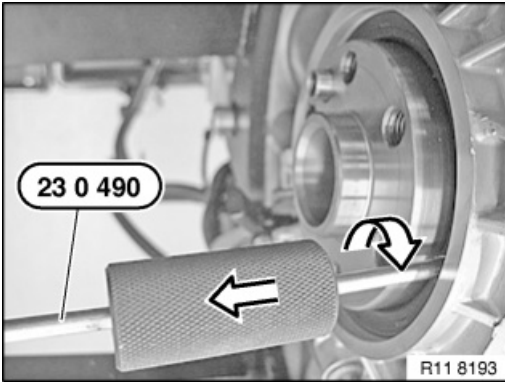


**Important!**

Immediately carefully remove swarf on the radial shaft seal (1).

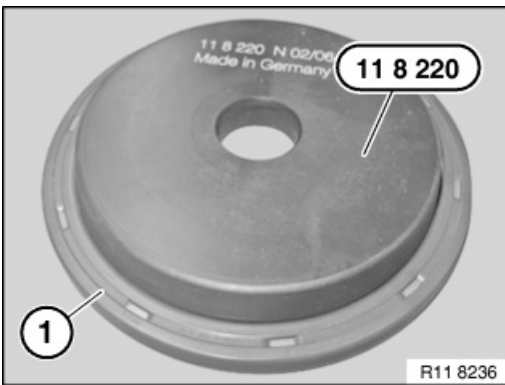


Screw in special tool 23 0 490 in direction of arrow.

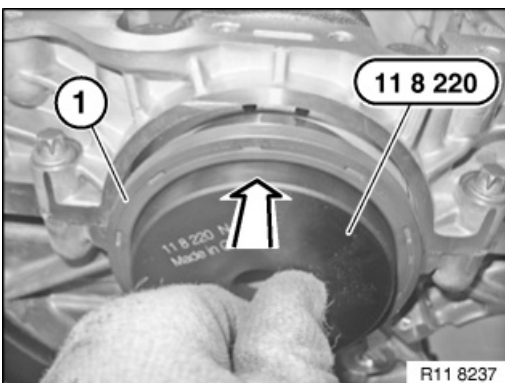
Drive out radial shaft seal with impact weight in direction of arrow.

**Important!**

Immediately carefully remove residual swarf.



Prepare radial shaft seal (1) on special tool 11 8 220 .



Position the radial shaft seal (1) with special tool 11 8 220 on the crankshaft.

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



### Warning!

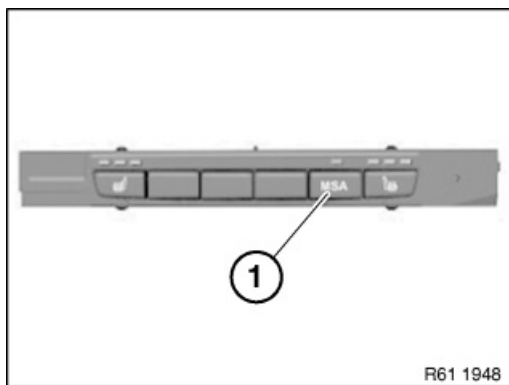
If the engine hood/bonnet contact is pulled upwards (workshop mode), the information "switch closed" is output. The automatic engine start-stop function is active.

An automatic engine start is possible.

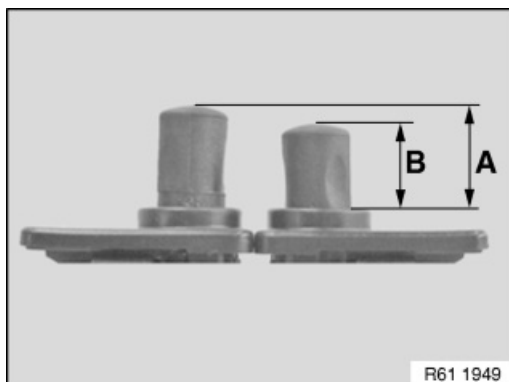
### Observe safety precautions when working on MSA vehicles.

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

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



### Warning!

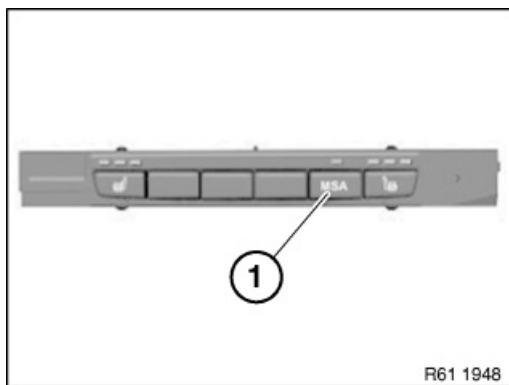
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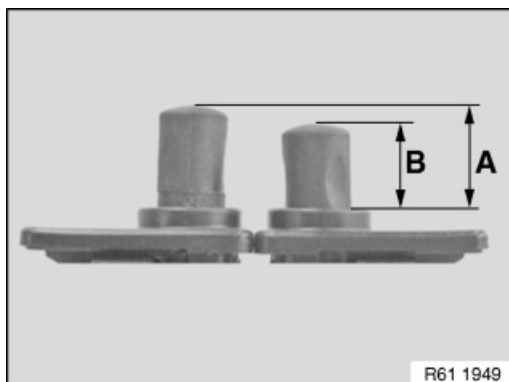
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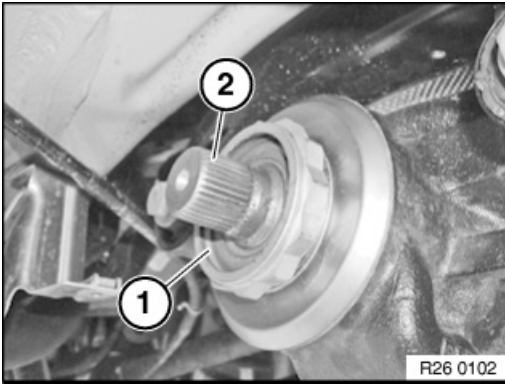
- Open engine bonnet/hood and ensure that engine hood/bonnet contact is not in workshop mode
  - Workshop mode  
A = 10 mm
  - Basic setting (engine hood/bonnet open)  
B = 7 mm

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

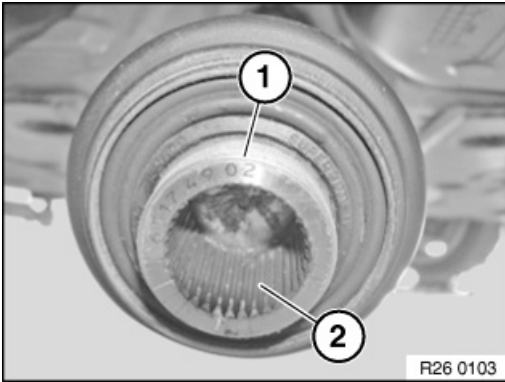


Before installing propeller shaft:

Clean insert collar (1) on flange nut and spline teeth on bevel pinion (2).

Top up insert collar (1) with grease.

Grease: BMW Service Operating Fluids.



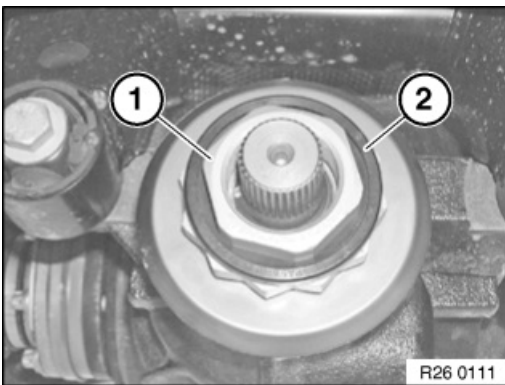
Clean thread (1) of joint hub to remove adhesive residues.

Clean hub teeth (2), then coat with grease.

Grease: BMW Service Operating Fluids.

**Important!**

Thread of joint hub must **not** be fouled with grease.



Place insert nut (1) with seal in insert collar of flange nut.

Install retaining clip (2).



**Important!**

Adhere without fail to the installation and bolt-tightening sequence.

Installation sequence:

1. Join propeller shaft to transmission
2. Join propeller shaft to rear axle final drive
3. Join centre mount

Screw-fastening sequence:

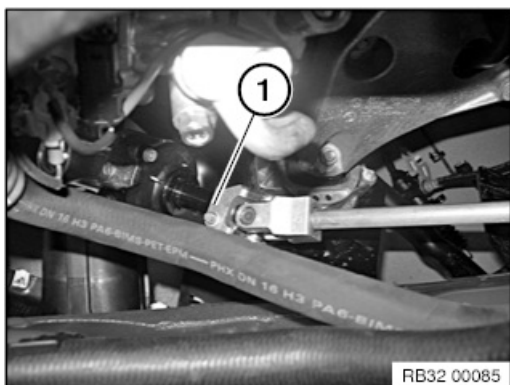
1. Insert nut
2. Flexible disc to transmission
3. Centre mount

**Attention!**

Do not turn the steering wheel once the steering shaft has been detached from the steering box/steering column! If the lower section of the steering shaft is separated from the steering gear/steering column, the steering column switch cluster may be damaged when the steering wheel is turned!

**Necessary preliminary work:**

- Remove electronics box (only N47/B47/B37/B38/B48)
- Remove trim panel for pedal mechanism
- Move steering column in "top" and "retracted" position.

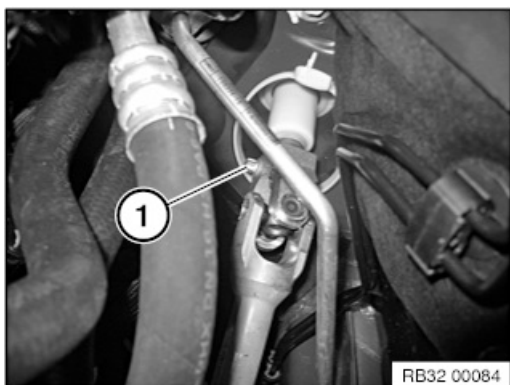


Release and detach clamping bolts (1) of steering shaft on steering gear (in engine compartment). *Installation note:*

Clean screw threads to remove all remnants of screw locking adhesive.

Replace clamping bolts.

Tightening torque 32 31 2AZ.



Pull down steering shaft until clamping bolt (1) is accessible with tool (2). Release clamping bolt (1) and remove steering shaft.

*Installation note:*

Clean screw threads to remove all remnants of screw locking adhesive.

Replace clamping bolts.

Counter-hold the steering shaft in the passenger compartment on the steering column when sliding the universal joint onto the steering column!

Connect steering spindle first to steering column and then to steering gear.

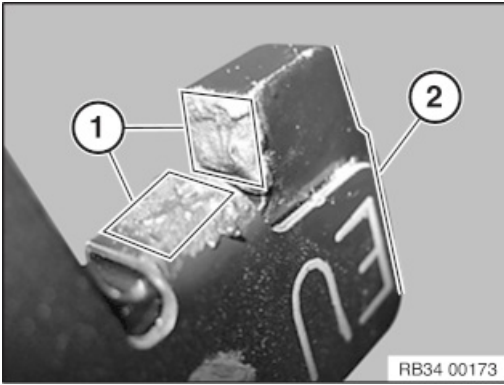
Clamping bolt must rest in groove of steering box or steering column.

No retorquing permitted!

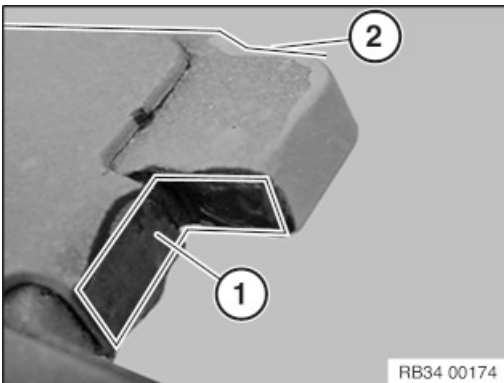
Tightening torque 32 31 3AZ.

**After installation:**

- Turn steering wheel in both directions to the limit position. The airbag indicator light must not light up in the process.



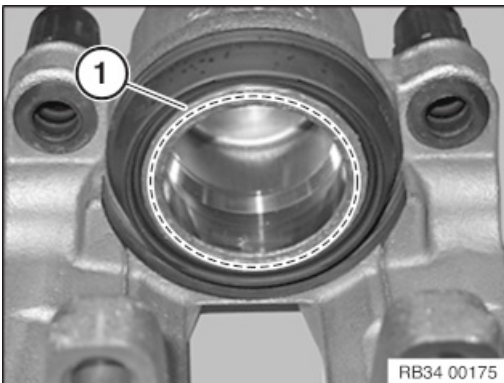
Apply a thin coating of brake pad paste to T-head of inner brake pad in area (1) and (2).



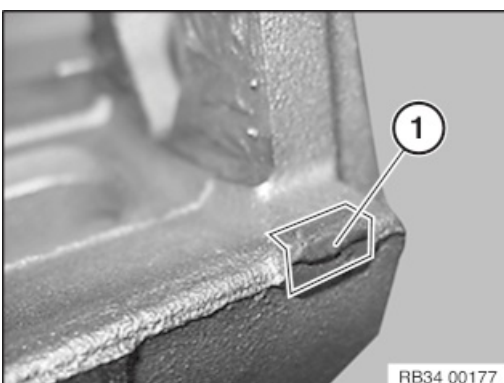
Apply a thin coating of brake pad paste to T-head of outer brake pad in area (1) and (2).



**FN brake (made by Continental Teves), 1-piston floating caliper brake (model ranges: 5-Series, 6-Series, 7-Series, 8-Series, X1, X3, X5, Z4, Rolls-Royce)**



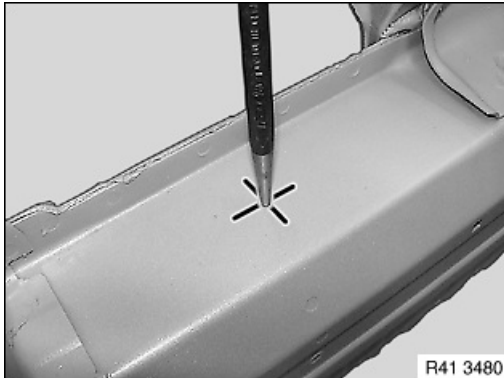
Clean contact surface (1) of brake piston with brake cleaner and apply a thin coating of brake pad paste.



Clean contact surfaces (1) of T-heads/brake calliper housing with brake cleaner and apply a thin coating of brake pad paste.

**Protection measures!**

- Wear safety goggles
- Wear protective gloves

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

Risk of damage!

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

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

**Important!**

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 shank diameter, the next drill bit diameter higher (5/10 step) can be used.

E.g. with a shank 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 with determined drill bit and deburr, pilot-drill with a smaller drill bit if necessary

## 41 51 ... Adjust door



### Attention:

Do not damage adjoining body components.

Minor corrections through straightening work are permitted if the existing range of adjustments are not sufficient.



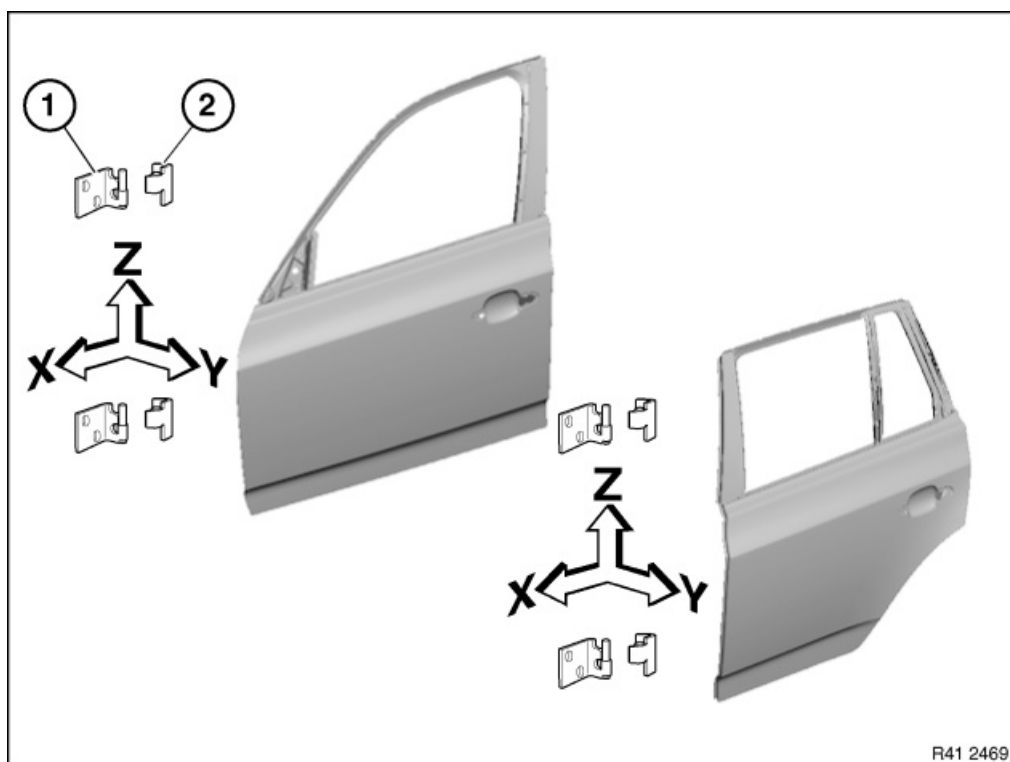
### Note:

Observe gap dimensions.

The door must be provided with all add-on parts for correct adjustment.

Adjust screwed body components from rear to front.

The following illustrations are schematic representations and are to be applied to the relevant vehicle type.



R41 2469

Loosen striker and remove, if necessary.

Slacken screws for hinge (2) on door until door can still just be moved.

Front door: Tightening torque 41 51 2AZ.

Rear door: Tightening torque 41 52 2AZ.

If adjustment range is not sufficient, slacken screws for hinges (1) on body.

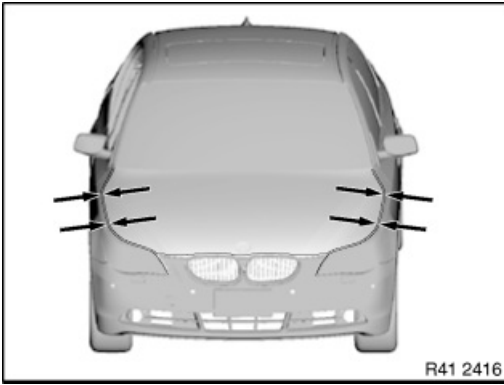
Note:

Screw connections only accessible from inside.

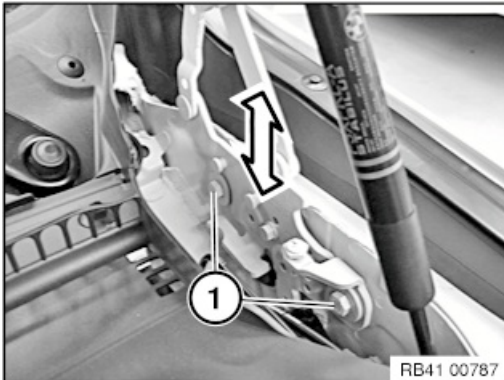
Front door: Tightening torque 41 51 3AZ.

Rear door: Tightening torque 41 52 3AZ.





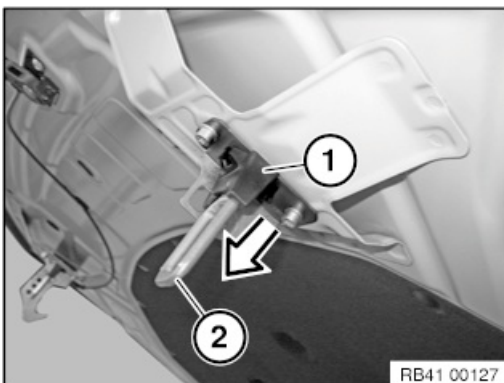
Adjust engine compartment lid sideways and lengthways.  
Strikers must snap into place in engine compartment lid catch.



**Height adjustment at hinge:**

Slacken screws (1) and adjust engine compartment lid.

Tightening torque 41 61 2AZ.



**Height adjustment at strikers:**

Unclip the anti-twist lock (1).

Adjust height by turning the striker (2).

Height adjustment of engine compartment lid to side panel by means of stop pad.

*Note:*

The engine compartment lid is correctly adjusted in the front section by a combination of pulling the strikers and pressing the stop pads.

Incorrect adjustment results in either wobbling of the bonnet or sluggish unlocking.



**Important!**

Check function of retaining hook.



**After Installation note:**

- Tighten all screws and nuts to specified torque.
- Touch up unpainted surfaces in the appropriate colour.
- If necessary, adjust front side panels.

# 51 41 060 Removing and installing or replacing armrest on door trim panel, front left or right

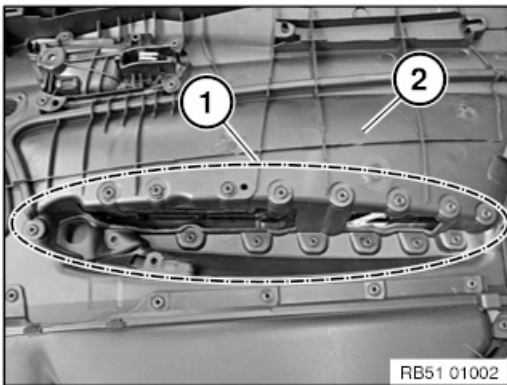


## Necessary preliminary tasks:

- Remove front door handle
- Remove switch cover

### Note:

Armrest is welded to door trim panel only on initial installation. The armrest is screw-connected on second installation. If necessary, release screws instead of welding spots.



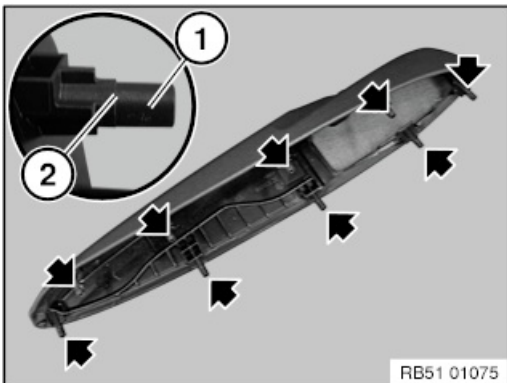
## Important!

Risk of damage!

To avoid damaging the contact surface, only drill down to door trim panel area (2)

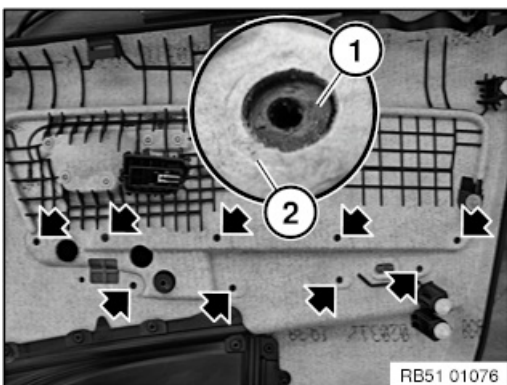
Drill out all welding spots in marked area (1) on door trim panel (2) with 8 mm dia. welding spot drill bit.

Remove welding remains on door trim panel (2) with scalpel (for heavy duty use).



## Replacement:

Saw off all welding pins (1) along moulding (2).



Insert armrest in door trim panel. *Installation note:*

Welding pins (1) are not to protrude over door trim panel (2).

**Special tools required:**

- 52 0 050

**Necessary preliminary tasks:**

- Remove front seat
- Remove rear panel on front seat backrest
- Remove guide sleeves

**Important!**

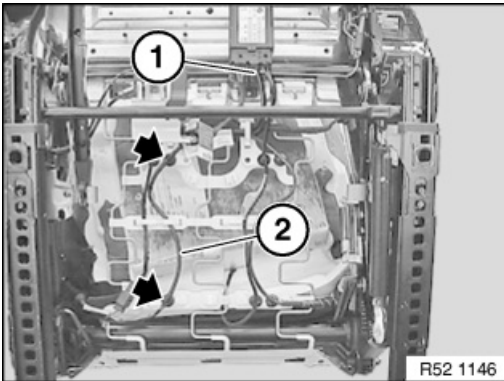
Risk of damage on sharp-edged seat mechanism.

Guide all cables carefully through seat and backrest mechanism.

Make sure cable is routed without kinks and tension.

Make sure plug connections are correctly locked.

Make sure connectors are correctly seated in latch mechanisms.

**Version with seat heating only:**

Unlock plug connection (1) for seat heating and disconnect.

Detach cable strap.

Release seat heater cable (2) from cable clips on seat mechanism.

**Installation note:**

Plug connection is encoded to prevent incorrect connection.

Replace cable strap.

**Important!**

Feed the wiring harness carefully through the seat and backrest mechanism as the edges of the frame can be sharp.



Lift welt out of backrest frame.

Detach backrest cover at bottom from the metal tabs in the marked area.

Carefully slide bracing cloth with foam through backrest gap and seat structure.

If applicable, route cable carefully through seat and backrest mechanics as the edges of the frame may be sharp.

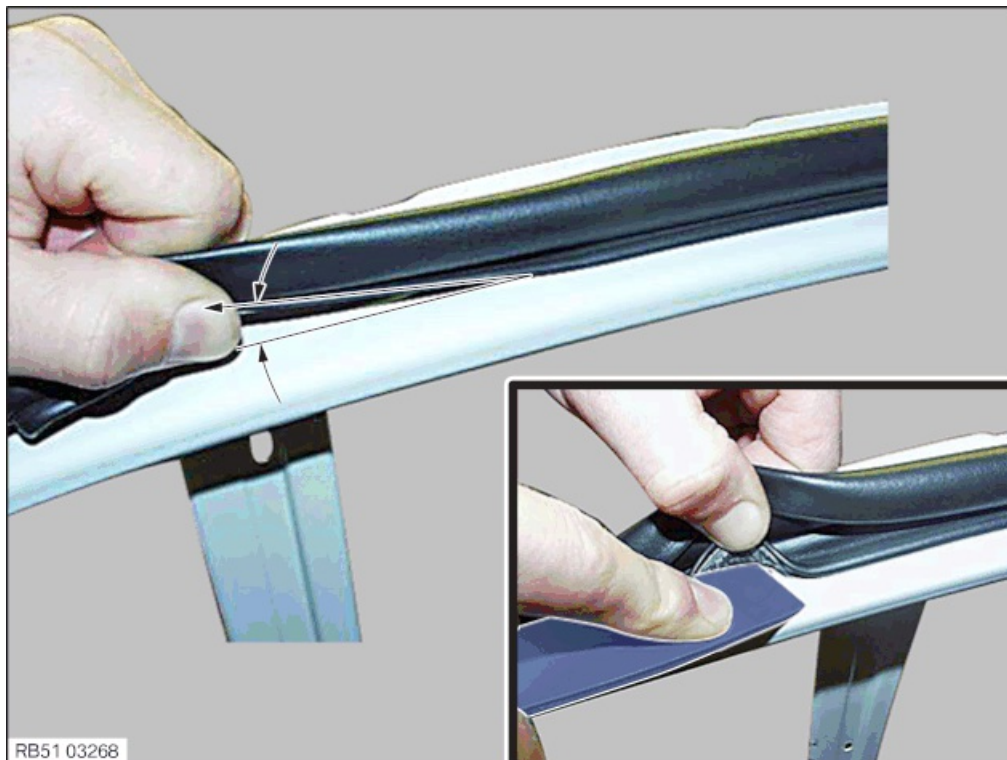
**Installation note:**

Slide foam completely through backrest gap and seat structure.

Make sure foam and bracing cloth are correctly fitted.

## 2.2 Replacement

### 2.2.1 Peeling off the faulty rubber seal



- Remove bonded connection with fingers or cleaning agent liner 00 9 327.
- Overstretch gasket below an angle of maximum 20° very slowly under even tensile stress. If the gasket is pulled off too quickly, the adhesive tape can tear off and remain on the painted surface. The adhesive tape remaining on the painted surface must be removed with high cleaning costs.

#### *Note:*

When the adhesive tape separates from the gasket, the adhesive tape remaining on the paint must be fully separated at one location by approx. 10 mm until it is easy to grip.

Pull off the adhesive tape by pulling strongly at an angle of approx. 20°.

When existing gaskets are being peeled off with a hot air blower: Do not damage paintwork.

### 2.2.2 Clean bonding surface

- if required, remove adhesive remains with eraser disk or cleaning agent R2. do not damage paint. Stick to air drying time > of 1 minute.
- Before a new bond, treat the entire adhesive area with Sika Aktivator 205. Stick to air drying time > of 1 minute.

#### *Note:*

Use necessary cotton- or fluff-free paper towel once only.

Do not touch the adhesive area after cleaning.

### 2.2.3 Pull off protective film of the bonding surface

- Pull off the protective film off of the new gasket by approx. 15 cm using the tab.

#### **Attention:**

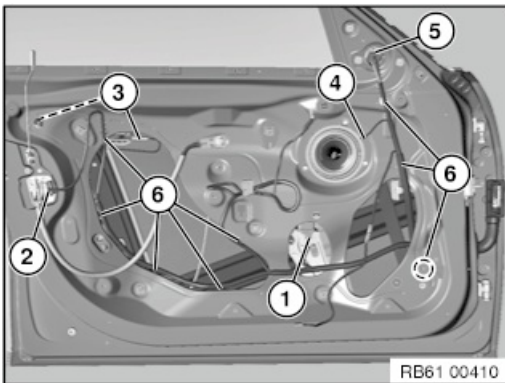
Once the protective film has been removed, do not under any circumstances touch the exposed bonding surface.

**Important!**

Read and comply with notes on handling wiring harnesses and cables.

**Necessary preliminary tasks:**

- Close front side window completely
- Remove front sound insulation
- Remove corner cover for mirror mount.

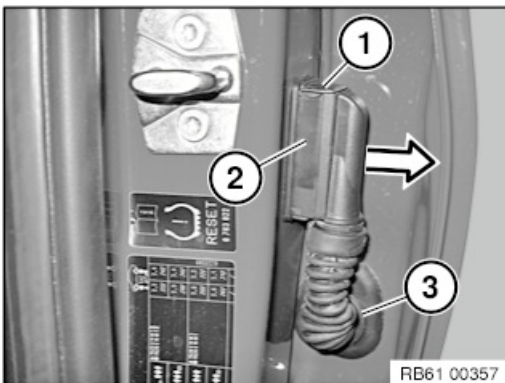
*Note:*

Work shown on the F30 by way of example, deviations in detail are possible in other models.

Release and disconnect plug connection (1) at power window regulator.  
 Unlock plug connection (2) on door lock and disconnect.  
 Unlock and disconnect plug connection (3) on outside door handle light.  
 Unlock and disconnect plug connection (4) on speaker.  
 Unlock and disconnect plug connection (5) on outside door mirror.  
 Unclip door wiring harness at associated points (6).

*Installation note:*

Make sure wiring harness for the door wiring harness is routed correctly.



Loosen lock (1) in upward direction with suitable tool.

Disconnect connector (2) and detach in direction of arrow to thereby disconnect the plug connection.

Pull rubber grommet (3) forward out of door.

Feed the door wiring harness out toward the front and remove.

*Installation note:*

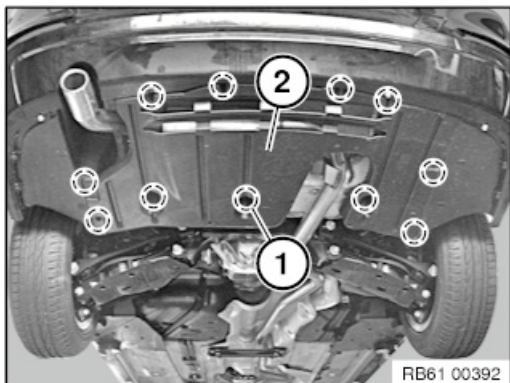
Make sure connector (2) is properly locked.

## 61 35 245 Removing and installing (replacing) Smart Opener bottom sensor line (non-contact rear lid opening)



### Important!

Read and comply with notes on protection against electrostatic discharge (ESD protection).

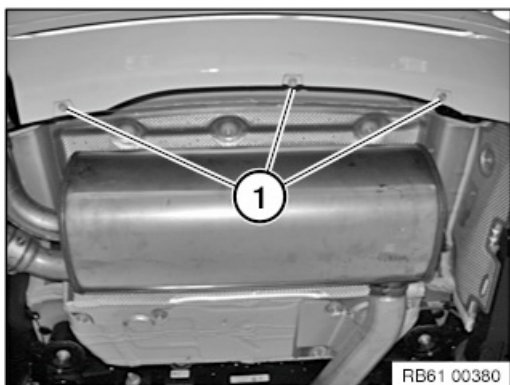


### Note:

Work shown on the F30 by way of example, deviations in detail are possible in other models.

### Depending on the engine version:

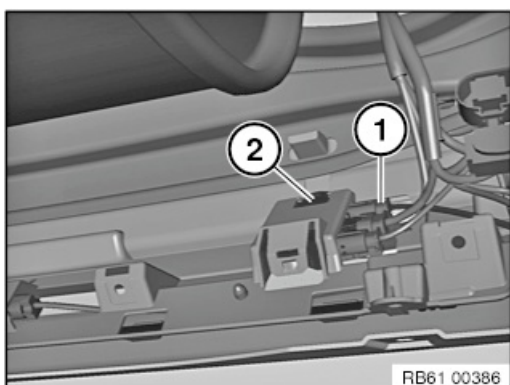
If necessary, release screws (1) on cover (2) and remove cover (2).



### Note:

Control unit and sensor strip are located on reinforcement of rear bumper panel.

Release screws (1) on bumper panel at bottom rear.



Unlock associated plug connection (1) on control unit (2) and disconnect.

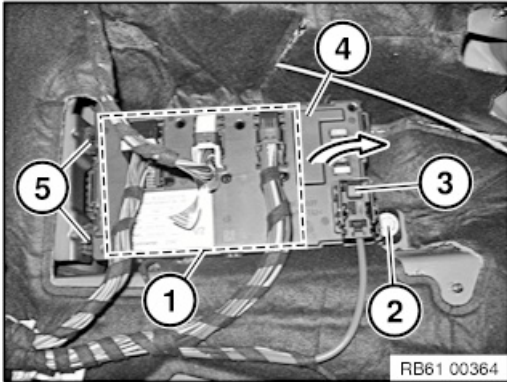
### *Installation note:*

Make sure plug connection (1) is correctly seated.



## Necessary preliminary tasks:

- Disconnect the negative battery cable



Unlock and disconnect all plug connections in area (1).

Unlock and disconnect positive battery cable (3). (Note removal instructions below)

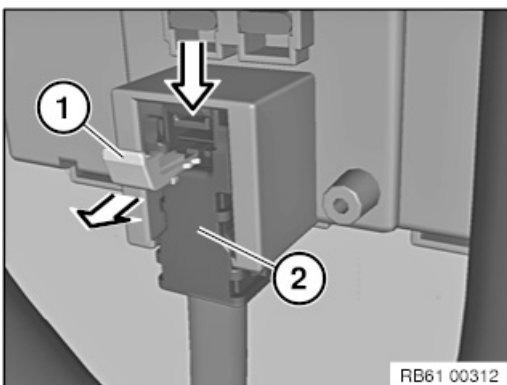
Release screw (2).

Tightening torque 61 35 4AZ.

Remove control unit (4) from guides (5) in direction of arrow.

### *Installation note:*

Make sure all plug connections are correctly latched.



## Important!

Risk of damage to positive battery cable connector!

### Unlock the positive battery cable connector:

1. Loosen lock (1) in direction of arrow.
2. Unlock top positive battery cable connector (2) in direction of arrow.
3. Disconnect battery positive lead (2).



### Replacement:

Carry out vehicle programming/coding.