

[BMW G12 750Li Sedan](#) / [Repair Manuals and Technical Data](#) / [61 General vehicle electrical system](#) / [61 21 Battery with holder](#) /

## 61 21 003 Removing and installing the 12-V dual storage battery

### PRELIMINARY WORK

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#### 1 – Activating the 48V electrical system



- Activate the 48V electrical system by closing the bonnet.

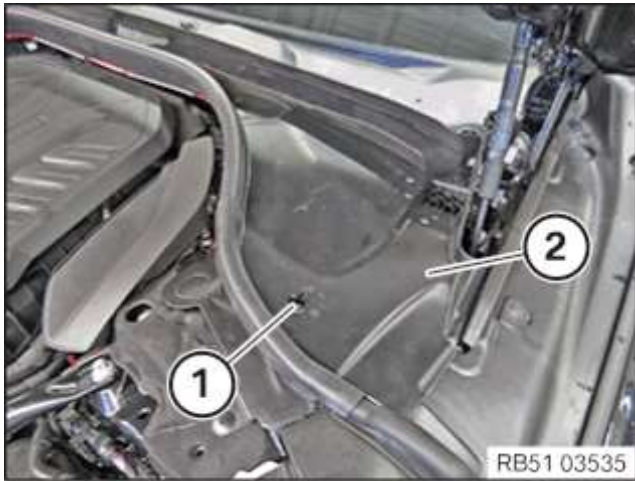
The activation takes place automatically.

#### 2 – Disconnecting all battery earth leads



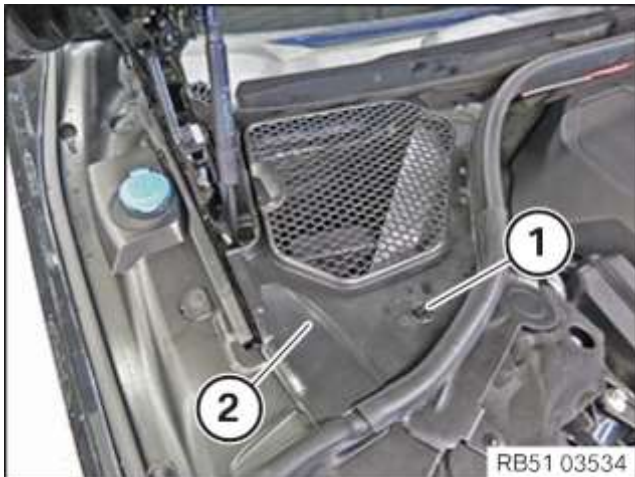
- See additional information.

### 3 – Remove the cover of the engine compartment at the rear left



- Loosen the lock (1).
- Remove the cover (2).

### 4 – Remove the cover of the rear right engine compartment



- Loosen the lock (1).
- Remove the cover (2).

### ► Covering the vehicle battery

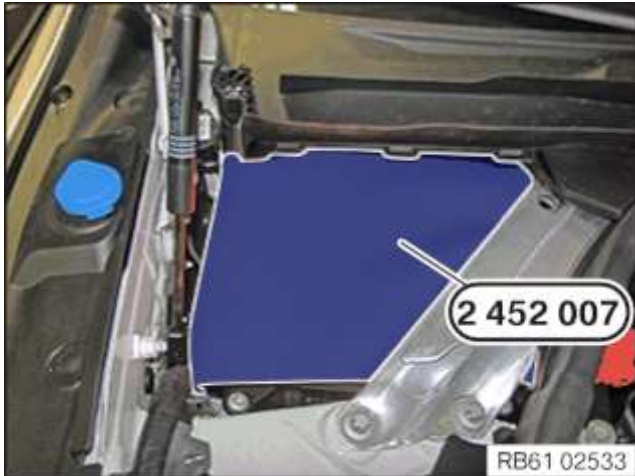
**Unprotected battery terminals.****Risk of short circuits! Risk of fire!**

- Cover the vehicle battery.



The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Cover the battery with the special tool **2 452 007** as shown.

**5 – Remove left and right wiper arm**

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

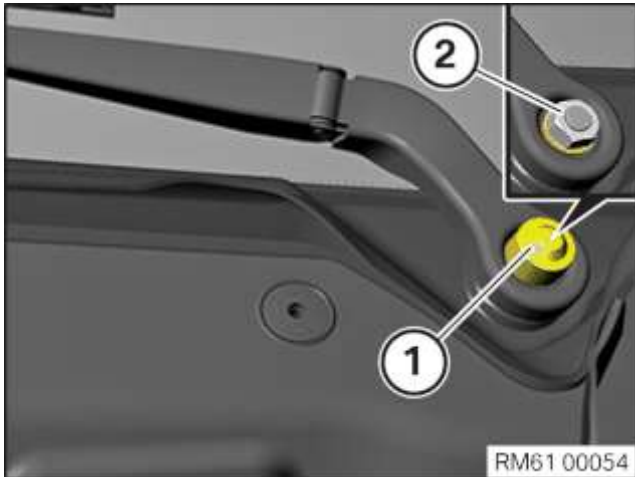
**► Remove the wiper arm**



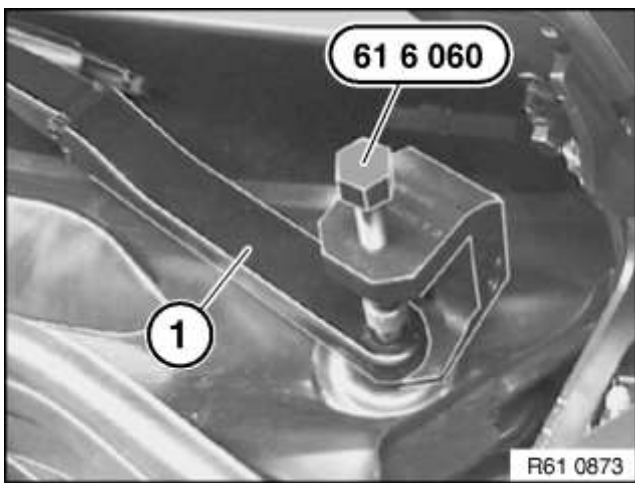
### Damage to wiper console.

**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.

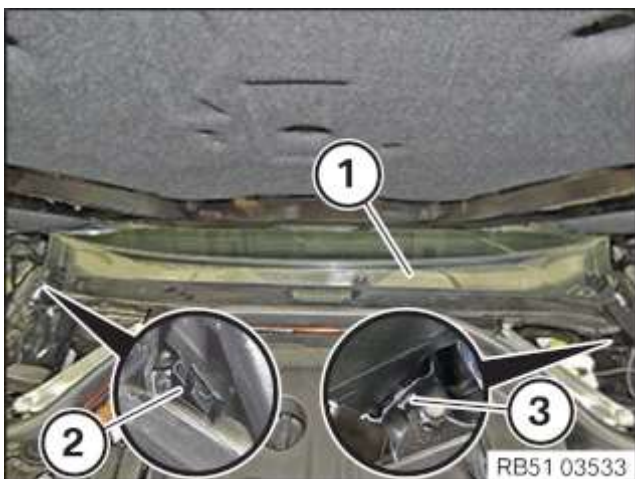


- Remove the protective cap (1).
- Loosen nut (2).



- Pull off the wiper arm (1) using special tool 0 493 441 (61 6 060).

## 6 – Remove cowl panel cover

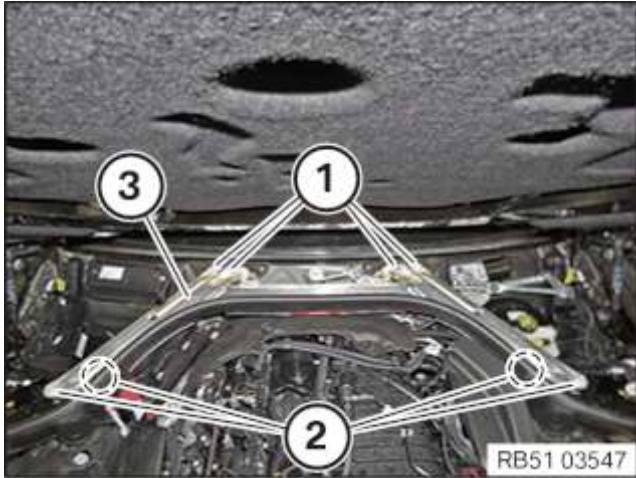


- Release the cowl panel cover (1) from the latch mechanisms (2) and (3).
- Pull off the cowl panel cover (1) towards the top, starting from the side.

## 7 – Removing trailing link at spring strut dome



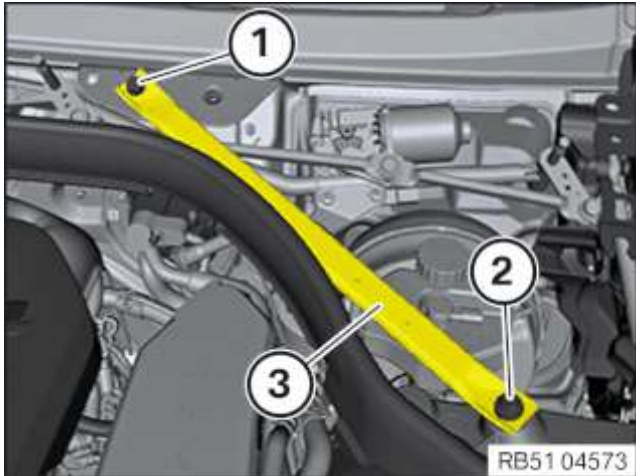
Driving without the strut brace/front-end strut or tension strut is not permitted.



- **Version 1:**

Loosen screws (1) and (2).

Remove tension strut (3) in the spring strut dome upwards.



- **Version 2:**

Loosen screws (1) and (2).

Remove tension strut (3) in the spring strut dome upwards.

## MAIN WORK



## 8 – Removing 12 V dual storage system



### Working on 12 V vehicle electrical system.

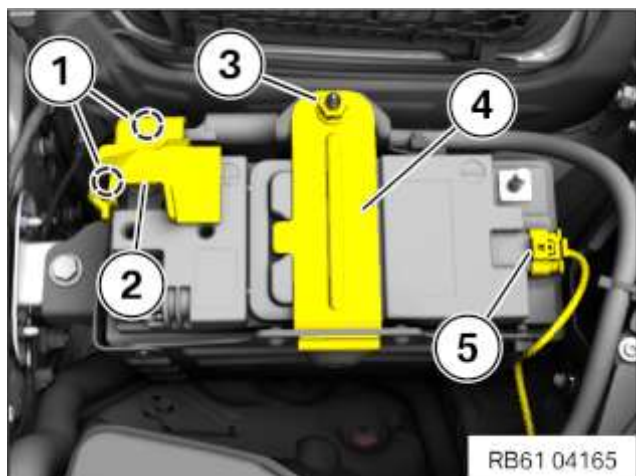
#### Risk of short circuits! Risk of fire!

- 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.

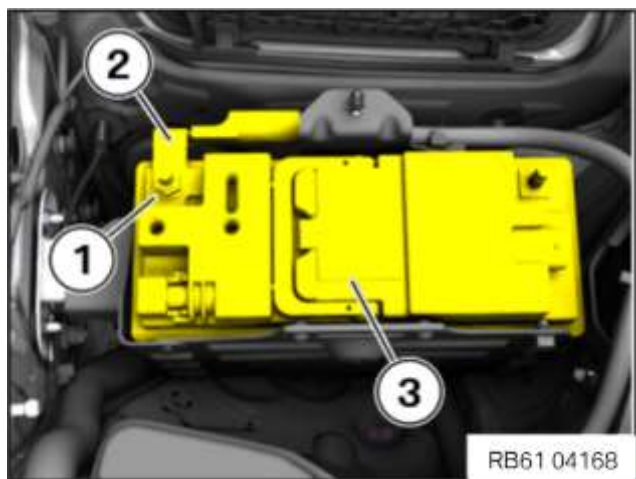


Follow notes for 12 V dual storage system.

See additional information 6120 ... Notes on the 12 V dual storage system.



- Loosen the latch mechanisms (1).
- Remove positive terminal cover (2).
- Loosen nut (3).
- Remove battery rollover protection bracket (4).
- Unlock plug connection (5) and disconnect.



- Loosen nut (1).
- Pull off positive battery cable (2) from the positive terminal and secure at side.

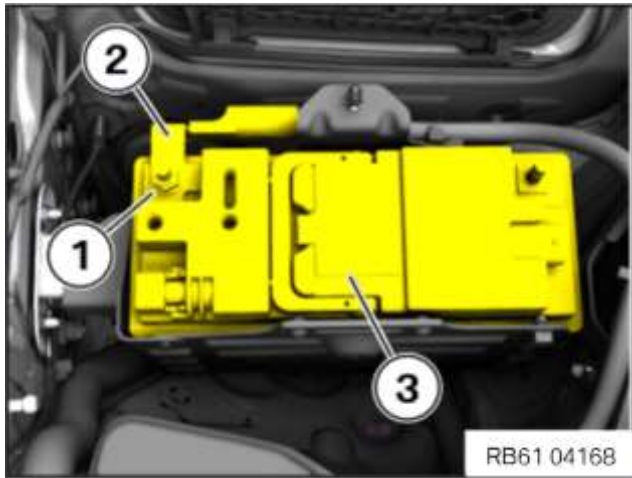


### Unprotected battery terminals.

#### Risk of short circuits! Risk of fire!

- Cover the vehicle battery.
- Fold back grab handle and remove the 12-V dual storage battery (3).

## 9 – Install 12-V dual storage battery



**Incorrect screw connection of the battery cable.**

### **Risk of fire!**

- Make sure that the battery cable is screwed together with the **correct** nut.

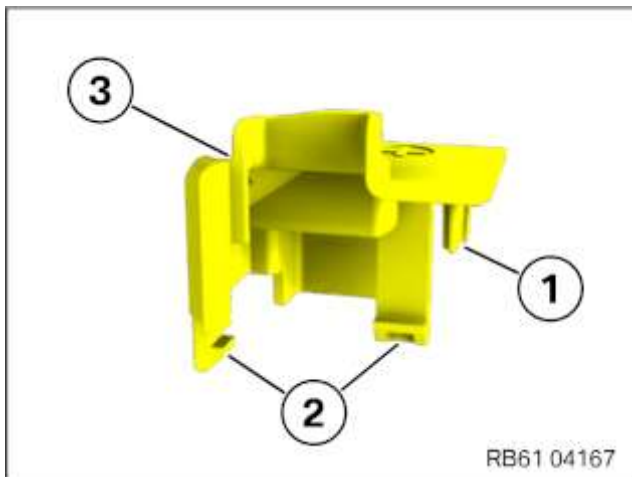
- Install the 12 V dual storage system (3).
- Position the positive battery cable (2) on the positive terminal.
- Tighten nut (1).

### **Positive battery terminal to battery**

Nut	Tightening torque	5 Nm
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### **Check**

- Check the guide (1) and the retaining lugs (2) on the positive terminal cover (3) for damage.



Result

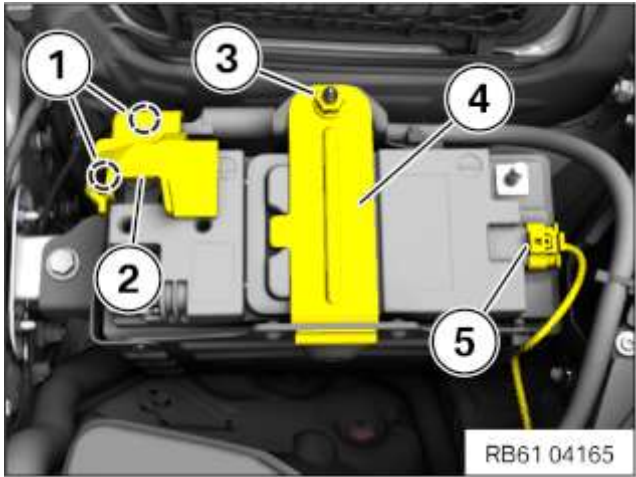
» Guides (1) or retaining lugs (2) are damaged.

Measure

- Renew positive terminal cover (3).
- Connect connectors (5) and lock.
- Install battery rollover protection bracket (4).
- Tighten nut (3).

Retaining bracket 12 V dual storage system

Nut M8	Tightening torque	15 Nm
<ul style="list-style-type: none"><li>• Insert positive terminal cover (2).</li><li>• Clip in latch mechanisms (1) on the positive terminal cover (2).</li></ul>		

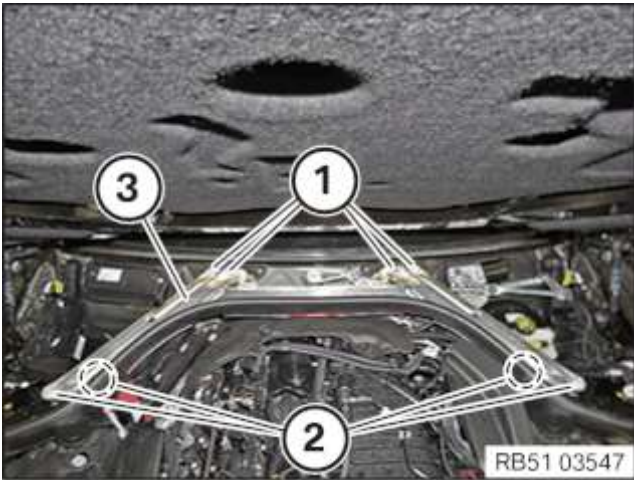


POSTPROCESSES

10 – Install tension strut on spring strut dome.



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



- **Version 1:**  
Install the tension strut (3) on the spring strut dome.  
Tighten the screws (1).

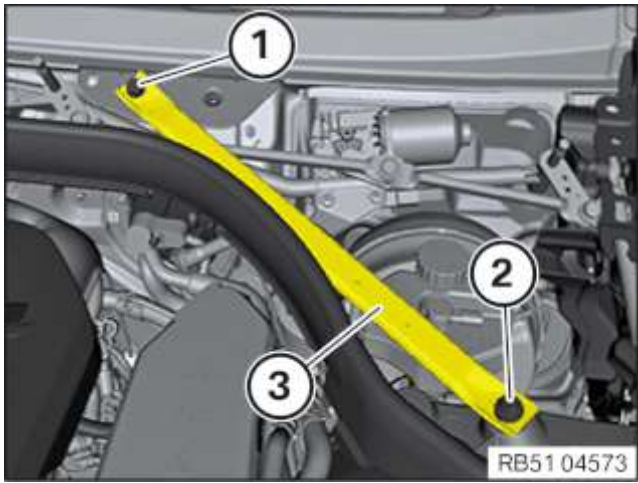
Tension strut on bulkhead

M10x25 screw	Tightening torque	56 Nm
<ul style="list-style-type: none"><li>• Renew screws (2).</li></ul>		
<b>Parts:</b> Screws		
<ul style="list-style-type: none"><li>• Tighten the screws (2).</li></ul>		

Tension strut to spring strut dome

Screw	Renew screws.	Jointing torque	56 Nm
		Angle of rotation	90 °





• **Version 2:**

- 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).		
<b>Parts:</b> Screw		
• Tighten down screw (2).		

**Tension strut to spring strut dome**

Screw	Renew screws.	Jointing torque	56 Nm
		Angle of rotation	90 °

► **Repair the thread on the spring strut dome**

- Repair the damaged thread with Helicoil thread insert.

**Expendable materials**

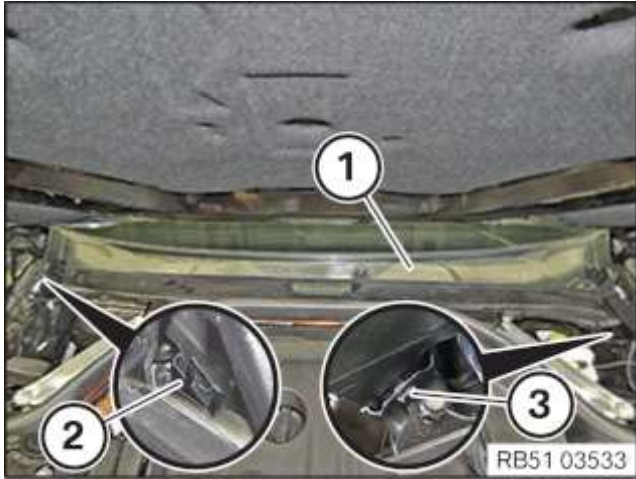
Helicoil thread insert	M10x25 mm	33 30 6 782 756
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## 11 – Installing cowl panel cover



**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.



- Starting on the side, push the cowl panel cover (1) into the latch mechanism at the top.
- Engage cowl panel cover (1) into the latch mechanisms (2) and (3).

## 12 – Install left and right wiper arm



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

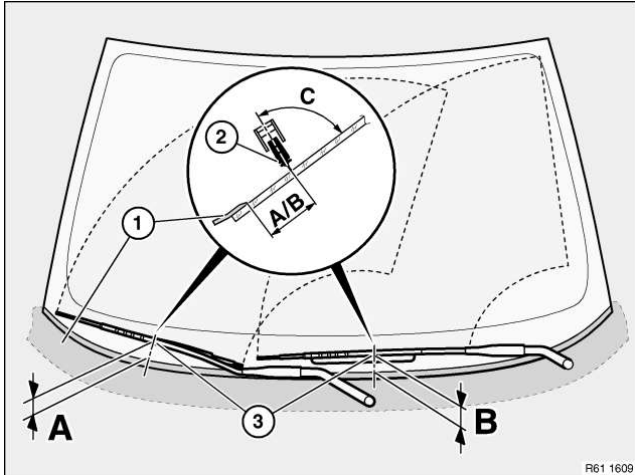
► Install left and right wiper arm



The wiper system must be in zero position.

After installing the cowl panel cover and before fitting the wiper arm:

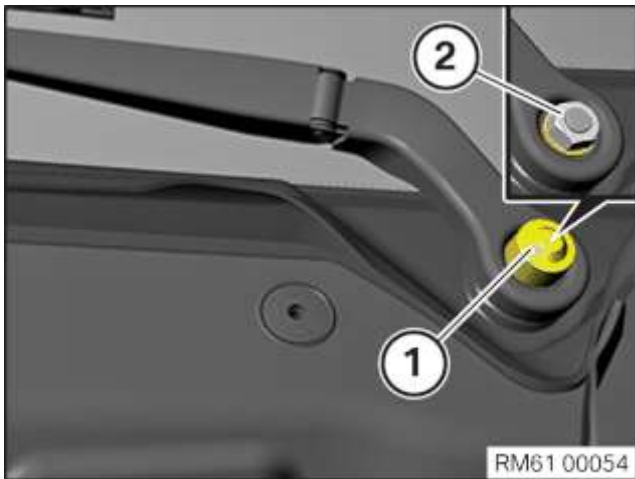
Activate the wiper system once to ensure that it has the correct installation position.



- Connect the wiper arms (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)	65 mm
Wiper arm left (B)	58 mm



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

- Tighten nut (2).

#### Windscreen wiper arm

Combination hexagon nut	Tightening torque	35 Nm
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- Connect the protective cap (1).

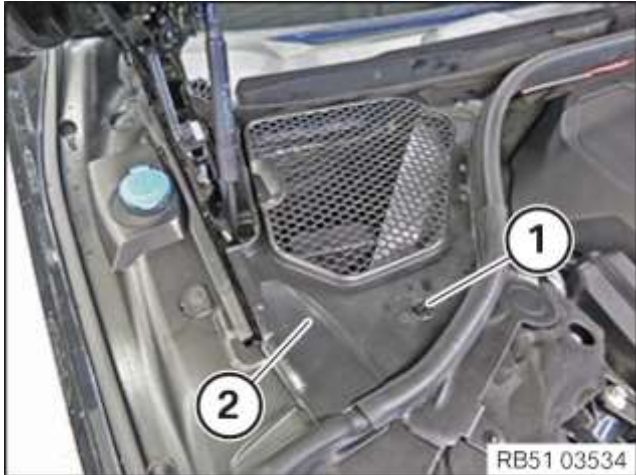
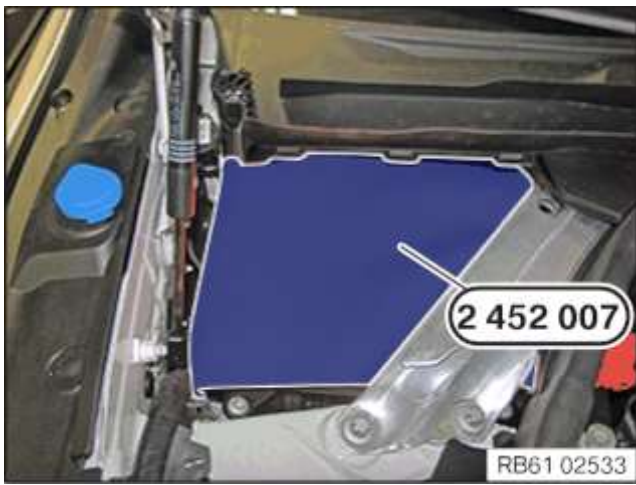
## 13 – Install the rear right engine compartment cover

### ► Remove the battery cover

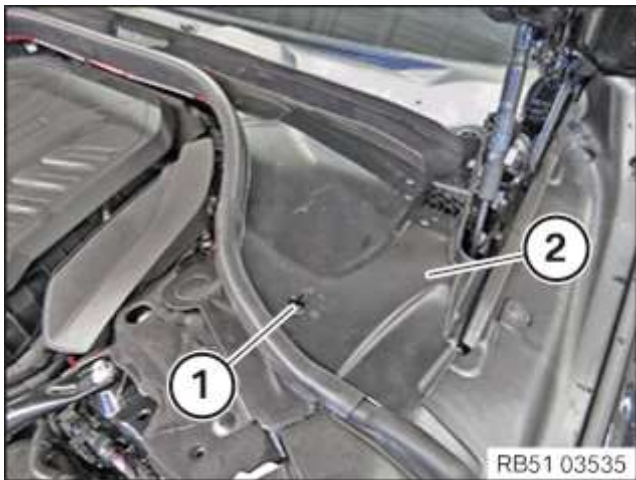


The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.

- Remove the special tool **2 452 007** from the battery.
- Install the cover (2).
- Lock the lock (1).



#### 14 – Install the cover of the engine compartment on the rear left



- Install the cover (2).
- Lock the lock (1).

## 15 – Connecting all battery earth leads



- See additional information.

## 16 – Deactivating the 48V electrical system



- Deactivate the 48V electrical system by opening the bonnet.

The deactivation takes place automatically.

### ► Determining the absence of voltage in the 48V electrical system

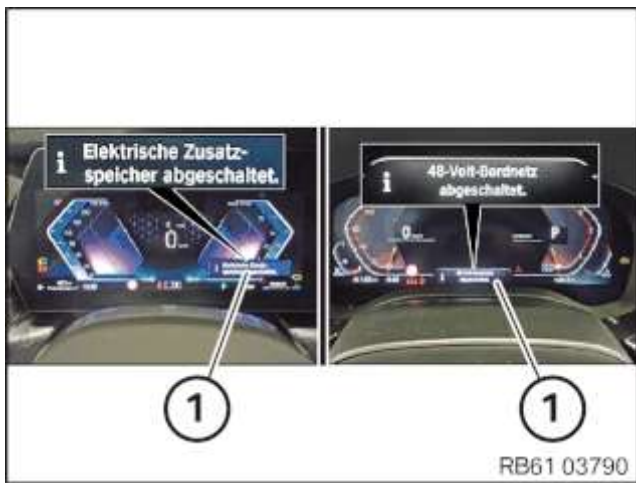




Zero voltage (48V electrical system is switched off) is displayed only in PAD mode.

### Check

- Press the START-STOP button quickly 3 times without stepping on the brake pedal to establish the PAD mode.
- Check that the instrument cluster (KOMBI) is de-energized in PAD mode.



**desired state**

- The Check Control message "48V vehicle electrical system switched off." Or "Electrical additional storage switched off." (1) is displayed.

**Result**

» **The absence of voltage** cannot be determined by means of the Check Control message "48V vehicle electrical system switched off." Or "Electrical additional storage 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 "48V electrical system switched off." Or "Electrical additional storage switched off." (1) is displayed in the instrument cluster (KOMBI), may the 12 V battery be disconnected.

**Result**

» **The absence of voltage** cannot be determined by means of the Check Control message "48V vehicle electrical system switched off." Or "Electrical additional storage switched off." (1). Work is not permitted to be started.

**Measure**

- See additional information:

[48V battery with fault code related to relay is stuck in closed position and de-energized](#)

**Result**

» The Check Control message signals that the 48V electrical system has been switched off.

**Measure**

- Exit the PAD mode by pressing the START-STOP button once without pressing the brake pedal.

The work “Disconnecting the negative battery cable of the 48-V battery” can be started.

Additional Information

Overview of Tightening Torques

Positive battery terminal to battery		Used in step	9
Nut	Tightening torque	5 Nm	

**Retaining bracket 12 V dual storage system**Used in step [9](#)

Nut M8	Tightening torque	15 Nm
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**Tension strut on bulkhead**Used in step [10](#)

M10x25 screw	Tightening torque	56 Nm
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**Tension strut to spring strut dome**Used in step [10](#)

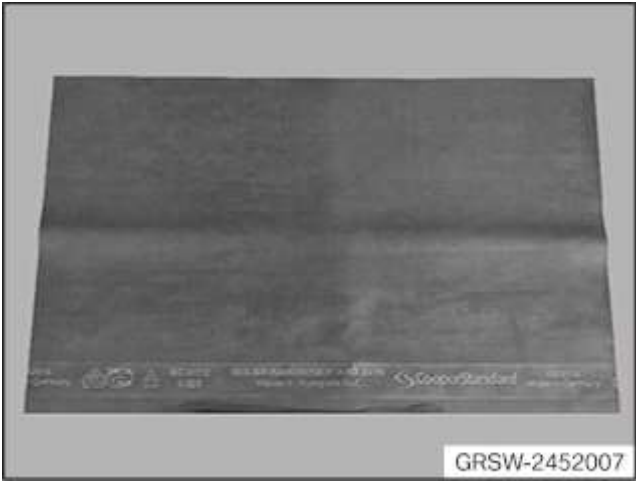
Screw	Renew screws.	Jointing torque	56 Nm
		Angle of rotation	90 °

**Windscreen wiper arm**Used in step [12](#)

Combination hexagon nut	Tightening torque	35 Nm
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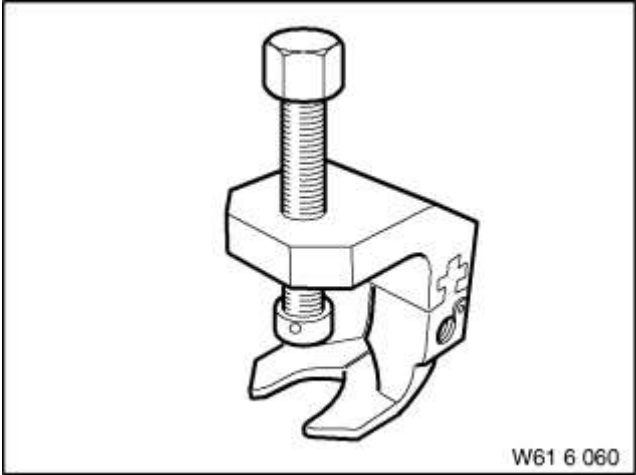
**Overview of Special Tools**

2 452 007 Cover



Common		Used in step	4	13
Usage	During the disassembly of the bonnet, the vehicle grounding wire may come into contact with the positive battery wire. A protective mat must be used to prevent this.			
Included in the tool or work				
Storage location	Individual			
Replaced by				
In connection with				
SI-Number	02 21 17 (452)			

0 493 441 (61 6 060) Extractor



Common		Used in step	5
Usage	(Wiper arm puller, universal) To pull off wiper arm from drive shaft		
Included in the tool or work			
Storage location	C3		
Replaced by			
In connection with			
SI-Number	01 10 99 (433)		

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	<a href="#">0 494 704 (61 6 061)</a>		<b>Basic body</b>	
2	<a href="#">0 494 705 (61 6 062)</a>		<b>Claw</b> (Left / right claw)	

3	<a href="#">0 494 706 (61 6 063)</a>	<b>Spindle</b>
4	<a href="#">0 494 707 (61 6 064)</a>	<b>Synchronising key</b>

## Overview Technical Data

Distance from window pane edge to wiper blade	Used in step	12
Wiper arm right (A)	65 mm	
Wiper arm left (B)	58 mm	

## Links

Repair instructions (PRE)	Used in step
<a href="#">48V battery with fault code related to relay is stuck in closed position and de-energized</a>	16

Repair instructions	Used in step
<a href="#">61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)</a>	2 15
<a href="#">61 20 900 Disconnecting and connecting battery earth lead</a>	2 15
<a href="#">61 20 900 Disconnecting and connecting battery earth lead</a>	2 15
<a href="#">61 20 900 Disconnecting and connecting battery earth lead</a>	2 15
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<a href="#">61 20 900 Disconnecting and connecting battery earth lead</a>	2 15
<a href="#">61 20 900 Disconnecting and connecting battery earth lead</a>	2 15
<a href="#">61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)</a>	2 15
<a href="#">61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)</a>	2 15
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<a href="#">61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)</a>	2 15
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<a href="#">61 20 900 Disconnecting and connecting battery earth lead</a>	2 15
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