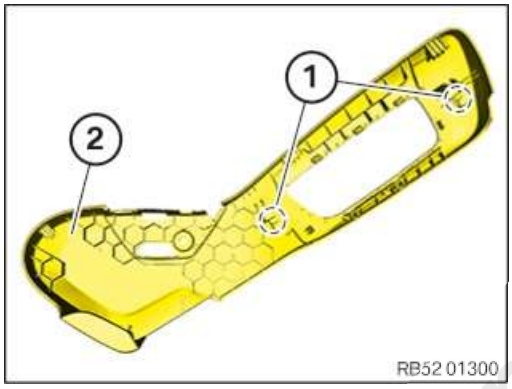


- Guide in the cover (2) on the arrows and position correctly.
- Tighten down screw (1).

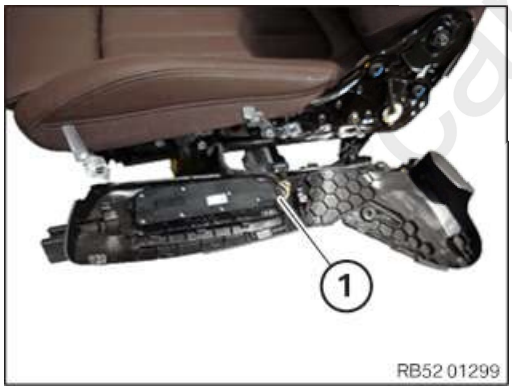
Inner cover on seat frame

Screw		Tightening torque	2.5 Nm

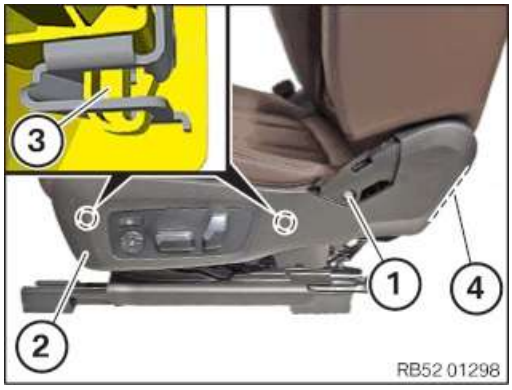
15 – Install outer cover on front seat



- Check the locking units (1) for damages, and replace the cover if necessary (2).



- Connect the connector (1) and if necessary clip the cable holder in.



- Insert the cover (2) in the area (4) and position it.
- Engage the cover (2) at the latch mechanisms (3).
- Tighten down screw (1).

Seat trim to seat frame

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame

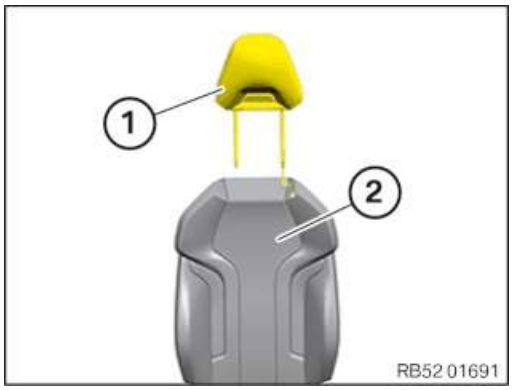
Screw		Tightening torque	3.5 Nm

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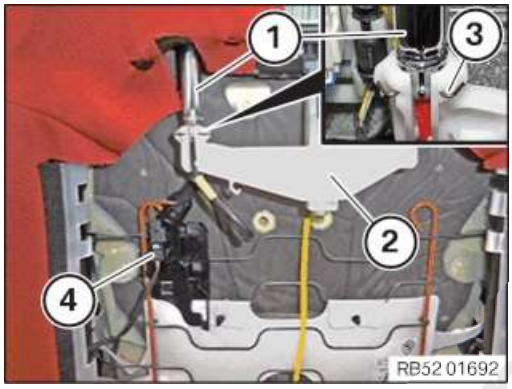


- Clip in the cover (1).

16 – Installing the head restraint



- Carefully feed head restraint with cable (1) into front seat (2).



- Clip head restraint (1) into drive (2).
  The clamps (3) must engage audibly.
- Check the correct fit of the head restraint (1) in the clamps (3).
- Connect and lock plug connection (4) and clip into cable clip.

Check

- Check the correct latch mechanism of the head restraint with a pulling test.
- Pull the head restraint upwards by hand.

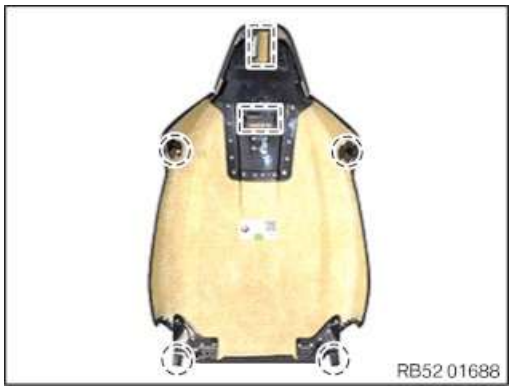
Result

» The head restraint cannot be pulled off.

Measure

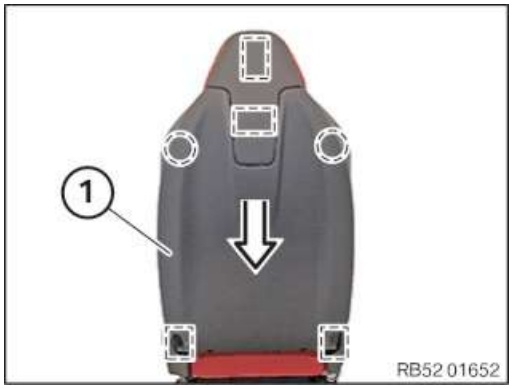
- Continue installation.

17 – Install the rear panel on the front seat backrest

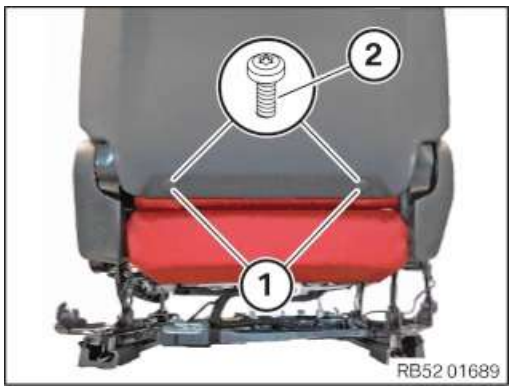


- Check guides and latch mechanisms in marked areas for damage.

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- Position rear panel on front seat backrest (1) correctly and clip into place in arrow direction.



- Position screws (2) correctly and tighten.

Rear panel on rear seat backrest

Screw		Tightening torque	3 Nm

- Position cover caps (1) correctly and clip in.



- Tighten down screw (1).

Release handle to backrest frame

Screw		Tightening torque	2,7 Nm

18 – Removing the seat from the universal seat mount

▶ **Disconnecting the removed front seat from the wiring harness**

TECHNICAL INFORMATION

Only use the following steps if the front seat has to be adjusted electrically.



- Disconnect special tool from the wiring harness of the vehicle and the removed front seat.

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CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Remove front seat from the special tool .

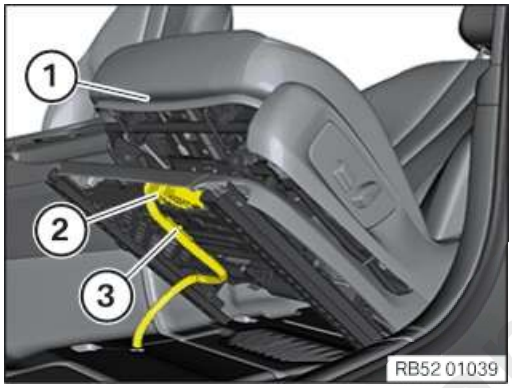
19 – Install driver's seat

WARNING

Pyrotechnic components.

Danger! Life-threatening injuries!

- All work on pyrotechnic parts may be carried out by technically experienced and appropriately trained personnel only.
- Replace any damaged part or ones that have been dropped.
- For additional information see: 72 00 Safety regulations on handling components with gas generators.



RISK OF DAMAGE

Careless handling of tools and sharp-edged components.

Scratch, surface damage.

- Protect working area.
- Handle tools and components carefully.

- Cover the door sill using protective covers.

RISK OF DAMAGE

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

- Lift front seat (1) into the vehicle with the assistance of a second person.
- Place front seat (1) to the rear.
- Connect connectors (2) and lock.
- *Check all plug connections for completeness, correct fit and locking where required.*
- Attach the cable clip (3).

▸ **Connecting all battery earth leads**

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- See additional information.

▸ **Activating the 48 V electrical system**

Prerequisite

Ignition is switched off.

RISK OF DAMAGE

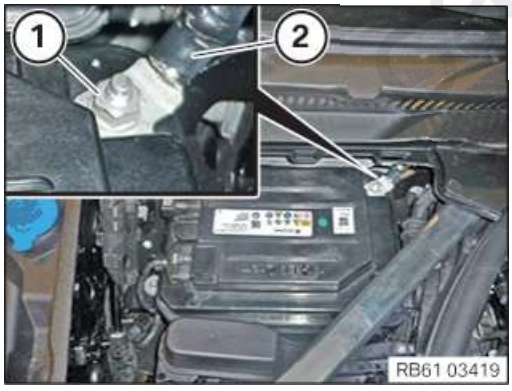
Damage to 48-V battery

If a 48-V battery that is disconnected from the electrical system is activated, the battery electronics will be damaged.

- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



- Lift battery earth lead (1).
- Remove special tool .



- Release the negative battery cable (2) of the 48-V battery from the mounting.
- Position the negative battery cable (2) of the 48-V battery on the negative battery terminal.
- Tighten nut (1).

Negative battery cable to 48-V battery

Nut M8		Tightening torque	19 Nm

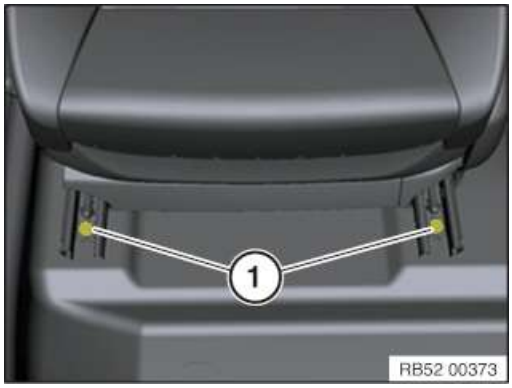


- Connect the connector (1) of the CAN bus and lock it.
- Clip in clip (2).



- Activate the 48V electrical system by closing the bonnet.

  The activation takes place automatically.

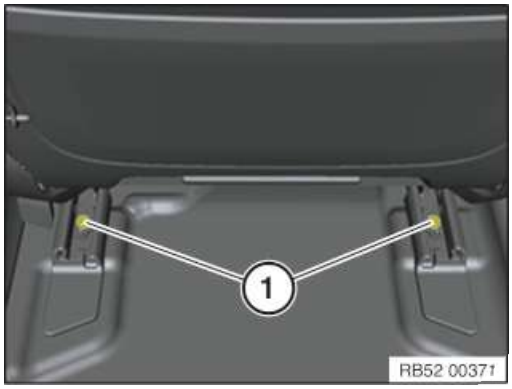


- Move front seat rearwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm



- Move front seat forwards.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Seat to body

Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Additional Information

Overview of Tightening Torques

Inner cover on seat frame Used in step 14

Screw		Tightening torque	2.5 Nm

Seat trim to seat frame Used in step 15

Sheet metal screw		Tightening torque	2.5 Nm

Outer seat trim to seat frame Used in step 15

Screw		Tightening torque	3.5 Nm

Rear panel on rear seat backrest Used in step 17

Screw		Tightening torque	3 Nm

Release handle to backrest frame Used in step 17

Screw		Tightening torque	2,7 Nm

Negative battery cable to 48-V battery Used in step 19

Nut M8		Tightening torque	19 Nm

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Seat to body Used in step 19

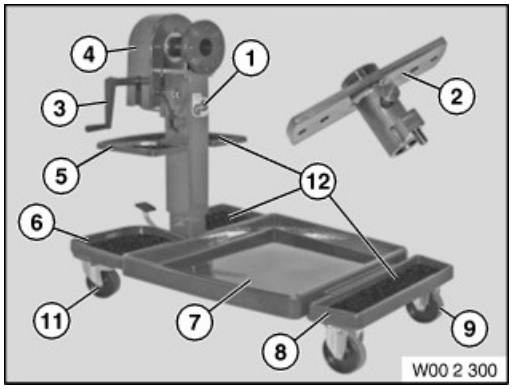
Cheese head screw with collar	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 495 187 (00 2 300) Assembly stand

Used in step 2

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Common

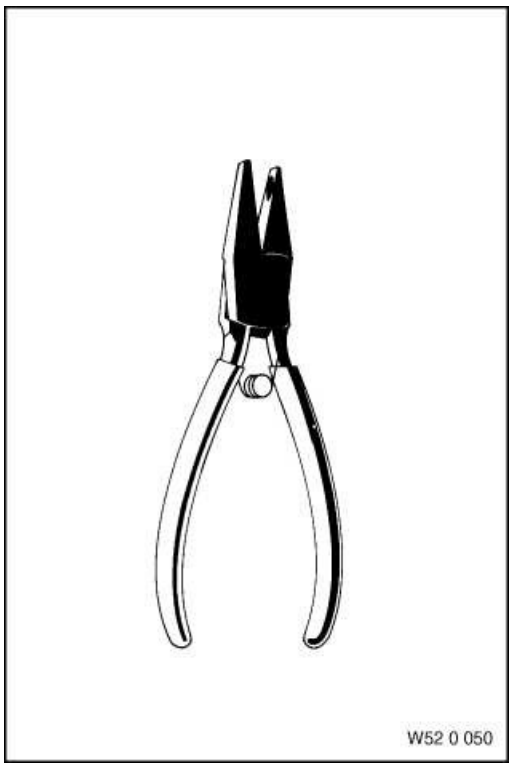
Usage	Assembly stand with universal flange for mounting engines from S85
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 25 04 (155)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 495 188 (00 2 301)		**Assembly stand** available only as complete assembly stand 83 30 0 495 187.	
2	0 495 189 (00 2 302)	2 299 563	**Tool** (Universal flange). Do not use any more!!! Technically locked. Is replaced by a new flange with part number 83 30 2 299 563. All flanges delivered by the end of 2011 will be replaced free of charge. From 2012, only the new flange will be supplied. Also applies to the complete engine mounting stand 00 2 300.	
3	0 495 200 (00 2 303)		**Crank**	
4	0 495 201 (00 2 304)		**Cover** (Protective hood)	
5	0 495 202 (00 2 305)		**oddments tray** (Oddments tray for small parts)	
6	0 495 203 (00 2 306)		**Shaped element** (Rear shaped pan)	
7	0 495 204 (00 2 307)		**Collection pan** (Oil collection pan)	
8	0 495 205 (00 2 308)		**Shaped element** (Front shaped pan)	
9	0 495 206 (00 2 309)		**Wheel** (Front wheel (without stop))	
10	0 495 207 (00 2 311)		**Wheel** (Rear wheel (with stop))	
11	0 495 208 (00 2 312)		**Mat** (Checker mat set)	
2	2 299 563		**Adapter** New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.	

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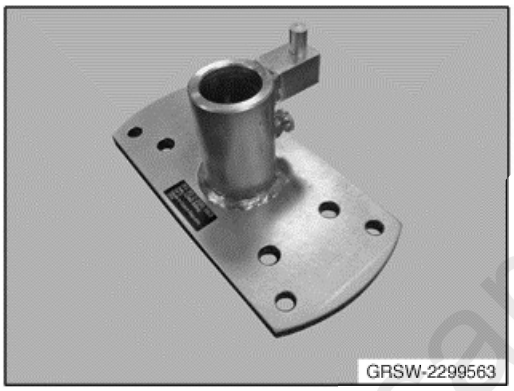
0 492 668 (52 0 050) Pliers



Common	Used in step 11
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

Replacement tools:

2 299 563 Adapter



Common	Used in step 2
Usage	New adapter for the engine assembly stand. Replacement for 83 30 0 495 189 - 00 2 302.
Included in the tool or work	0 495 187
Storage location	
Replaced by	
In connection with	
SI-Number	

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	119

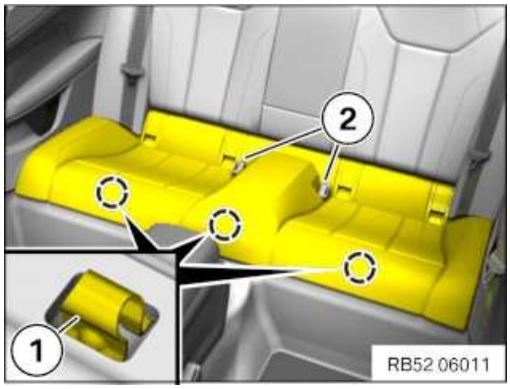
General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	119

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	119
61 20 900 Disconnecting and connecting battery earth lead	119
61 20 900 Disconnecting and connecting battery earth lead	119
61 20 900 Disconnecting and connecting battery earth lead	119
61 20 900 Disconnecting and connecting battery earth lead	119
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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle) 119
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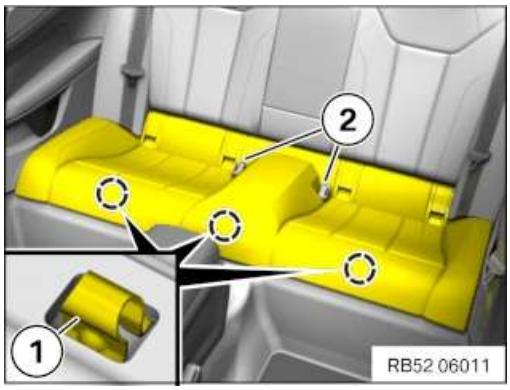
52 24 005 Removing and installing / replacing rear seat

1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

2 – Installing the rear seat bench



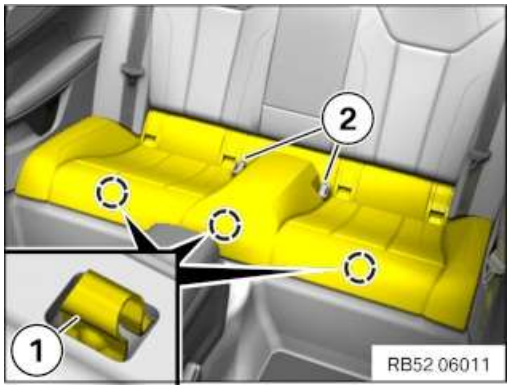
- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

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52 26 013 Remove and install the centre rear seat backrest

PRELIMINARY WORK

1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

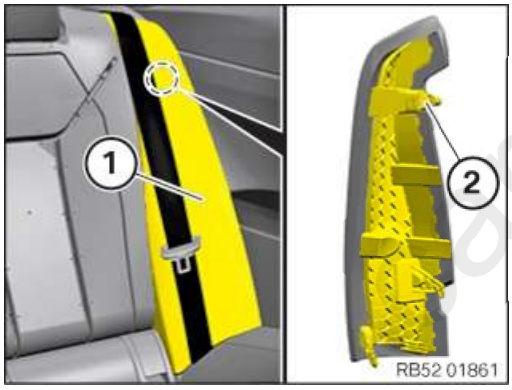
2 – Remove right backrest side section

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

3 – Remove the right rear seat backrest

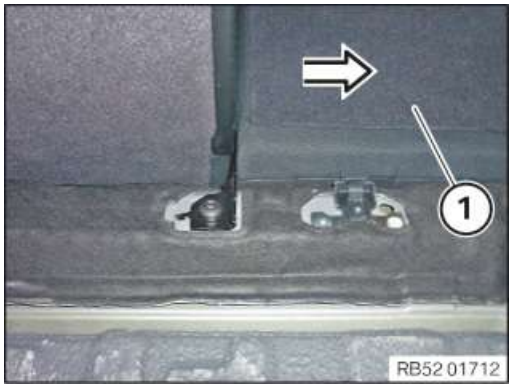
Prerequisite

Right rear seat backrest folded down

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- Loosen screw (1).

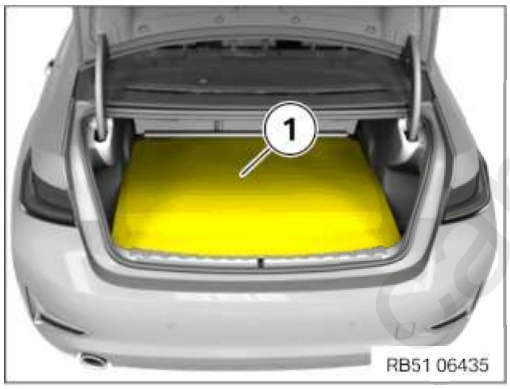


- Feed out the right rear seat backrest (1) in the direction of the arrow.

4 – Removing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



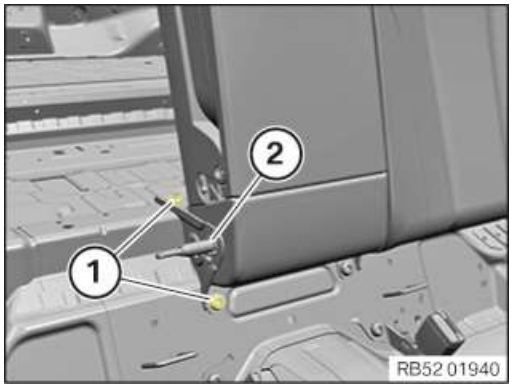
- Remove luggage compartment floor trim panel (1).

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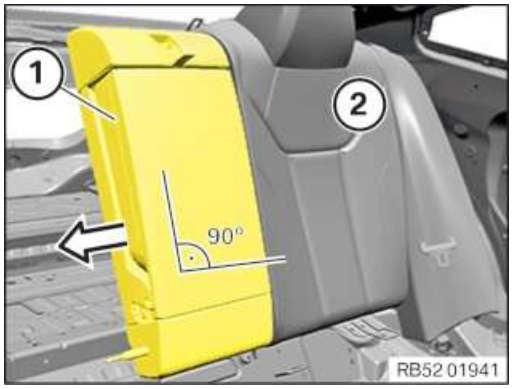
5 – Removing the central rear seat backrest

Prerequisite

Rear seat backrest at the centre is folded down.



- Loosen screws (1).
- Remove the centre bearing support (2).



- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Remove the centre rear seat backrest (1) in the direction of arrow.

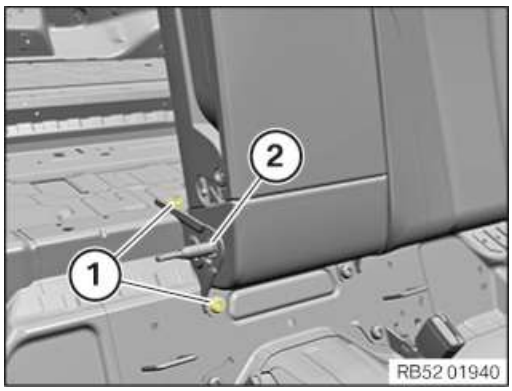
6 – Install centre rear seat backrest

Prerequisite

Rear seat backrest at the centre folded down



- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Install the centre rear seat backrest (1) in the direction of arrow.



- Position the centre bearing support (2) correctly.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

7 – Installing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

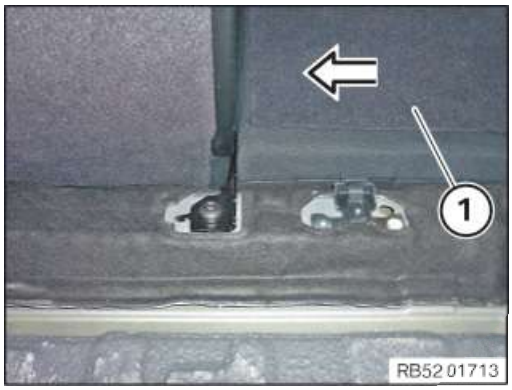


- Insert the luggage compartment floor trim panel (1).

8 – Install the rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Guide in and position right rear seat backrest (1) correctly in the direction of arrow.



- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

9 – Install right backrest side section

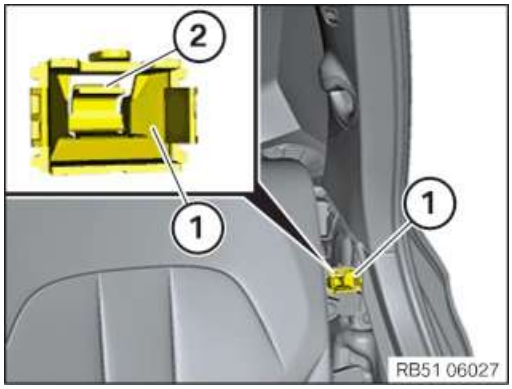
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing backrest side section**

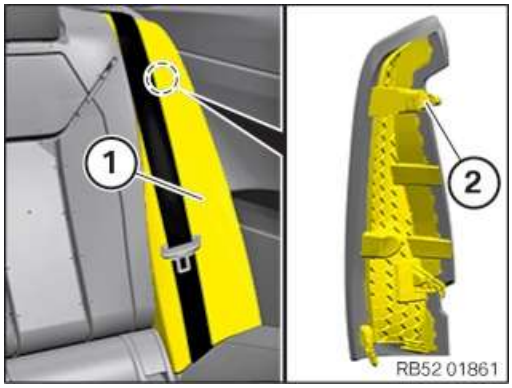
▹ **Installing backrest side section**

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- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

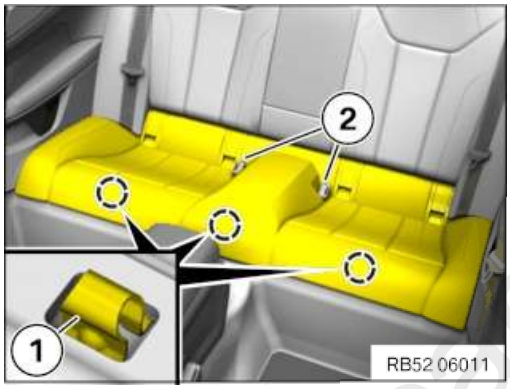
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

10 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

Overview of Tightening Torques

Rear seat backrest on body			Used in step 68
Screw	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	29

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	29

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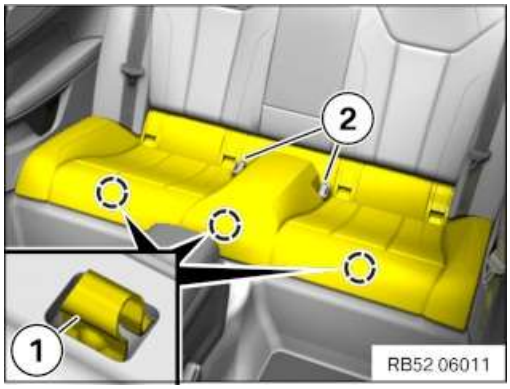
Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
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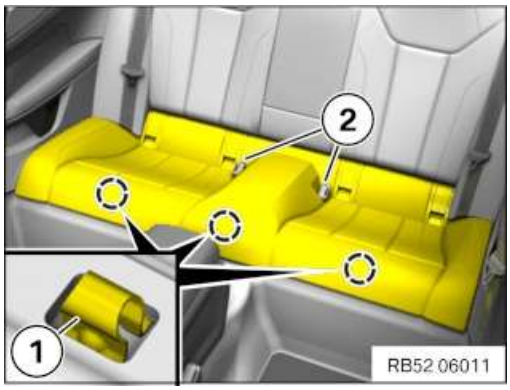
52 26 005 Removing and installing / replacing rear seat

1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

2 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

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52 26 012 Removing and installing / replacing the right rear seat backrest

PRELIMINARY WORK

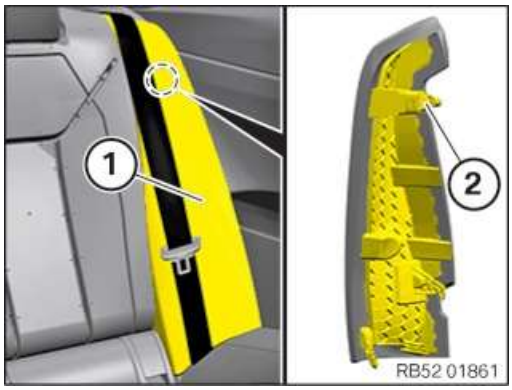
1 – Remove right backrest side section

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

MAIN WORK

2 – Remove the right rear seat backrest

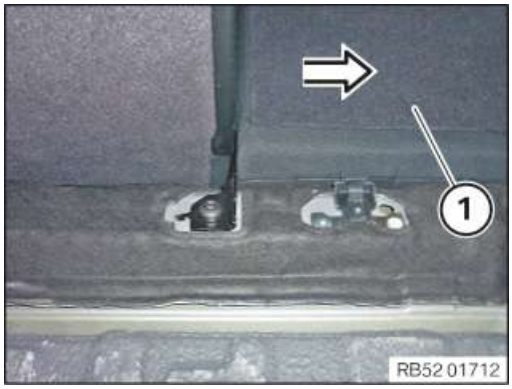
Prerequisite

Right rear seat backrest folded down



- Loosen screw (1).

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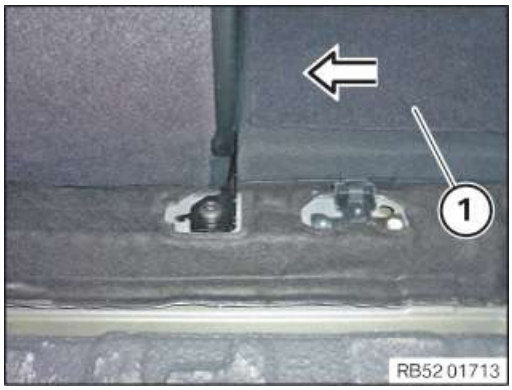


- Feed out the right rear seat backrest (1) in the direction of the arrow.

3 – Install the rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Guide in and position right rear seat backrest (1) correctly in the direction of arrow.



- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

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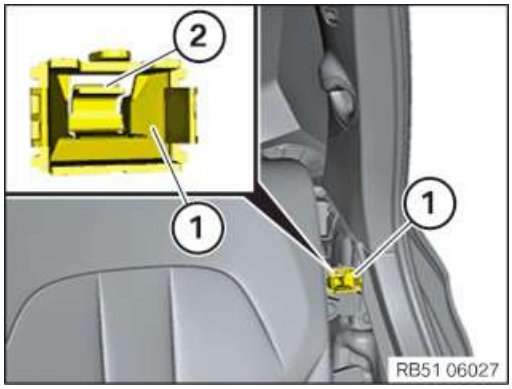
4 – Install right backrest side section

NOTICE

Description is for left component only. Procedure on the right side is identical.

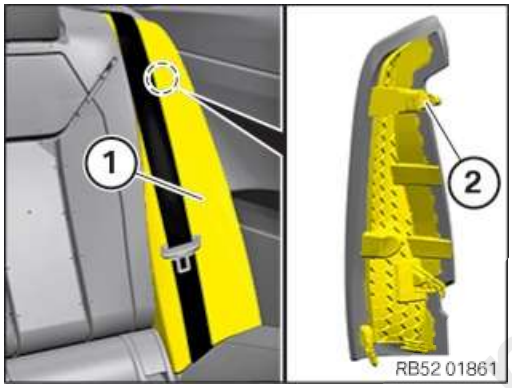
▶ **Installing backrest side section**

▷ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

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Additional Information

Overview of Tightening Torques

Rear seat backrest on body Used in step 3

Screw	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	14

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	14

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting battery earth lead	14
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61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	14
61 20 900 Disconnecting and connecting battery earth lead	14
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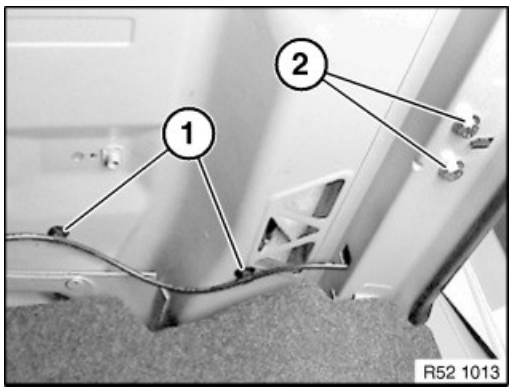
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14
61 20 900 Disconnecting and connecting battery earth lead	14

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52 26 303 Removing and installing/replacing actuator for left or right rear seat backrest

PRELIMINARY WORK

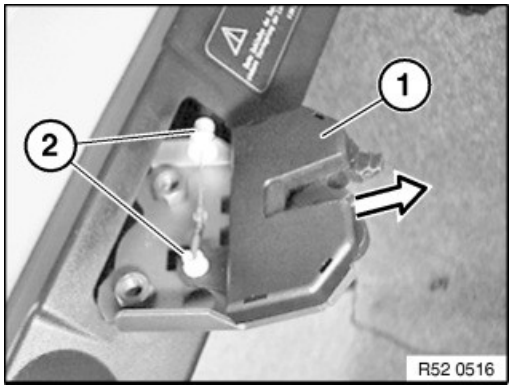
1 – Remove the backrest lock



- Unlock and fold back rear seat backrest.

Note: If the rear seat backrest cannot be unlocked, operate the emergency release.

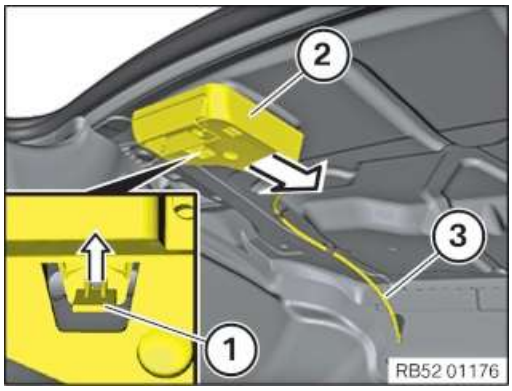
- Unclip the Bowden cable from the holders (1).
- Loosen screws (2).



- Guide the backrest lock (1) out slightly and unclip the Bowden cable (2).

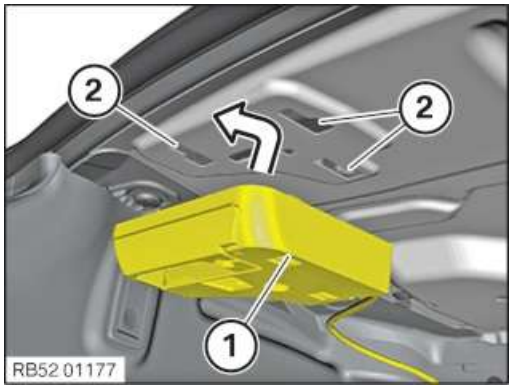
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2 – Remove the control for the rear seat backrest

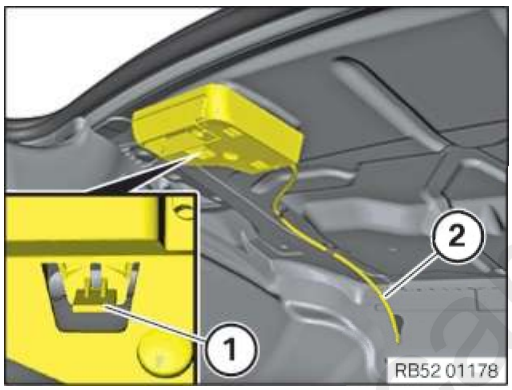


- Press the lock (1) to the rear.
- Slide the control (2) forward and guide it out of the body.
- Guide the Bowden cable (3) out of the body.

3 – Install the control for the rear seat backrest



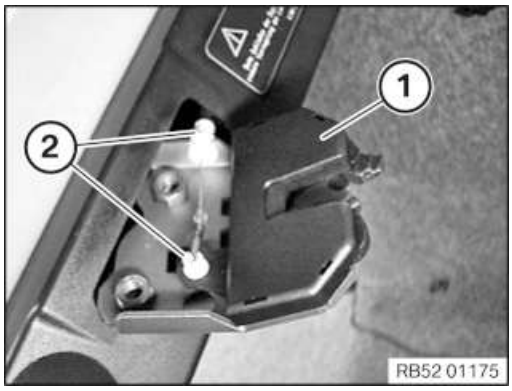
- Insert the control (1) into the openings (2) and slide it back.



- Make sure the latch mechanism (1) is correctly positioned.
- Insert the Bowden cable (2) into the body.

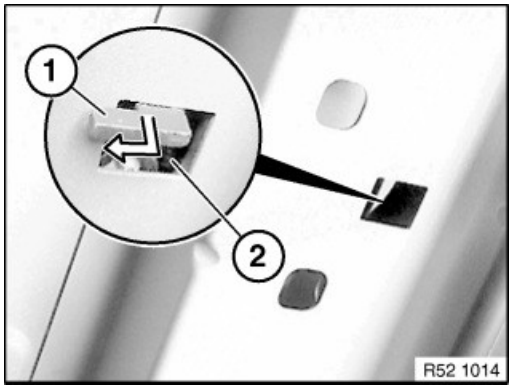
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4 – Install the backrest lock

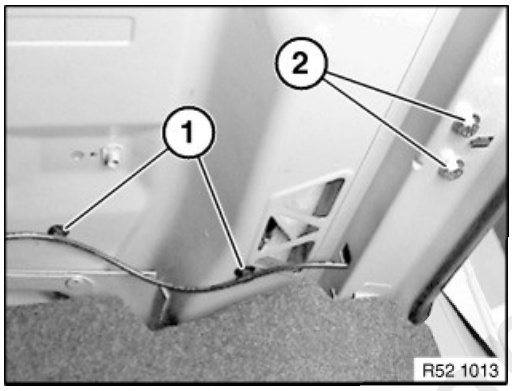


- Clip in the Bowden cable (2) in the backrest lock (1).

  Check for correct fit of the Bowden cable (2) on the backrest lock (1).



- Insert the backrest lock into the body and feed in the guide (1) into the recess (2).



- Screw in the screws (2) several rotations.
- Clip in the Bowden cable into the holder (1).
- Lock the rear seat backrest and press back hard.
- Tighten the screws (1).

Backrest lock to body

M8		19 Nm

Additional Information

Overview of Tightening Torques

Backrest lock to body Used in step 4

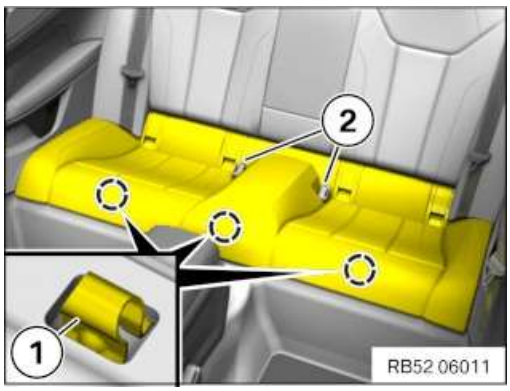
M8		19 Nm

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52 26 081 Removing and installing/replacing backrest frame for centre rear seat

PRELIMINARY WORK

1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

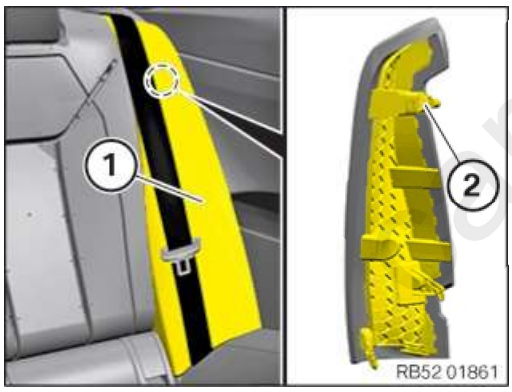
2 – Remove right backrest side section

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

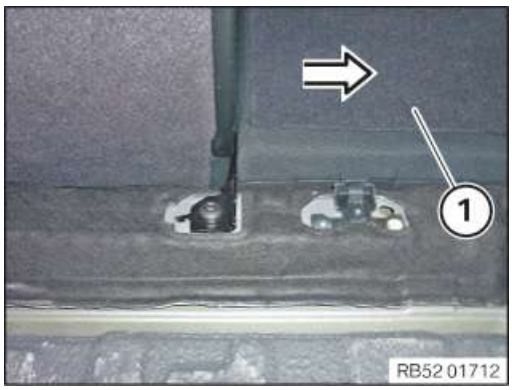
3 – Remove the right rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Loosen screw (1).

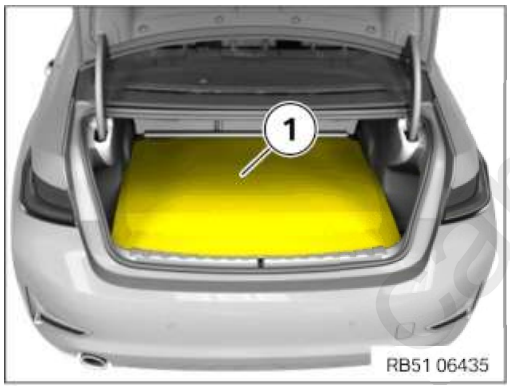


- Feed out the right rear seat backrest (1) in the direction of the arrow.

4 – Removing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

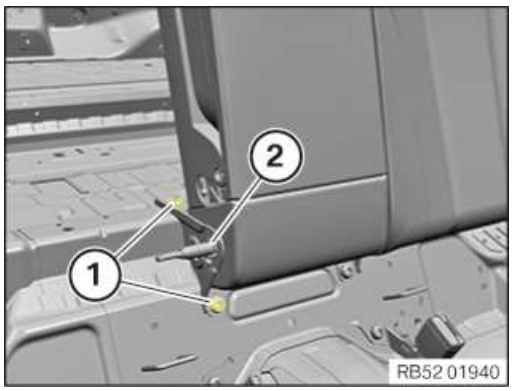


- Remove luggage compartment floor trim panel (1).

5 – Removing the central rear seat backrest

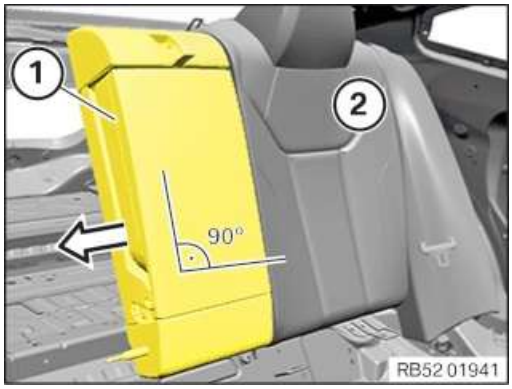
Prerequisite

Rear seat backrest at the centre is folded down.



- Loosen screws (1).
- Remove the centre bearing support (2).

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- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Remove the centre rear seat backrest (1) in the direction of arrow.

6 – Removing the trim for the rear seat backrest actuation at the centre



- Unclip the trim (1) for the rear seat backrest actuation at the centre (arrows).

7 – Remove rear centre armrest

NOTICE

For a better overview the removed condition is shown here.



- Fold the centre rear seat down.
- Loosen screw (1).
- Fold the centre rear seat up.
- Guide out rear centre armrest (2).

8 – Removing the trim for the centre armrest



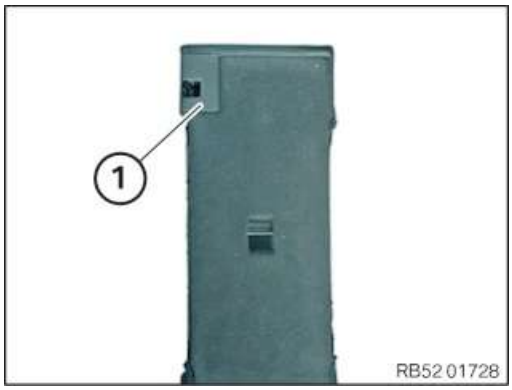
- Carefully unclip the trim for the centre armrest from the backrest frame along the marked lines (1).

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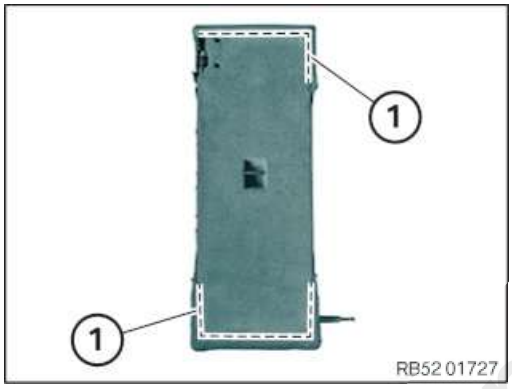


- Remove the trim (1) for the centre armrest in the direction of the arrow.

9 – Remove the backrest cover for the centre rear seat



- Unclip the cover (1).



- Clip out the welt of the backrest cover along the broken line (1).



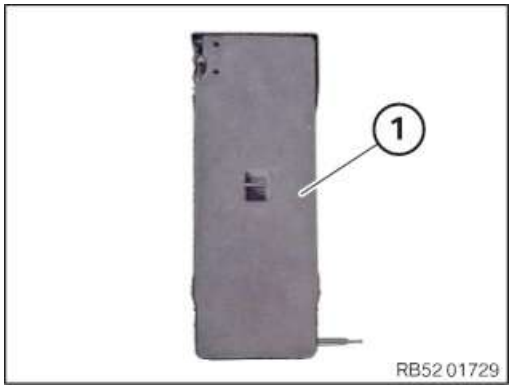
- Unclip edge stripping (1).
- Feed out the backrest cover (2) for the rear seat at the centre.

MAIN WORK

10 – When replacing the centre backrest frame: Remount components

▸ **Partially removing the rear panel for the central rear seat backrest**

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- Feed out the rear panel (1) for the central rear seat backrest.

▸ **Removing the insert for the centre rear seat backrest**



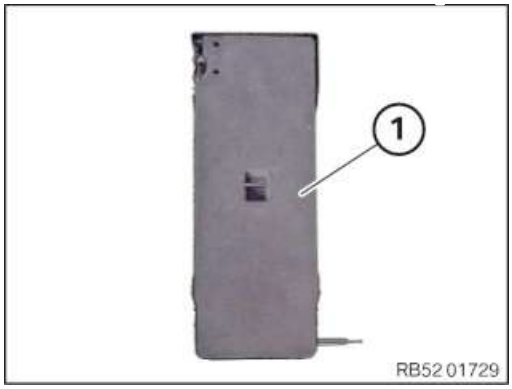
- Release the screw (1).
- Feed out the insert (2) for the centre rear seat backrest.

▸ **Installing the insert for the rear seat backrest at the centre**



- Feed in the insert (2) for the rear seat backrest at the centre and position correctly.
- Tighten down screw (1).

▸ **Installing the rear panel for the rear seat backrest at the centre (partially removed)**



- Feed in the rear panel (1) for the rear seat backrest at the centre.

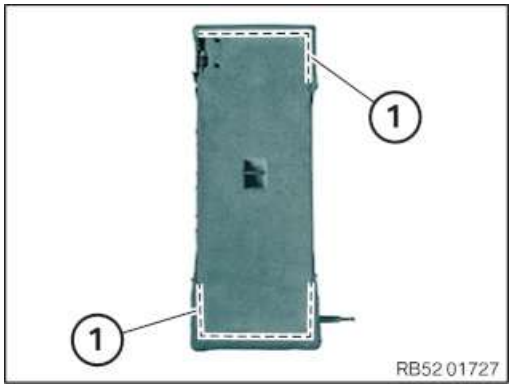
POSTPROCESSES

11 – Install the backrest cover for the centre rear seat

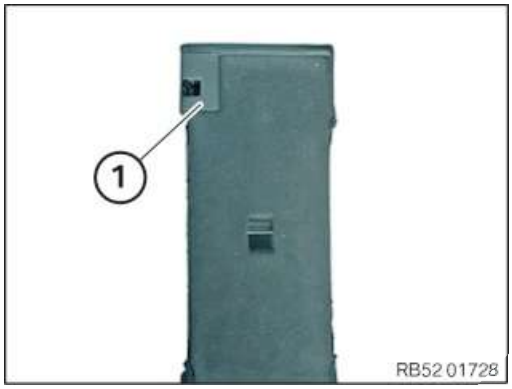
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- Feed in the backrest cover (2) for the rear seat at the centre.
- Clip in edge stripping (1).



- Clip in edge stripping of backrest cover along dashed line (1).



- Clip in the cover (1).

12 – Installing the trim for the centre armrest



- Position the trim (1) for the centre armrest on the backrest frame in the direction of the arrow.



- Check if the trim for centre armrest fits correctly on the backrest frame along the marked line (1).

13 – Install the rear centre armrest

cardiagn.com

NOTICE

For a better overview the removed condition is shown here.



- Fold the centre rear seat up.
- Feed in centre armrest (2) and position correctly.
- Fold the centre rear seat down.
- Tighten down screw (1).

Rear centre armrest to backrest frame

Screw		Tightening torque	8 Nm

14 – Installing the trim for the rear seat backrest actuation at the centre



- Clip in the trim (1) for the rear seat backrest actuation at the centre (arrows).

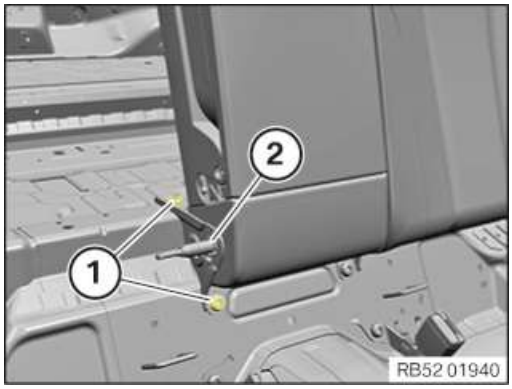
15 – Install centre rear seat backrest

Prerequisite

Rear seat backrest at the centre folded down



- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Install the centre rear seat backrest (1) in the direction of arrow.



- Position the centre bearing support (2) correctly.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

16 – Installing the luggage compartment floor trim panel

avdiagn.com

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

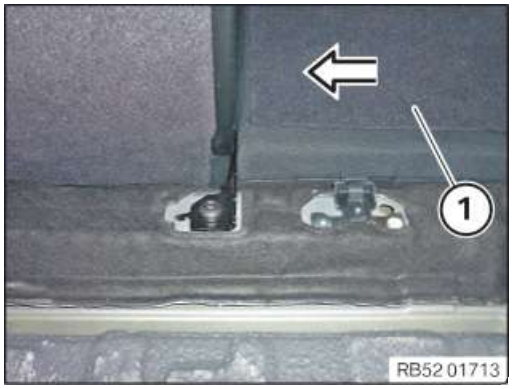


- Insert the luggage compartment floor trim panel (1).

17 – Install the rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Guide in and position right rear seat backrest (1) correctly in the direction of arrow.



- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

18 – Install right backrest side section

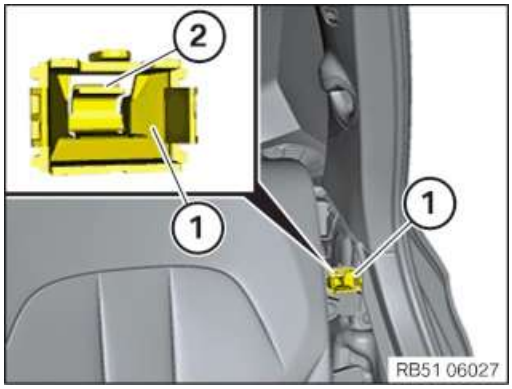
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing backrest side section**

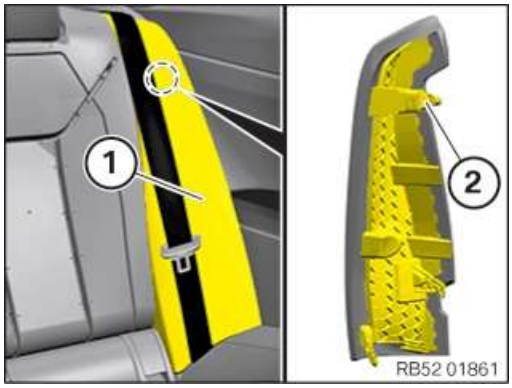
▹ **Installing backrest side section**

carmdiagn.com



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

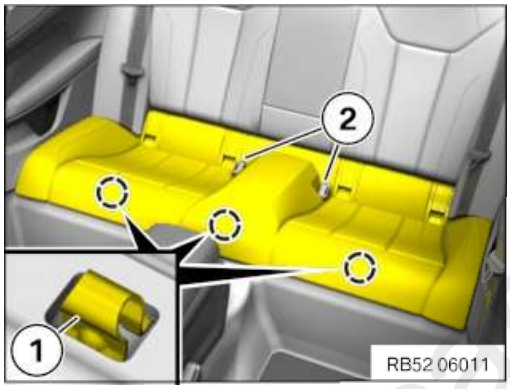
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

19 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

Overview of Tightening Torques

Rear centre armrest to backrest frame Used in step 13

Screw		Tightening torque	8 Nm

Rear seat backrest on body Used in step 1517

Screw	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	218

cardiagn.com

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	218

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
61 20 900 Disconnecting and connecting battery earth lead	218
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	218
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	218
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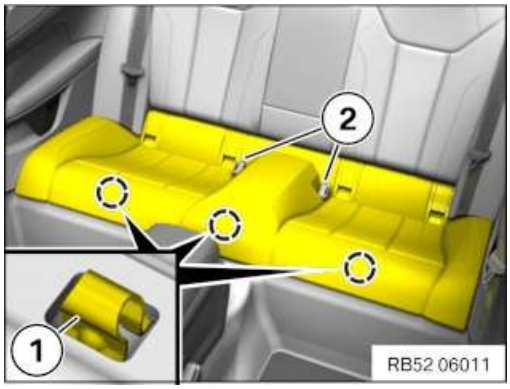
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61 20 900 Disconnecting and connecting battery earth lead 218
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 218
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61 20 900 Disconnecting and connecting battery earth lead 218
61 20 900 Disconnecting and connecting battery earth lead 218

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52 26 080 Removing and installing/replacing backrest frame for left rear seat

PRELIMINARY WORK

1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

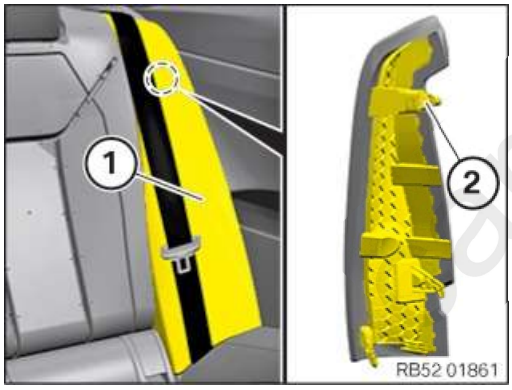
2 – Remove backrest side section on left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

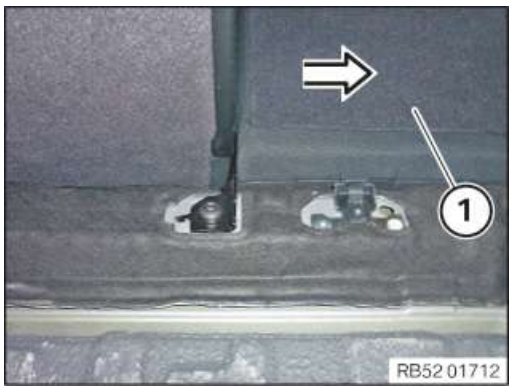
3 – Remove the right rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Loosen screw (1).

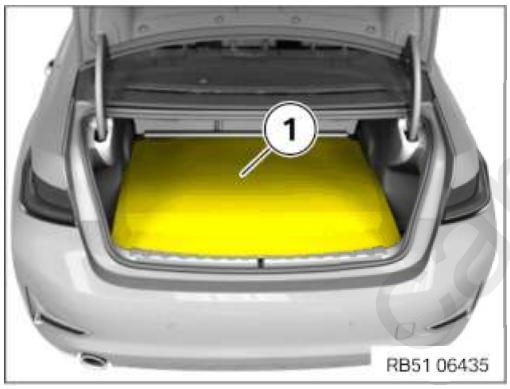


- Feed out the right rear seat backrest (1) in the direction of the arrow.

4 – Removing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

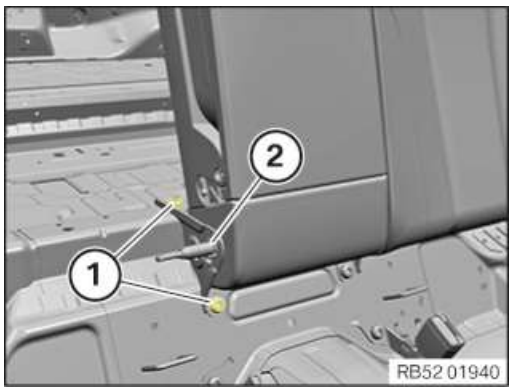


- Remove luggage compartment floor trim panel (1).

5 – Removing the central rear seat backrest

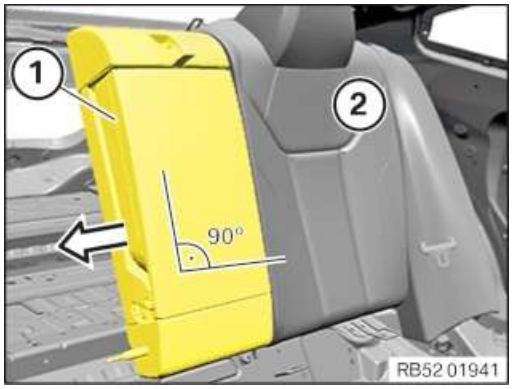
Prerequisite

Rear seat backrest at the centre is folded down.



- Loosen screws (1).
- Remove the centre bearing support (2).

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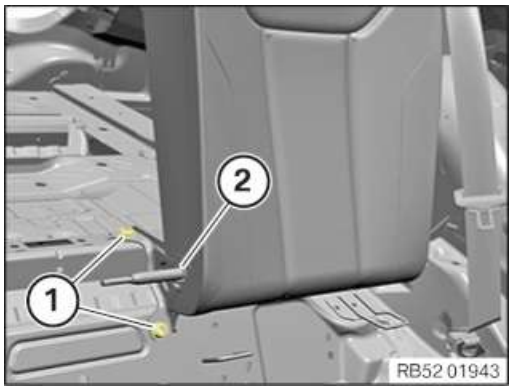


- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Remove the centre rear seat backrest (1) in the direction of arrow.

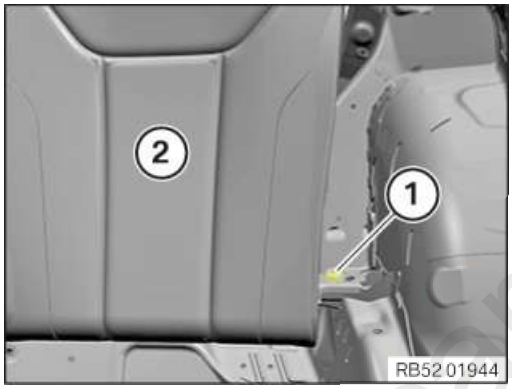
6 – Remove rear seat backrest, left

Prerequisite

Left rear seat backrest folded down



- Release the screw (1).
- Remove the centre bearing support (2).



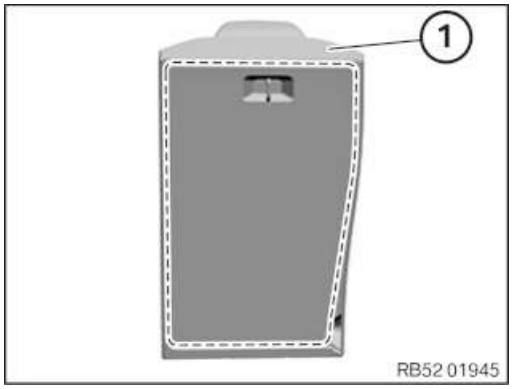
- Release the screw (1).
- Remove left rear seat backrest (2).

7 – Removing backrest cover with cushion for rear seat

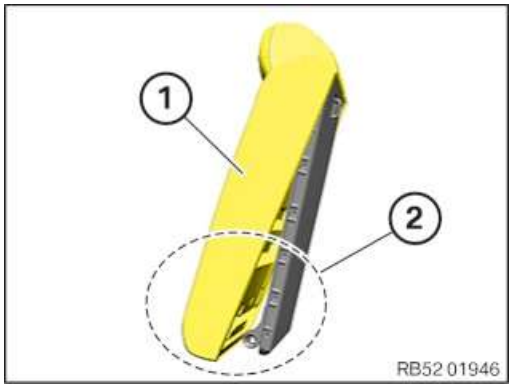


- Release the screw (1).
- Guide out outer mount (2).

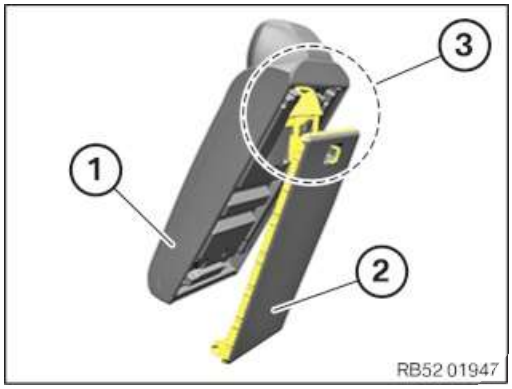
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- Lever out the edge stripping of backrest cover (1) along the dashed line with a suitable tool.



- Feed out backrest cover with cushion (1) as pictured in the lower area of rear seat backrest (2).



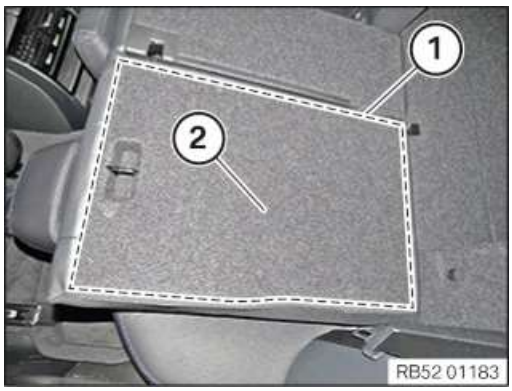
- Carefully feed out backrest cover with cushion (1) in marked area (3) from rear seat backrest (2) in upward direction.

MAIN WORK

8 – When replacing the left backrest frame: Remount components

▸ **Remove the rear panel on the left rear seat backrest**

▹ **Remove the rear panel from the rear seat backrest**

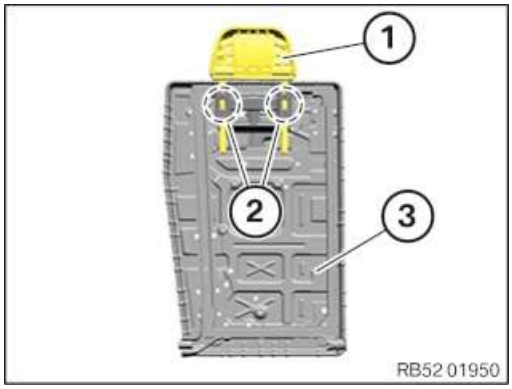


- Unclip the welt of the backrest cover with the special tool 0 496 569 (00 9 325) along the broken line (1).
- Remove the rear panel (2).

◃

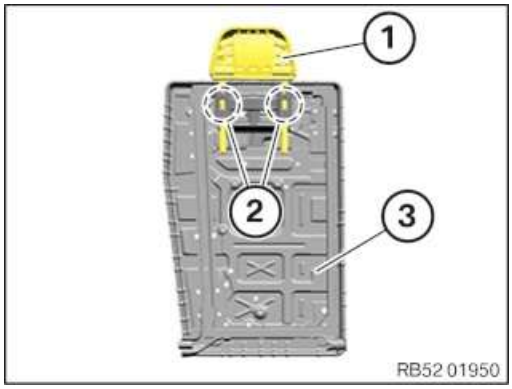
▸ **Removing head restraint on rear seat backrest**

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- Unclip head restraint (1) in marked area (2).
- Lift head restraint (1) up and out of backrest frame (3).

▶ **Installing head restraint on rear seat backrest**



- Correctly position head restraint (1) from above on backrest frame (3).
- Clip in head restraint (1) in marked area (2).

▶ **Install the rear panel on the left rear seat backrest**

▷ **Install the rear panel on the rear seat backrest**

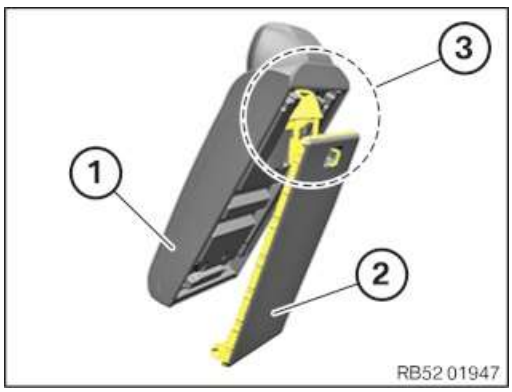


- Position the rear panel (1).
- Clip the welt of the backrest cover in with the special tool 0 496 569 (00 9 325) along the broken line (2).

◁

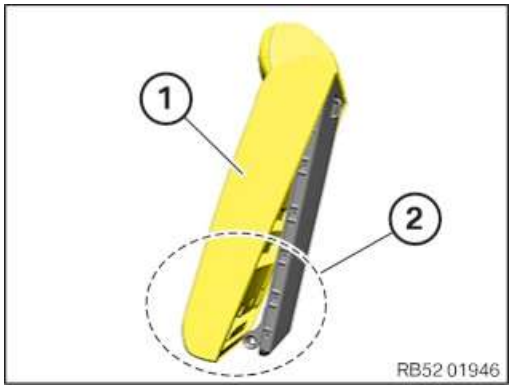
POSTPROCESSES

9 – Installing the backrest cover with the cushion for the rear seat

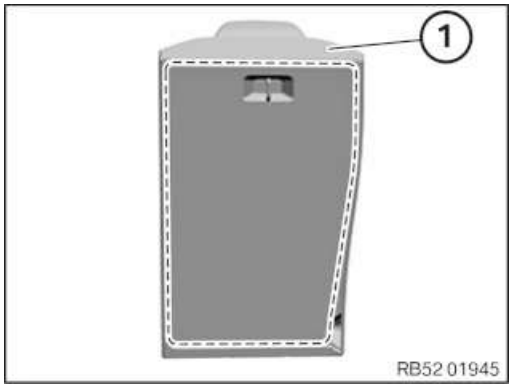


- Carefully position the backrest cover with the cushion (1) in the marked area (3) on the rear seat backrest (2) from the top.

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- Position the backrest cover with the cushion (1) in the lower area of the rear seat backrest (2).



- Clip in the edge stripping of the backrest cover (1) with a suitable tool along the dotted line.

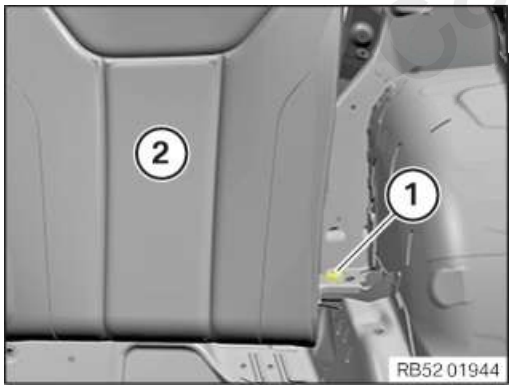


- Position the outer mount (2).
- Tighten down screw (1).

10 – Install the left rear seat backrest

Prerequisite

Left rear seat backrest folded down

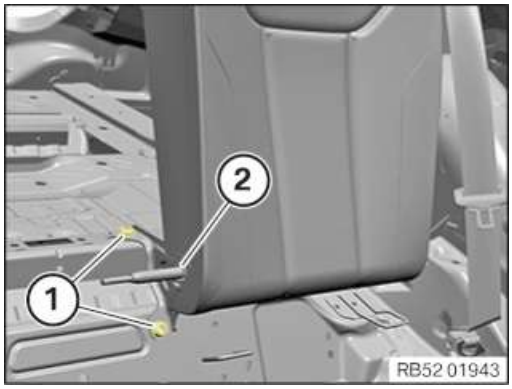


- Correctly position left rear seat backrest (2).
- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

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- Position the centre bearing support (2) correctly.
- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

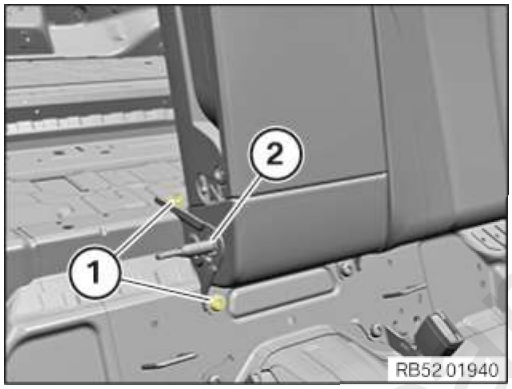
11 – Install centre rear seat backrest

Prerequisite

Rear seat backrest at the centre folded down



- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Install the centre rear seat backrest (1) in the direction of arrow.



- Position the centre bearing support (2) correctly.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

12 – Installing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.



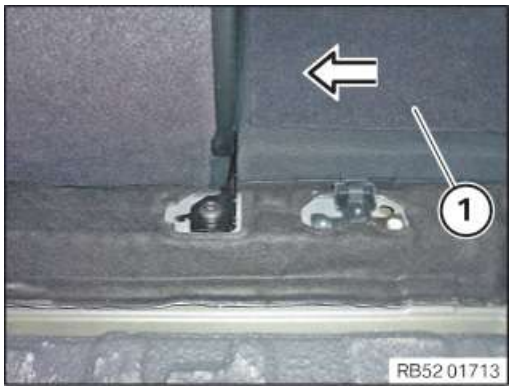
- Insert the luggage compartment floor trim panel (1).

13 – Install the rear seat backrest

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Prerequisite

Right rear seat backrest folded down



- Guide in and position right rear seat backrest (1) correctly in the direction of arrow.



- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

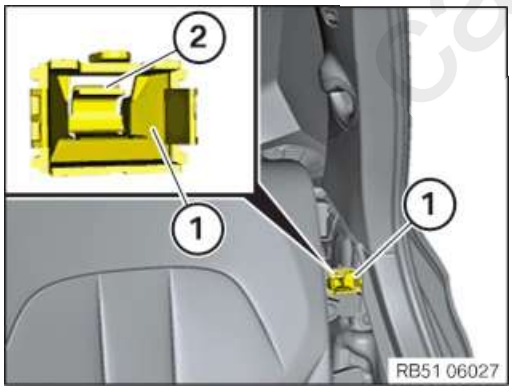
14 – Install the backrest side section on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

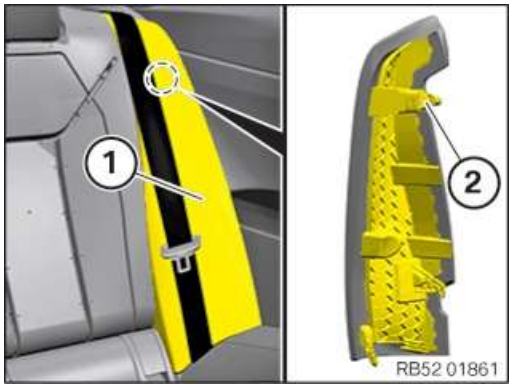
▶ Installing backrest side section

▷ Installing backrest side section



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

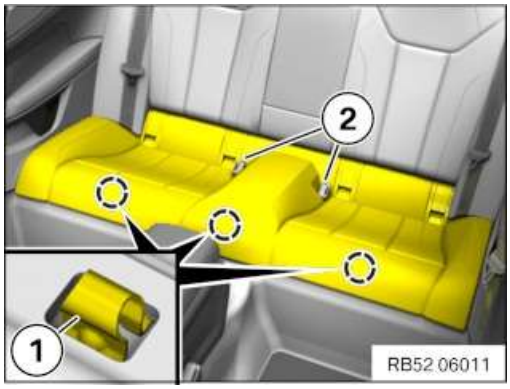
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

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15 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

Overview of Tightening Torques

Rear seat backrest on body			Used in step 101113
Screw	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 496 569 (00 9 325) Wedge



Common	Used in step 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)

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	214

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	214

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting battery earth lead	214
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61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	214
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	214
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	214
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	214
61 20 900 Disconnecting and connecting battery earth lead	214
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	214
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	214
61 20 900 Disconnecting and connecting battery earth lead

52 26 085 Removing and installing/replacing backrest frame for right rear seat

PRELIMINARY WORK

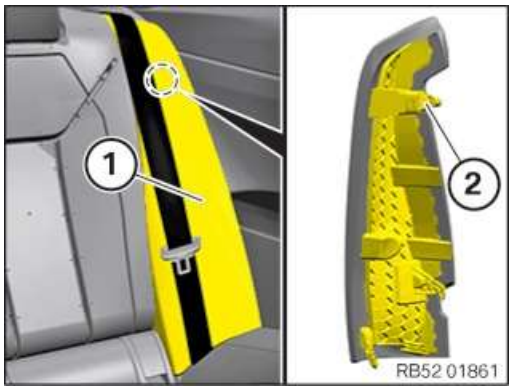
1 – Remove right backrest side section

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

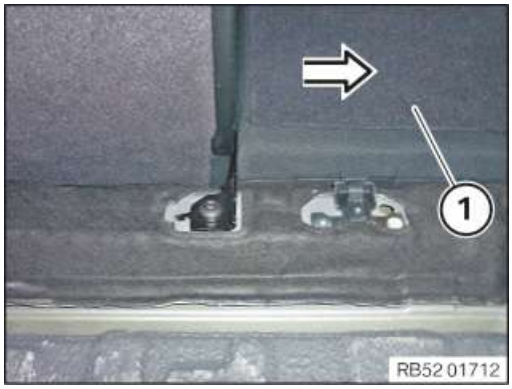
2 – Remove the right rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Loosen screw (1).



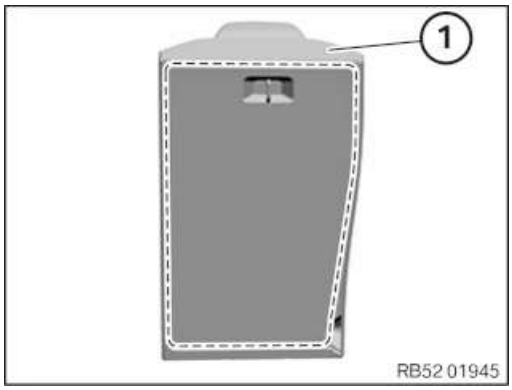
- Feed out the right rear seat backrest (1) in the direction of the arrow.

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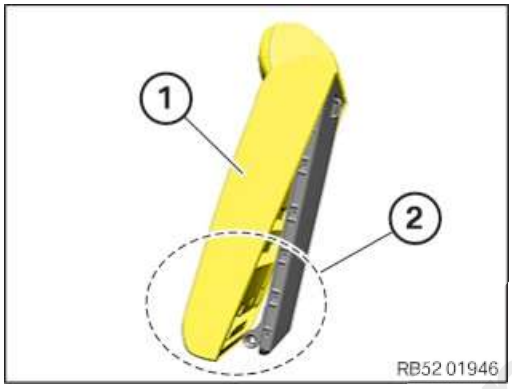
3 – Removing backrest cover with cushion for rear seat



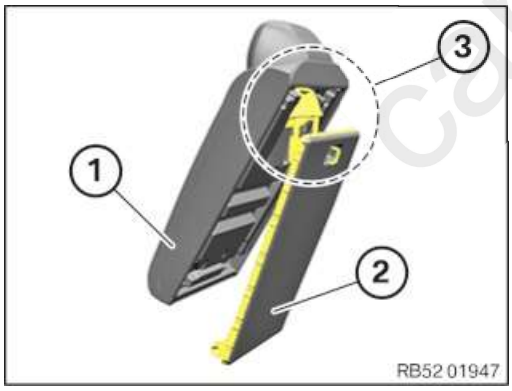
- Release the screw (1).
- Guide out outer mount (2).



- Lever out the edge stripping of backrest cover (1) along the dashed line with a suitable tool.



- Feed out backrest cover with cushion (1) as pictured in the lower area of rear seat backrest (2).



- Carefully feed out backrest cover with cushion (1) in marked area (3) from rear seat backrest (2) in upward direction.

MAIN WORK

4 – When replacing the right backrest frame: Remount components

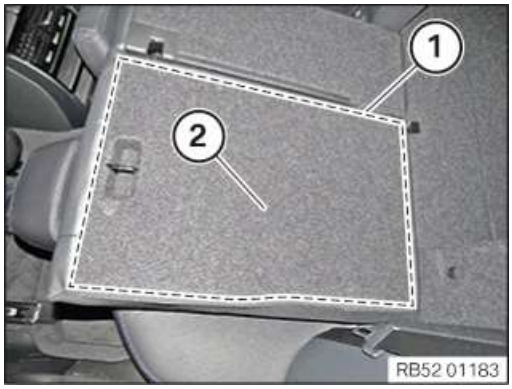
▸ **Remove the rear panel from the right rear seat backrest**

NOTICE

Description is for left component only. Procedure on the right side is identical.

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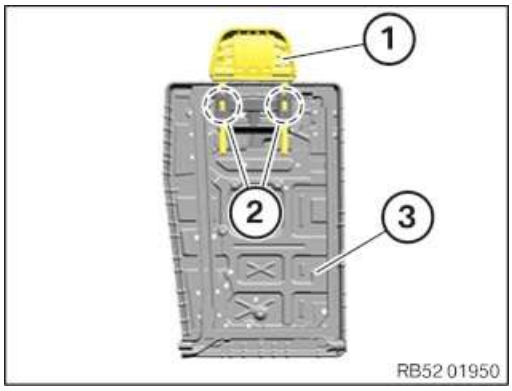
▷ **Remove the rear panel from the rear seat backrest**



- Unclip the welt of the backrest cover with the special tool 0 496 569 (00 9 325) along the broken line (1).
- Remove the rear panel (2).

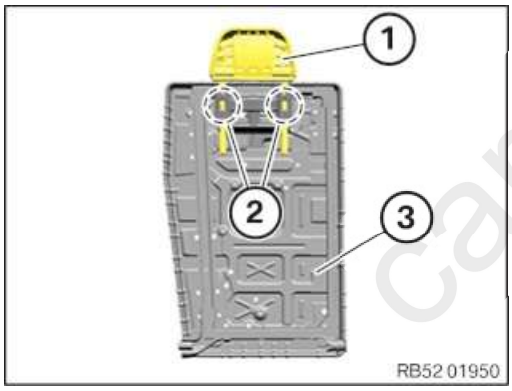
◁

▶ **Removing head restraint on rear seat backrest**



- Unclip head restraint (1) in marked area (2).
- Lift head restraint (1) up and out of backrest frame (3).

▶ **Installing head restraint on rear seat backrest**



- Correctly position head restraint (1) from above on backrest frame (3).
- Clip in head restraint (1) in marked area (2).

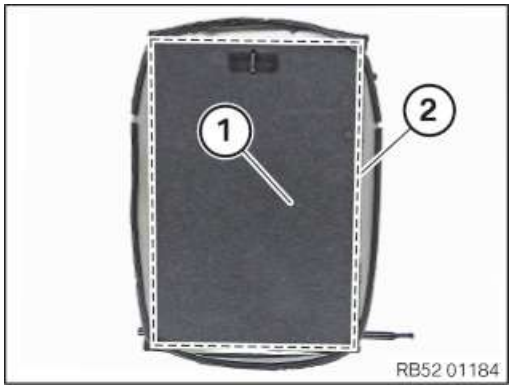
▶ **Install the rear panel on the rear seat backrest on the right**

NOTICE

Description is for left component only. Procedure on the right side is identical.

▷ **Install the rear panel on the rear seat backrest**

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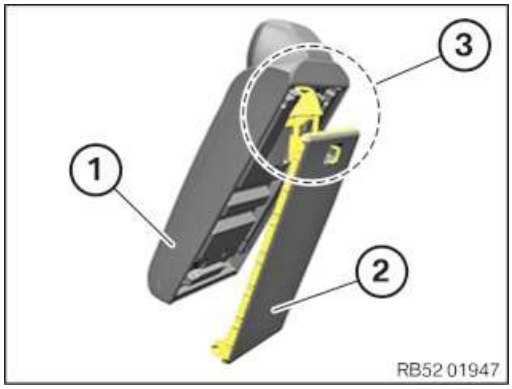


- Position the rear panel (1).
- Clip the welt of the backrest cover in with the special tool 0 496 569 (00 9 325) along the broken line (2).

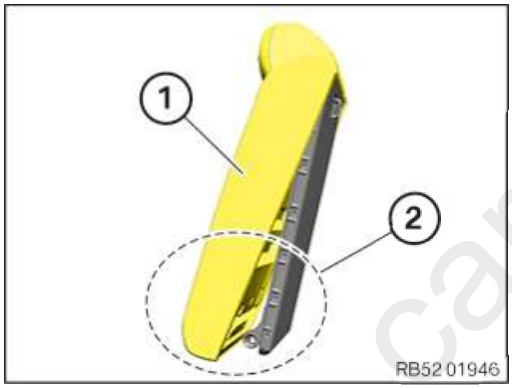
◁

POSTPROCESSES

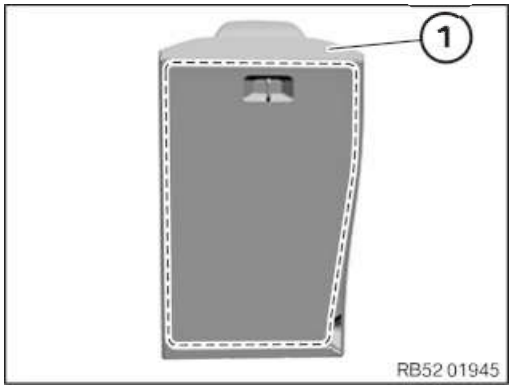
5 – Installing the backrest cover with the cushion for the rear seat



- Carefully position the backrest cover with the cushion (1) in the marked area (3) on the rear seat backrest (2) from the top.



- Position the backrest cover with the cushion (1) in the lower area of the rear seat backrest (2).



- Clip in the edge stripping of the backrest cover (1) with a suitable tool along the dotted line.

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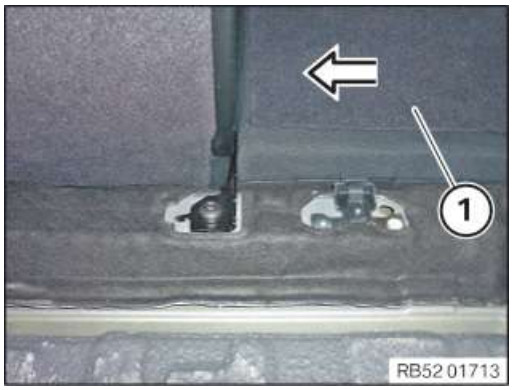


- Position the outer mount (2).
- Tighten down screw (1).

6 – Install the rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Guide in and position right rear seat backrest (1) correctly in the direction of arrow.



- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

7 – Install right backrest side section

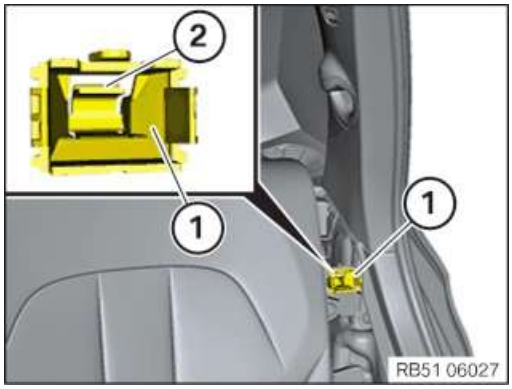
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing backrest side section**

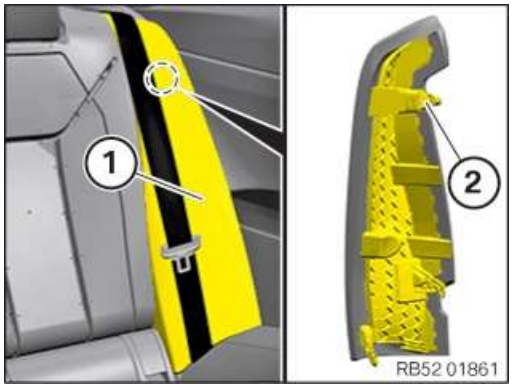
▹ **Installing backrest side section**

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- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

Additional Information

Overview of Tightening Torques

Rear seat backrest on body			Used in step 6
Screw	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 496 569 (00 9 325) Wedge



Common	Used in step 4
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 (PRE)	Used in step
Notes on 48-V battery	17

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	17

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Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	17
61 20 900 Disconnecting and connecting battery earth lead	17
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61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting battery earth lead	17
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	17
61 20 900 Disconnecting and connecting battery earth lead	17
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	17
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	17
61 20 900 Disconnecting and connecting battery earth lead

61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads) 17
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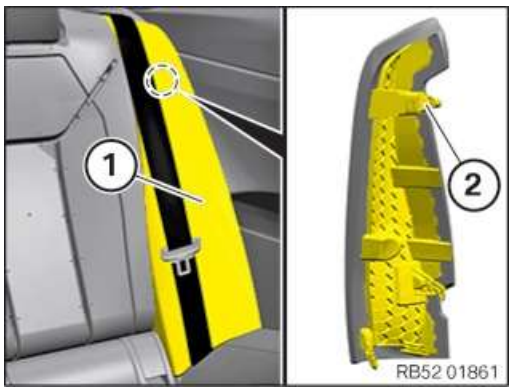
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52 26 008 Removing and installing/replacing backrest side section on left or right rear seat backrest

NOTICE

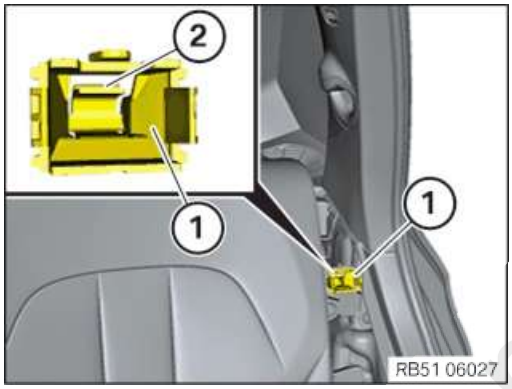
Description is for left component only. Procedure on the right side is identical.

1 – Remove armrest side section



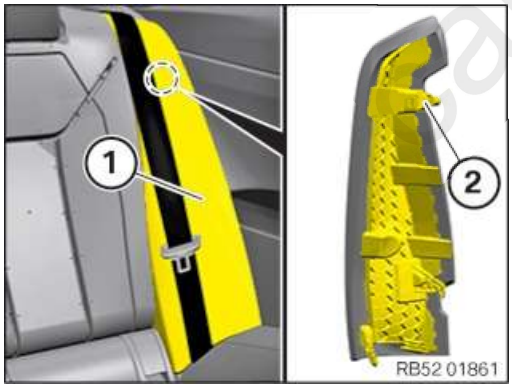
- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

2 – Installing backrest side section



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

52 26 030 Removing and installing/replacing centre armrest

1 – Remove rear centre armrest

NOTICE

For a better overview the removed condition is shown here.



- Fold the centre rear seat down.
- Loosen screw (1).
- Fold the centre rear seat up.
- Guide out rear centre armrest (2).

2 – Install the rear centre armrest

NOTICE

For a better overview the removed condition is shown here.



- Fold the centre rear seat up.
- Feed in centre armrest (2) and position correctly.
- Fold the centre rear seat down.
- Tighten down screw (1).

Rear centre armrest to backrest frame

Screw		Tightening torque	8 Nm

Additional Information

Overview of Tightening Torques

Rear centre armrest to backrest frame Used in step 2

Screw		Tightening torque	8 Nm

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52 26 025 Removing and installing/replacing cover for centre armrest

Prerequisite

- Rear seat backrest at the centre folded down

NOTICE

For a better overview the removed condition is shown here.

PRELIMINARY WORK

1 – Remove rear centre armrest

NOTICE

For a better overview the removed condition is shown here.



- Fold the centre rear seat down.
- Loosen screw (1).
- Fold the centre rear seat up.
- Guide out rear centre armrest (2).

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2 – Removing the trim for the centre armrest

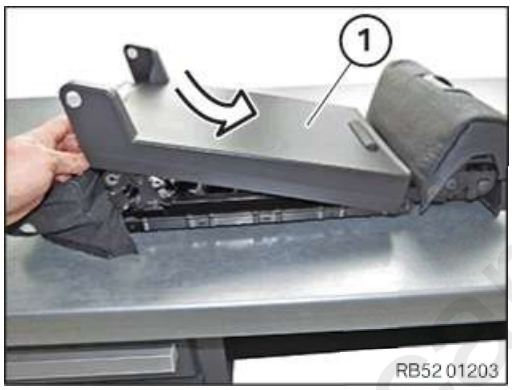


- Carefully unclip the trim for the centre armrest from the backrest frame along the marked lines (1).



- Remove the trim (1) for the centre armrest in the direction of the arrow.

3 – Installing the trim for the centre armrest



- Position the trim (1) for the centre armrest on the backrest frame in the direction of the arrow.



- Check if the trim for centre armrest fits correctly on the backrest frame along the marked line (1).

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4 – Install the rear centre armrest

NOTICE

For a better overview the removed condition is shown here.



- Fold the centre rear seat up.
- Feed in centre armrest (2) and position correctly.
- Fold the centre rear seat down.
- Tighten down screw (1).

Rear centre armrest to backrest frame

Screw		Tightening torque	8 Nm

Additional Information

Overview of Tightening Torques

Rear centre armrest to backrest frame Used in step 4

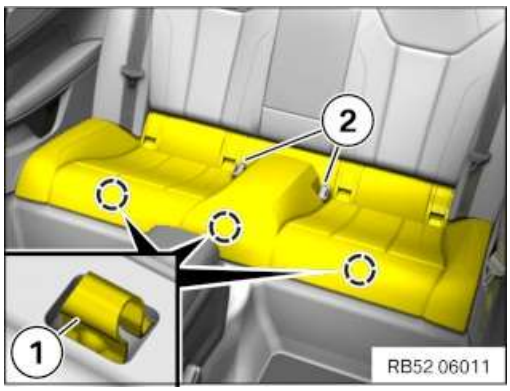
Screw		Tightening torque	8 Nm

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52 26 149 Removing and installing/replacing cushion for left rear seat backrest

PRELIMINARY WORK

1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

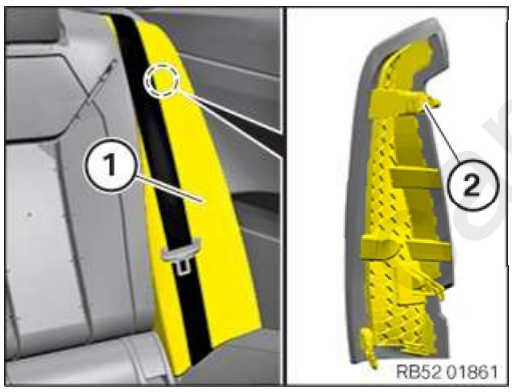
2 – Remove backrest side section on left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

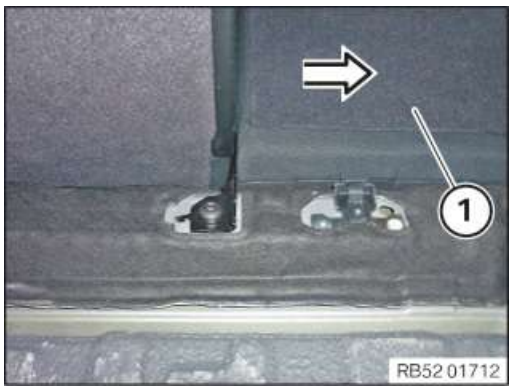
3 – Remove the right rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Loosen screw (1).

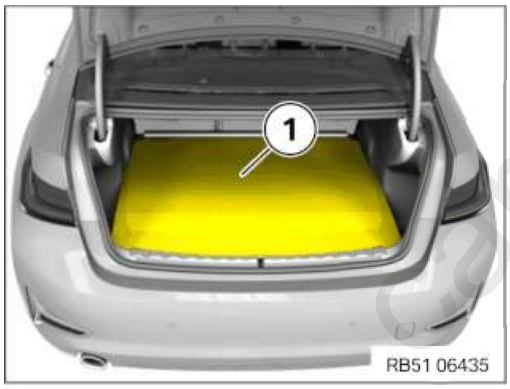


- Feed out the right rear seat backrest (1) in the direction of the arrow.

4 – Removing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

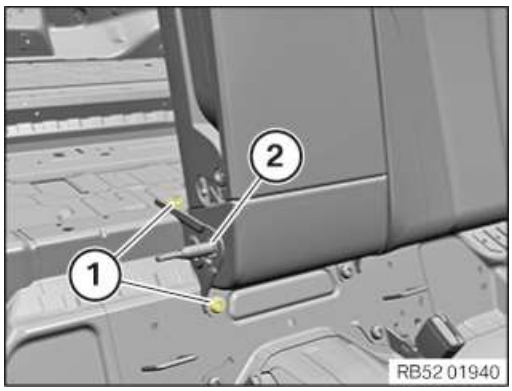


- Remove luggage compartment floor trim panel (1).

5 – Removing the central rear seat backrest

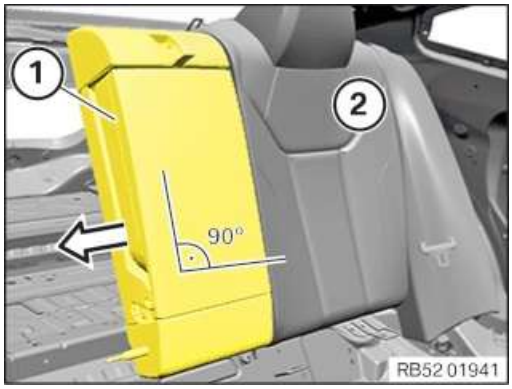
Prerequisite

Rear seat backrest at the centre is folded down.



- Loosen screws (1).
- Remove the centre bearing support (2).

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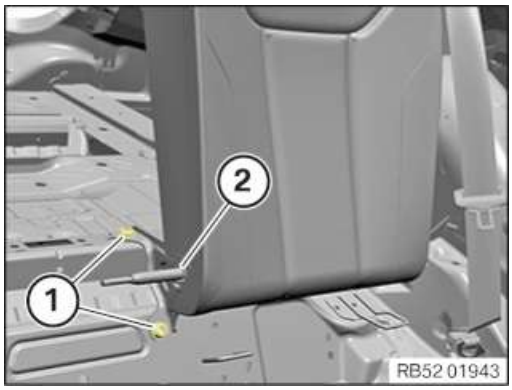


- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Remove the centre rear seat backrest (1) in the direction of arrow.

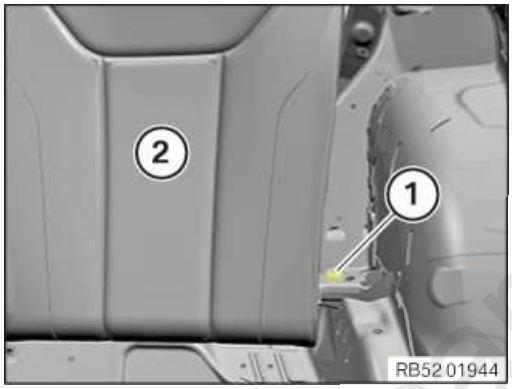
6 – Remove rear seat backrest, left

Prerequisite

Left rear seat backrest folded down



- Release the screw (1).
- Remove the centre bearing support (2).



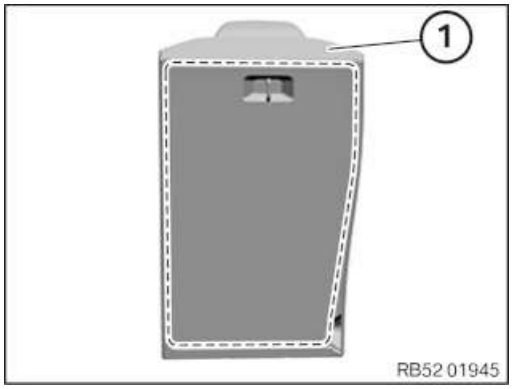
- Release the screw (1).
- Remove left rear seat backrest (2).

7 – Removing backrest cover with cushion for rear seat

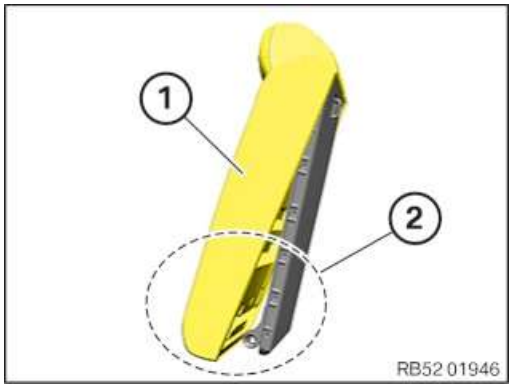


- Release the screw (1).
- Guide out outer mount (2).

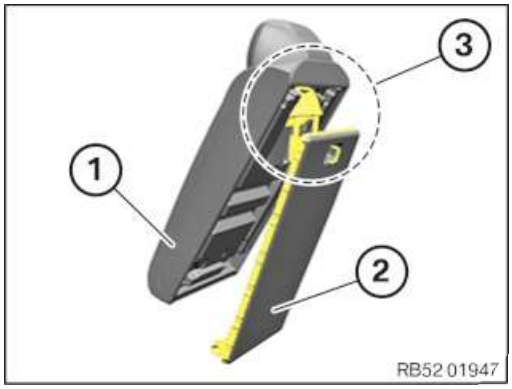
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- Lever out the edge stripping of backrest cover (1) along the dashed line with a suitable tool.

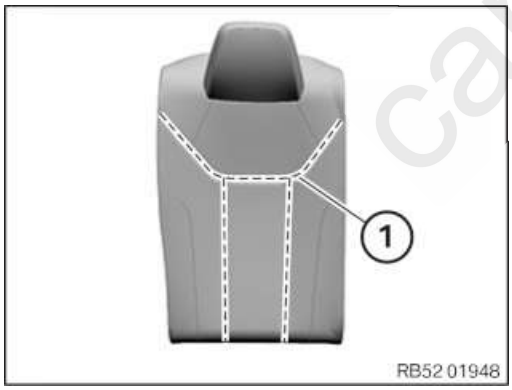


- Feed out backrest cover with cushion (1) as pictured in the lower area of rear seat backrest (2).

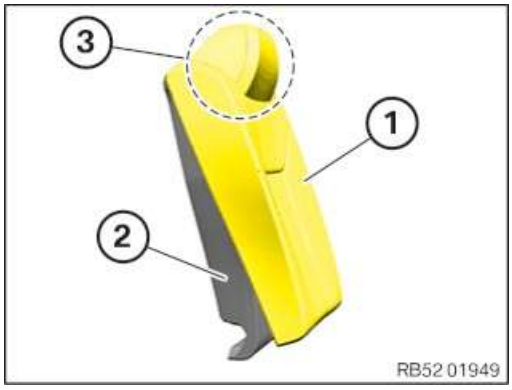


- Carefully feed out backrest cover with cushion (1) in marked area (3) from rear seat backrest (2) in upward direction.

8 – Remove backrest cover



- Undo all clamps on the trim wires (1).



- In the marked area (3), carefully feed out the backrest cover (1) from the cushion (2) upwards.
- Completely remove the clamps from the backrest cover (1) and the cushion (2).

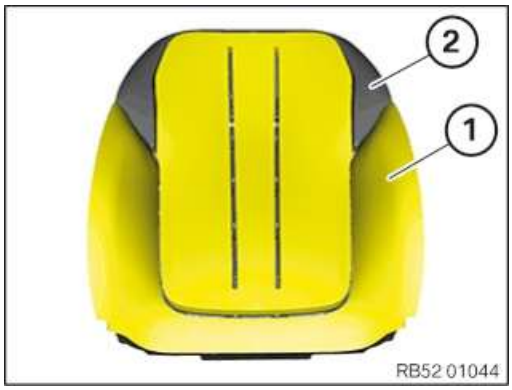
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MAIN WORK

9 – Renewing the cushion for the backrest of the rear seat

TECHNICAL INFORMATION

The heating mat is bonded to the foam pad and cannot be disassembled without damaging it.
When replacing, new heating mat must always be fitted with new foam pads.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Renew cushion (2).

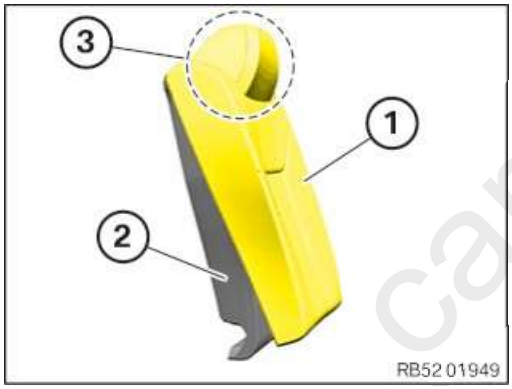
  Parts: Upholstery
- **Version with seat heating:**

  Position and align the heating mat (1) on the upholstery (2).

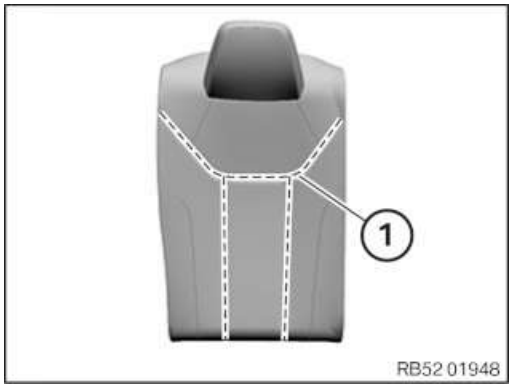
  Bond the heating mat (1) with the upholstery (2).

POSTPROCESSES

10 – Install backrest cover

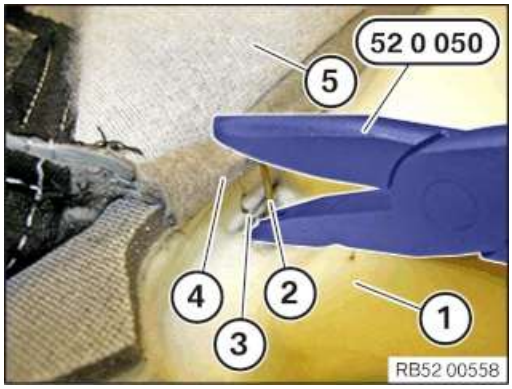


- Carefully feed in backrest cover (1) in marked area (3) on cushion (2) from above.



- Secure all trim wires (1) with clamps.

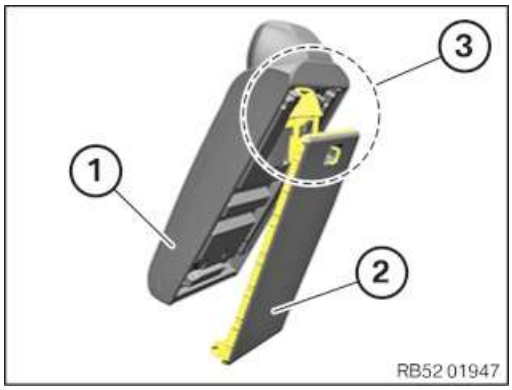
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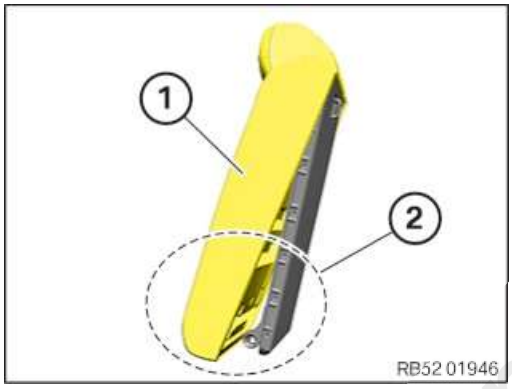
- Renew the clamps (2).

  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround trim wire (3) of cushion (1) and trim wire (4) of backrest cover (5) with clamp (2) and bend clamp (2) to close it.

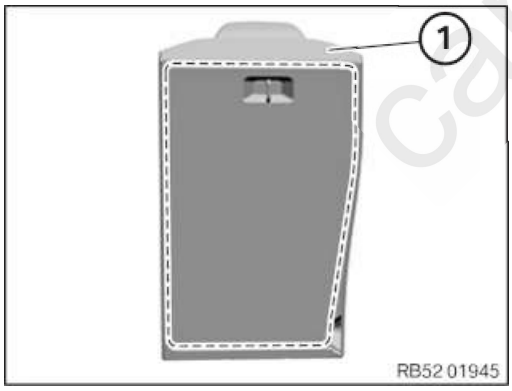
11 – Installing the backrest cover with the cushion for the rear seat



- Carefully position the backrest cover with the cushion (1) in the marked area (3) on the rear seat backrest (2) from the top.



- Position the backrest cover with the cushion (1) in the lower area of the rear seat backrest (2).



- Clip in the edge stripping of the backrest cover (1) with a suitable tool along the dotted line.



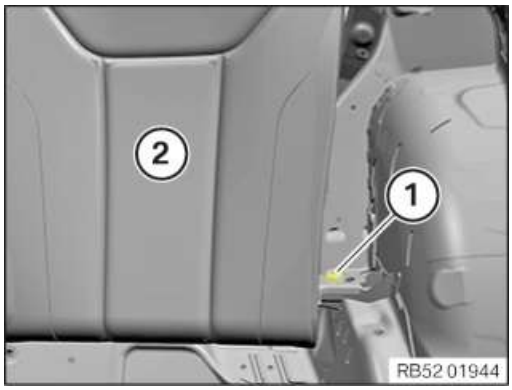
- Position the outer mount (2).
- Tighten down screw (1).

12 – Install the left rear seat backrest

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Prerequisite

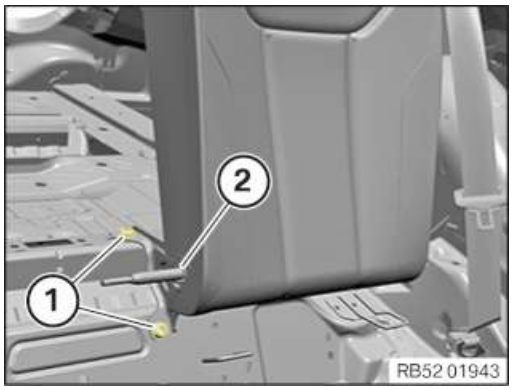
Left rear seat backrest folded down



- Correctly position left rear seat backrest (2).
- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm



- Position the centre bearing support (2) correctly.
- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

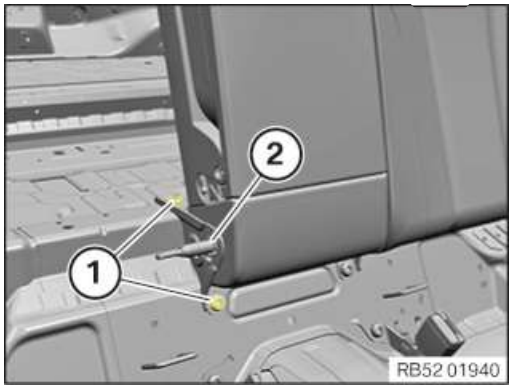
13 – Install centre rear seat backrest

Prerequisite

Rear seat backrest at the centre folded down



- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Install the centre rear seat backrest (1) in the direction of arrow.



- Position the centre bearing support (2) correctly.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

14 – Installing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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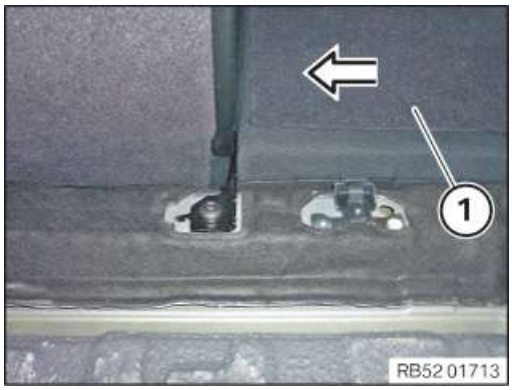


- Insert the luggage compartment floor trim panel (1).

15 – Install the rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Guide in and position right rear seat backrest (1) correctly in the direction of arrow.



- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

16 – Install the backrest side section on the left and right

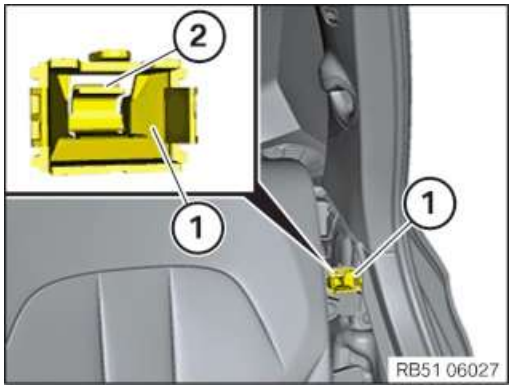
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing backrest side section**

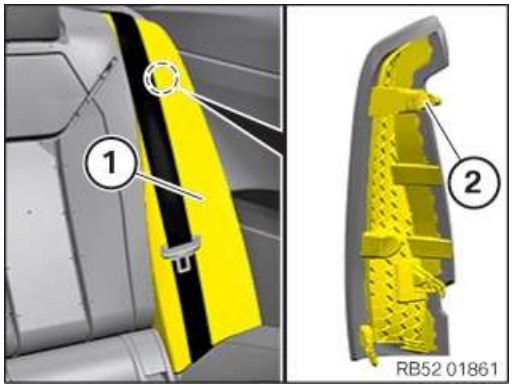
▹ **Installing backrest side section**

cardiagn.com



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

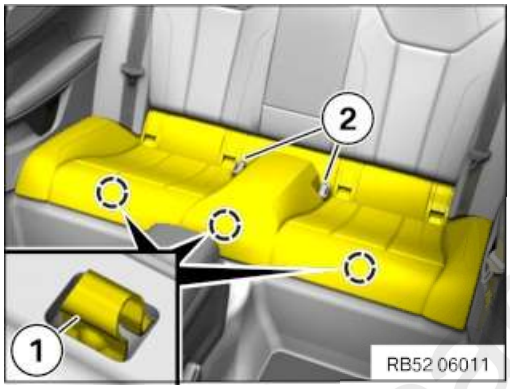
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

17 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

Overview of Tightening Torques

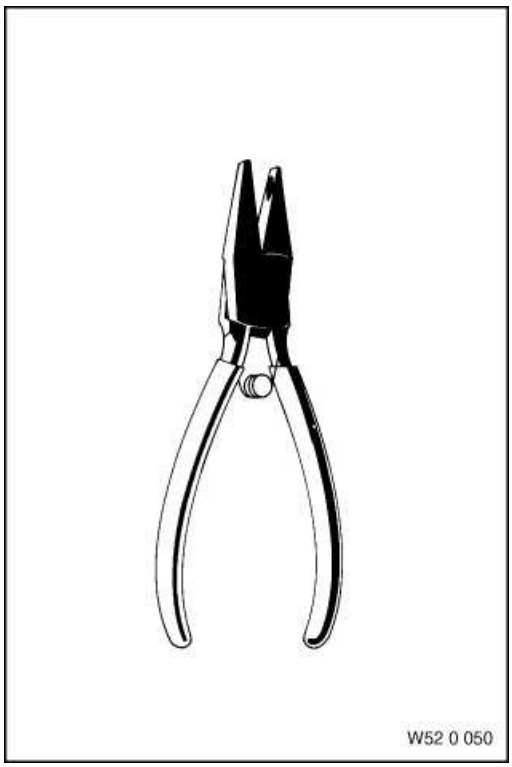
Rear seat backrest on body Used in step 121315

Screw	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

cardiagn.com

0 492 668 (52 0 050) Pliers



Common		Used in step 10
Usage	For securing clamps on seat cover	
Included in the tool or work		
Storage location	C14	
Replaced by		
In connection with		
SI-Number	52 06 87 (808)	

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	216

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	216

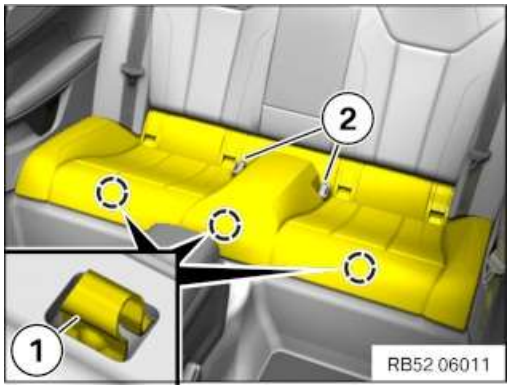
Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216

61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
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61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting battery earth lead	216
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	216
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	216
61 20 900 Disconnecting and connecting battery earth lead

52 26 011 Removing and installing/replacing left rear seat backrest

PRELIMINARY WORK

1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

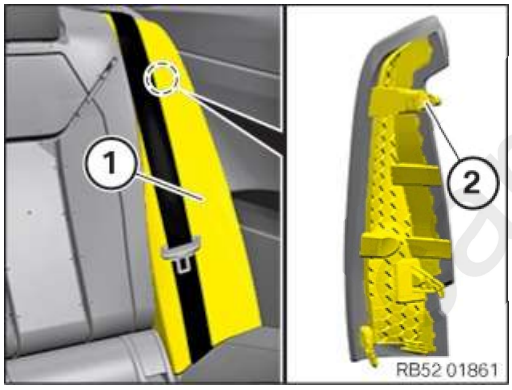
2 – Remove backrest side section on left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

3 – Remove the right rear seat backrest

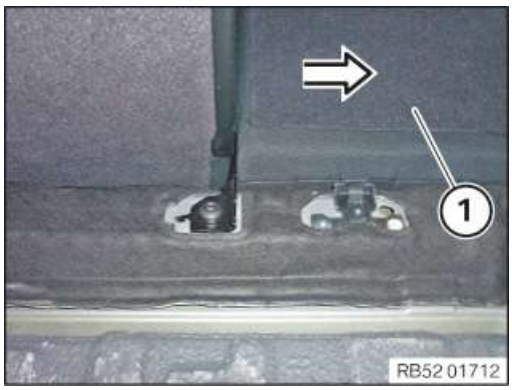
Prerequisite

Right rear seat backrest folded down

partdiagram.com



- Loosen screw (1).

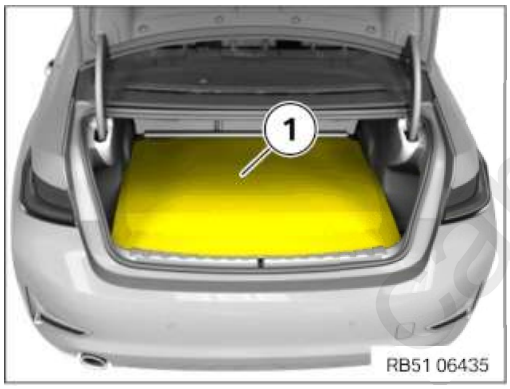


- Feed out the right rear seat backrest (1) in the direction of the arrow.

4 – Removing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

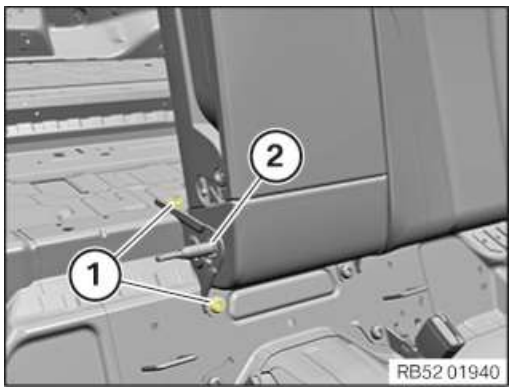


- Remove luggage compartment floor trim panel (1).

5 – Removing the central rear seat backrest

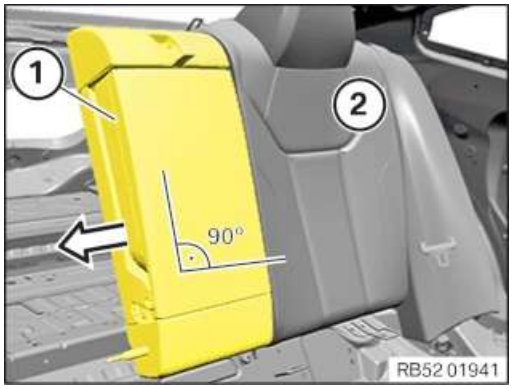
Prerequisite

Rear seat backrest at the centre is folded down.



- Loosen screws (1).
- Remove the centre bearing support (2).

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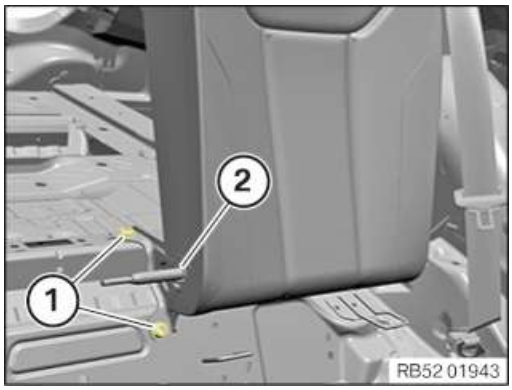
- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Remove the centre rear seat backrest (1) in the direction of arrow.

MAIN WORK

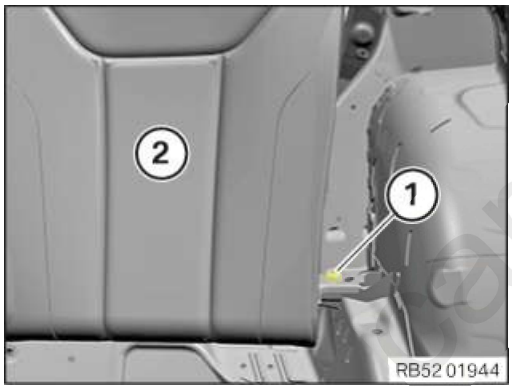
6 – Remove rear seat backrest, left

Prerequisite

Left rear seat backrest folded down



- Release the screw (1).
- Remove the centre bearing support (2).

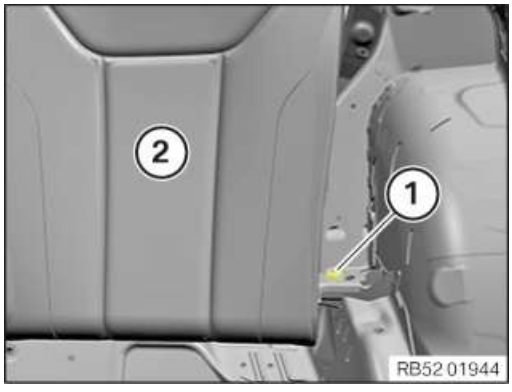


- Release the screw (1).
- Remove left rear seat backrest (2).

7 – Install the left rear seat backrest

Prerequisite

Left rear seat backrest folded down

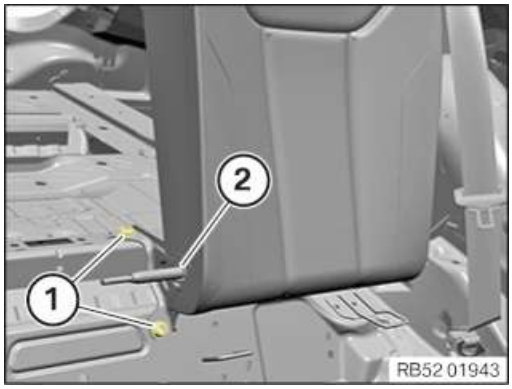


- Correctly position left rear seat backrest (2).
- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

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- Position the centre bearing support (2) correctly.
- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

POSTPROCESSES

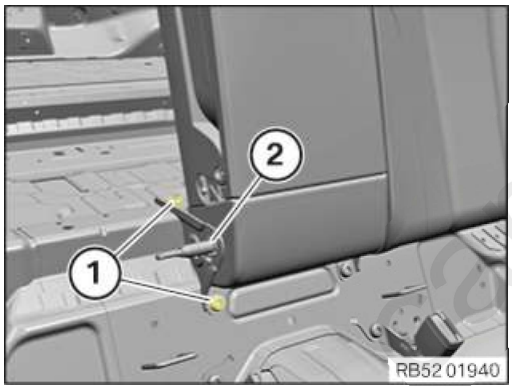
8 – Install centre rear seat backrest

Prerequisite

Rear seat backrest at the centre folded down



- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Install the centre rear seat backrest (1) in the direction of arrow.



- Position the centre bearing support (2) correctly.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

9 – Installing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

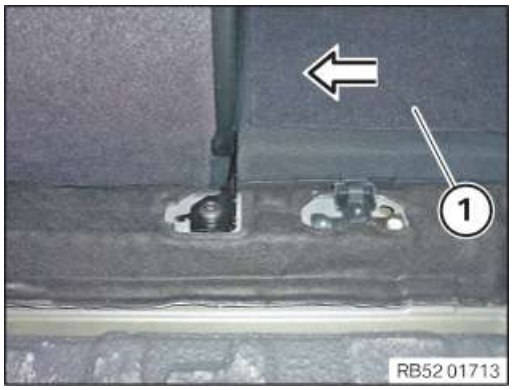


- Insert the luggage compartment floor trim panel (1).

10 – Install the rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Guide in and position right rear seat backrest (1) correctly in the direction of arrow.



- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

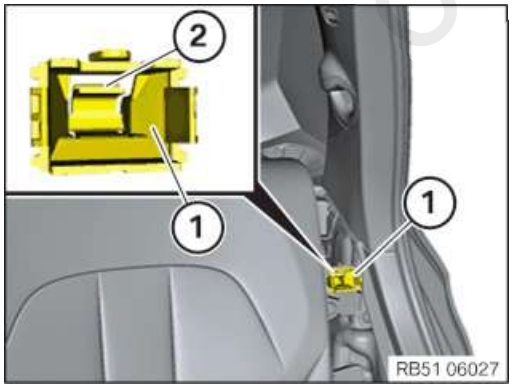
11 – Install the backrest side section on the left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing backrest side section**

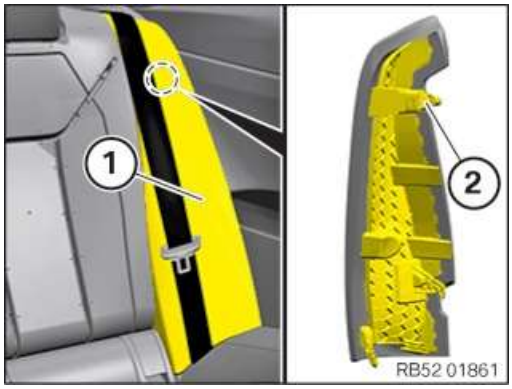
▹ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.

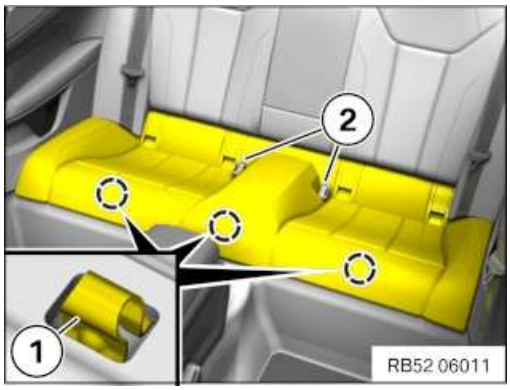
cardiagn.com



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

12 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

Overview of Tightening Torques

Rear seat backrest on body			Used in step 7810
Screw	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	211

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	211

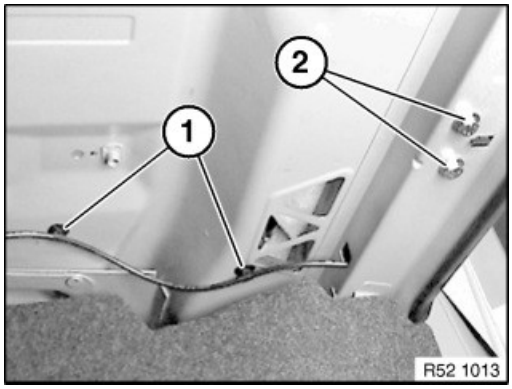
Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting battery earth lead	211
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61 20 900 Disconnecting and connecting battery earth lead	211

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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
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61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
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61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting battery earth lead	211
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	211
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	211
61 20 900 Disconnecting and connecting battery earth lead

52 26 311 Removing and installing/replacing lock for left or right rear seat backrest

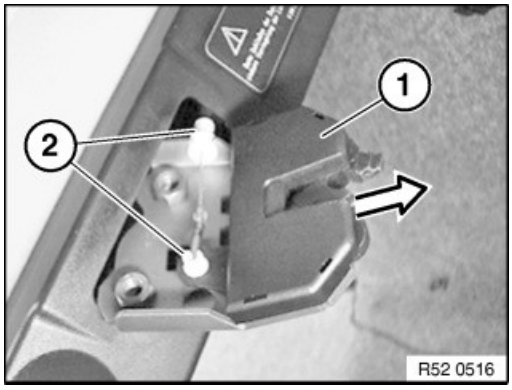
1 – Remove the backrest lock



- Unlock and fold back rear seat backrest.

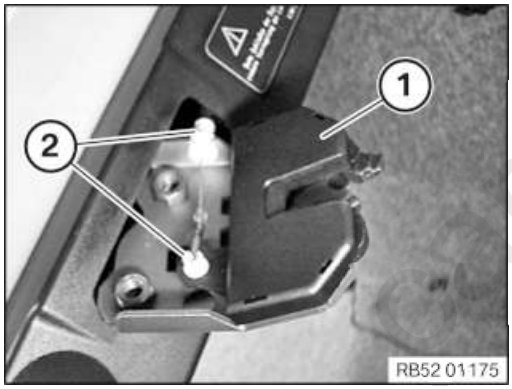
Note: If the rear seat backrest cannot be unlocked, operate the emergency release.

- Unclip the Bowden cable from the holders (1).
- Loosen screws (2).



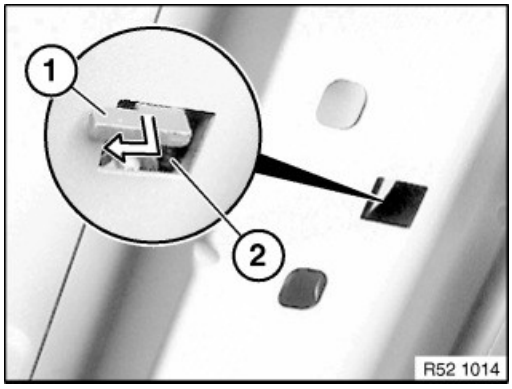
- Guide the backrest lock (1) out slightly and unclip the Bowden cable (2).

2 – Install the backrest lock



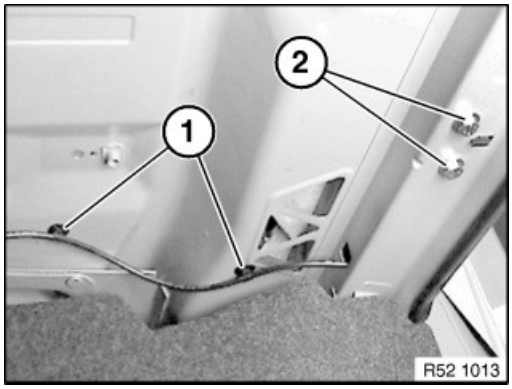
- Clip in the Bowden cable (2) in the backrest lock (1).

  Check for correct fit of the Bowden cable (2) on the backrest lock (1).



- Insert the backrest lock into the body and feed in the guide (1) into the recess (2).

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- Screw in the screws (2) several rotations.
- Clip in the Bowden cable into the holder (1).
- Lock the rear seat backrest and press back hard.
- Tighten the screws (1).

Backrest lock to body

M8		19 Nm

Additional Information

Overview of Tightening Torques

Backrest lock to body Used in step 2

M8		19 Nm

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52 26 026 Removing and installing/replacing locking element for centre armrest

Prerequisite

- Rear seat backrest at the centre folded down

NOTICE

For a better overview the removed condition is shown here.

PRELIMINARY WORK

1 – Remove rear centre armrest

NOTICE

For a better overview the removed condition is shown here.



- Fold the centre rear seat down.
- Loosen screw (1).
- Fold the centre rear seat up.
- Guide out rear centre armrest (2).

2 – Removing the trim for the centre armrest



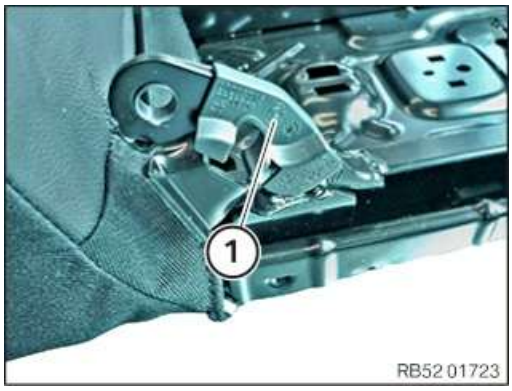
- Carefully unclip the trim for the centre armrest from the backrest frame along the marked lines (1).



- Remove the trim (1) for the centre armrest in the direction of the arrow.

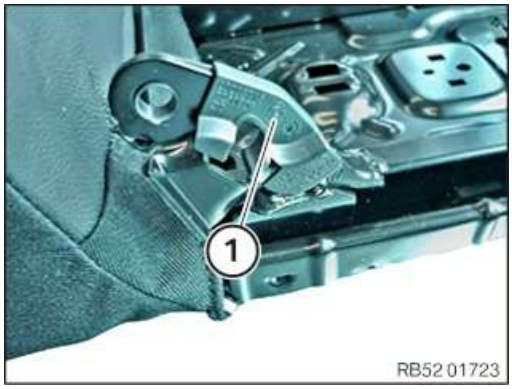
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3 – Removing locking element for centre armrest



- Unclip locking element for centre armrest (1).

4 – Install the locking element for the centre armrest



- Clip in the locking element for the centre armrest (1) and check the correct position.

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5 – Installing the trim for the centre armrest



- Position the trim (1) for the centre armrest on the backrest frame in the direction of the arrow.



- Check if the trim for centre armrest fits correctly on the backrest frame along the marked line (1).

6 – Install the rear centre armrest

NOTICE

For a better overview the removed condition is shown here.



- Fold the centre rear seat up.
- Feed in centre armrest (2) and position correctly.
- Fold the centre rear seat down.
- Tighten down screw (1).

Rear centre armrest to backrest frame

Screw		Tightening torque	8 Nm

Additional Information

Overview of Tightening Torques

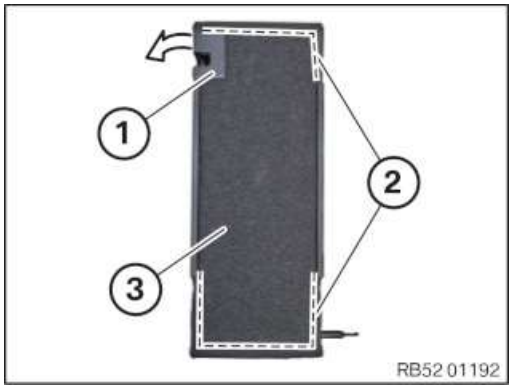
Rear centre armrest to backrest frame Used in step 6

Screw		Tightening torque	8 Nm

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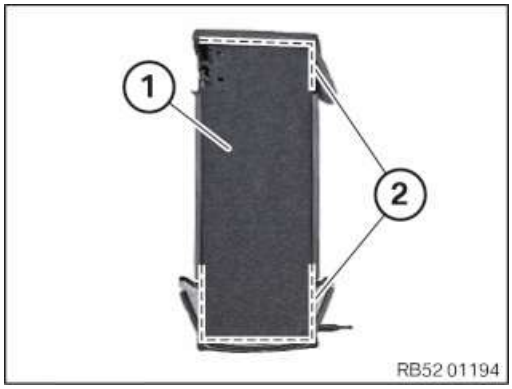
52 26 202 Removing and installing/replacing rear panel on central rear seat backrest

1 – Remove rear panel on the centre rear seat backrest



- Unclip the trim (1).
- Unclip the welt of the backrest cover with the special tool 0 496 569 (00 9 325) along the broken line (2).
- Remove the rear panel (3).

2 – Install the rear panel on the rear seat backrest in the centre



- Position the rear panel (1).
- Clip the welt of the backrest cover in with the special tool 0 496 569 (00 9 325) along the broken line (2).



- Clip in the trim (1).

Additional Information

Overview of Special Tools

0 496 569 (00 9 325) Wedge

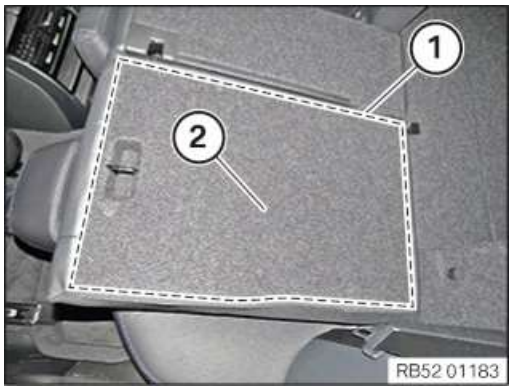


Common	Used in step 12
Usage	(Panel wedge) From 11/2008 this special tool replaces panel wedge 00 9 317 (different material)
Included in the tool or work	0 490 527
Storage location	Individual
Replaced by	
In connection with	
SI-Number	41 01 09 (507)

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52 26 199 Removing and installing/replacing rear panel on left rear seat backrest

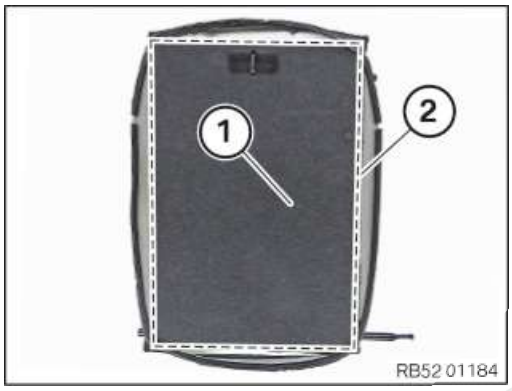
1 – Remove the rear panel on the left rear seat backrest



▸ **Remove the rear panel from the rear seat backrest**

- Unclip the welt of the backrest cover with the special tool 0 496 569 (00 9 325) along the broken line (1).
- Remove the rear panel (2).

2 – Install the rear panel on the left rear seat backrest



▸ **Install the rear panel on the rear seat backrest**

- Position the rear panel (1).
- Clip the welt of the backrest cover in with the special tool 0 496 569 (00 9 325) along the broken line (2).

Additional Information

Overview of Special Tools

0 496 569 (00 9 325) Wedge



Common	Used in step 12
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)

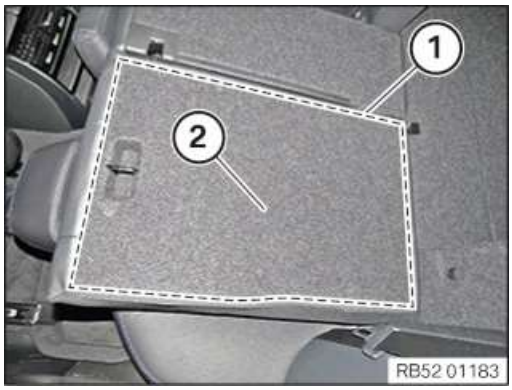
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52 26 200 Removing and installing/replacing rear panel on right rear seat backrest

1 – Remove the rear panel from the right rear seat backrest

NOTICE

Description is for left component only. Procedure on the right side is identical.



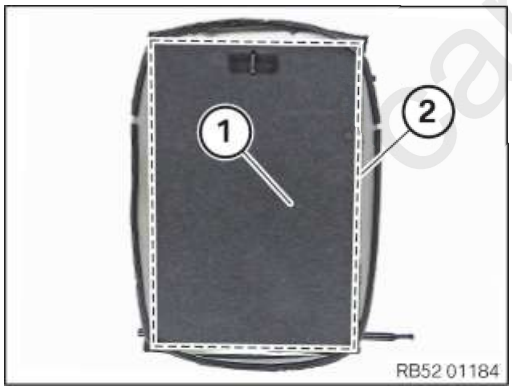
▸ **Remove the rear panel from the rear seat backrest**

- Unclip the welt of the backrest cover with the special tool 0 496 569 (00 9 325) along the broken line (1).
- Remove the rear panel (2).

2 – Install the rear panel on the rear seat backrest on the right

NOTICE

Description is for left component only. Procedure on the right side is identical.



▸ **Install the rear panel on the rear seat backrest**

- Position the rear panel (1).
- Clip the welt of the backrest cover in with the special tool 0 496 569 (00 9 325) along the broken line (2).

Additional Information

Overview of Special Tools

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0 496 569 (00 9 325) Wedge



Common	Used in step 12
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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52 26 297 Removing and installing/replacing rear seat backrest actuator cover centre section

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

1 – Removing the trim for the rear seat backrest actuation at the centre



- Unclip the trim (1) for the rear seat backrest actuation at the centre (arrows).

2 – Installing the trim for the rear seat backrest actuation at the centre



- Clip in the trim (1) for the rear seat backrest actuation at the centre (arrows).

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52 26 151 Removing and installing/replacing the cushion for right rear seat backrest

PRELIMINARY WORK

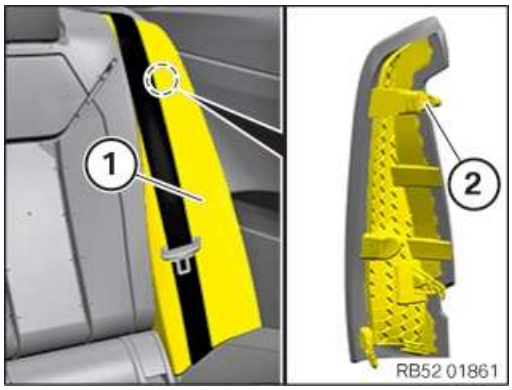
1 – Remove right backrest side section

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

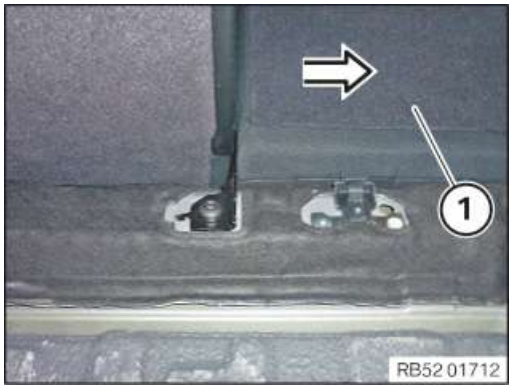
2 – Remove the right rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Loosen screw (1).



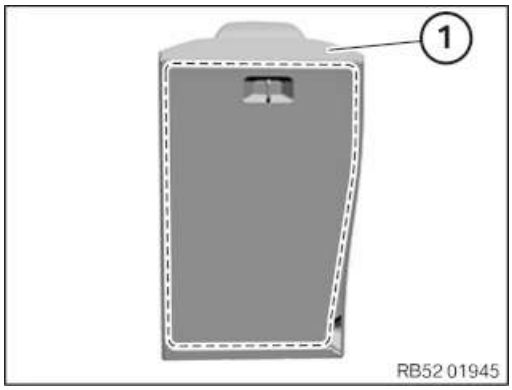
- Feed out the right rear seat backrest (1) in the direction of the arrow.

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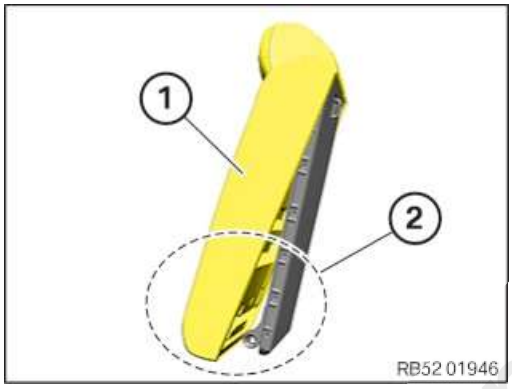
3 – Removing backrest cover with cushion for rear seat



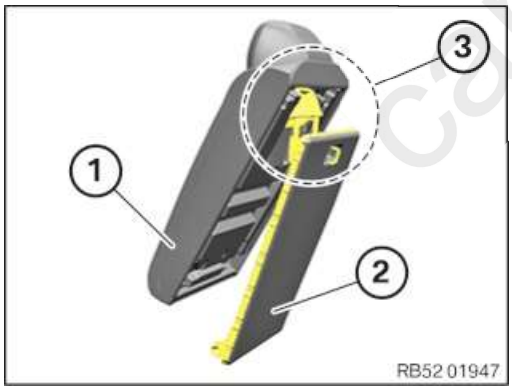
- Release the screw (1).
- Guide out outer mount (2).



- Lever out the edge stripping of backrest cover (1) along the dashed line with a suitable tool.

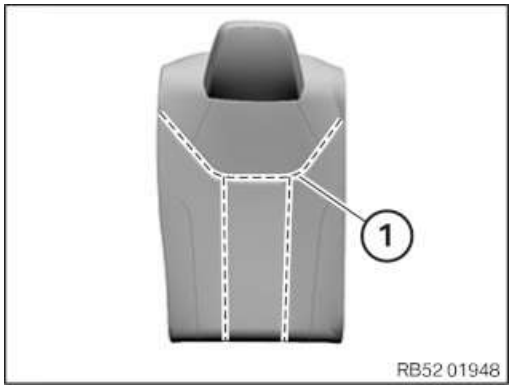


- Feed out backrest cover with cushion (1) as pictured in the lower area of rear seat backrest (2).



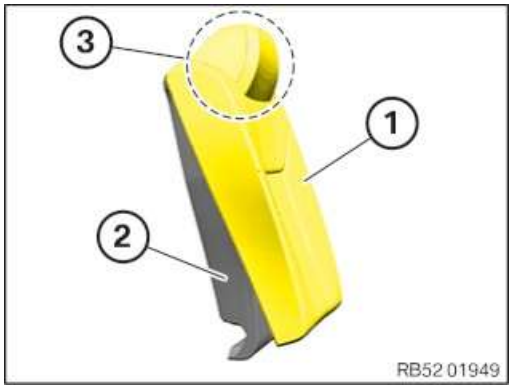
- Carefully feed out backrest cover with cushion (1) in marked area (3) from rear seat backrest (2) in upward direction.

4 – Remove backrest cover



- Undo all clamps on the trim wires (1).

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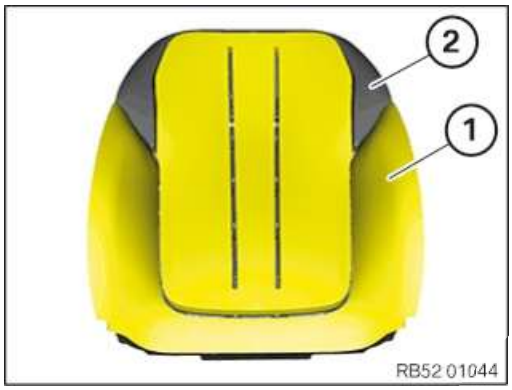
- In the marked area (3), carefully feed out the backrest cover (1) from the cushion (2) upwards.
- Completely remove the clamps from the backrest cover (1) and the cushion (2).

MAIN WORK

5 – Renewing the cushion for the backrest of the rear seat

TECHNICAL INFORMATION

The heating mat is bonded to the foam pad and cannot be disassembled without damaging it.
When replacing, new heating mat must always be fitted with new foam pads.



NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

- Renew cushion (2).

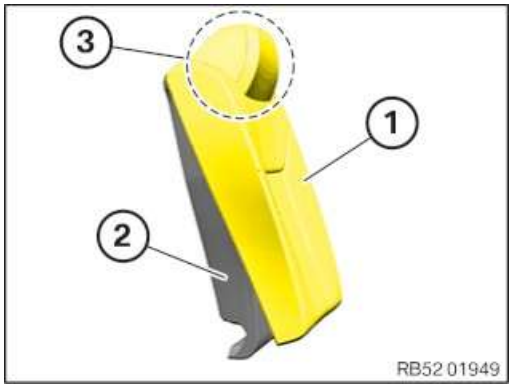
  Parts: Upholstery
- **Version with seat heating:**

  Position and align the heating mat (1) on the upholstery (2).

  Bond the heating mat (1) with the upholstery (2).

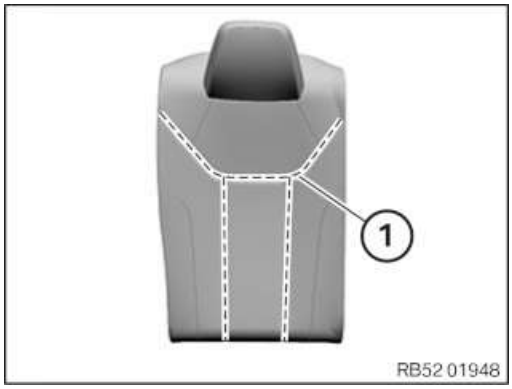
POSTPROCESSES

6 – Install backrest cover

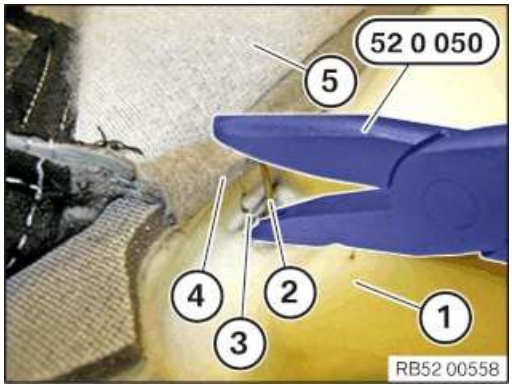


- Carefully feed in backrest cover (1) in marked area (3) on cushion (2) from above.

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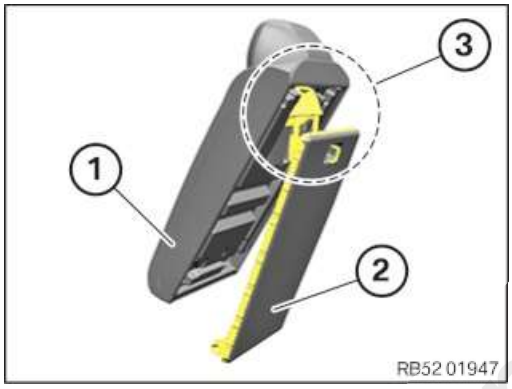
- Secure all trim wires (1) with clamps.



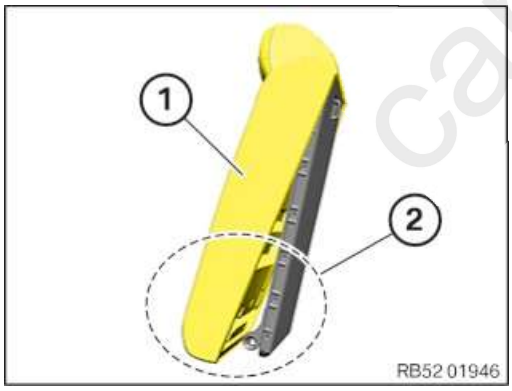
- Renew the clamps (2).

  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround trim wire (3) of cushion (1) and trim wire (4) of backrest cover (5) with clamp (2) and bend clamp (2) to close it.

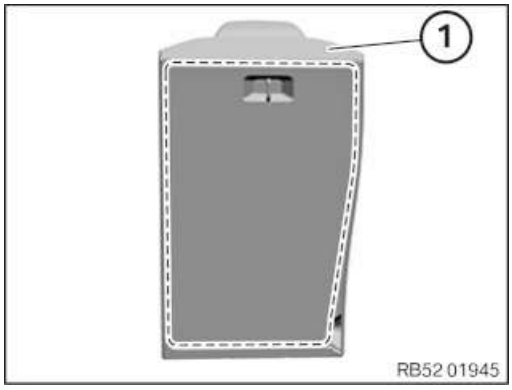
7 – Installing the backrest cover with the cushion for the rear seat



- Carefully position the backrest cover with the cushion (1) in the marked area (3) on the rear seat backrest (2) from the top.



- Position the backrest cover with the cushion (1) in the lower area of the rear seat backrest (2).



- Clip in the edge stripping of the backrest cover (1) with a suitable tool along the dotted line.

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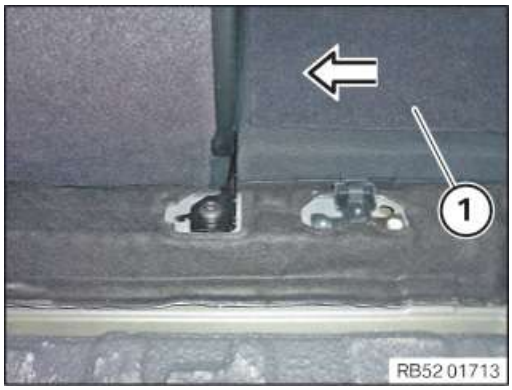


- Position the outer mount (2).
- Tighten down screw (1).

8 – Install the rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Guide in and position right rear seat backrest (1) correctly in the direction of arrow.



- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

9 – Install right backrest side section

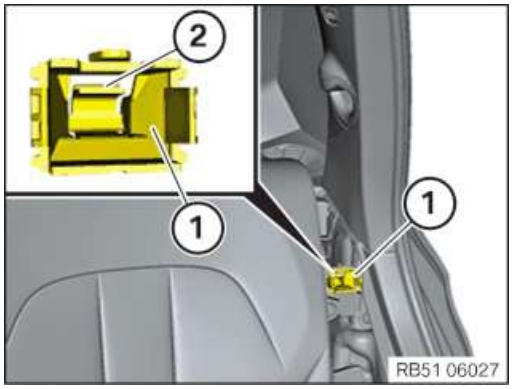
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing backrest side section**

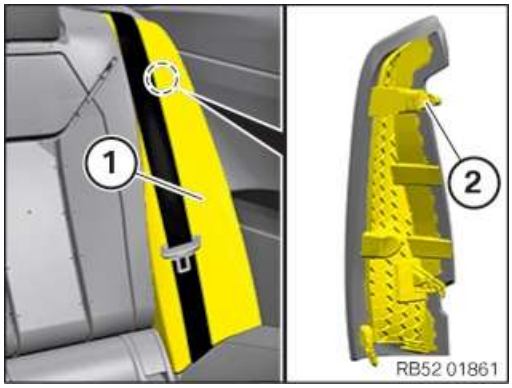
▹ **Installing backrest side section**

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- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

Additional Information

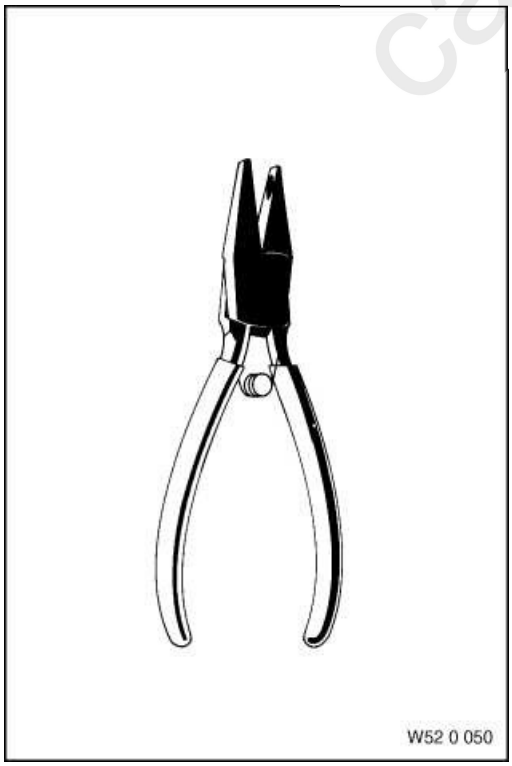
Overview of Tightening Torques

Rear seat backrest on body Used in step 8

Screw	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 492 668 (52 0 050) Pliers



Common Used in step 6

Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	19

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	19

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	19
61 20 900 Disconnecting and connecting battery earth lead	19
61 20 900 Disconnecting and connecting battery earth lead	19
61 20 900 Disconnecting and connecting battery earth lead	19
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	19
61 20 900 Disconnecting and connecting battery earth lead	19
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	19
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	19
61 20 900 Disconnecting and connecting battery earth lead	19
61 20 900 Disconnecting and connecting battery earth lead	19
61 20 900 Disconnecting and connecting battery earth lead	19
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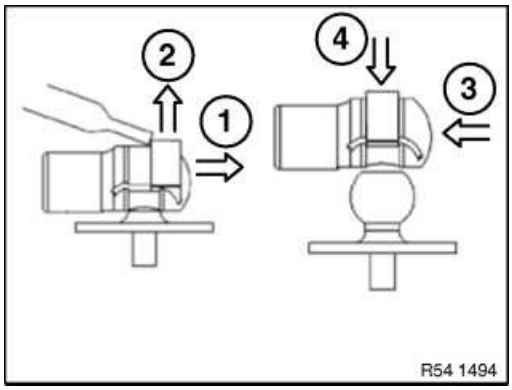
51 23 ... Removing/installing ball sockets with clip

Warning!

Danger of injury! When installed, the gas pressurised shock absorber is under preload. Minimise preload as far as possible before removing.

Caution!

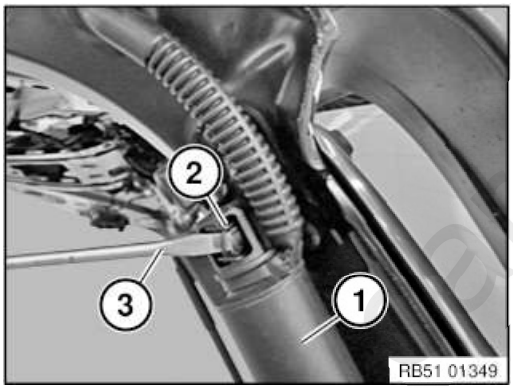
Never lift off ball socket with engaged clamp.



Version A:

1. Push on clamp in direction of groove with screwdriver
2. Lift off ball socket from ball pin
3. Slide clamp back
4. Fit ball socket on ball stud and snap into place with force

Installation note:
Pack grease into two opposite positions in socket. The grease spreads after installation on the ball pin all round in the ball socket.



Version B:

Caution!

Risk of damage!

If you are not careful, retaining spring (2) may be bent to such an extent that the entire drive spindle will have to be replaced.

Press drive spindle (1) against ball pin in order to relieve strain on retaining spring (2) at ball pin.

Pull out retaining spring (2) approx. 2-3 mm with screwdriver (3).

Pull off spindle foot.

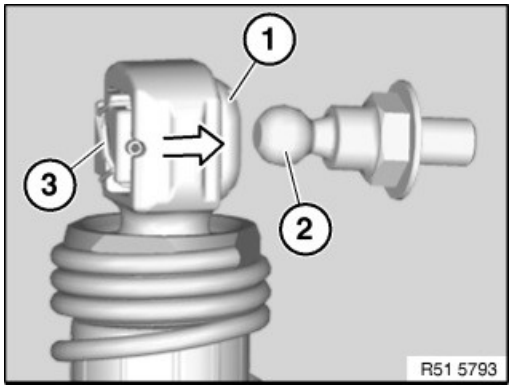
Warning!

Observe warning notices on the damper.

Electrical spindle drive for tailgate is under mechanical spring load!

The component must be secured against falling down.

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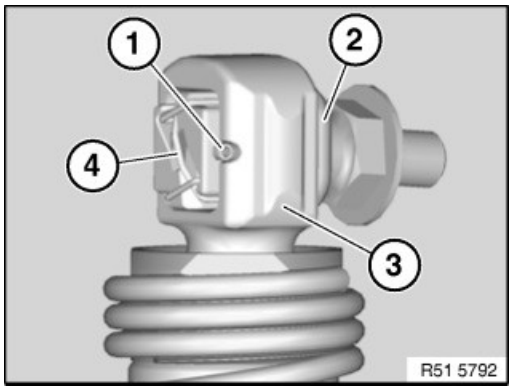


Caution!

Risk of damage!

Do not press on spindle drive at an angle or twisted.

Installation note:
Press ball socket (1) onto ball pin (2) until retaining spring (3) engages correctly (clicking sound).



Caution!

If retaining spring (4) is damaged!

Release pin (1).

Remove spindle drive (3).

Remove ball socket (2).

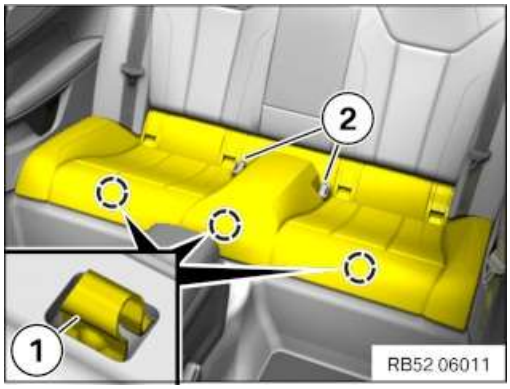
Remove retaining spring (4) and replace if necessary.

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52 26 411 Replacing backrest cover for left rear seat

PRELIMINARY WORK

1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

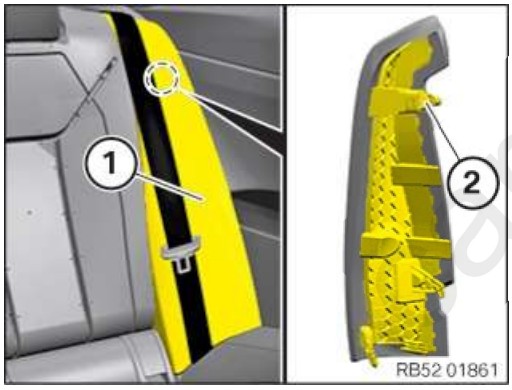
2 – Remove backrest side section on left and right

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

3 – Remove the right rear seat backrest

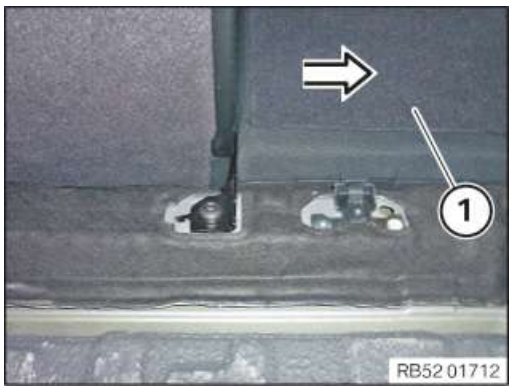
Prerequisite

Right rear seat backrest folded down

carDiagn.com



- Loosen screw (1).

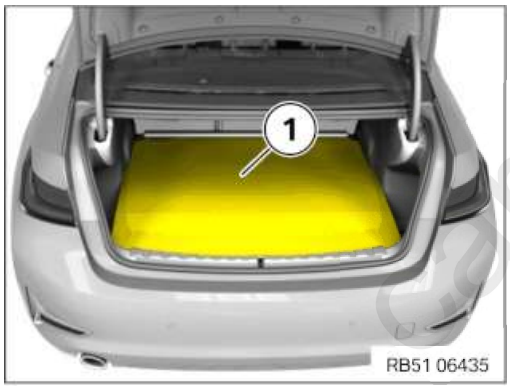


- Feed out the right rear seat backrest (1) in the direction of the arrow.

4 – Removing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

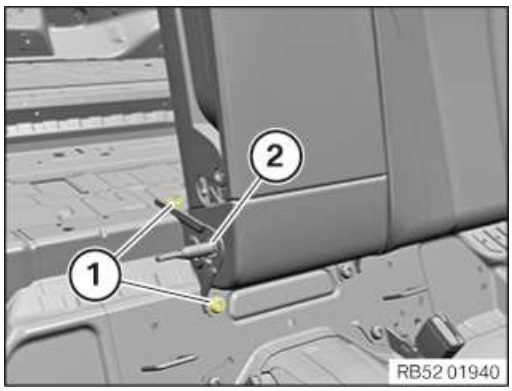


- Remove luggage compartment floor trim panel (1).

5 – Removing the central rear seat backrest

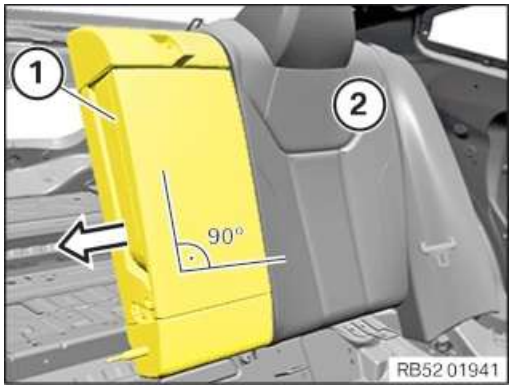
Prerequisite

Rear seat backrest at the centre is folded down.



- Loosen screws (1).
- Remove the centre bearing support (2).

cardiagn.com

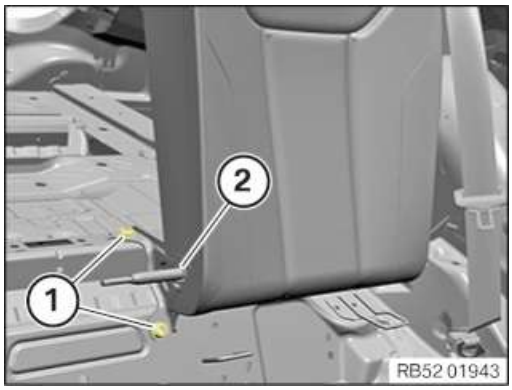


- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Remove the centre rear seat backrest (1) in the direction of arrow.

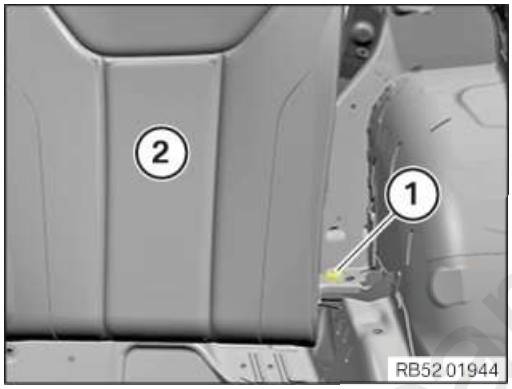
6 – Remove rear seat backrest, left

Prerequisite

Left rear seat backrest folded down



- Release the screw (1).
- Remove the centre bearing support (2).



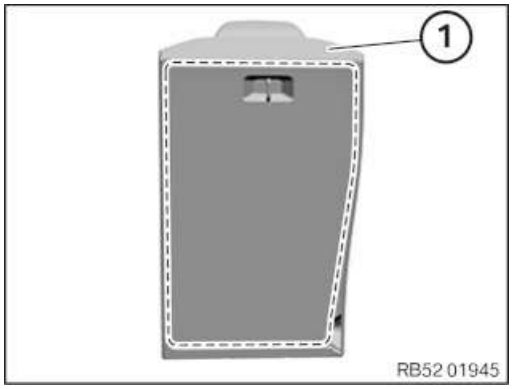
- Release the screw (1).
- Remove left rear seat backrest (2).

7 – Removing backrest cover with cushion for rear seat

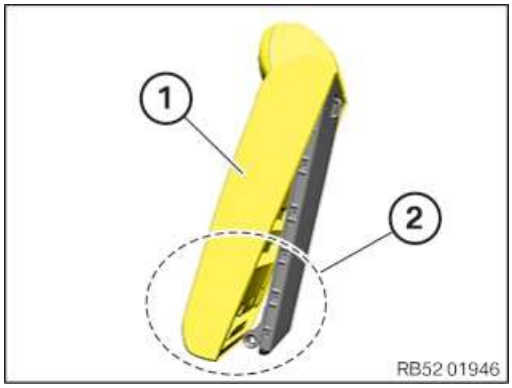


- Release the screw (1).
- Guide out outer mount (2).

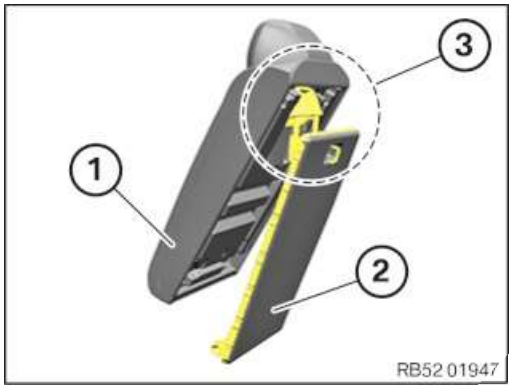
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- Lever out the edge stripping of backrest cover (1) along the dashed line with a suitable tool.



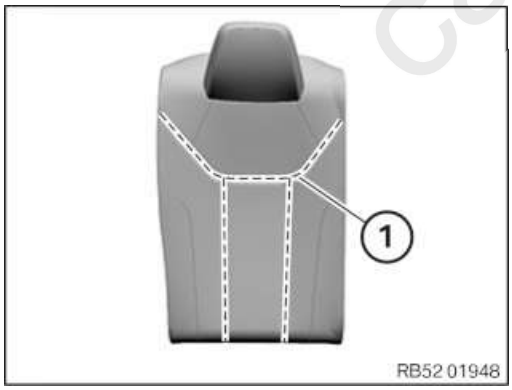
- Feed out backrest cover with cushion (1) as pictured in the lower area of rear seat backrest (2).



- Carefully feed out backrest cover with cushion (1) in marked area (3) from rear seat backrest (2) in upward direction.

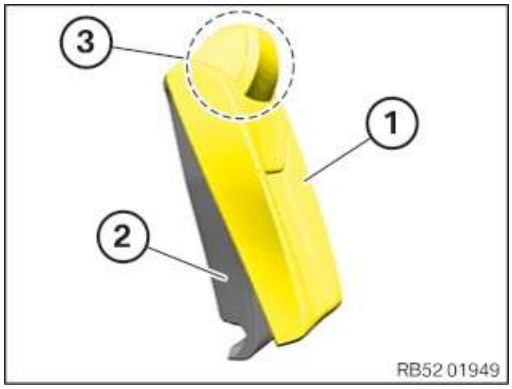
MAIN WORK

8 – Remove backrest cover



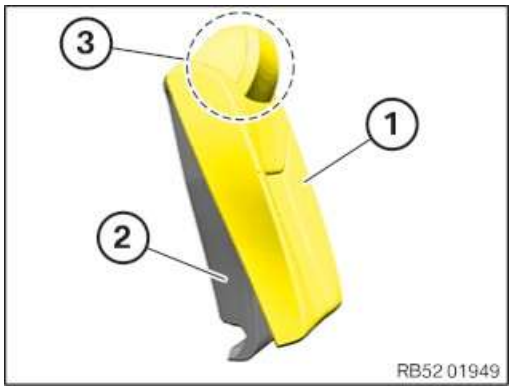
- Undo all clamps on the trim wires (1).

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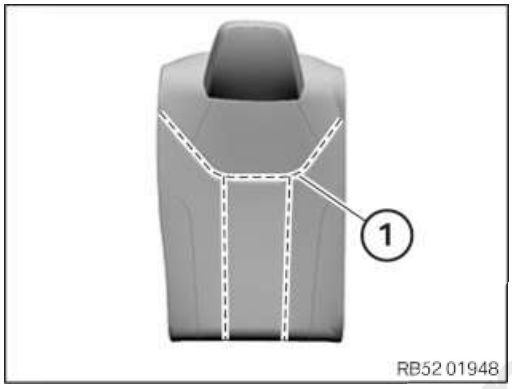


- In the marked area (3), carefully feed out the backrest cover (1) from the cushion (2) upwards.
- Completely remove the clamps from the backrest cover (1) and the cushion (2).

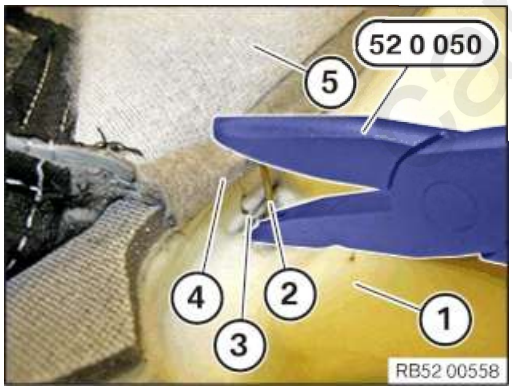
9 – Install backrest cover



- Carefully feed in backrest cover (1) in marked area (3) on cushion (2) from above.



- Secure all trim wires (1) with clamps.

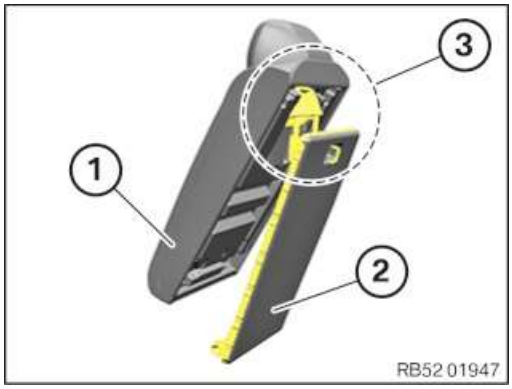


- Renew the clamps (2).

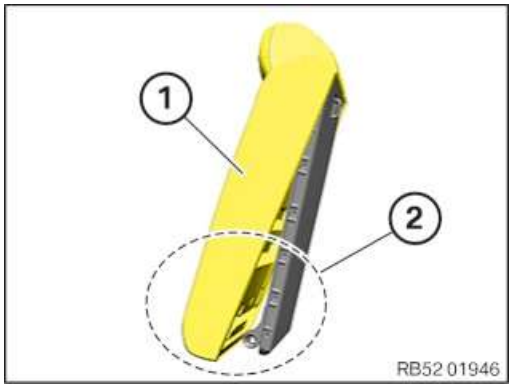
  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround trim wire (3) of cushion (1) and trim wire (4) of backrest cover (5) with clamp (2) and bend clamp (2) to close it.

POSTPROCESSES

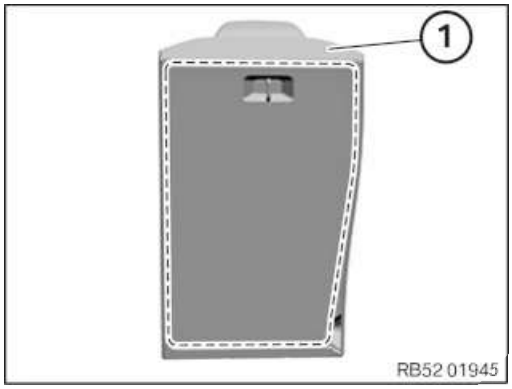
10 – Installing the backrest cover with the cushion for the rear seat



- Carefully position the backrest cover with the cushion (1) in the marked area (3) on the rear seat backrest (2) from the top.



- Position the backrest cover with the cushion (1) in the lower area of the rear seat backrest (2).



- Clip in the edge stripping of the backrest cover (1) with a suitable tool along the dotted line.

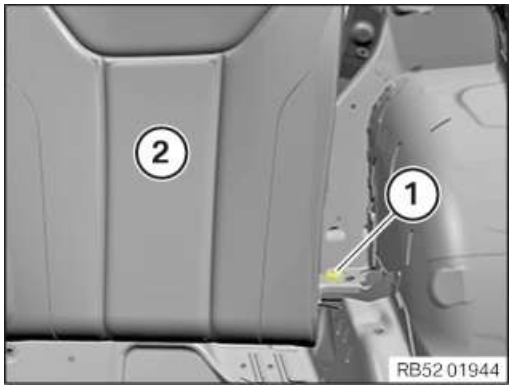


- Position the outer mount (2).
- Tighten down screw (1).

11 – Install the left rear seat backrest

Prerequisite

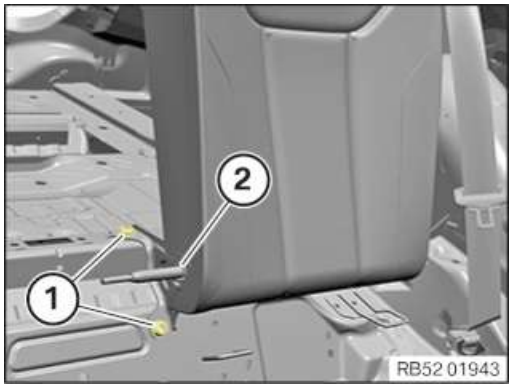
Left rear seat backrest folded down



- Correctly position left rear seat backrest (2).
- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm



- Position the centre bearing support (2) correctly.
- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

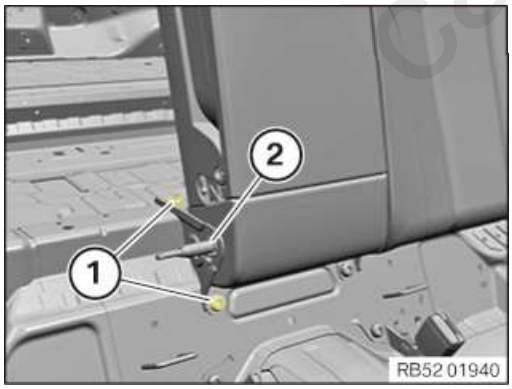
12 – Install centre rear seat backrest

Prerequisite

Rear seat backrest at the centre folded down



- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Install the centre rear seat backrest (1) in the direction of arrow.



- Position the centre bearing support (2) correctly.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

13 – Installing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

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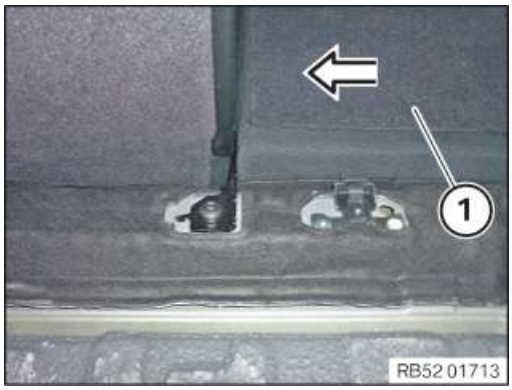


- Insert the luggage compartment floor trim panel (1).

14 – Install the rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Guide in and position right rear seat backrest (1) correctly in the direction of arrow.



- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

15 – Install the backrest side section on the left and right

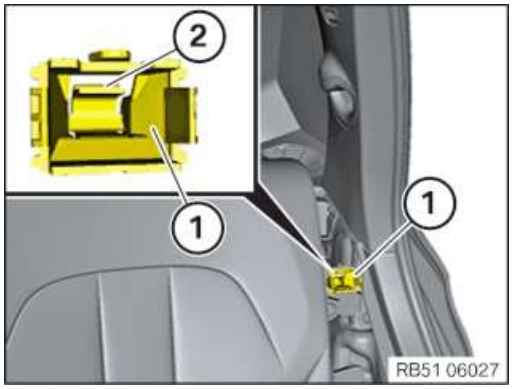
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing backrest side section**

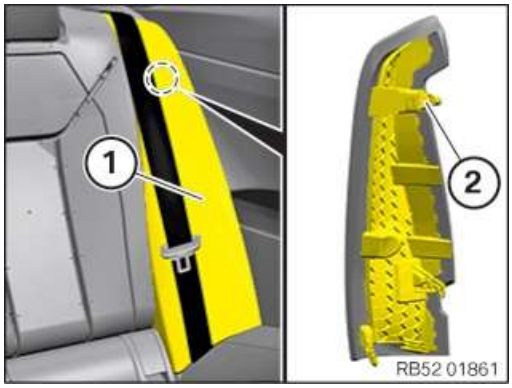
▹ **Installing backrest side section**

cardiagn.com



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

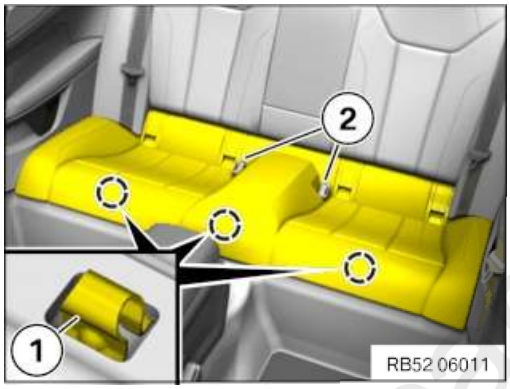
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

16 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

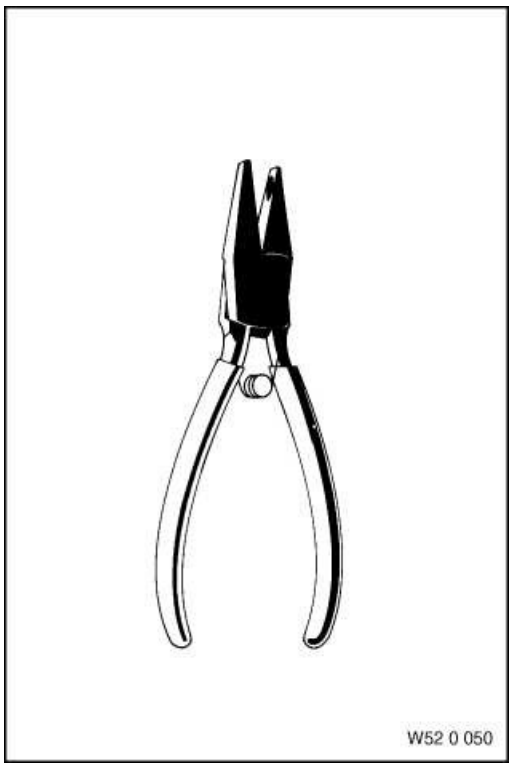
Overview of Tightening Torques

Rear seat backrest on body			Used in step 111214
Screw	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

cardiagn.com

0 492 668 (52 0 050) Pliers



Common	Used in step 9
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

cardiagn.com

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	215

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	215

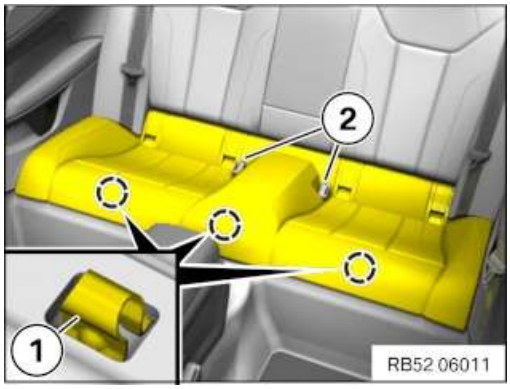
Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	215
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting battery earth lead	215

61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	215
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	215
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	215
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61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	215
61 20 900 Disconnecting and connecting battery earth lead	215
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61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	215
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	215
61 20 900 Disconnecting and connecting battery earth lead	215
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	215
61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	215
61 20 900 Disconnecting and connecting battery earth lead

52 26 414 Replacing backrest cover for rear seat, centre

PRELIMINARY WORK

1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

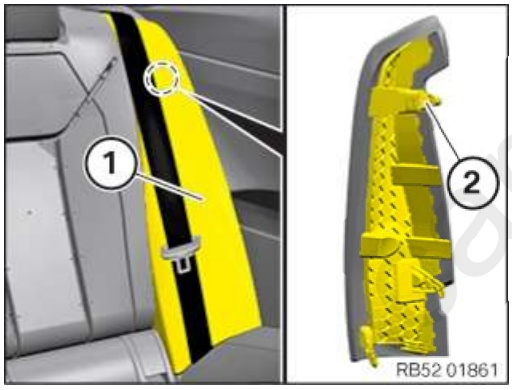
2 – Remove right backrest side section

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

3 – Remove the right rear seat backrest

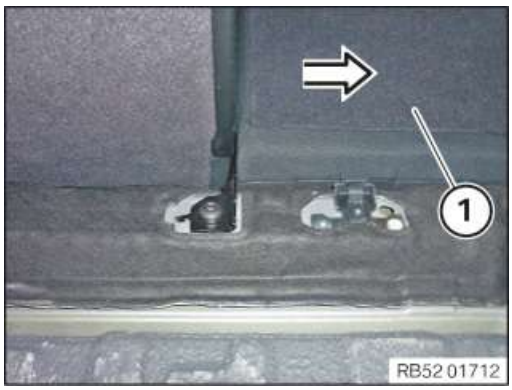
Prerequisite

Right rear seat backrest folded down

partdiagram.com



- Loosen screw (1).

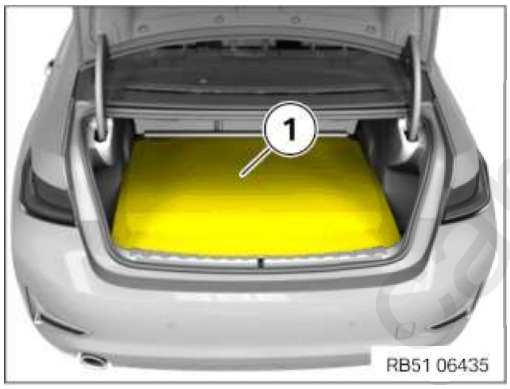


- Feed out the right rear seat backrest (1) in the direction of the arrow.

4 – Removing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

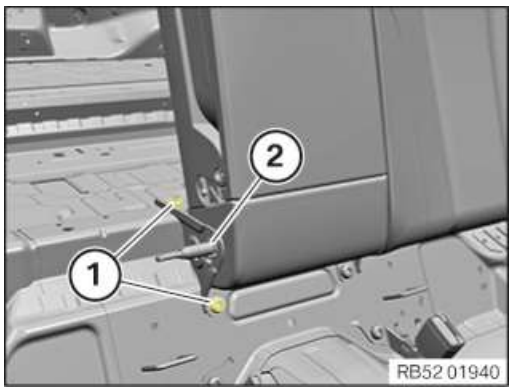


- Remove luggage compartment floor trim panel (1).

5 – Removing the central rear seat backrest

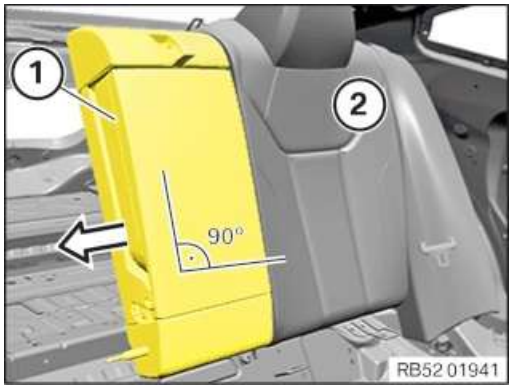
Prerequisite

Rear seat backrest at the centre is folded down.



- Loosen screws (1).
- Remove the centre bearing support (2).

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- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Remove the centre rear seat backrest (1) in the direction of arrow.

6 – Removing the trim for the rear seat backrest actuation at the centre



- Unclip the trim (1) for the rear seat backrest actuation at the centre (arrows).

7 – Remove rear centre armrest

NOTICE

For a better overview the removed condition is shown here.



- Fold the centre rear seat down.
- Loosen screw (1).
- Fold the centre rear seat up.
- Guide out rear centre armrest (2).

8 – Removing the trim for the centre armrest



- Carefully unclip the trim for the centre armrest from the backrest frame along the marked lines (1).

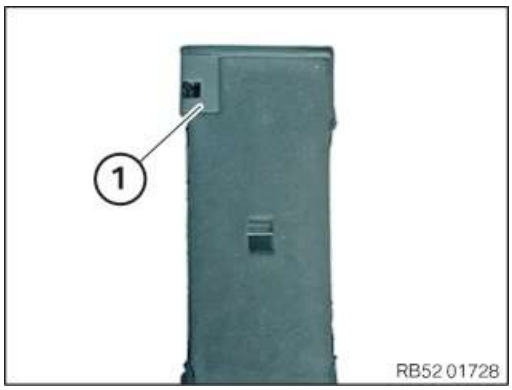
cardiagn.com



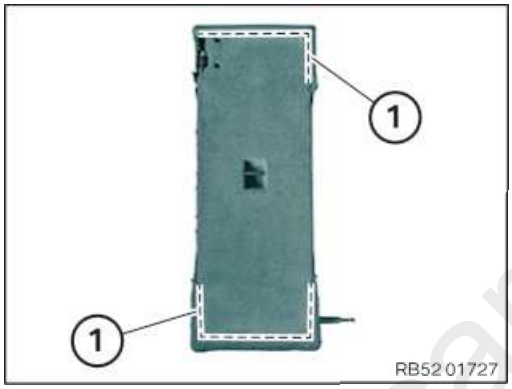
- Remove the trim (1) for the centre armrest in the direction of the arrow.

MAIN WORK

9 – Remove the backrest cover for the centre rear seat



- Unclip the cover (1).



- Clip out the welt of the backrest cover along the broken line (1).



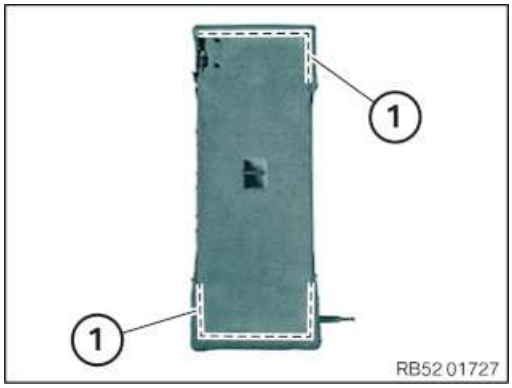
- Unclip edge stripping (1).
- Feed out the backrest cover (2) for the rear seat at the centre.

10 – Install the backrest cover for the centre rear seat

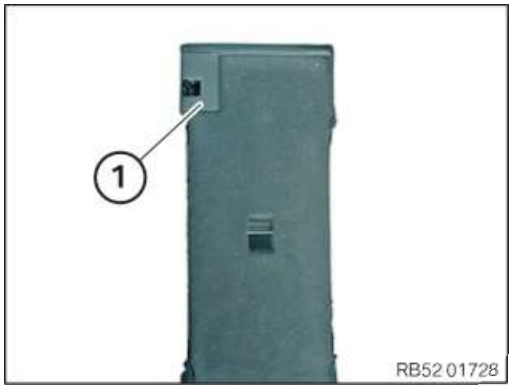
cardiagn.com



- Feed in the backrest cover (2) for the rear seat at the centre.
- Clip in edge stripping (1).



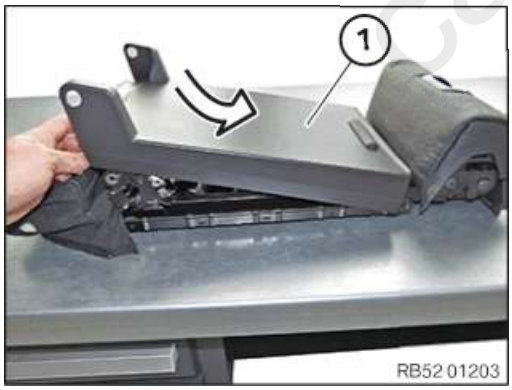
- Clip in edge stripping of backrest cover along dashed line (1).



- Clip in the cover (1).

POSTPROCESSES

11 – Installing the trim for the centre armrest



- Position the trim (1) for the centre armrest on the backrest frame in the direction of the arrow.

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- Check if the trim for centre armrest fits correctly on the backrest frame along the marked line (1).

12 – Install the rear centre armrest

NOTICE

For a better overview the removed condition is shown here.



- Fold the centre rear seat up.
- Feed in centre armrest (2) and position correctly.
- Fold the centre rear seat down.
- Tighten down screw (1).

Rear centre armrest to backrest frame

Screw		Tightening torque	8 Nm

13 – Installing the trim for the rear seat backrest actuation at the centre

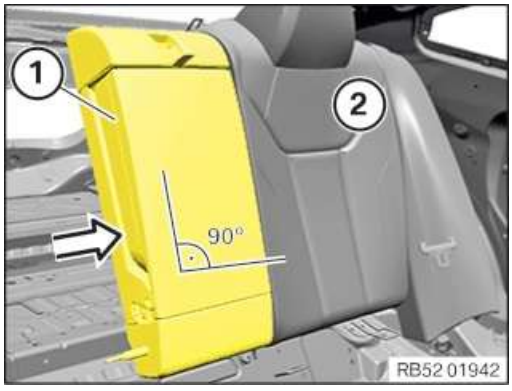


- Clip in the trim (1) for the rear seat backrest actuation at the centre (arrows).

14 – Install centre rear seat backrest

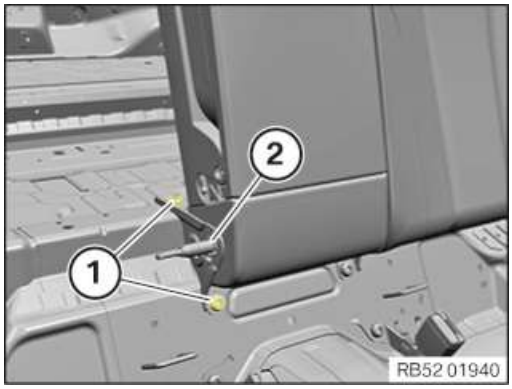
Prerequisite

Rear seat backrest at the centre folded down



- Position the centre rear seat backrest (1) at a 90° angle to the left rear seat backrest (2).
- Install the centre rear seat backrest (1) in the direction of arrow.

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- Position the centre bearing support (2) correctly.
- Renew screws (1).

  Parts: Screws
- Tighten the screws (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

15 – Installing the luggage compartment floor trim panel

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

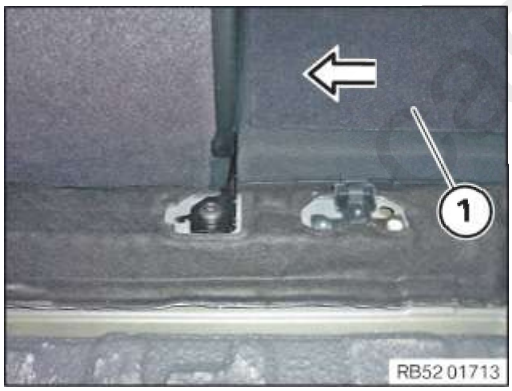


- Insert the luggage compartment floor trim panel (1).

16 – Install the rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Guide in and position right rear seat backrest (1) correctly in the direction of arrow.



- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

17 – Install right backrest side section

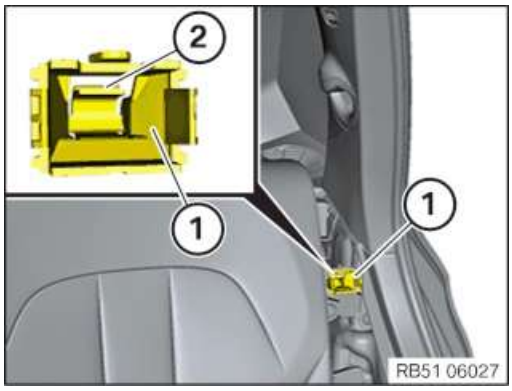
mdiagn.com

NOTICE

Description is for left component only. Procedure on the right side is identical.

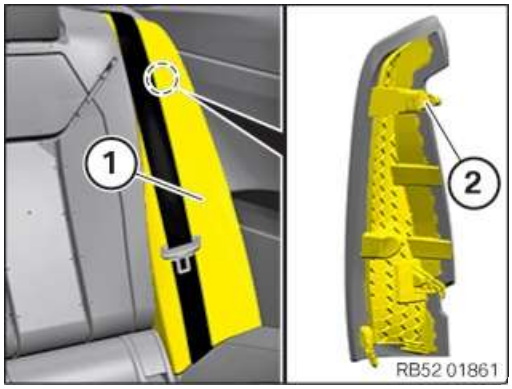
▶ **Installing backrest side section**

▷ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

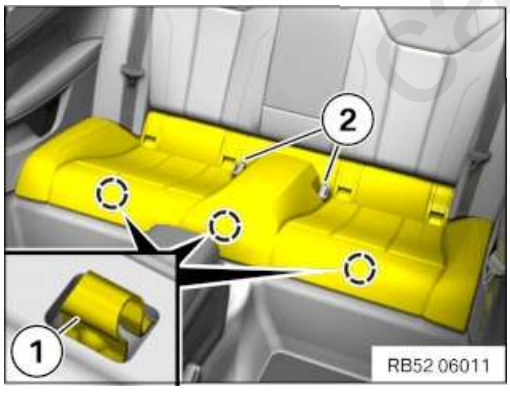
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

18 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

Overview of Tightening Torques

Rear centre armrest to backrest frame Used in step 12

Screw		Tightening torque	8 Nm

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Rear seat backrest on body			Used in step 1416
Screw	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	217

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	217

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	217
61 20 900 Disconnecting and connecting battery earth lead	217
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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	217
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61 20 900 Disconnecting and connecting battery earth lead	217

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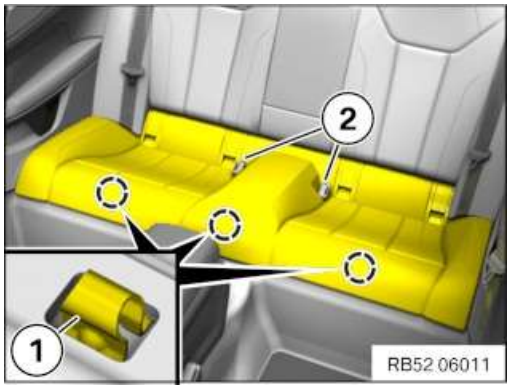
61 20 900 Disconnecting and connecting battery earth lead	217
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61 20 900 Disconnecting and connecting battery earth lead	217

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52 26 412 Replacing backrest cover for right rear seat

PRELIMINARY WORK

1 – Remove rear seat bench



- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

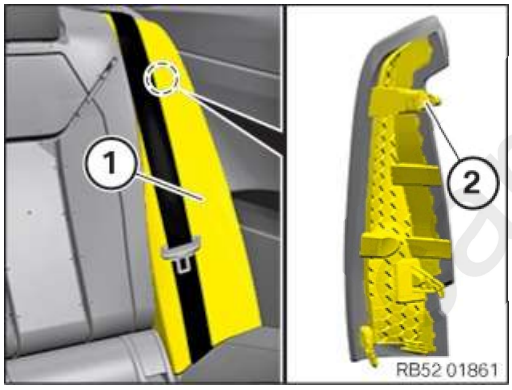
2 – Remove right backrest side section

NOTICE

Description is for left component only. Procedure on the right side is identical.

▶ **Remove armrest side section**

▷ **Remove armrest side section**



- Reach behind the backrest side section (1) from the top and unclip the backrest side section (1) from the mounting element (2) to the front.
- Remove backrest side section (1) in the upward direction from the guide.

◁

3 – Remove the right rear seat backrest

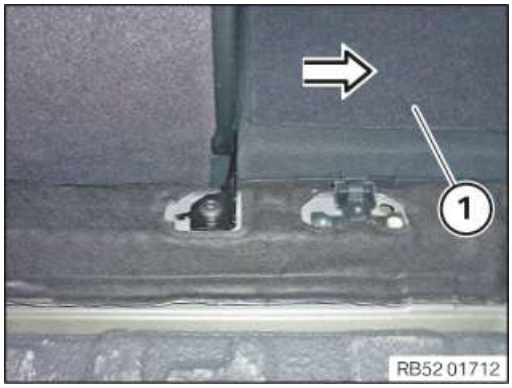
Prerequisite

Right rear seat backrest folded down

partdiagram.com



- Loosen screw (1).

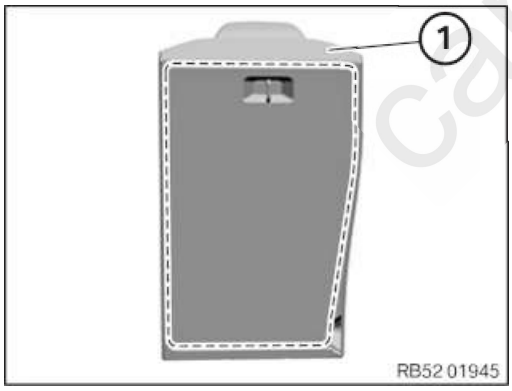


- Feed out the right rear seat backrest (1) in the direction of the arrow.

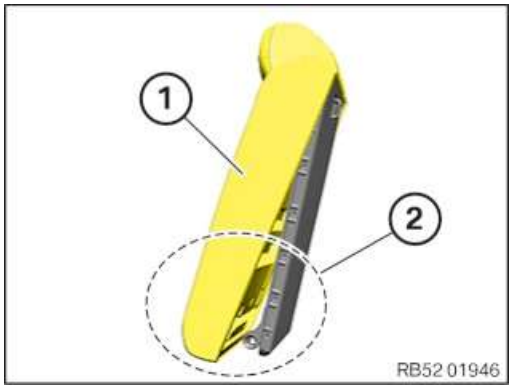
4 – Removing backrest cover with cushion for rear seat



- Release the screw (1).
- Guide out outer mount (2).

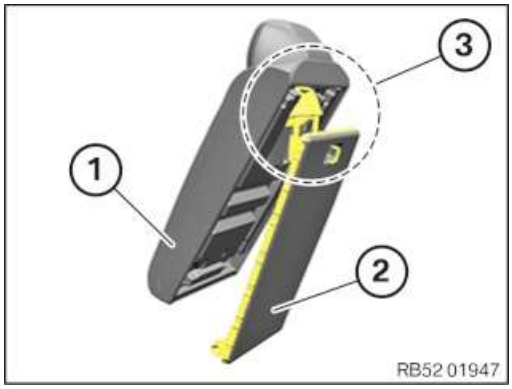


- Lever out the edge stripping of backrest cover (1) along the dashed line with a suitable tool.



- Feed out backrest cover with cushion (1) as pictured in the lower area of rear seat backrest (2).

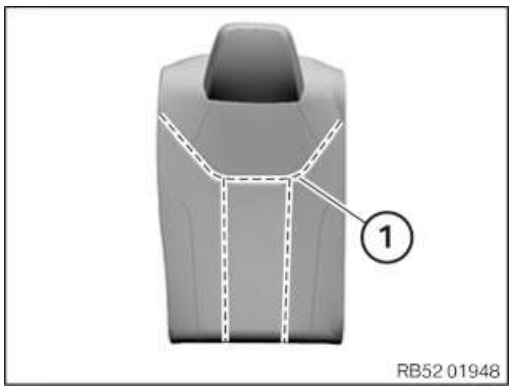
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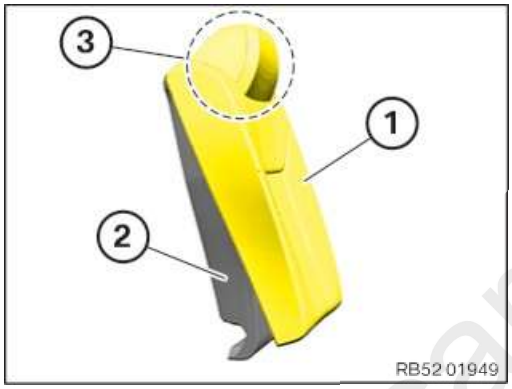
- Carefully feed out backrest cover with cushion (1) in marked area (3) from rear seat backrest (2) in upward direction.

MAIN WORK

5 – Remove backrest cover

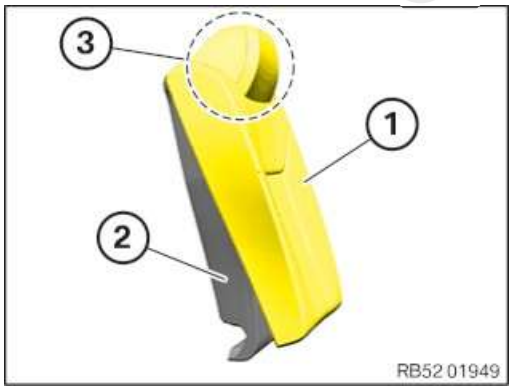


- Undo all clamps on the trim wires (1).



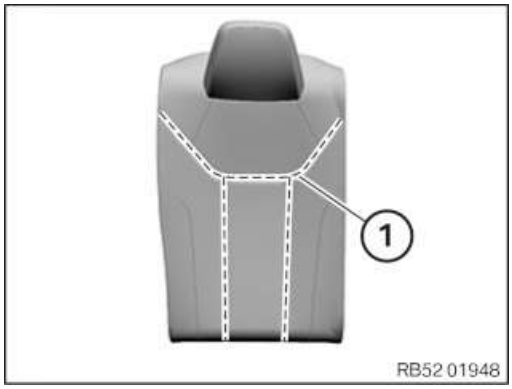
- In the marked area (3), carefully feed out the backrest cover (1) from the cushion (2) upwards.
- Completely remove the clamps from the backrest cover (1) and the cushion (2).

6 – Install backrest cover

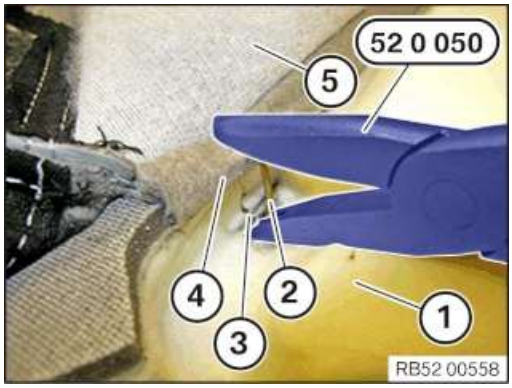


- Carefully feed in backrest cover (1) in marked area (3) on cushion (2) from above.

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- Secure all trim wires (1) with clamps.

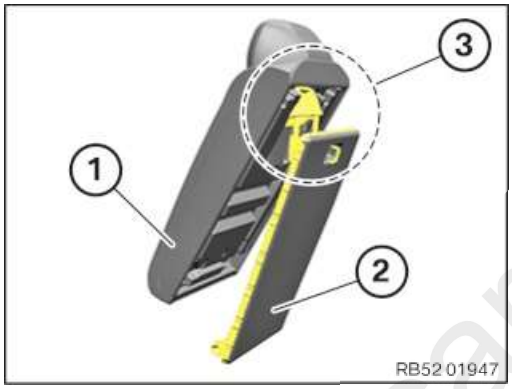


- Renew the clamps (2).

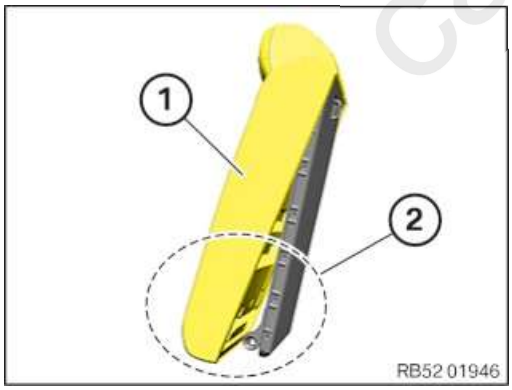
  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround trim wire (3) of cushion (1) and trim wire (4) of backrest cover (5) with clamp (2) and bend clamp (2) to close it.

POSTPROCESSES

7 – Installing the backrest cover with the cushion for the rear seat

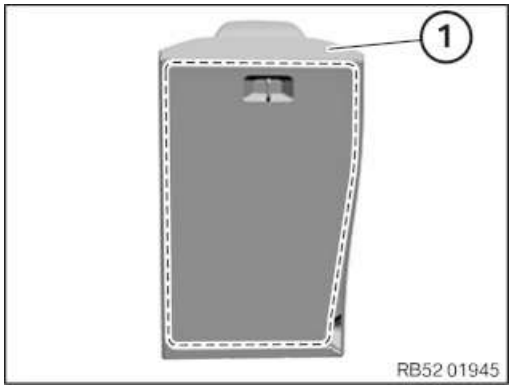


- Carefully position the backrest cover with the cushion (1) in the marked area (3) on the rear seat backrest (2) from the top.



- Position the backrest cover with the cushion (1) in the lower area of the rear seat backrest (2).

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- Clip in the edge stripping of the backrest cover (1) with a suitable tool along the dotted line.

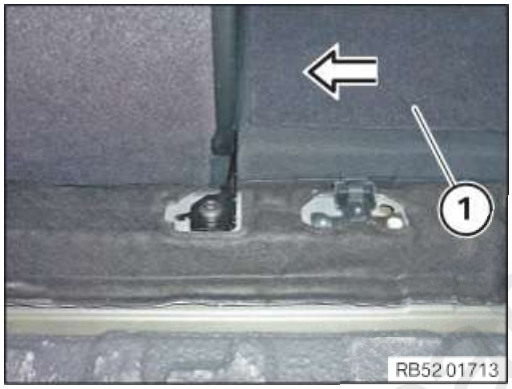


- Position the outer mount (2).
- Tighten down screw (1).

8 – Install the rear seat backrest

Prerequisite

Right rear seat backrest folded down



- Guide in and position right rear seat backrest (1) correctly in the direction of arrow.



- Tighten down screw (1).

Rear seat backrest on body

Screw	Renew screw.	Tightening torque	42 Nm

9 – Install right backrest side section

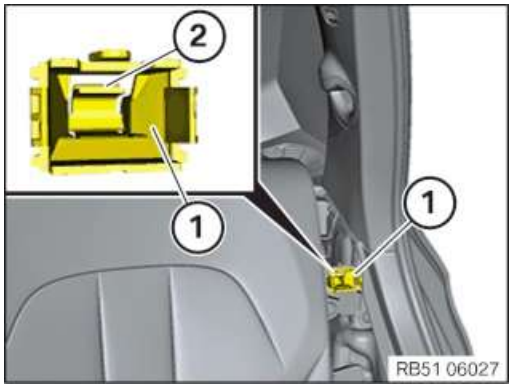
NOTICE

Description is for left component only. Procedure on the right side is identical.

▸ **Installing backrest side section**

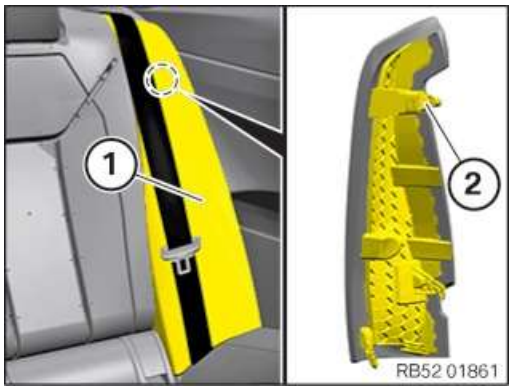
rdiagn.com

▷ **Installing backrest side section**



- Release mounting element (1) from latch mechanism (2) and remove it from the body.
- Check the mounting element (1) for damage, renew if necessary.

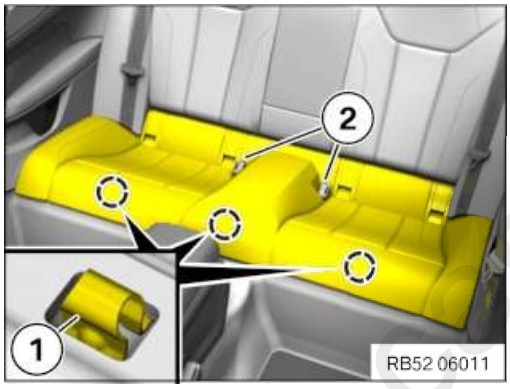
  The mounting element (1) must not be damaged or missing.
- Fit mounting element (1) on the backrest side section.



- Insert lower backrest side section (1) into the guide and position it correctly.
- Clip in backrest side section (1) to mounting element (2).

◁

10 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

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Additional Information

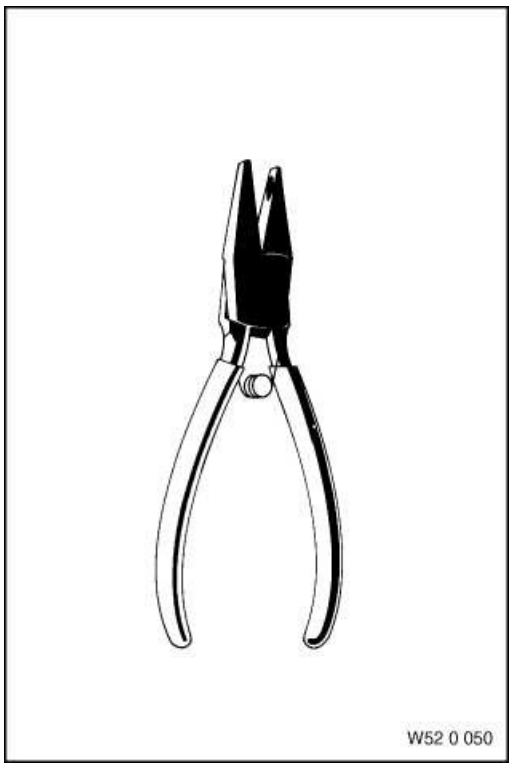
Overview of Tightening Torques

Rear seat backrest on body Used in step 8

Screw	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

0 492 668 (52 0 050) Pliers



Common	Used in step 6
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery	29

General repair instructions	Used in step
72 00 ... Safety regulations for handling components with gas generators	29

Repair instructions	Used in step
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	29
61 20 900 Disconnecting and connecting battery earth lead	29
61 20 900 Disconnecting and connecting battery earth lead	29
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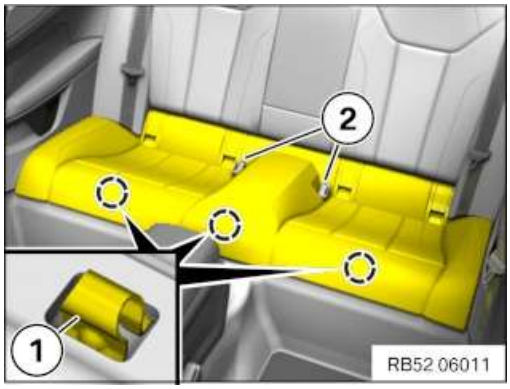
61 20 900 Disconnecting and connecting battery earth lead	29
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52 26 400 Replacing seat cover for rear seat

PRELIMINARY WORK

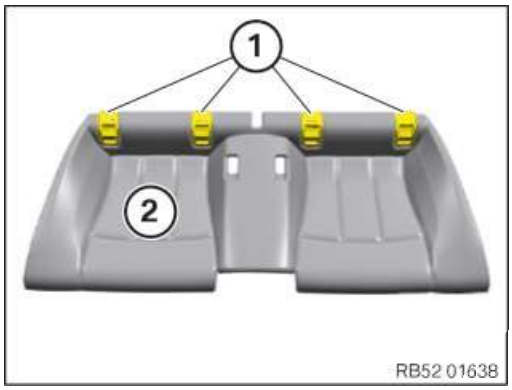
1 – Remove rear seat bench



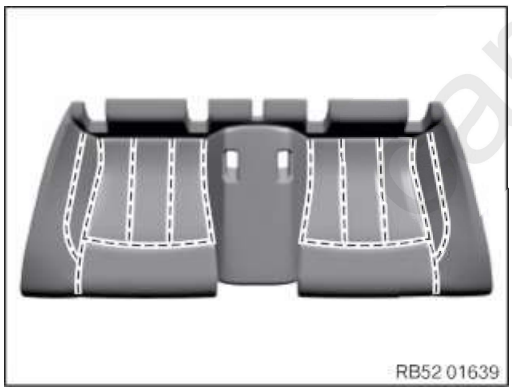
- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

MAIN WORK

2 – Removing seat cover for rear seat

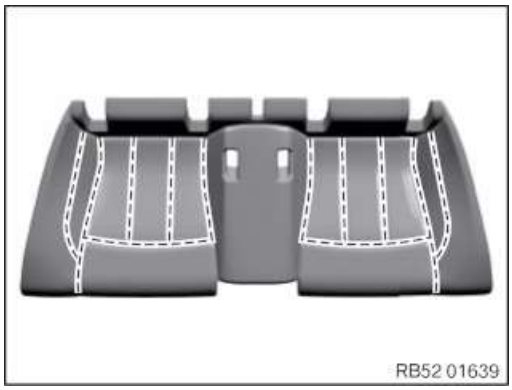


- Unclip covers (1) using a suitable tool carefully out of the rear seat (2).



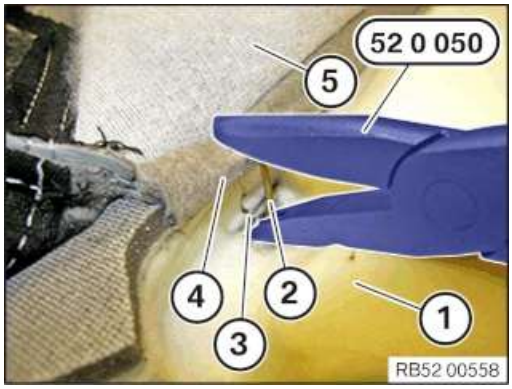
- Loosen all clamps on the trim wires.
- Remove the seat cover from the cushion.
- Completely remove the clamps from the seat cover and the cushion.

3 – Installing the seat cover for the rear seat



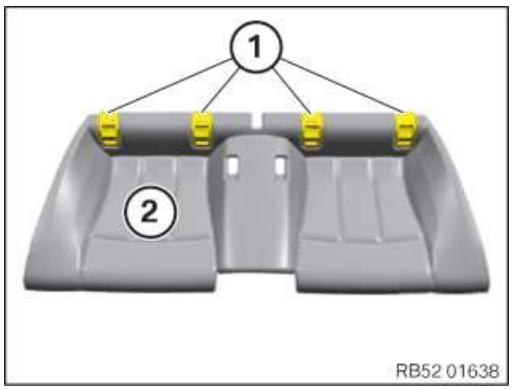
- Position seat cover on the cushion.
- Secure all trim wires with clamps.

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- Renew the clamps (2).

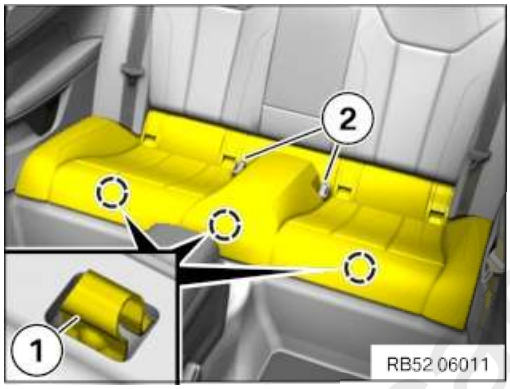
  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround the trim wire (3) of the cushion (1) and the trim wire (4) of the backrest cover with the clamp (2) and bend the clamp (2) to close it.



- Carefully clip the covers (1) onto the rear seat (2).

POSTPROCESSES

4 – Installing the rear seat bench



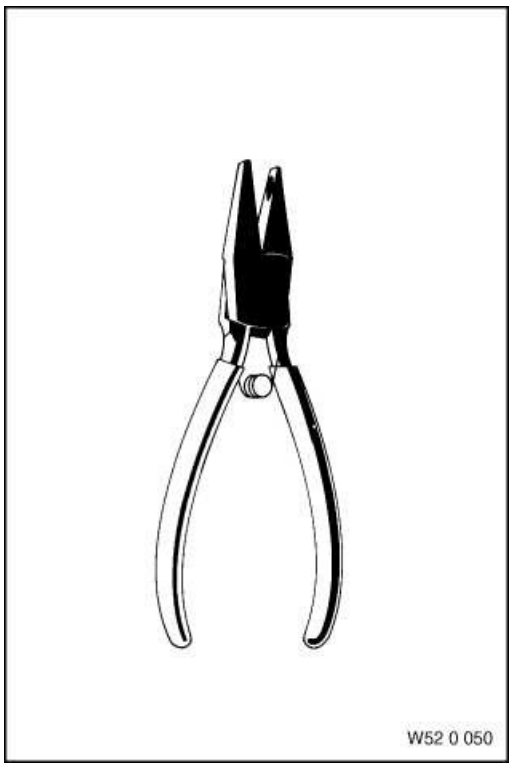
- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

Additional Information

Overview of Special Tools

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0 492 668 (52 0 050) Pliers



Common Used in step 3

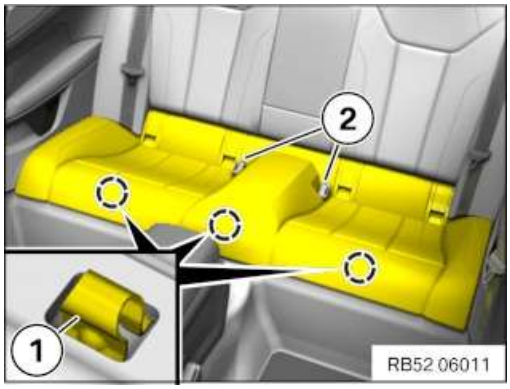
Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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52 26 450 Replacing upholstery for rear seat

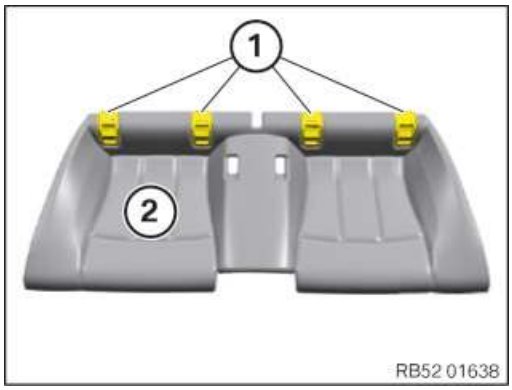
PRELIMINARY WORK

1 – Remove rear seat bench

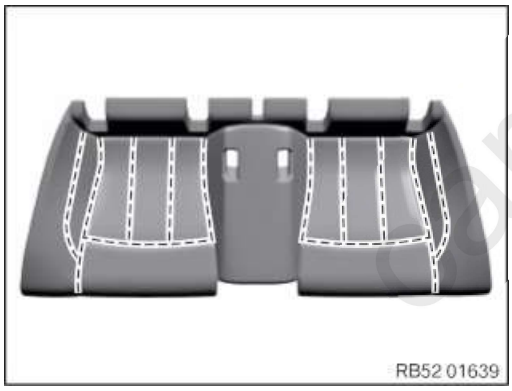


- Unclip the rear seat bench upwards from clamps (1) and guide out seat belt buckles (2).
- Remove the rear seat bench.

2 – Removing seat cover for rear seat



- Unclip covers (1) using a suitable tool carefully out of the rear seat (2).



- Loosen all clamps on the trim wires.
- Remove the seat cover from the cushion.
- Completely remove the clamps from the seat cover and the cushion.

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MAIN WORK

3 – Renewing the foam seat on the rear seat bench

- Renew the foam seat on the rear seat bench.

  Parts: Foam seat

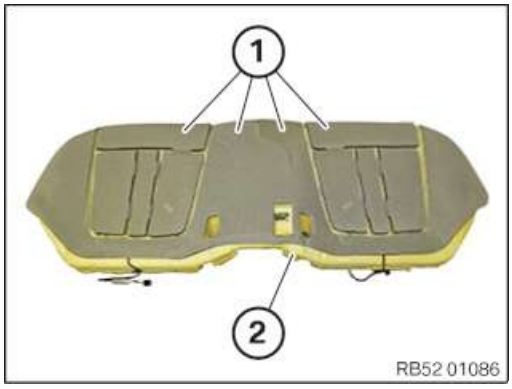
▸ **Renewing heating mats of rear seat bench (SA4HA)**

TECHNICAL INFORMATION

The heating mat is bonded to the foam pad and cannot be disassembled without damaging it.
When replacing, new heating mat must always be fitted with new foam pads.

NOTICE

Schematic diagram is for example purposes. Some parts may differ in certain details.

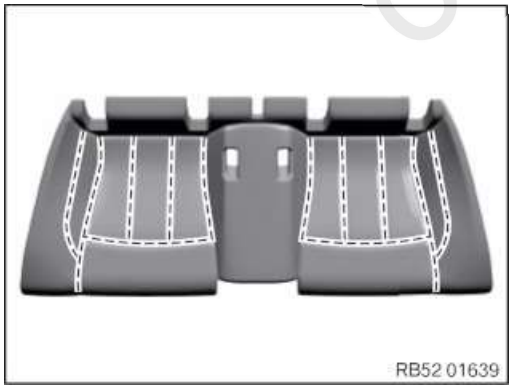


- Renew the heating mats (1).

  Parts: Heating mats
- Place and align the heating mats (1) on to the new foam seat (2).
- Bond the heating mats (1) with the new foam seat (2).

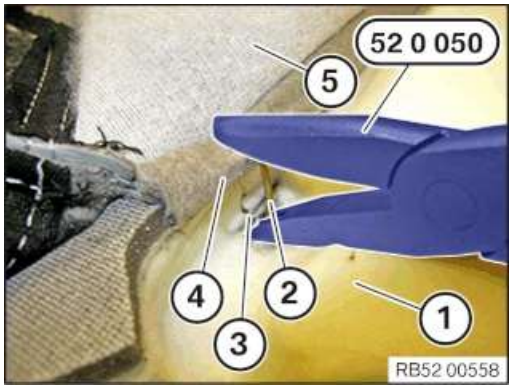
POSTPROCESSES

4 – Installing the seat cover for the rear seat



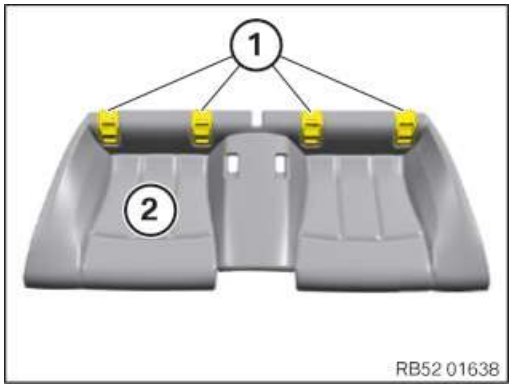
- Position seat cover on the cushion.
- Secure all trim wires with clamps.

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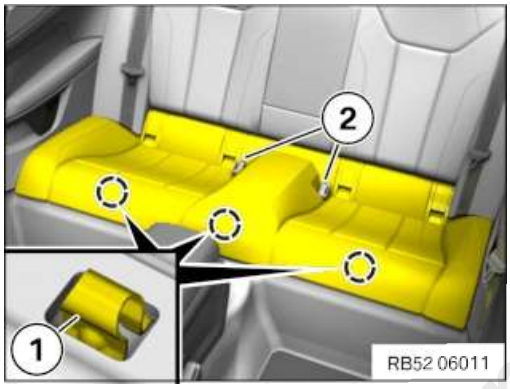
- Renew the clamps (2).

  Parts: Clamps
- Insert the clamp (2) with the special tool 0 492 668 (52 0 050).
- Surround the trim wire (3) of the cushion (1) and the trim wire (4) of the backrest cover with the clamp (2) and bend the clamp (2) to close it.



- Carefully clip the covers (1) onto the rear seat (2).

5 – Installing the rear seat bench



- Feed in the seat belt buckles (2).
- Position the rear seat bench and clip into the clamps (1).

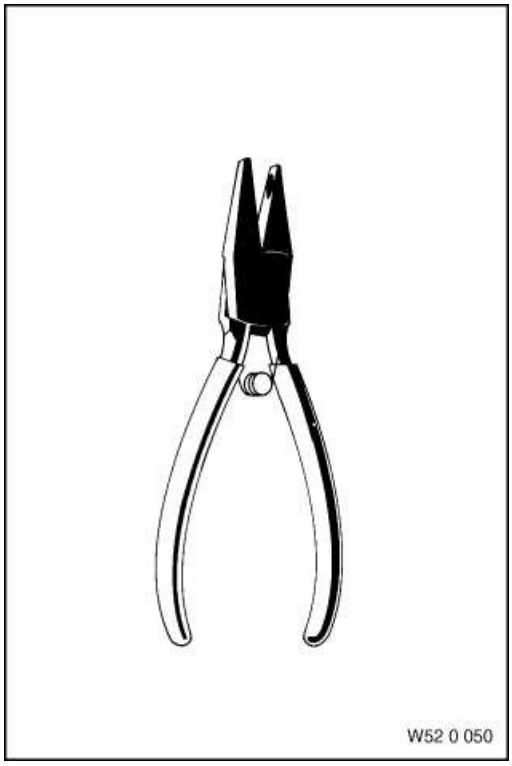
Additional Information

Overview of Special Tools

0 492 668 (52 0 050) Pliers

Used in step 4

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Common

Usage	For securing clamps on seat cover
Included in the tool or work	
Storage location	C14
Replaced by	
In connection with	
SI-Number	52 06 87 (808)

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72 11 ... Checklist for front seat

Event		Check	Action
Has at least one belt tensioner and/or one side airbag been activated?	**Yes**	**Check 1 (when installed):** Check all seat adjustment options of both front seats. There must be no stiff movement, sticking or other functional problems or noises across the entire adjustment range of all the seat adjustment options. Check head restraints for damage. Check crash-active headrest for activation. **Only 2-door model:** Check backrest lock. Backrest must unlock and lock easily without any great physical effort.	If components are OK with regard to checks 1 and 2, only replace activated belt tensioner or side airbag. Otherwise, replace faulty parts on the seat/body. Replace belt tensioner, seat belt and, if necessary, side airbag.
		Check 2 (when dismounted): Check for deformation/damage on the following components: 1. All seat cross members on the body 2. Threaded support sleeves in the seat cross members 3. End fittings on the seat mechanism. Check for visible damage or deformation.	
	No	Check all adjustment options of the head restraints. Check crash-active headrest for activation.	Replace faulty parts.
Only seat with integrated seat belt:			
Does the backrest indicator light turn on when the backrest is locked and also when the backrest is shaken?	**Yes**	Check microswitch of backrest lock and renew if necessary. Check electrical lines and repair if necessary.	If there is still a fault, replace the entire seat
	No	No further action necessary.	

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00 00 ... Microencapsulated screws

Screw securing adhesive is a means of preventing a screwed connection from being loosened by external influences.

Once the screw has been coated with adhesive, the adhesive remains inactive until such time that it is activated by the encapsulation breaking when the screw is inserted and then cures (hardens) at room temperature.

Installation note:

- Screw connection must be completed within 20 mins. (start of curing)
- Microencapsulated screws must not be retightened
- Thread of nut must be cleaned beforehand in event of repeated use

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61 00 ... Parking-residing-driving

Vehicles of the G series feature a new type of terminal control:

Functional description of the parking-residing-driving terminal control

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