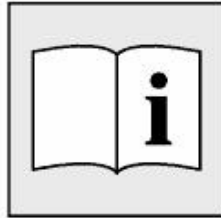
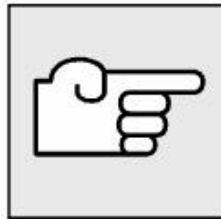
**Important!**

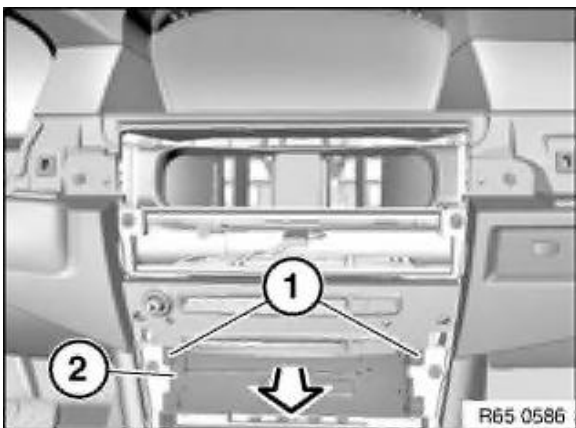
Read and comply with notes on protection against electrostatic damage (ESD protection).

*Necessary preliminary tasks:*

- **E60:** Remove luggage compartment trim on side panel on right
- **E61:** Remove flap in luggage compartment panel on right
- Disconnect battery negative lead
- Remove middle trim for instrument panel

*Note:*

Comply with notes and instructions on handling optical waveguides.



Release screws (1).

Important!

Do not scratch center console trim, cover if necessary.

Pull back audio system controller (2) slightly.

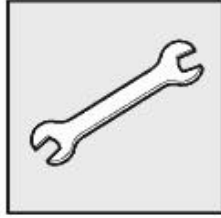
Unlock associated plug connections and disconnect.

Remove audio system controller (2).



Replacement:

Carry out programming/coding.

**Special tools required:**

- 12 7 060

*Note:*

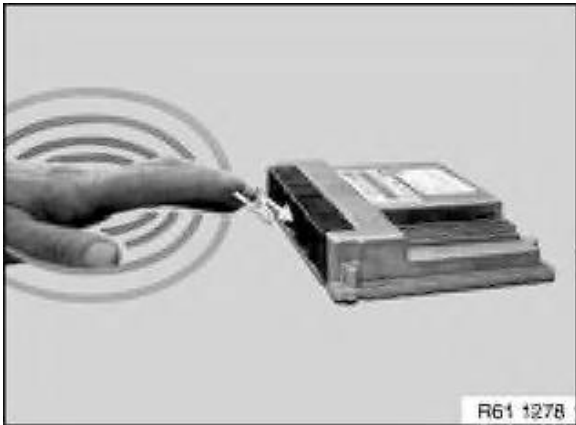
Electrical components which are particularly sensitive to electrostatic discharge (electronic control units, sensors, etc.) are marked with the ESD warning symbol.

E-Electro

S-Static

D-Discharge

For further information on this subject, please refer to Service Information SWZ 2 06 04 (128) .



Statically charged persons can discharge by touching electrical components.

Note:

Humans can only detect a discharge starting from a level of approx. 3000 V.

The danger threshold for electrical components already starts from a level of approx. 100 V.



Important!

Do not touch pins or multi-pin connectors directly!

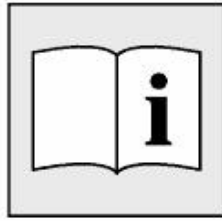
Touch electrical components by their housings only.



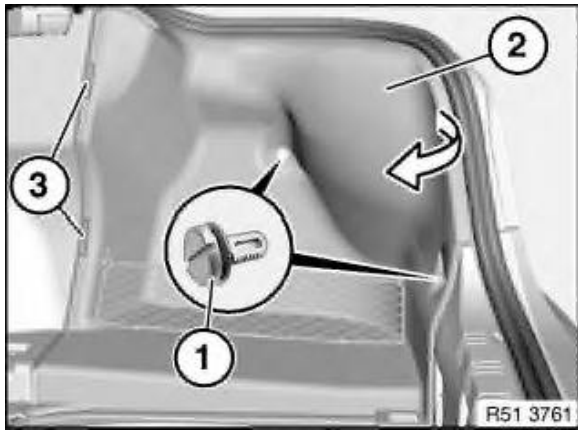
Important!

To prevent electrical components from being damaged or destroyed by electrostatic discharge, it is absolutely essential to comply with the following instructions:

- When replacing electrical components, leave the replacement components in their original packaging until immediately before they are to be installed
- If necessary, always return a removed component in its original packaging (always pack the component away immediately)
- Read and comply with user information on using the associated ESD special tool 12 7 060

*Necessary preliminary tasks:*

- Remove luggage compartment floor trim panel.

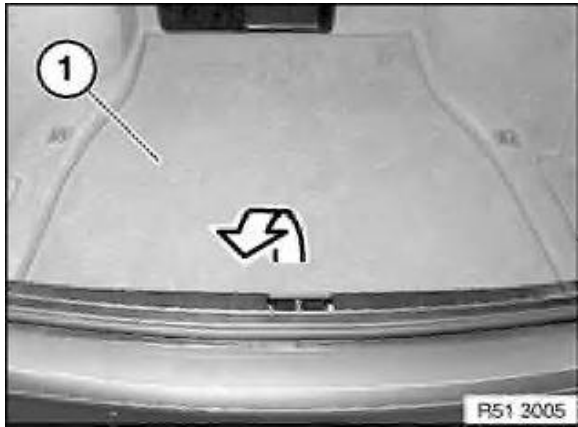


Open rotary clips (1) and remove.

Feed out luggage compartment trim on right side panel (2) in direction of arrow and remove.

Installation:

Correctly feed in guides (3) of luggage compartment trim on right side panel (2).



Open rear lid.

Remove luggage compartment floor trim (1).

Observe safety instructions for handling vehicle battery.

Before disconnecting battery:

Switch off ignition.

Note:

If the ignition is not turned off when the battery is disconnected, fault memories may be set in some control units.

Important!

- There is a danger of mixing up battery leads: If the battery positive and negative leads are the same color and you are in doubt, follow the polarity to the battery, then mark and cover the leads.
- On vehicles with radio code: After disconnecting the battery, the radio code must be re-entered. Therefore obtain the radio code card from the customer beforehand. Note stored stations and restore them after connecting the battery.
- Stored settings of the on-board computer and clock will also be lost.
- All available central keys must be recoded for cars with first generation infrared transmitter locking systems.

General notes on disconnecting battery:

- Do not disconnect battery leads and leads from alternator and starter motor while engine is running.
- Cars with IBS on battery negative terminal:
Do not under any circumstances pull/lever off pole shoes by force.
Do not under any circumstances release socket-head cap screw of IBS.
- Detach terminal of battery negative lead from car battery and second battery if fitted. Cover battery negative terminal(s) and secure.
- When work is carried out on the electrical system, faults may be caused in the fault memories of some control units when the battery is connected.
- When fitting terminal for battery negative lead: Tightening torque 61 21 1AZ .

After connecting battery:

Important!

After a power supply interruption some equipment is disabled and must be reactivated.

Likewise, individual settings are lost and must be activated.

Example:

- Activate sliding sunroof
- Vehicles with AFS only: Activate steering angle
- If necessary, activate power windows

For further information and instructions on vehicle-specific activation, please refer to the point "Procedure for initialization" under the document type "SI Diagnosis Coding" from the IDC (index number 11).

Vehicles with a two-battery system

Starter and equipment batteries

A two-battery system has a starter battery circuit and an equipment battery circuit. A secondary control unit monitors both battery

circuits. Depending on the situation, the battery circuits are connected to or isolated from the secondary control unit via an isolating relay.

Two AGM batteries are used as a storage battery; the design and features of these batteries are described in BMW Technology (SBT) 610102 (005).

Important!

These batteries must not under any circumstances be charged with a voltage in excess of 14.8 V. Rapid programs must not be used either.

Receiving/giving starting assistance via jump start terminal

The engine can be jump-started with an external voltage supply via the jump start terminal on the right side of the engine compartment.

Note:

The starter battery is isolated from the alternators when the engine hood/bonnet is open.

Giving starting assistance via the jump start terminal is thus limited by the capacity of the starter battery when the engine hood/bonnet is open.

Charging starter and equipment batteries via jump start terminal

The starter battery is charged as a matter of priority with a charger connected to the jump start terminal. The voltage at the starter battery is the decisive factor in determining whether the equipment battery is also included in the charging operation. The secondary control unit automatically detects a charging operation at a charging voltage at the starter battery of ≥ 13.5 V. The isolating relay is closed and thus the equipment battery is connected in parallel. Both batteries are now charged.

Prerequisite:

- Terminal 61 inactive
- Terminal 15 inactive

If terminal 15 becomes "active" during the charging operation, the isolating relay is opened immediately and again only the starter battery is charged.

Note:

When the engine hood is open, the isolating relay is also opened in normal operation when the engine is running.

A special mode can be set by means of diagnosis for workshop/garage operation. The isolating relay is closed from terminal R in this operating mode. This mode is automatically reset once a distance of 5 km has been driven.

Trickle charging

Increased closed-circuit current consumption can be compensated with the aid of the battery trickle charger (special tool 61 2 410) via the jump start terminal.

Important!

The cigarette lighter is isolated from the electrical system after terminal R "OFF" on a timed basis (60 mins.), thereby interrupting charging of the equipment battery via the cigarette lighter. This is prevented if the battery master switch (on the right side of the luggage compartment behind the panel) is turned on and off again twice within 2 seconds. (Cigarette light battery charging function).

Refer also to Service Information bulletin "Instructions for charging battery" (SI) 61 08 01 (776)

Battery acid is highly corrosive:

Do not allow any battery acid to come into contact with the eyes, the skin or clothing. Therefore wear protective clothing, gloves and goggles.

Do not tilt the battery, acid may emerge from the vent opening.

In event of contact with acid:

If acid is splashed into the eyes, rinse them immediately for several minutes with clear water. You must then consult a doctor without delay.

If acid is splashed onto the skin or clothing, neutralize it immediately with a soapy solution and rinse with lots of water.

Seek medical attention immediately if battery acid is accidentally swallowed.

Explosion hazard:

Strictly no flames, sparks, naked light or smoking!

A highly explosive mixture of electrolytic gas is created when batteries are charged. The rooms where charging is carried out must therefore always be well ventilated.

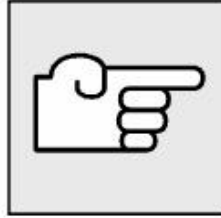
Avoid the formation of sparks when handling cables, wiring and electrical devices.

Turn the ignition lock to the 0 position before disconnecting or connecting the battery.

Do not place tools or any similar object on the battery (danger of short-circuiting and explosion!).

61 21 Battery with terminal

	Type	Thread	Tightening specification	Measure
1AZ Positive battery lead, negative battery lead, safety battery terminal, IBS (screw connection from above)	All	M6		5 ± 1 Nm
2AZ Distribution box	E87	M8		15 ± 15 % Nm



Note:

Initialization comprises:

- Normalization
- Learning characteristic curve

The mechanical end positions are recorded and stored during normalization.

The characteristic curve is learnt immediately after normalization.

When the characteristic curve is learnt, the mechanical closing forces of the slide/tilt sunroof are recorded and stored for correct operation of the anti-trapping mechanism.



Note:

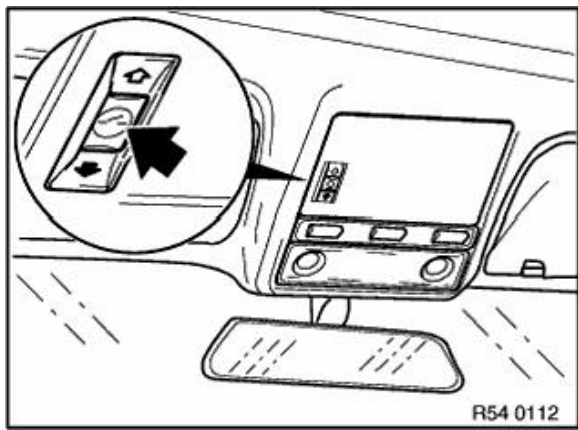
Then carry out an **initialization**:

- if the slide/tilt sunroof has been mechanically moved by means of the emergency actuator
- in the event of malfunctions, e.g. no one-touch function, no opening or no comfort function possible
- after disengagement of the drive unit
- after work is carried out on the mechanism of the slide/tilt sunroof
- after the control unit has been replaced



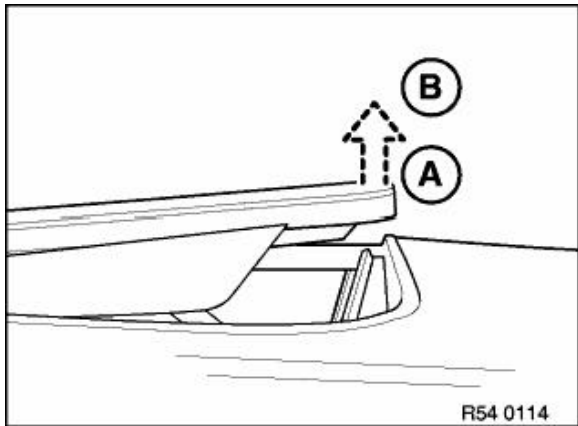
Warning!

There is no anti-trapping protection during initialization.



Normalization:

- Press and hold the switch in the "Lift" direction
- In the event of delayed starting or sudden stopping of the slide/tilt sunroof, continue pressing the switch in the "Lift" direction

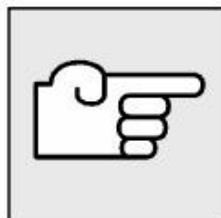
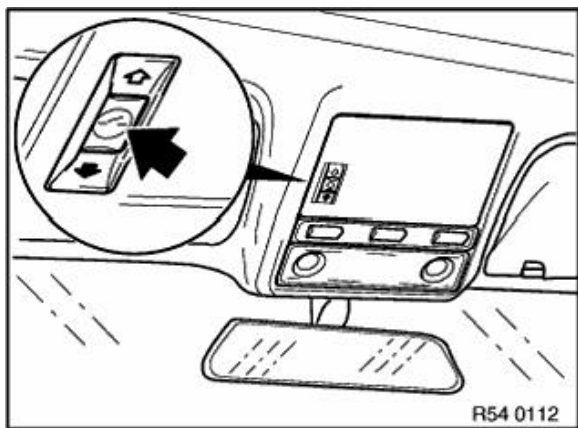


- After reaching the lift end position (A), keep the switch pressed for approx. 15 seconds further
- Normalization is completed when the slide/tilt sunroof in lift end position (A) presses again briefly in the direction of position (B).

Learning characteristic curve:

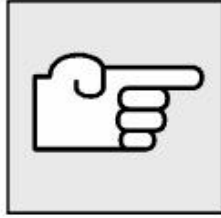
The curve is learnt manually in the following steps:

- After normalization, keep switch pressed in "Lift" direction.
- The slide/tilt sunroof stops for 5 seconds in the final raise position after normalization. It then moves into the "Closed" position (learning of the "Closing from raising" curve)
- The slide/tilt sunroof then moves into the "Open" end position and immediately back into the "Closed" position (learning of the "Closing" curve)
- Release switch.



Note:

- The entire operation lasts approx. 75 secs.
- Learning of the curve is terminated when the switch is released
- If the switch is released in the meantime, the entire procedure must be repeated
- On completion of successful initialization, the corresponding messages in the check control and the control display go out
- Carry out function check (tip function, anti-trapping protection and, if necessary, comfort function)

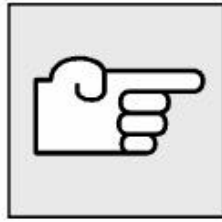


Note:

Version with AFS:

After reconnecting the vehicle battery, carry out the following procedure for setting the steering angle:

- Start engine.
- Turn steering wheel left to full lock.
- Turn steering wheel right to full lock.
- Turn steering wheel to central position.
- Turn off engine.
- Turn on ignition (terminal 15), AFS telltale and Check Control message go out.



Note:

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

Initialization comprises:

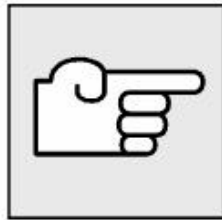
- Normalization
- Learning characteristic curve

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

The characteristic curve is learnt immediately after normalization.

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

Initialization, i.e. normalization and learning of characteristic curve, is performed in a continuous operation.



Note:

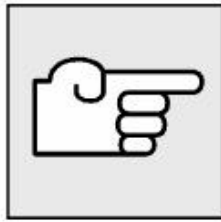
An **initialization** must be performed:

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



Warning!

There is no anti-trapping protection during initialization.



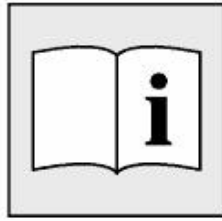
Operating sequence for initialization:

- Move side window into lower end position.
- Press switch into "Open one-touch operation" (second switch position) for approx. 15 to 25 s and hold down.
- Release switch, then immediately press into "Close one-touch operation" (second switch stage) and hold down.
- The side window now moves to the lower end position and then back to the upper end position.

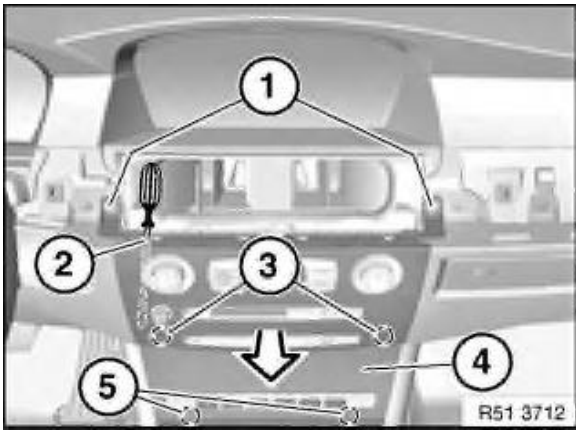
Initialization is completed once the side window has returned to the upper end position.

Note:

Carry out function check (one-touch function, anti-trapping protection and, if necessary, comfort function).

*Necessary preliminary tasks:*

- Remove decorative strip on instrument panel on right



Release screws (1).

Note:

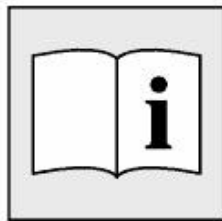
Feed in screwdriver (2) of sufficient length as illustrated ahead of trim for instrument panel (4).

Unclip upper retaining points (3) by pressing screwdriver (2) towards front.

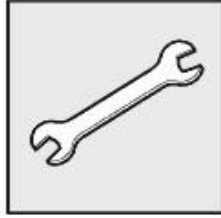
Unclip lower retaining points (5).

Unlock associated plug connections and disconnect.

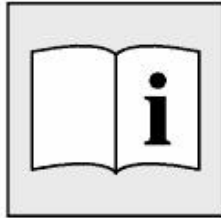
Remove center trim for instrument panel (4).

Replacement:

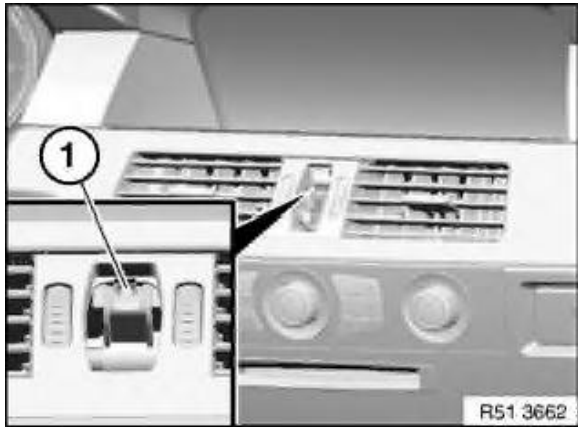
- Remove operator unit for heater/air conditioner
- Remove center console switch center

**Special tools required:**

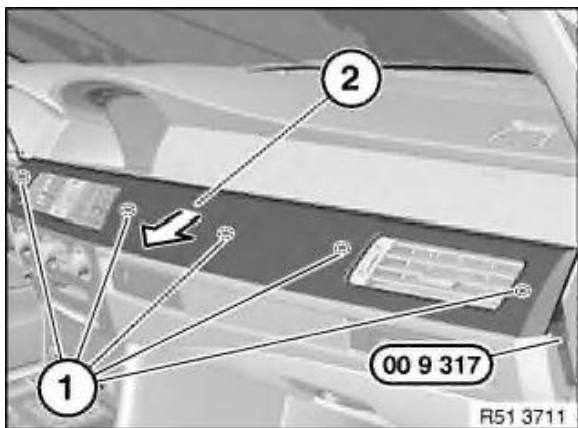
- 00 9 317

*Necessary preliminary tasks:*

- Remove switch for hazard warning system/central locking

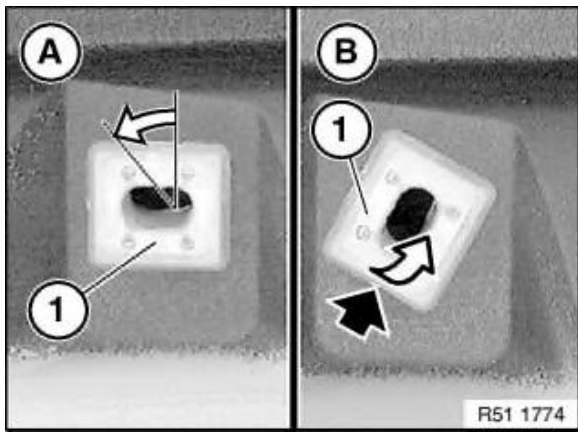


Unscrew bolt (1).



Lever out right decorative strip on instrument panel (2) at retaining points (1) with special tool 00 9 317 .

Disconnect associated plug connection and remove right decorative strip on instrument panel (2).



Installation:

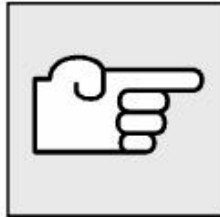
Clips (1) must be seated in associated mountings.

If necessary, remove clips (1) remaining on right decorative strip for instrument panel.

Replace damaged clips (1).

A Turn clip (1) with screwdriver to left by approx. 60 °.

B Lever out clip (1) from below.

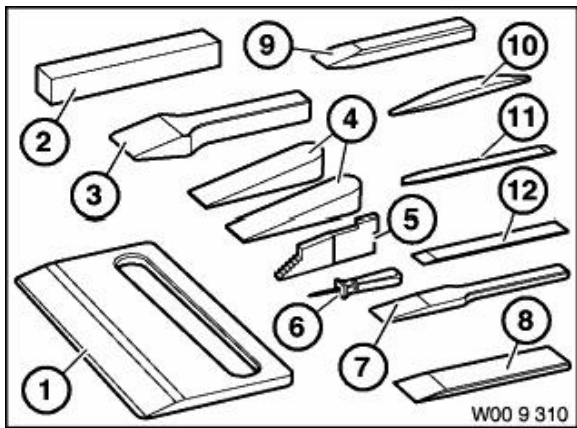


Replacement:

- Remove right fresh-air grill
- Remove center fresh-air grill

00 9 310 Assembly wedges (13)

Minimum set: Mechanical tools



Note:

For straightening and assembly jobs on vehicle bodies, e.g. fitting trim panels, removing window weatherstrips, repairing small-scale dents, removing residual adhesive materials, measuring gap widths, levering out trim panel parts

Series:

E12, E21, E23, E24, E28, E30, E30/C, E30tou, E31, E32, E32/3, E34, E34tou, E36, E36/2, E36/3, E36/5, E36/7, E36/C, E36tou, E38, E38/3, E39, E39PL, E39tou, E46, E46/16, E46/2, E46/3, E46/5, E46/C, E52, E53, E60, E61, E63, E64, E65, E66, E67, E83, E85, E87, R50, R52, R53, RR1

SI number:

1 02 97(174)

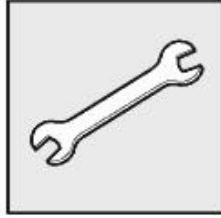
Order number:

00 9 310
Assembly wedges (13)

Consisting of:

1 = 00 9 311	Trim remover
2 = 00 9 312	Strike wedge, square
3 = 00 9 313	Striking wedge, large
4 = 00 9 314	Adjusting wedges (2 x)
5 = 00 9 315	Gap wedge
6 = 00 9 316	Sealing lip wedge
7 = 00 9 317	Trim panel wedge
8 = 00 9 318	Universal wedge
9 = 00 9 319	Striking wedge, small
10 = 00 9 321	Fishbone
11 = 00 9 322	Adhesive wedge
12 = 00 9 323	Cleaning wedge (scraper)
00 9 329	Case with insert for assembly wedges

In conjunction with: 009310

**Special tools required:**

- 64 1 020



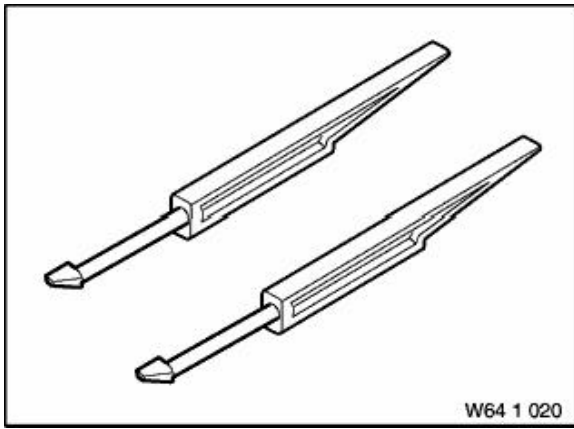
Lever out switch for hazard warning system/central locking (1) with special tool 64 1 020 and pull back.

Disconnect associated plug connection and remove switch for hazard warning system/central locking (1).

64 1 020

Release hook

Minimum set: Mechanical tools



Note:

For releasing and removing fresh-air grills - For lever out various trims - Model series: All models

Series:

E36, E36/2, E36/3, E36/5, E36/7, E36/C, E36tou, E38, E38/3, E39, E39PL, E39tou, E46, E46/16, E46/2, E46/3, E46/5, E46/C, E52, E53, E60, E61, E63, E64, E65, E66, E67, E83, E85, E87, E90, R50, R52, R53, RR1

Storage location:

C33

SI number:

1 15 99(483)

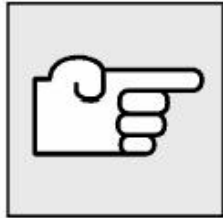
Order number:

64 1 020
Release hook

**Caution!**

To avoid damage when handling optical fibers, comply with the following points:

- The minimum permitted bending radius is 25 mm
- Do not subject optical fibers to compressive and tensile load
- Protect optical fibers against the effects of heat $\geq 85^{\circ}\text{C}$ (e.g. during welding work, drying work with infrared heater or hot air blower)
- Optical fibers are permitted to show only one junction point (bridge), replace optical fibers if necessary

*Note:*

The optical fibers are colored differently as follows:

- Green=**MOST** (**M**edia **O**riented **S**ystems **T**ransport) optical fibers
- Yellow=**ISIS** (**I**ntelligent **S**afety and **I**ntegration **S**ystem) optical fibers
- Orange=repair optical fibers

Follow instructions for processing cables and optical fibers.