

32 33 020 Replacing the M Sport steering wheel



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.



A wheel alignment is not necessary after the removal, installation or replacement.



Steering wheel must be replaced if airbag unit has been deployed.

Only with M Sport steering wheel: Impact plate must be replaced if airbag unit has been deployed.

For additional information see: 72 12 ... Procedure after airbag deployment as result of an accident

PRELIMINARY WORK

1 – Deactivating the 48 V electrical system

Prerequisite

Ignition is switched off.



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.



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.



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.

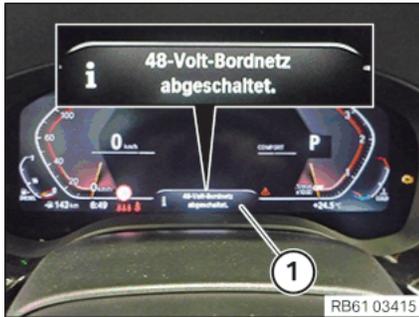
- Only carry out activation of the 48V electrical system with a completely connected 48-V battery.



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



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.

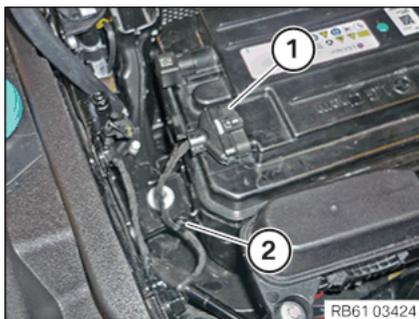
If the absence of voltage is not indicated clearly, contact Technical Support.

Result

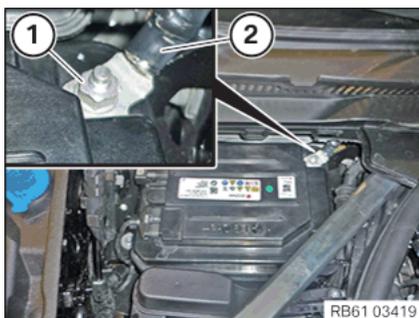
» The Check Control message signals that the 48V electrical system has been switched off.

Measure

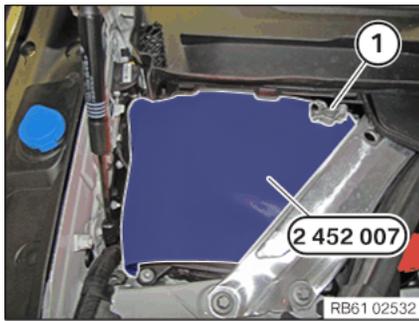
- Exit PAD mode by pressing the START-STOP button once without depressing the brake pedal. The work "Disconnecting the negative battery cable of the 48-V battery" can be started.



- 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.



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

- 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 – Removing airbag unit (M Sport steering wheel)



Airbag unit.

Danger! Life-threatening injuries!

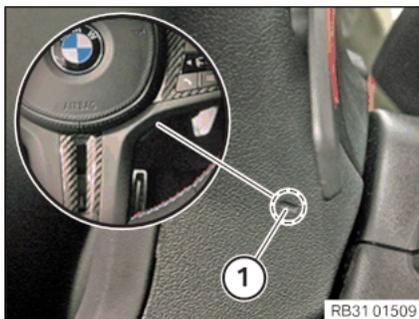
- Before performing any work on the airbag, always disconnect the battery earth lead from the battery.
- Airbag unit may only be set down with the cushion (airbag itself) facing upwards.
- For additional information see: 72 00 ... Safety regulations on handling airbag system components/gas generators



Damage to the steering wheel.

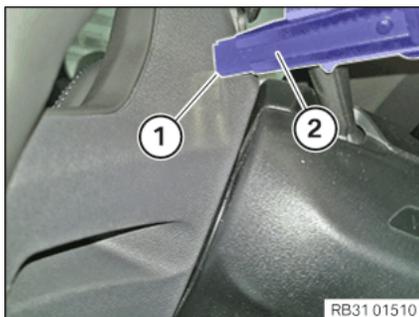
Incorrect handling of the tool may damage the steering wheel.

- 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.



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.



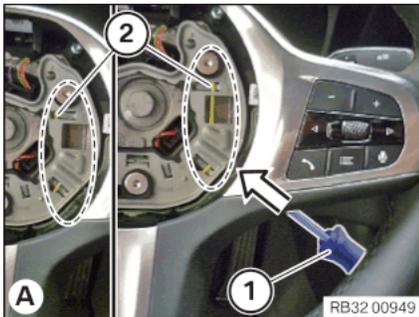
Perform the operations on the left and right side.

- Cut the mark (1) carefully with a knife (2) to an approx. length of 4 mm .



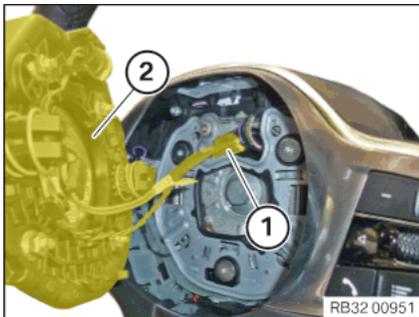
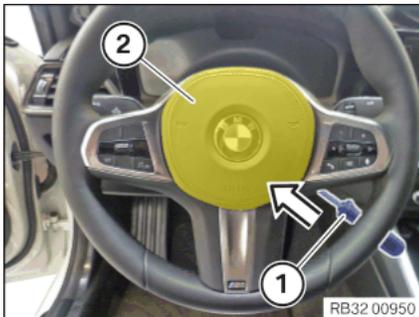
Different variants may be installed depending on the vehicle equipment.

- 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.



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).

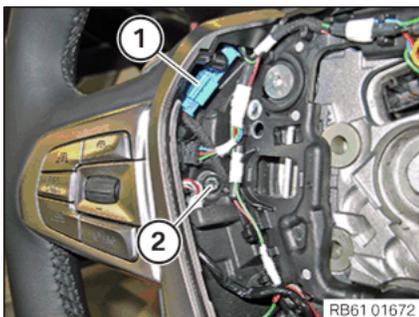
4 – If installed: Removing the shift paddles for the automatic transmission

- For invoicing refer to 61 31 112

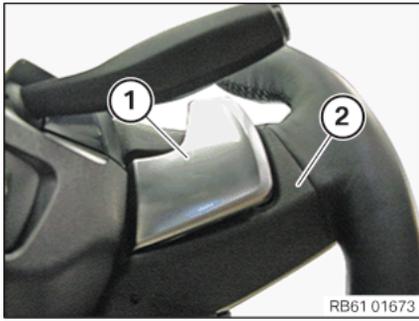
► Removing the shift paddle for the automatic transmission



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

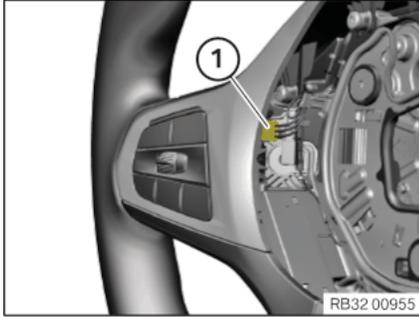


- Disconnect connector (1) and remove cable to shift paddle.
- Loosen screw (2).



- Remove shift paddle (1) from steering wheel (2) and remove associated access line.

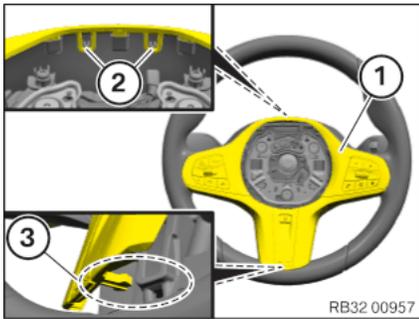
5 – Removing decorative trim for the M Sport steering wheel (SA710)



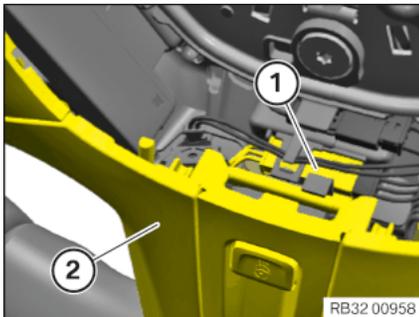
- Unlock plug connection (1) and disconnect.



- Unscrew the screws (1) on the back of the steering wheel.



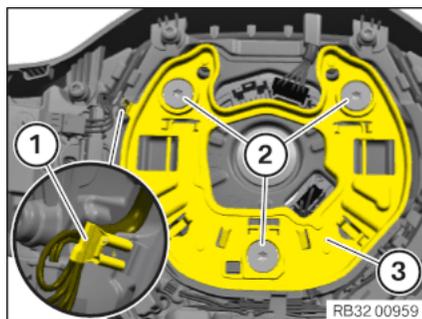
- Carefully detach the decorative trim (1) from the latch mechanisms (2).
- Carefully release the decorative trim (1) from the steering wheel in the area (3).



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

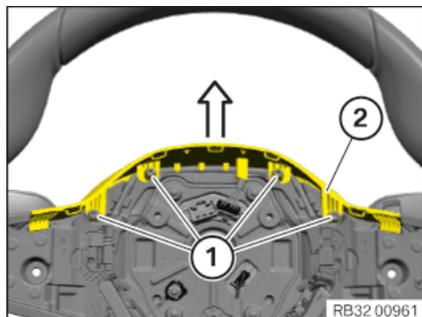
- Loosen the plug connection (1) for the steering wheel heating from the holder, unlock and disconnect.
- Remove decorative trim (2).

6 – Removing the impact plate (M Sport steering wheel)



- Disconnect (1) grounding cable.
- Loosen screws (2).
- Remove impact plate (3).

7 – Remove cover

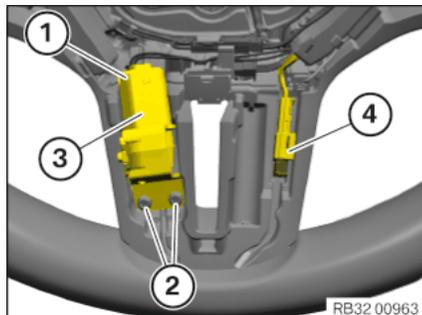


- Loosen screws (1).
- Pull down and remove cover (2) in direction of arrow.

8 – Disconnecting the plug connection for the steering wheel heating

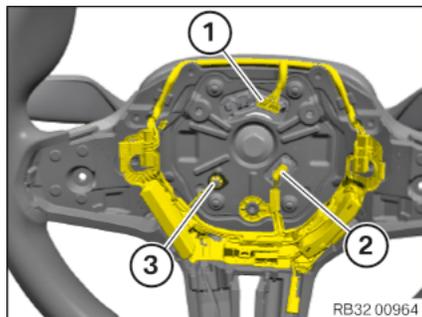


The following work step(s) is / are to be carried out if the specified component(s) is/are fitted.



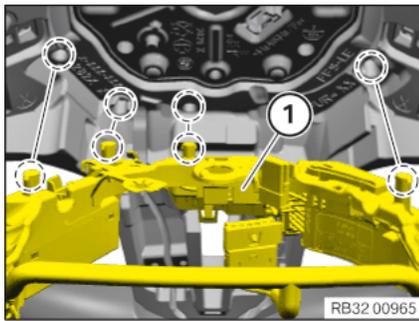
- Unlock and disconnect the plug connection (1) on the vibration actuator (3).
- Loosen screws (2).
- Remove the vibration actuator (3).
- Unlock plug connection (4) and disconnect.

9 – Removing wiring harness (M Sport steering wheel)



- (1)(2)
- Release the earth cable eyelet (3) from the steering wheel.

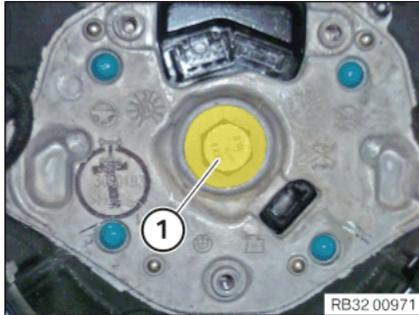
Note: The eyelet of the earth cable has been damaged during removal and must not be reused.



- Release the wiring harness (1) from the steering wheel and remove.

MAIN WORK

10 – Removing the steering wheel/M Sport steering wheel



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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.

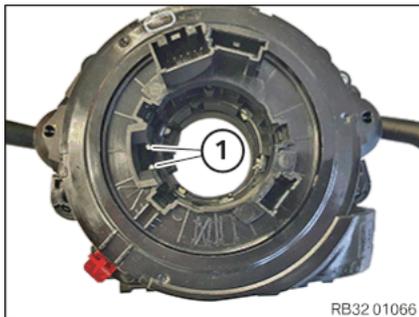
11 – When the airbag unit has been actuated: Replacing the M Sport steering wheel and the horn plate



- Renew the M Sport steering wheel (1) and the horn plate (2).

Parts: M Sport steering wheel, horn plate

12 – SZL greases



i

In order to avoid noises, when replacing the steering wheel, SZL must be greased.

- Lightly grease the steering column switch cluster on the mount for the steering wheel driver (1).

Expendable materials

Lubricating grease Renolit CX-CVM 1	100 g, Bag	83192286016
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13 – Installing the steering wheel/M Sport steering wheel

- ▶ Check the neutral position of the clock spring

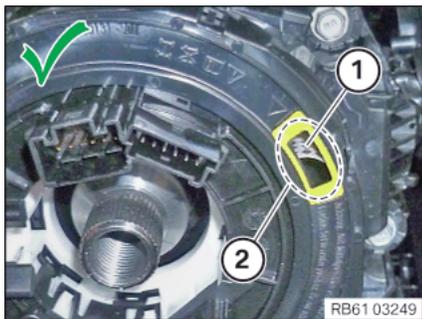
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Different variants may be installed depending on the vehicle equipment.

- ▷ **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

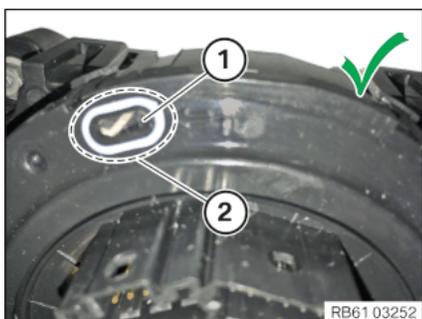
- Turn the coil spring cassette until the mark (1) on the coil spring becomes visible in the inspection glass (2).



▷ **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

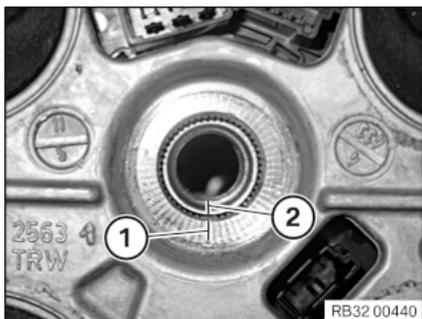
» The mark (1) on the coil spring is not visible.

Measure

- Turn the coil spring cassette until the mark (1) on the coil spring becomes visible in the inspection glass (2).

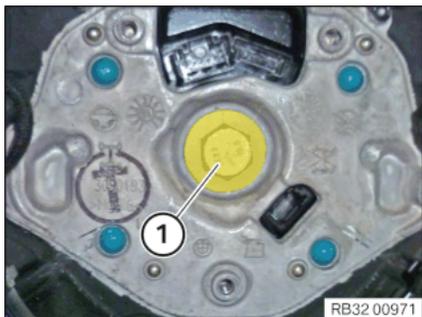


- Align mark (1) on steering wheel to mark (2) on steering column.
- Position the steering wheel.



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.

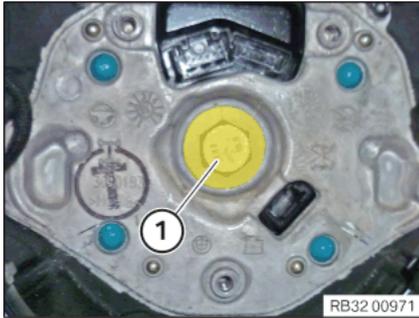
Renew the screw (1).

Parts: Screw

- Tighten down screw (1).

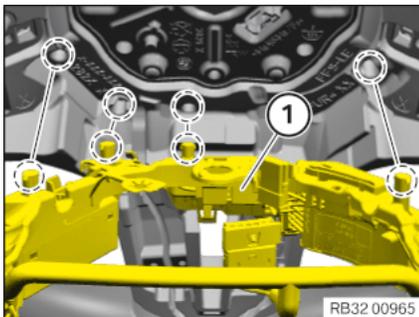
Steering wheel to steering column

M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm
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POSTPROCESSES

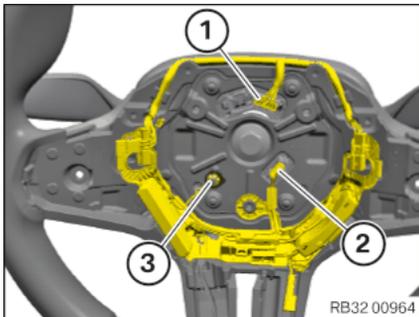
14 – Installing the wiring harness (M Sport steering wheel)



- Replace wiring harness (1).

Parts: Wiring harness

- Position the wiring harness (1) with the brackets on the steering wheel.



- Guide in and secure wiring harness to the steering wheel.

- Attach the earth cable eyelet (3) to the steering wheel.

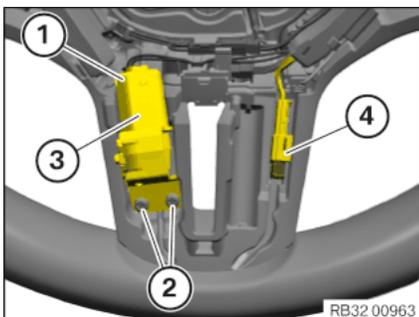
Note: The eyelet of the earth cable (wiring harness) must not be reused.

- Connect and lock connectors (1) and (2).

15 – Connecting the connector for the steering wheel heating



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



- Connect connectors (4) and lock.

- Position vibration actuator (3).

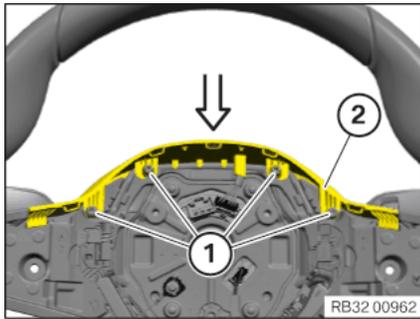
- Tighten the screws (2).

Balance weight/vibration actuator on steering wheel

Screw	Tightening torque	2,2 Nm
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- Connect connectors (1) and lock.

16 – Install the cover

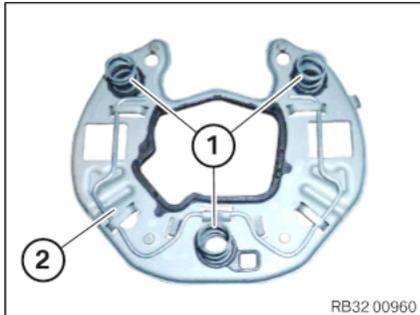


- Feed in and position cover (2) in direction of arrow.
- Tighten the screws (1).

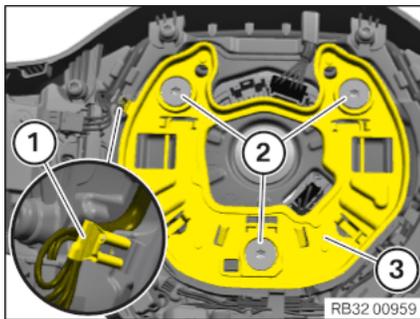
Steering wheel cover

Screw TS5x12	Tightening torque	2 Nm
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17 – Install the impact plate (M Sport steering wheel)



- Check the position of the springs (1) on the impact plate (2) and correct it if necessary.



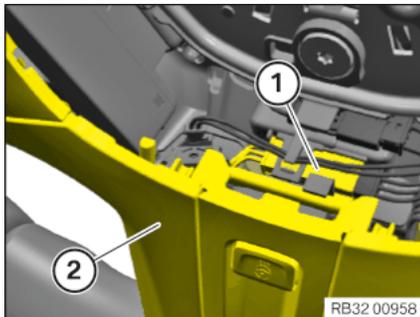
- Position impact plate (3).
- Tighten the screws (2).

Impact plate on steering wheel

Screw	Tightening torque	6,5 Nm
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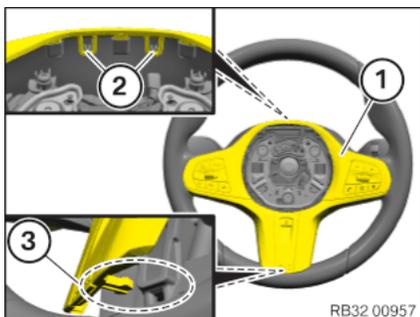
- Connect earth cable (1).

18 – Installing the decorative trim for the M Sport steering wheel (SA710)



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

- Position the decorative trim (2).
- Connect and lock the connector for the steering-wheel heating.
- Fasten the plug connection (1) for the steering wheel heating to the holder.



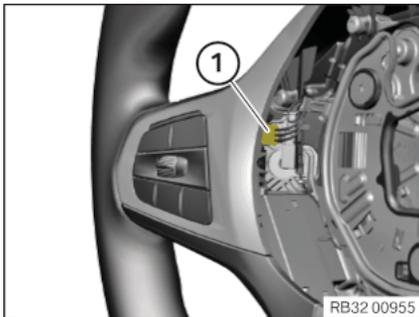
- Check the latch mechanisms (2) and (3) for damage.
The latch mechanisms (2) and (3) must not be damaged or missing.
- Carefully clip in the decorative trim (1) at the latch mechanisms (2) and (3).



- Tighten screws (1) on the back of the steering wheel.

Decorative trim to steering wheel

Screw TS5x12	Tightening torque	1,5 Nm
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- Connect connectors (1) and lock.

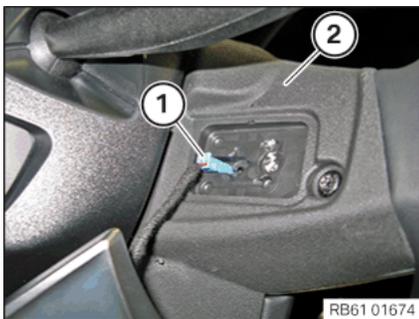
19 – If installed: Installing the shift paddles for the automatic transmission

- For invoicing refer to 61 31 112

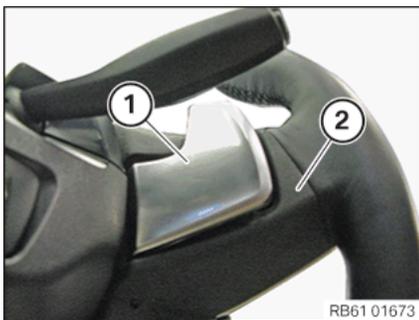
► **Installing the shift paddle for the automatic transmission**



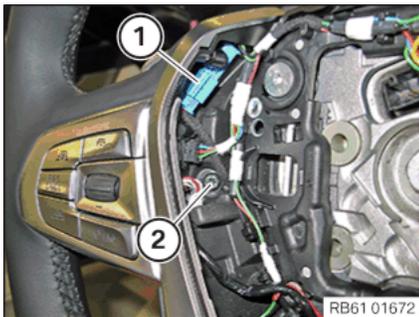
Description is for left component only. Procedure on the right side is identical.



- Insert the access line (1) into the rear of the steering wheel (2).



- Position the shift paddle (1) on the steering wheel (2).

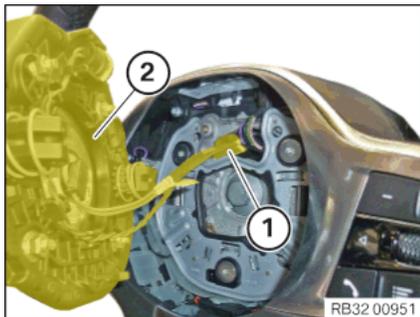


- Tighten down screw (2).
- Insert the cable and connect the connector (1).

20 – Installing the airbag unit (M Sport steering wheel)



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.

21 – Connecting all battery earth leads



- See additional information.

22 – Activating the 48 V electrical system

Prerequisite

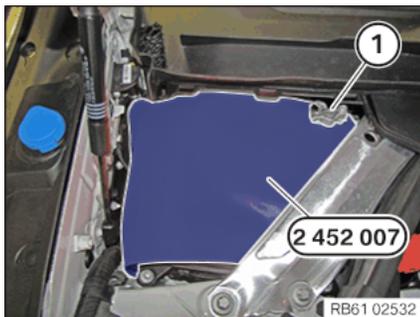
Ignition is switched off.



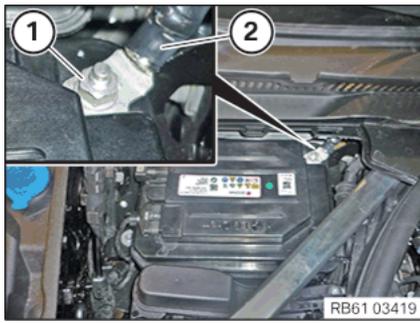
Damage to 48-V battery

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.



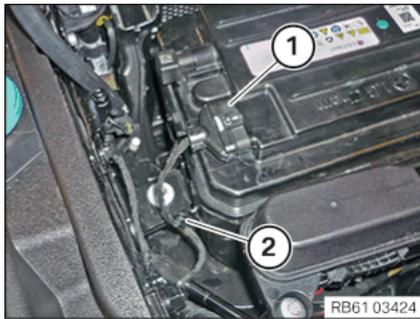
- Lift battery earth lead (1).
- Remove special tool .



- 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
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- 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

Steering wheel to steering column			Used in step 13
M14	Only for a micro-encapsulated screw: Renew screw.	Tightening torque	62,5 Nm
Balance weight/vibration actuator on steering wheel			Used in step 15
Screw		Tightening torque	2,2 Nm
Steering wheel cover			Used in step 16
Screw TS5x12		Tightening torque	2 Nm
Impact plate on steering wheel			Used in step 17
Screw		Tightening torque	6,5 Nm
Decorative trim to steering wheel			Used in step 18
Screw TS5x12		Tightening torque	1,5 Nm
Negative battery cable to 48-V battery			Used in step 22
Nut M8		Tightening torque	19 Nm

Overview of Special Tools

Links

Repair instructions (PRE)	Used in step
Notes on 48-V battery.	1 22

General repair instructions**Used in step**[72 00 ... Safety regulations for handling components with gas generators](#)[72 12 ... Procedure after airbag deployment as result of an accident](#)**Repair instructions****Used in step**

61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	2 21
61 20 900 Disconnecting and connecting battery earth lead	2 21
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61 20 900 Disconnecting and connecting battery earth lead (Plug-in Hybrid Electric Vehicle)	2 21
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