

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



Warning!

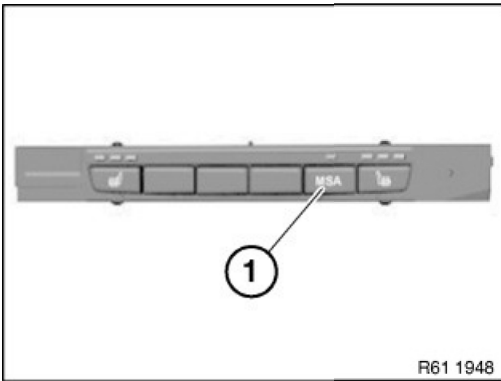
If the engine hood/bonnet contact is pulled upwards (workshop mode), the information "switch closed" is output. The automatic engine start-stop function is active.

An automatic engine start is possible.

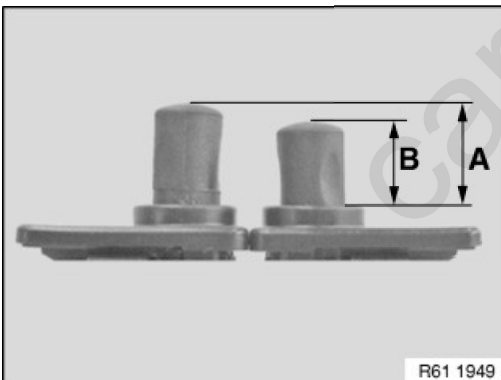
Observe safety precautions when working on MSA vehicles.

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



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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67 11 510 Removing and installing/replacing actuator drive for front left or right door central locking drive



Note:

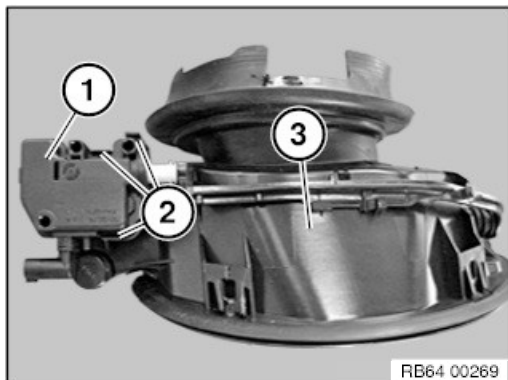
The controller drive for the central locking drive is integrated in the door lock in the front door.

The procedure is explained in the document [Remove and install/replace the door lock for the left or right front door](#).

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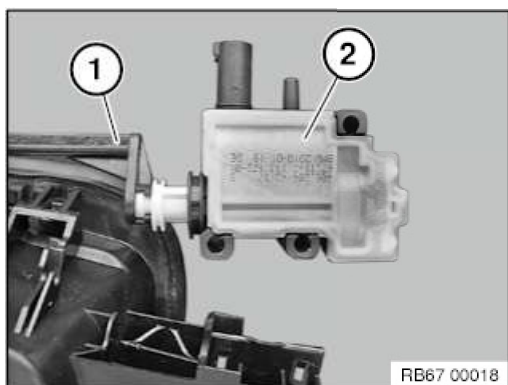
**Necessary preliminary tasks:**

- Remove [cover housing](#)



Unlock retaining lugs (2) with a suitable tool.

Remove actuator drive (1) from cover pot (3).



Release the actuator drive (2) by simultaneously turning and pressing the locking pin (1). *Installation note:*

Make sure the setting for the actuator drive (2) for the fuel filler flap is correct. It must be possible to lock or unlock the fuel filler flap completely.



This operation is described in:

"Removing [tailgate lock](#)"

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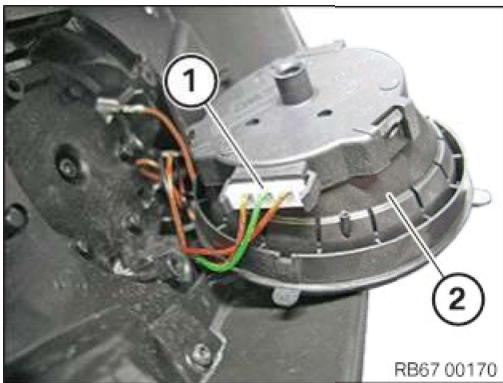
Necessary preliminary tasks:

- Remove [mirror glass](#) for inside mirror



Release screw (1) and move the drive (2) slightly to the front.

Tightening torque [51 16 7AZ](#).



Unfasten plug connection (1) and disconnect.

Remove electric motor (2).

67 13 030 Replacing the mirror electronics for both electrically adjustable, exterior mirrors



Attention!

[Read and comply with notes on protection against electrostatic discharge \(ESD protection\).](#)



Necessary preliminary tasks:

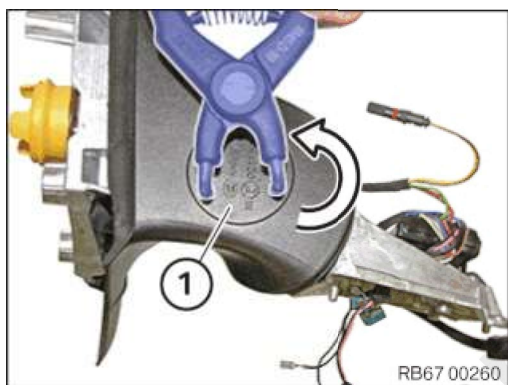
- [Remove and disassemble the mirror](#)

Note:

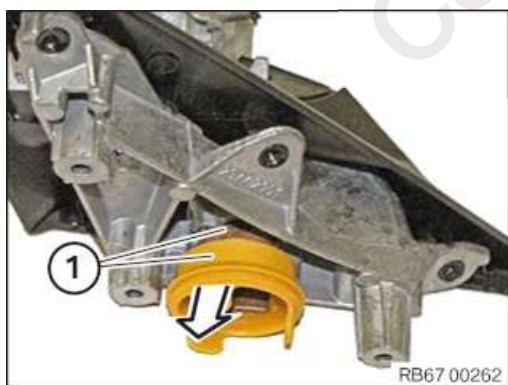
The number of wires/connectors may vary depending on the equipment specification.



Removal:



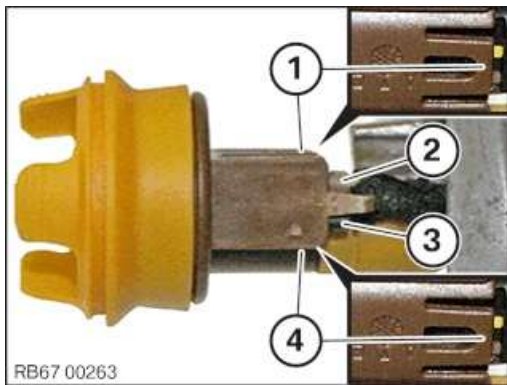
Use a suitable tool to twist the lid (1) slightly in anticlockwise direction and remove it.



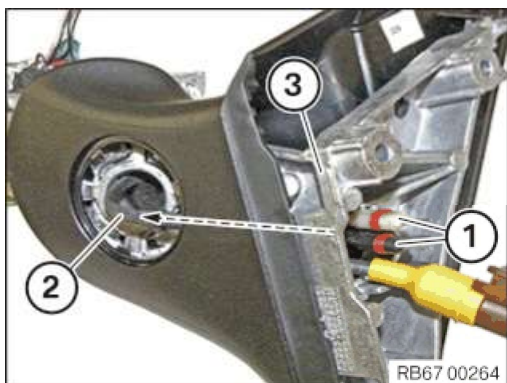
Pull out the grommet with connector holder (1) in the direction of the arrow. *Note:*

A retaining lug may potentially break off the connector holder (1) when pulling it out.

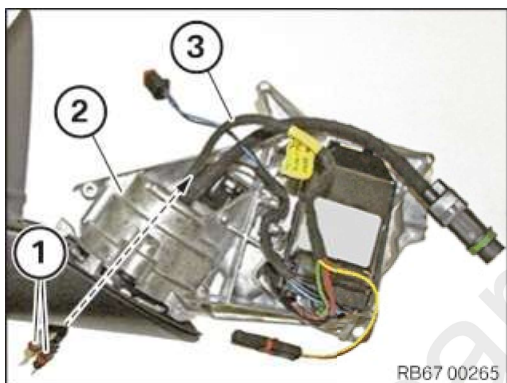
In this case, it is **not required** to replace the connector holder (1)!



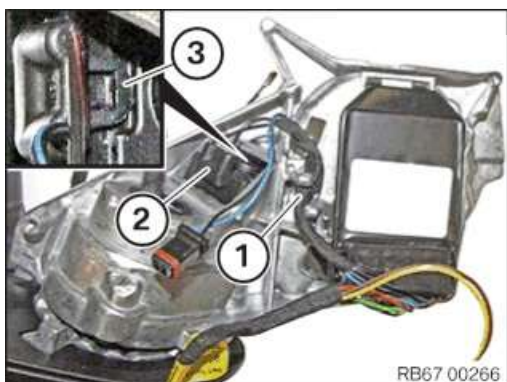
Carefully lift the retaining lug (1) and loosen the connector (2).
Carefully lift the retaining lug (4) and loosen the connector (3).



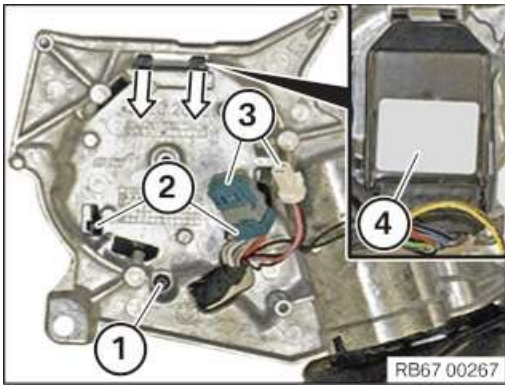
Pull out the connector (1) including the wire (2) from the housing (3) in the direction of the arrow.



Pull out the connector (1) including the wire (3) from the housing (2) in the direction of the arrow.



Remove the line (1).
Slightly lift the retaining lug (3).
Disconnect plug connection (2).



Release screw (1).

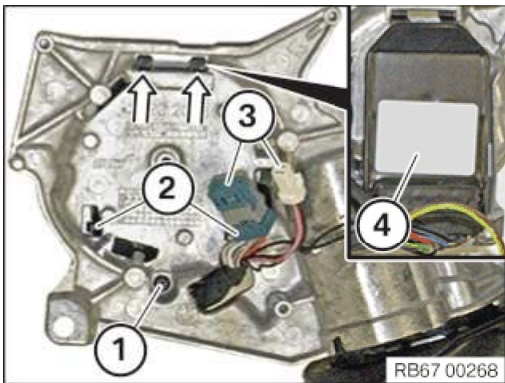
Simultaneously press both retaining lugs (2) and lift the mirror electronics (4) in this area.

Remove the mirror electronics (4) in the direction of the arrow.

Remove the wires (3).



Installation:



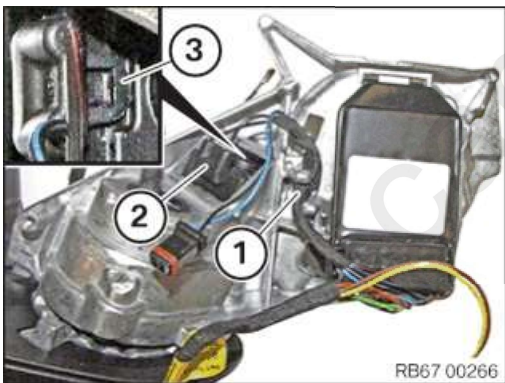
Remove the wires (3).

Install the mirror electronics (4) in the direction of the arrow.

Carefully press in the mirror electronics (4) until both retaining lugs (2) have engaged correctly.

Tighten screw (1).

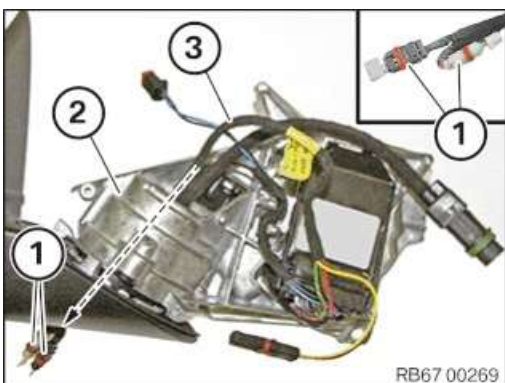
Tightening torque [51 16 6AZ](#).



Carefully connect the plug connection (2).

The retaining lug (3) must engage correctly.

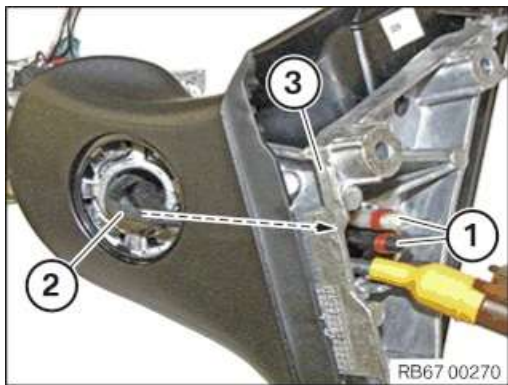
Position the cable (1) as illustrated.



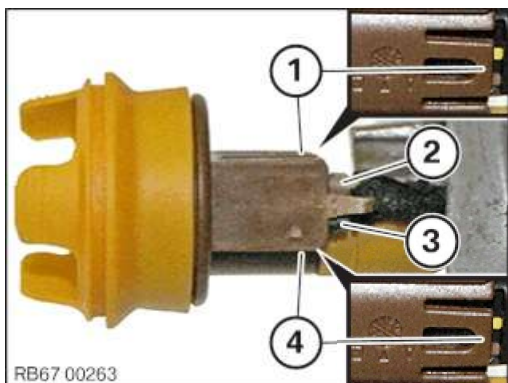
Insert the connector (1) including the cable (3) into the housing (2) in the direction of the arrow. *Note:*

Thread the connector (1) as illustrated for better installation.

The protective caps of the connector (1) must be removed first before installation into the connector housing.

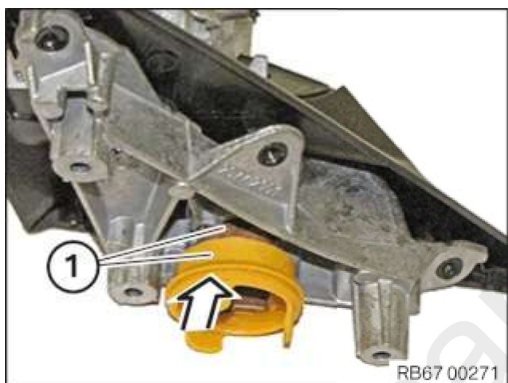


Insert the connector (1) including the cable (2) into the housing (3) in the direction of the arrow.

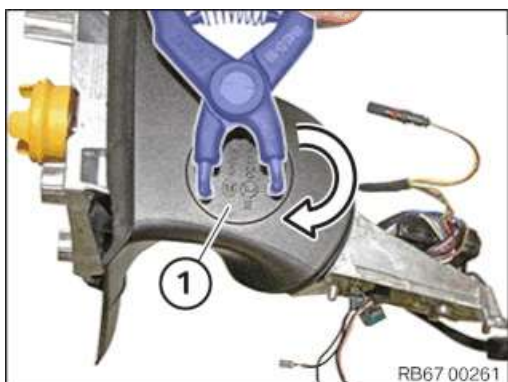


Correctly connect the connector (2) until the retaining lug (1) engages correctly.

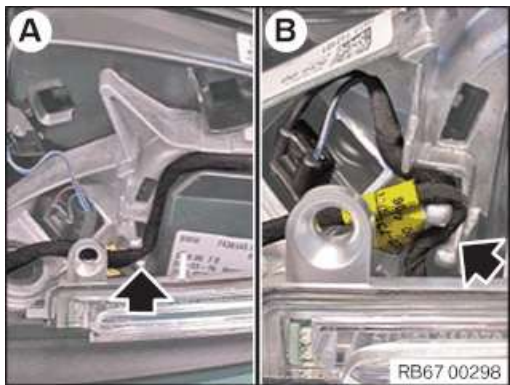
Connect the connector (3) until the retaining lug (4) engages correctly.



Install the grommet including the connector holder (1) in the direction of the arrow.



Position the lid (1) and twist in clockwise direction using a suitable tool.



Ensure correct cable routing.

A Version with camera

B Version without camera



Required follow-up work:

- [Assemble and install the mirror](#)

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*Note:*

Initialization is carried out at the adjusting switch of the relevant seat.

In this process, the end positions of the relevant electric seat actuator drive are recorded and stored.

An initialisation must be performed:

- After replacing a drive unit for seat adjustment.
- After replacing/programming control unit for seat adjustment.

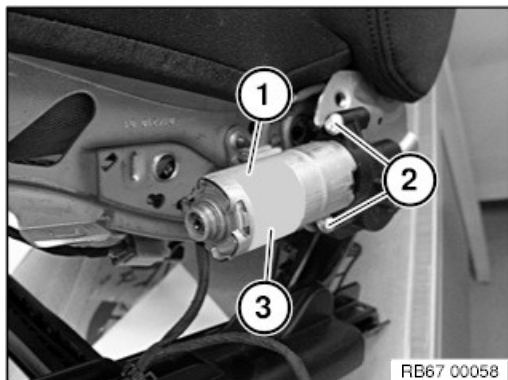
Operating procedure for initialisation:

Move corresponding seat actuator drive(s) into both end positions.

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**Necessary preliminary tasks:**

- Remove [covers on front seat](#)



Unfasten plug connection (1) and disconnect.

Unfasten screws (2).

Remove electric motor (3).

**Note:**

Carry out a function check.

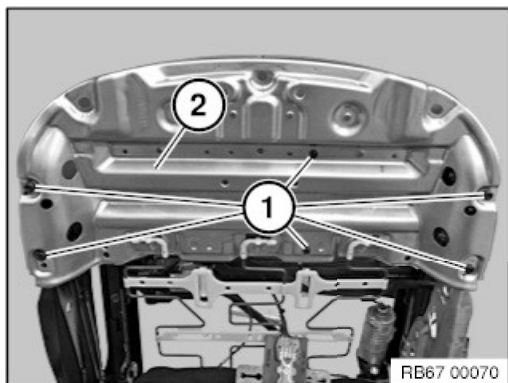
Replacement:

[Initialise](#) backrest adjustment motor.



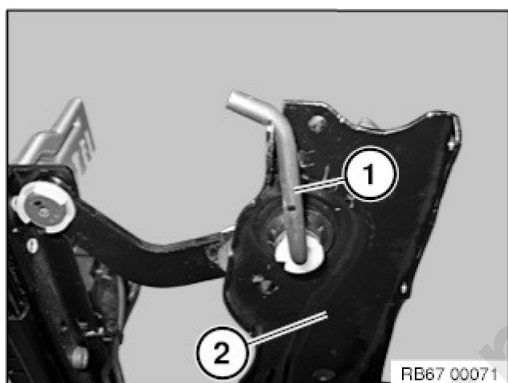
Necessary preliminary tasks:

- Remove [driver's or front passenger seat](#)
- Remove [front seat cover](#)

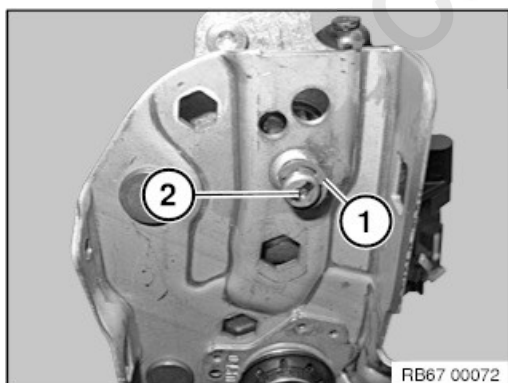


Release screws (1).

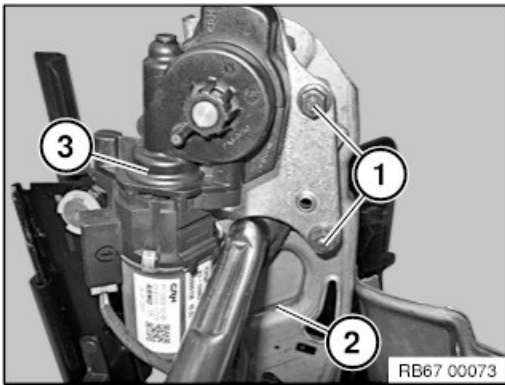
Remove cushion shell (2).



Detach spring (1) at seat frame (2).

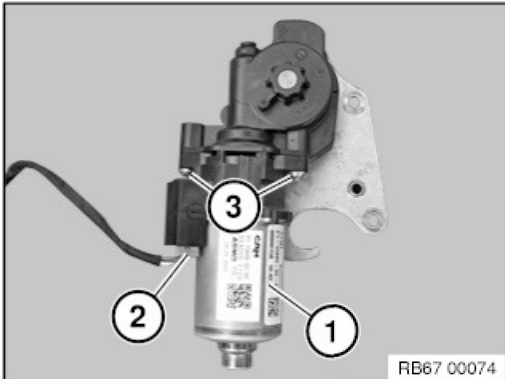


Remove fuse (1) from shaft (2).



Unscrew nuts (1).

Pull drive with transmission (3) out of seat frame (2) and remove.



Unfasten plug connection (2) and disconnect.

Release screws (3).

Tightening torque [67 31 1AZ](#).

Remove drive unit for seat cushion tilt adjustment (1).



Note:

Carry out a function check.

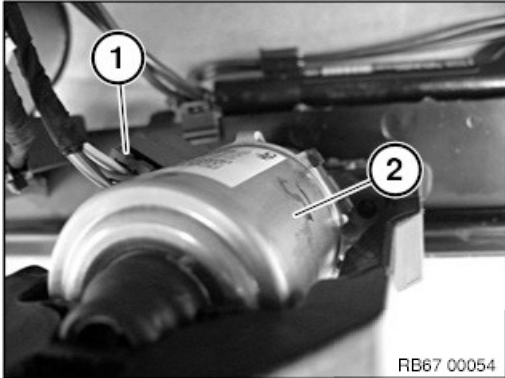
Replacement:

[Initialise](#) seat height adjustment drive unit.



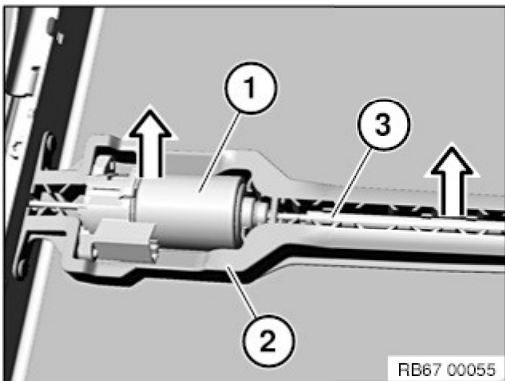
Necessary preliminary work:

- Raise front seat as far up as possible



Removal of electric motor for forward/back seat adjustment:

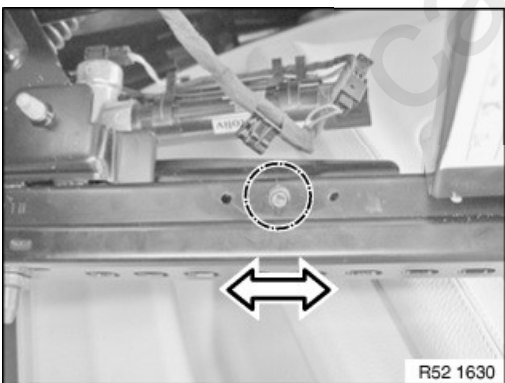
Unfasten plug connection (1) and disconnect.



Lift long flex shaft (3) out of guide in direction of arrow.

Pull out flex shaft (3) from electric motor for forward/back seat adjustment (1).

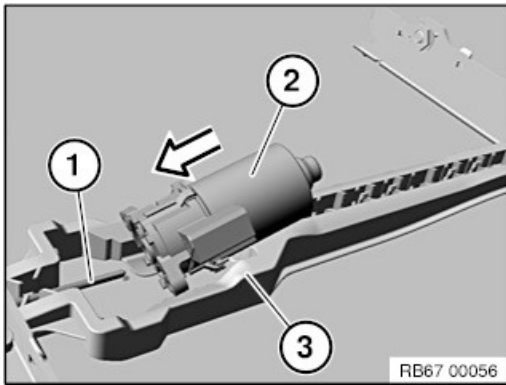
Remove electric motor for forward/back seat adjustment (1) in direction of arrow from holder (2).



Installation of electric motor for forward/back seat adjustment:

Slide seat rail with opening forwards or back until bushing for flex shaft mounting of worm gear is flush.

Insert short flex shaft.



Connect electric motor for forward/back seat adjustment (2) to short flex shaft (1).

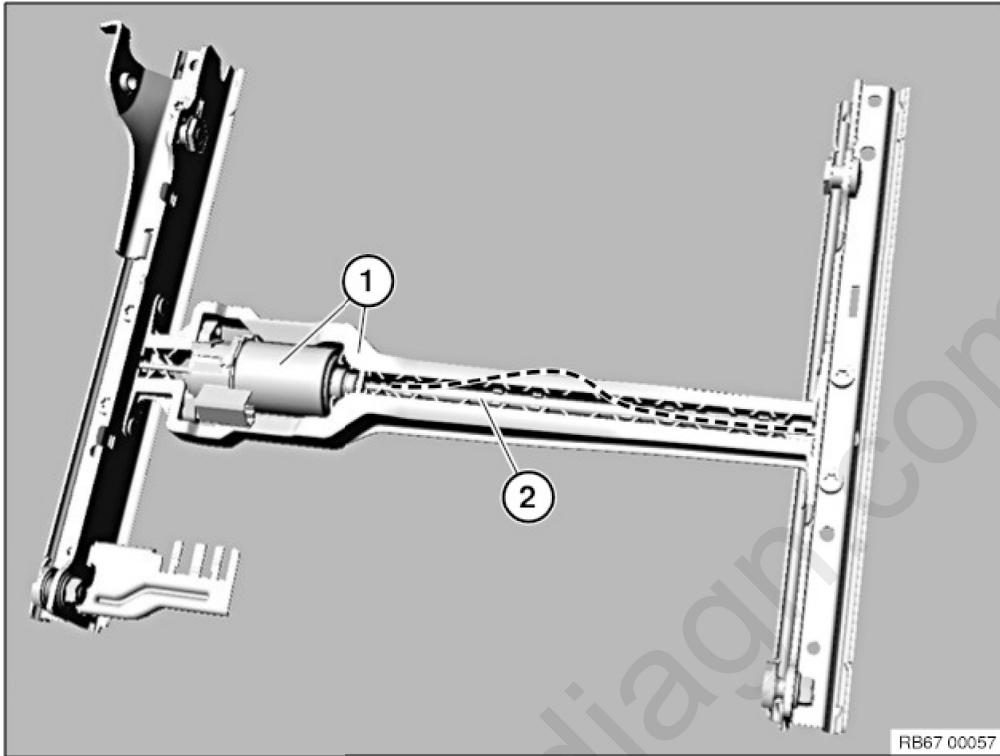
Installation note:

Make sure flex shaft (1) is correctly seated in electric motor (2) and seat rail mounting.

Clip in electric motor for forward/back seat adjustment (2) into holder (3).

Installation note:

Electric motor for forward/back seat adjustment (2) must audibly engage in holder (3).



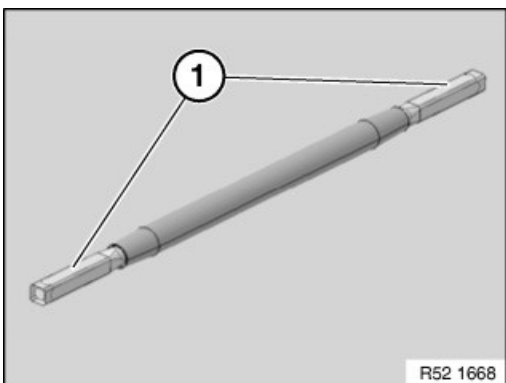
Insert long flex shaft (2) in worm gear on seat rail.

Bend long flex shaft (2) upwards and slide into electric motor for forward/back seat adjustment (1).

Clip in flex shaft into carrier plate.

Installation note:

Make sure flex shaft (2) is correctly seated in electric motor (1) and seat rail mounting.



Installation note:

PTFE hoses are shrink-fitted onto end pieces.

Check that hoses are free from damage.



Note:

Carry out a function check.

Replacement:

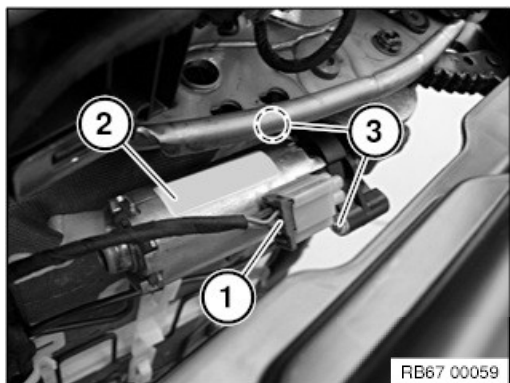
[Initialize](#) drive unit for forward/back seat adjustment.

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Necessary preliminary tasks:

- Remove [driver's or front passenger seat](#)



Set down front seat sideways on a suitable surface.

Unfasten plug connection (1) and disconnect.

Release screws (3).

Tightening torque [67 31 1AZ](#).

Feed out seat height adjustment drive unit (2) and remove.



Note:

Carry out a function check.

Replacement:

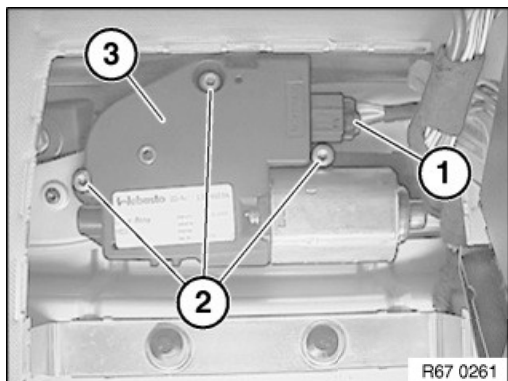
[Initialise](#) seat height adjustment drive unit.

67 61 515 Replacing electric motor with gearbox (front) for operation of slide/tilt sunroof



Necessary preliminary tasks:

- Remove [roof switch cluster](#)



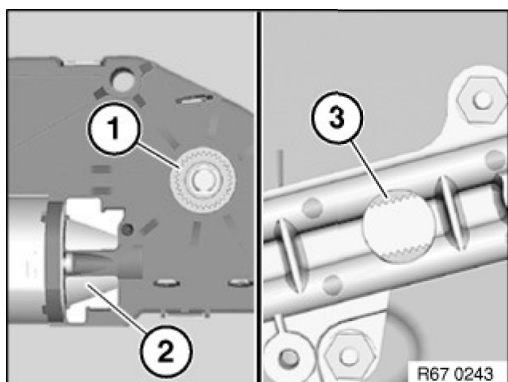
Note:

Secure drive with gearbox for actuating slide/tilt sunroof (3) against falling out.

Unfasten plug connection (1) and disconnect.

Release screws (2), tightening torque [54 13 1AZ](#).

Remove drive with gearbox for actuating slide/tilt sunroof (3).



Installation note:

Insert gear (1) of electric motor with gearbox for operation of slide/tilt sunroof (2) exactly in gearing (3).



Installation note:

- Initialise [slide/tilt sunroof](#).

*Note:*

Initialization is carried out at the adjusting switch of the relevant seat.

In this process, the end positions of the relevant electric seat actuator drive are recorded and stored.

An initialisation must be performed:

- After replacing a drive unit for seat adjustment.
- After replacing/programming control unit for seat adjustment.

Operating procedure for initialisation:

Move corresponding seat actuator drive(s) into both end positions.

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Note:

Initialisation is performed on the power window switch of the relevant door.

Initialisation comprises:

- Normalisation
- Learning characteristic curve

With normalisation, the mechanical end stops of the power window regulator are recorded and stored.

The characteristic curve is learnt immediately after normalisation.

When the characteristic curve is learnt, the mechanical closing forces of the power windows are recorded and stored for correct operation of the anti-trapping mechanism.

Initialisation, i.e. normalisation and learning of characteristic curve, is performed in a continuous operation.



Note:

An **initialisation** must be performed:

- In the event of malfunctions, e.g. no one-touch function, no opening or no convenience function possible.
- After the power windows drive or door module has been replaced.
- After work is carried out on the power windows mechanism.



Warning!

There is no anti-trap mechanism during initialisation.



Necessary preliminary work:

- Vehicle stationary
- Sufficient battery voltage available / connect charger if necessary
- Terminal "15" switched on
- All doors closed
- F12 up to 02/2012 soft top open, from 03/2012 soft top closed



Operating procedure for initialisation (manual):

Deleting the initialisation:

- Move side window into lower end position.
- Press and hold switch in "Open one-touch function" position (second switch position) for between 15 and 25 seconds.

Note:

Deletion of initialisation was successful if toll function and anti-trap mechanism have been rendered inoperative.

Performing initialisation:

- Move side window to upper end position
- Pull and hold switch in "Close one-touch function" (2nd switch position) during the entire process.

Note:

Re-initialisation was successful if toll function and anti-trap mechanism function flawlessly.



Alternatively, initialisation of the power window regulation can also be carried out via the Service function in ISTA.

Selection via:

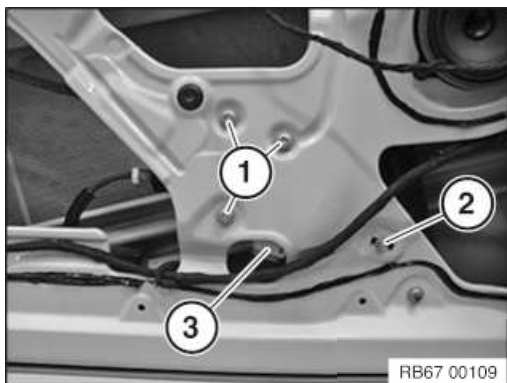
- Body
 - Locking and security functions
 - Power window regulator
 - Initialise power window regulators

67 62 000 Removing and installing or replacing flat motor for front left or right power window regulator



Necessary preliminary tasks:

- Remove [sound insulation in front door](#)

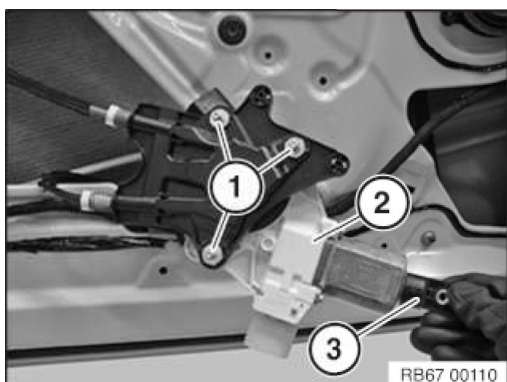


Release nuts (1) and screw (2).

Tightening torque [51 33 2 AZ](#).

Feed out flat motor (3).

Unlock associated plug connection and disconnect.



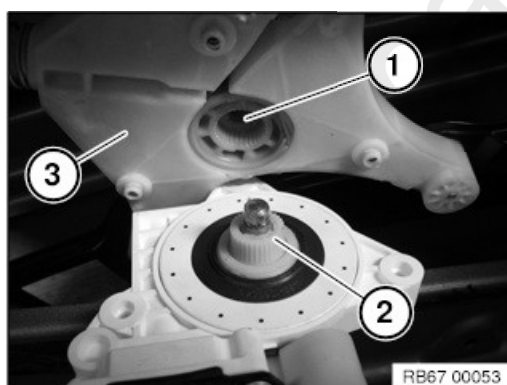
Release screws (1).

Tightening torque [51 33 1 AZ](#).

Remove flat motor (2).

Replacement:

Remount support (3).



Note:

Diagram similar.

Installation note:

Make sure drive shaft (2) is correctly seated in mounting (1) at power window regulator (3)!

Ensure that the flat motor (2) is assembled without tension.



After installation:

An initialisation must be carried out in order to activate anti-trap mechanism.

Read and comply with [notes](#) on initialisation of power window regulator.

*Note:*

The wiper motor can only be replaced in conjunction with the wiper console.

Procedure is described in the document "[Removing and installing complete wiper console](#)".

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