

12 61 280 Removing and installing/replacing oil pressure switch



WARNING

Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.



WARNING

Hot fluids.

Risk of scalding!

- Conduct all work in the vehicle wearing appropriate personal protective equipment only.

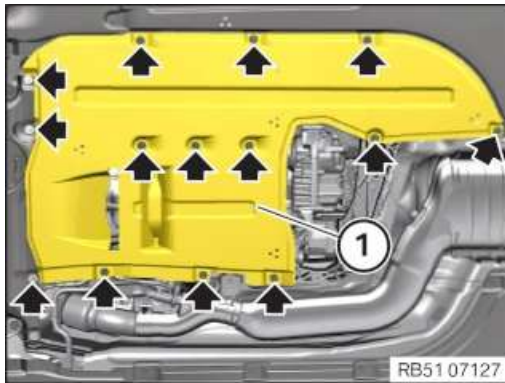


TECHNICAL INFORMATION

Collect and dispose of emerging fluids. Observe country-specific waste disposal regulations.

PRELIMINARY WORK

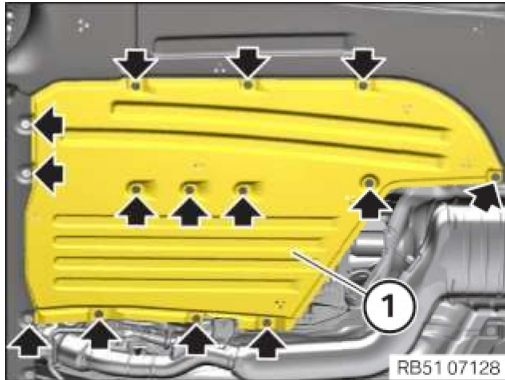
1 – Remove rear underbody protection



- **Version 1:**

Remove screws (arrows).

Feed out the rear underbody protection (1).

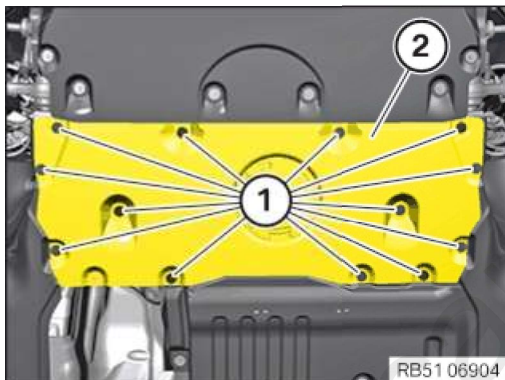


- **Version 2:**

Remove screws (arrows).

Guide out rear underbody protection (1) and remove it.

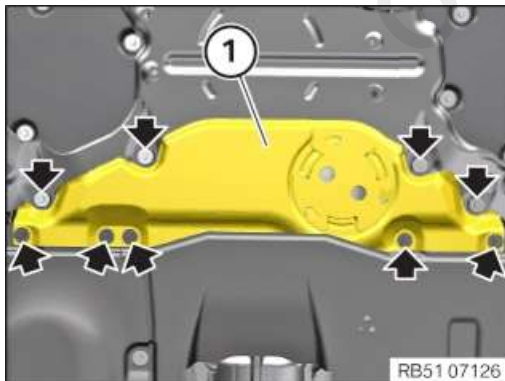
2 – Removing the centre underbody protection



- **Version with rear-wheel drive:**

Loosen screws (1).

Remove centre underbody protection (2) .



- **Version with all-wheel drive:**

Remove screws (arrows).

Feed out and remove the centre underbody protection (1).

MAIN WORK

3 – Removing the oil pressure switch



WARNING

Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.



RISK OF DAMAGE



Electrostatic discharge.

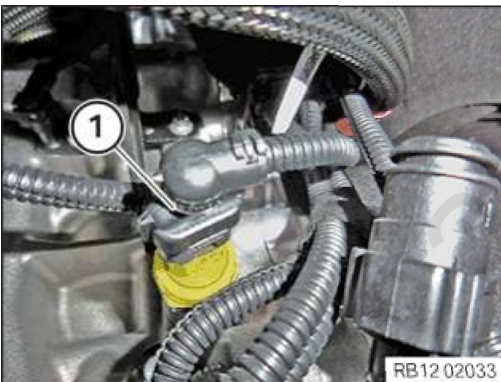
Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 Information on electrostatic discharge (ESD) protection.

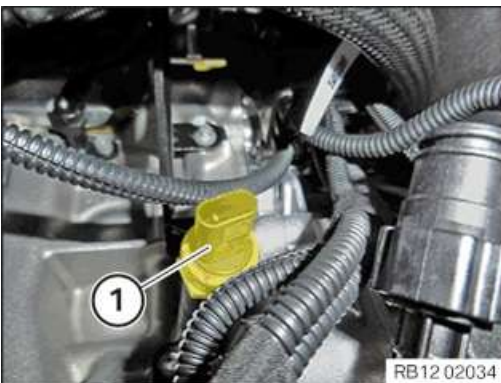


TECHNICAL INFORMATION

Collect and dispose of emerging fluids. Observe country-specific waste disposal regulations.

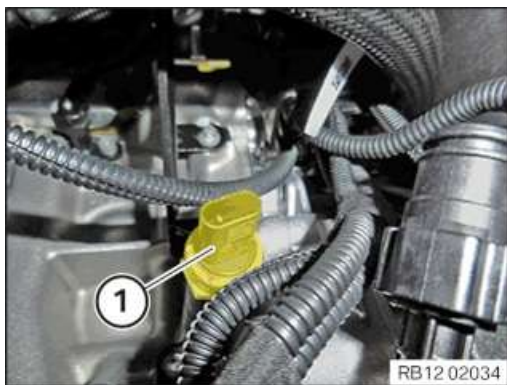


- Unlock plug connection (1) and disconnect.



- Release and remove the oil pressure switch (1) with the special tool [0 496 106 \(11 8 720\)](#).
- Catch and dispose of emerging engine oil.

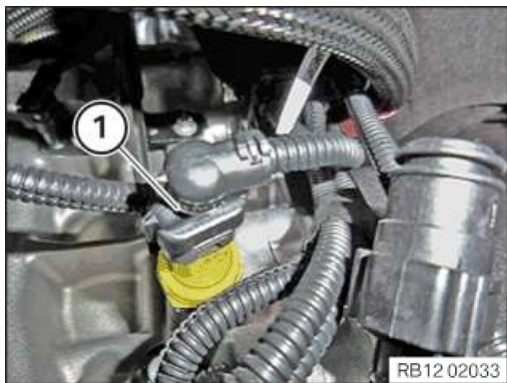
4 – Installing the oil pressure switch



- Guide in and install oil pressure switch (1).
- Tighten oil pressure switch (1) with the special tool [0 496 106 \(11 8 720\)](#).

Oil pressure switch to crankcase

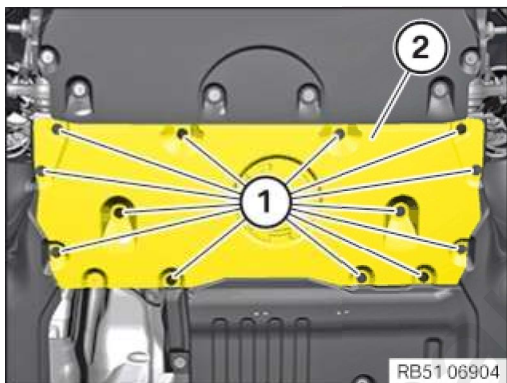
M12X1.5		Tightening torque	16,5 Nm
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- Connect connectors (1) and lock.
The connector (1) must engage audibly.

POSTPROCESSES

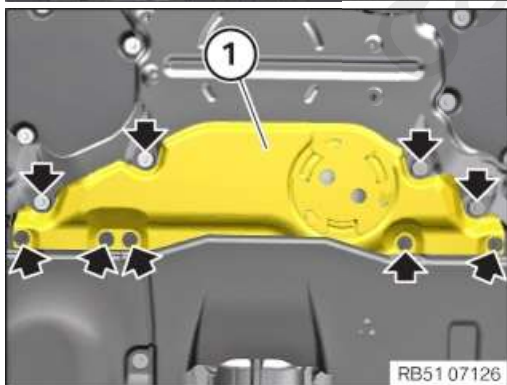
5 – Installing the centre underbody protection



- **Version with rear-wheel drive:**
Position central underbody protection (2).
Tighten the screws (1).

Underbody protection

Hexagon screw		Tightening torque	3 Nm
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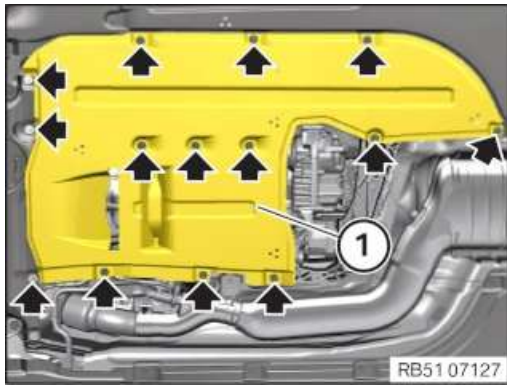


- **Version with all-wheel drive:**
Guide in and install the centre of underbody protection (1).
Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm
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6 – Installing underbody protection at rear



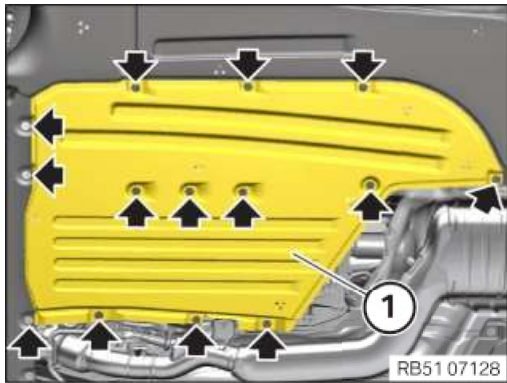
• **Version 1:**

Insert and install the rear underbody protection (1).

Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm
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• **Version 2:**

Insert and install the rear underbody protection (1).

Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm
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7 – Check engine oil level

- Park vehicle on a horizontal surface.
- In the case of automatic transmission, shift to selector lever position N or P.
- Accelerator pedal is not pressed.
- Engine is running and is at operating temperature.
- Read off the engine oil level in the instrument cluster (KOMBI) or on the control display.
- Top up engine oil if necessary.

Additional Information

Overview of Tightening Torques

Oil pressure switch to crankcase

Used in step 4

M12X1.5		Tightening torque	16,5 Nm
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Underbody protection

Used in step 56

Hexagon screw		Tightening torque	3 Nm
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Overview of Special Tools

0 496 106 (11 8 720) Socket WAF 46



Common		Used in step	34
Usage	(Long socket SW24) For removal and installation of oil pressure sensor. (Stahlwille or HAZET)		
Included in the tool or work			
Storage location	C20		
Replaced by			
In connection with			
SI-Number	01 04 07 (352)		

Overview Technical Data

Links

Repair instructions	Used in step
61 35 ... Notes on ESD protection (Electro Static Discharge)	3

12 61 285 Replacing engine oil level sensor



WARNING

Hot fluids.

Risk of scalding!

- Conduct all work in the vehicle wearing appropriate personal protective equipment only.



WARNING

Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.



RISK OF DAMAGE

Engine damage caused by excessively filling the engine with engine oil.

Filling an excessive quantity of engine oil may cause engine damage.

- Observe the exact engine oil filling capacity.
- Drain the engine oil.



RISK OF DAMAGE

Contaminant or foreign body.

Contamination can result in malfunctions, operating failure or leaks.

- Adhere to the utmost cleanliness.
- Protect components from contamination e.g. by covering.
- Close off line connections with seal plugs.



TECHNICAL INFORMATION

Collect and dispose of emerging fluids. Observe country-specific waste disposal regulations.



TECHNICAL INFORMATION

Make sure the vehicle is at operating temperature for engine oil service (engine oil temperature > 70 °C).

PRELIMINARY WORK

1 – Disconnecting all battery earth leads



- See additional information.

2 – Bring front compartment lid in the service position

Prerequisite

Engine compartment lid is open.

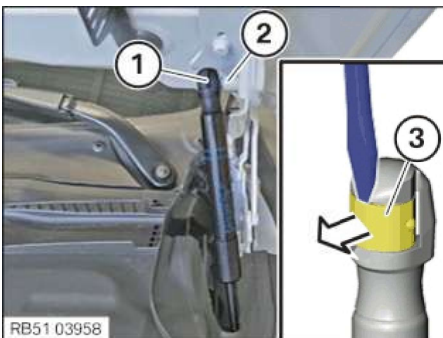


CAUTION

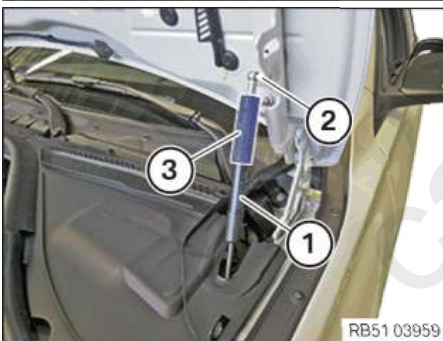
Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.



- Lift clamp (3) slightly using a screwdriver, in the direction of the arrow.
- Lift off ball socket (1) from ball pin (2).
- Repeat the operation on the other side of vehicle.

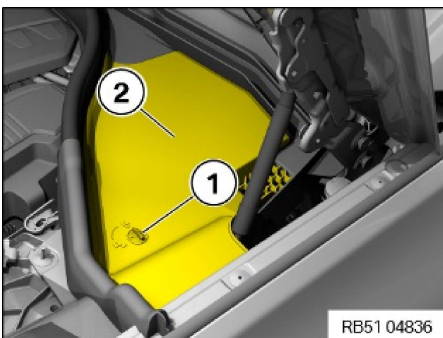


TECHNICAL INFORMATION

Conduct the following operation with the assistance of a second person.

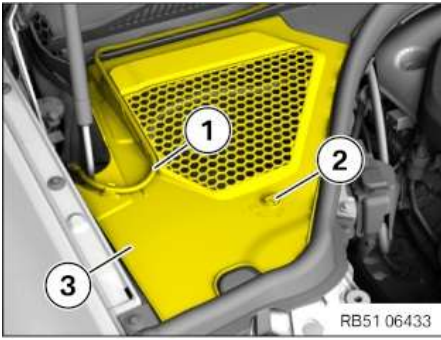
- Remove the bonnet support and open the bonnet further.
- Push special tool or (3) over gas pressure spring (1).
- Place special tool on the ball pin (2) and engage using force.
- Repeat the operation on the other side of vehicle.

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



- Loosen the lock (1).
- Remove rear left cover of engine compartment (2).

4 – Remove the cover of the rear right engine compartment



- Release washer fluid hose (1) from the guides.
- Loosen the lock (2).
- Remove the cover of rear right engine compartment (3).

5 – Remove the seal for the rear bonnet



- Feed the cable (1) out of the brackets toward the front.
- Remove the rear bonnet seal (2) from the guide toward the inside.

6 – Removing both wiper arms



NOTICE

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

► Remove the wiper arm

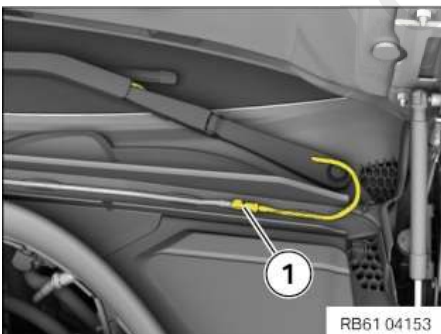


RISK OF DAMAGE

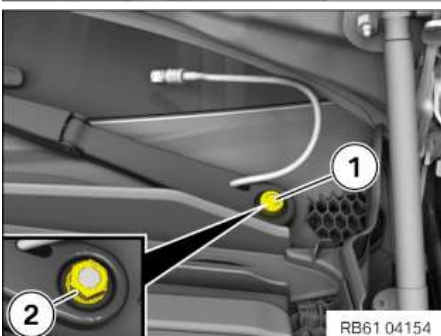
Damage to wiper console

While removing the wiper arms without using special tool, the wiper console can break.

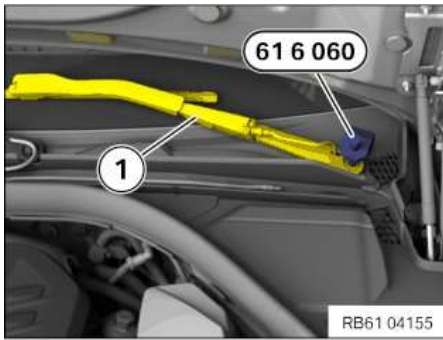
- Removing the wiper arms must be carried out only using the prescribed special tool.
- Do not lift off wiper arm, else the wiper console may break on the predetermined breaking point for the pedestrian protection.



- Disconnect the windscreen wash hose(1) at the separation point and remove from the cowl guide.

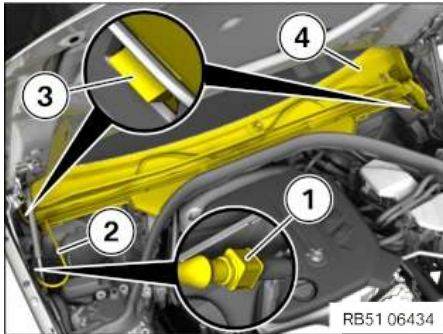


- Remove the protective cap (1).
- Loosen nut (2).

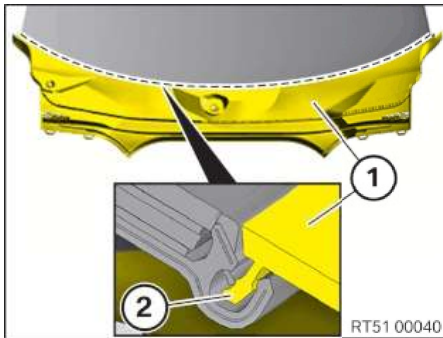


- Pull off the wiper arm (1) using special tool .

7 – Remove cowl panel cover



- Release snap fastener of the washer fluid hose (1) and put the washer fluid hose(2) to one side.
- Unclip clips (3) on the cowl panel cover (4).



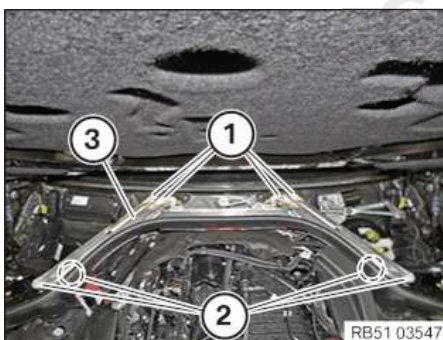
- Pull the cowl panel cover (1) upward out of the latch mechanism (2) beginning on the side.

8 – Removing the centre bulkhead upper part

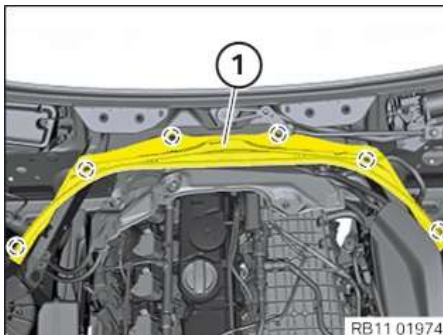


TECHNICAL INFORMATION

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



- **If installed:** Remove tension strut on spring strut dome.
- Loosen screws (1) and (2).
- Remove tension strut (3) in the spring strut dome upwards.



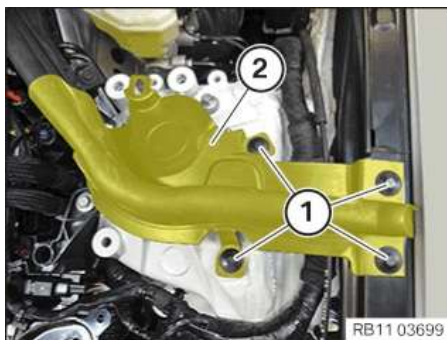
- Unscrew the bolts in the marked areas.
- Remove the centre bulkhead upper part (1).

9 – Removing side bonnet gaskets



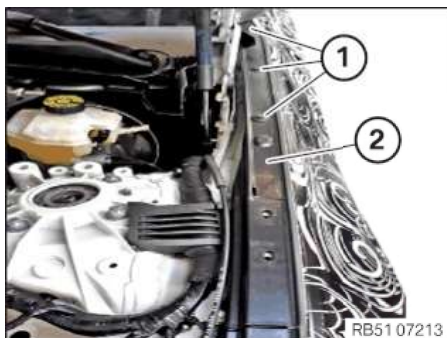
NOTICE

Perform the operations on the left and right side.



- Loosen the rivet (1).
- Remove side bonnet seal (2) from spring strut dome.

10 – Remove sealing of the side panel



NOTICE

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

- Loosen the expanding rivet (1).
- Guide out seal (2) and remove.

11 – Removing the acoustic cover



WARNING

Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.



RISK OF DAMAGE

Damage to the acoustic cover.

Jerky movements during disassembly and excessive application of force during installation may result in breakage of the acoustic cover.

- Disassemble or mount the acoustic cover carefully.
- Disassemble or mount snap-lock couplings of the ball pivots one after the other.
- Disassemble or mount acoustic cover only at temperatures $>20^{\circ}\text{C}$.
- Use only distilled water as an auxiliary material during installation, no lubricants.



- Release the acoustic cover (1) towards the top from the rubber mounts (marks).

12 – Removing acoustic cover at rear



- Unclip the acoustic cover (1) in the marked areas and remove it to the top.

13 – Remove all ignition coils.



NOTICE

The description is for one component only. The procedure is identical for all further components.

► Removing the ignition coil



WARNING

Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.



RISK OF DAMAGE

Damage to the ignition coil.

The silicone hose of the ignition coil must not be contaminated by fuel as this can lead to failure of the ignition coil.

- Cover ignition coils using suitable covers when working on the fuel system, if necessary remove them.
- Do not oil or grease the silicone tube of the spark plug connector. The silicone tube is coated with talc to reduce the pulling forces.



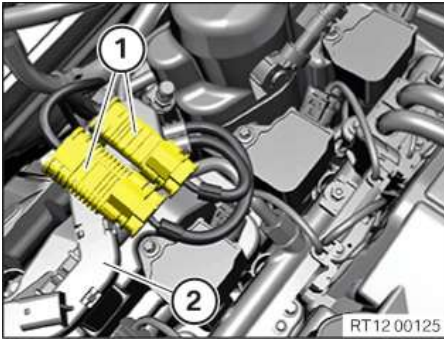
RISK OF DAMAGE



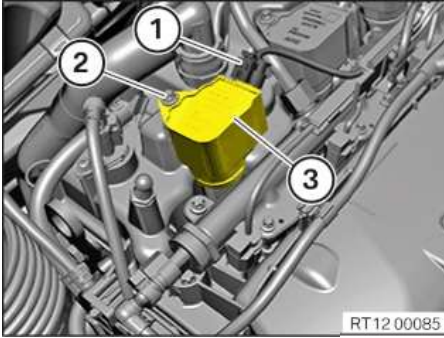
Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 Information on electrostatic discharge (ESD) protection.



- Disconnect the connector (1) of the front oxygen sensor and the monitoring oxygen sensor from the cable channel (2) and set aside.



- Unlock plug connection (1) and disconnect.
- Loosen screw (2).
- Remove ignition coil (3).

14 – Remove fuel delivery line



WARNING

Working on fuel system.

Risk of fire! Danger of explosion!

- When working on the fuel system, make sure that the workbay is sufficiently ventilated, e.g. using extraction unit.
- Tightly seal off open lines and connections; collect any escaping fuel directly at the point of exit.
- No fire, sparks, open flames or smoking.



CAUTION

On releasing high pressure line, fuel may emerge at high speed.

Danger of injury!

- Wear suitable personal protective equipment.
- Allow the cooling system to cool down to a temperature below 40°C before starting installation work.
- Note warnings on cylinder head cover.



RISK OF DAMAGE

Damage to the ignition coil.

The silicone hose of the ignition coil must not be contaminated by fuel as this can lead to failure of the ignition coil.

- Cover ignition coils using suitable covers when working on the fuel system, if necessary remove them.
- Do not oil or grease the silicone tube of the spark plug connector. The silicone tube is coated with talc to reduce the pulling forces.



RISK OF DAMAGE

Contaminant or foreign body.

Contamination can result in malfunctions, operating failure or leaks.

- Adhere to the utmost cleanliness.
- Protect components from contamination e.g. by covering.
- Close off line connections with seal plugs.

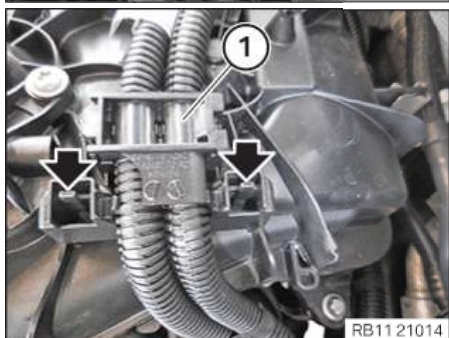


TECHNICAL INFORMATION

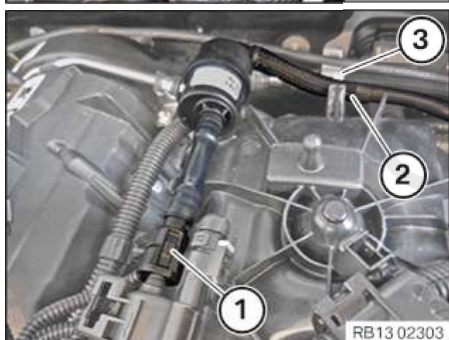
Reset special tool in early to avoid bending pressure lines.



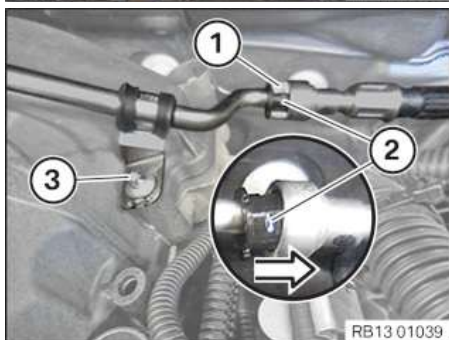
- Loosen clamp (1).
- Guide out wiring harness section (2) for the injectors and ignition coils and place it aside.



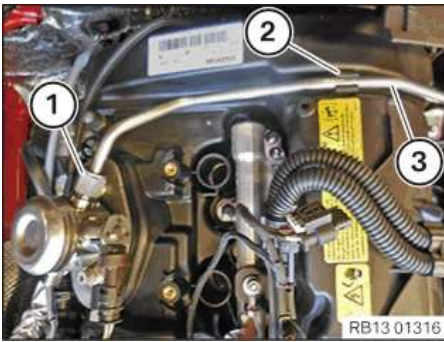
- Unlock the locks (arrows).
- Guide out wiring harness section (1) for the injectors and ignition coils and place it aside.



- Unlock and loosen lock (1).
- Guide tank ventilation line (2) out of clamp (3) and place it aside.



- Unlock and loosen clamp (1).
- Unlock and remove the snap fastener (2) in the direction of the arrow.
- Catch and dispose of escaping fuel.
- Seal the fuel lines with special tools [0 496 567 \(13 5 161\)](#) and [0 496 568 \(13 5 162\)](#) from the set of special tools [0 496 565 \(13 5 160\)](#).
- Loosen screw (3).



- Slacken the union nut (1) on the high pressure pump.
- Catch and dispose of escaping fuel.
- Seal all openings with the special tool .
- Guide the fuel feed line (3) out and remove.
- Make sure that the rubber damper (2) is not lost.

15 – Removing intake silencer housing



RISK OF DAMAGE

Damage to the clean air line. Damage to the air filter.

For changing the air filter insert, if the upper section of intake filter housing is only raised and not completely removed, the clean air line and the air filter insert may be damaged.

- Do not lift upper section of intake filter housing by force.
- Unfasten clamp.
- Remove upper section of intake filter housing completely.



- Unlock plug connection (1) and disconnect.
- Unfasten clamp (2).
- Pull out and remove the intake silencer housing (3) from the rubber mounts towards the top.

16 – Removing the front left wheel

► Removing the wheel



- In vehicles with M Carbon ceramic brake: The wheel assembly jack must be used to remove the wheel (see workshop equipment).

This process is intended to prevent damage to the brake disc.



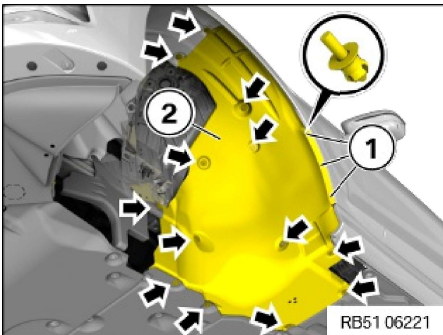
- If several wheels are removed simultaneously: Use a piece of chalk to mark on each tyre the axle and side on which the corresponding wheel is fitted.
- Release the wheel bolts (arrows) crosswise and remove the wheel.
- To release and tighten wheel bolts with a security code: Use a suitable adapter from the tool set .

17 – Removing the rear section of the front wheel arch cover front



NOTICE

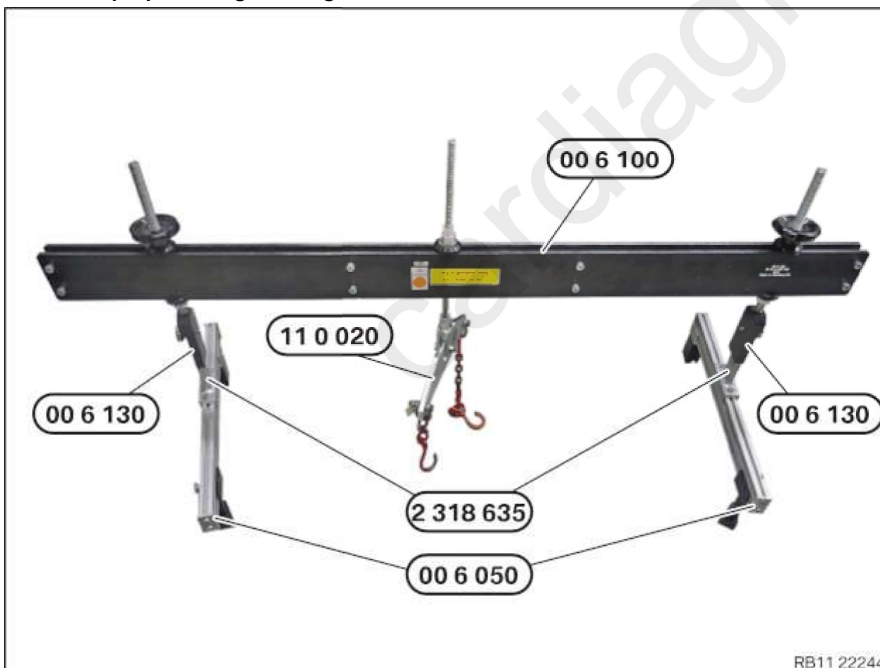
To provide a better overview: Schematic diagram with partially hidden components.



- Loosen the expanding rivet (1).
- Remove screws (arrows).
- Remove the rear section of the front wheel arch cover (2).

18 – Securing engine in installation position

Overview: prepared engine bridge



CAUTION

Components connected to the engine joint or cross member.

Danger of injury!

- Check lifting eyes and engine mounting brackets for damage, e.g. cracks.
- Attach the component to correctly mounted engine joints or cross members only.
- Exclusively lift the component, do not move it forwards, backwards or in transverse direction.



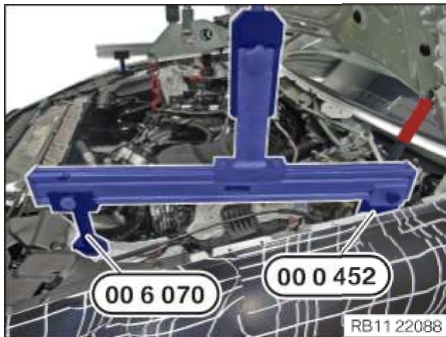
- Guide in and position special tool on cylinder head.
- Tighten the screws (1) of special tool.

Special tool to cylinder head

M8		Tightening torque	21,5 Nm
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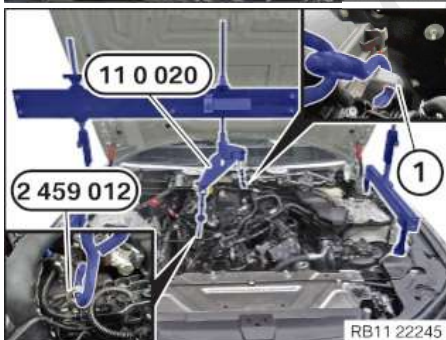
- **Carefully** position engine bridge (1) with help from an auxiliary person.



- Make sure that special tool on the left is **correctly** positioned on the front end.
- Make sure that special tool [0 495 850 \(00 0 452\)](#) on the left is **correctly** positioned on the carrier support.



- Make sure that special tool on the right is **correctly** positioned on the front end.
- Make sure that special tool [0 495 850 \(00 0 452\)](#) on the right is **correctly** positioned on the carrier support.



- Align the engine bridge by moving it on the profile strips of the special tool above the engine mounting bracket and screw it down.
- Connect special tool [0 490 567 \(11 0 020\)](#) to special tool.
- Connect the special tool [0 490 567 \(11 0 020\)](#) above the engine mounting bracket (1) at the rear.



- Check whether the special tool on the right is **correctly** positioned on the front end.



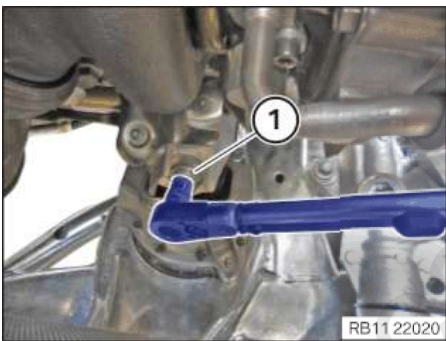
- Check whether the special tool [0 495 850 \(00 0 452\)](#) on the right is **correctly** positioned on the carrier support.



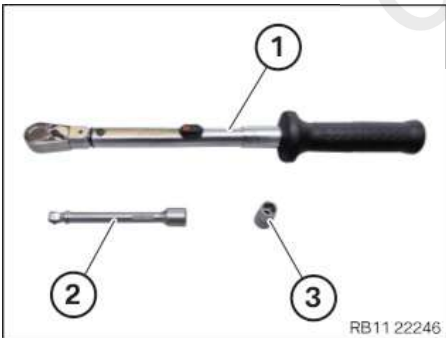
- Check whether the special tool on the left is **correctly** positioned on the front end.



- Check whether the special tool [0 495 850 \(00 0 452\)](#) on the left is **correctly** positioned on the carrier support.

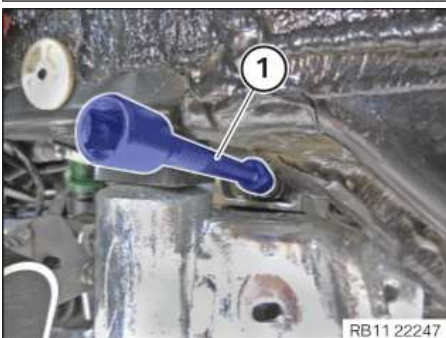


- Release screw (1) on the right engine mount from the top with a commercially available tool.

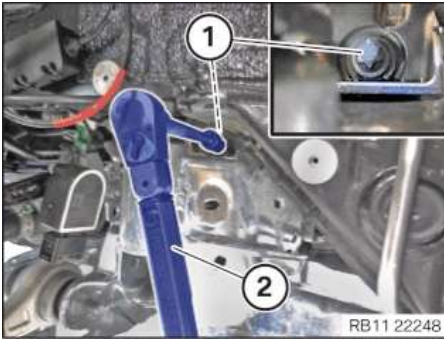


- Have all suitable tools ready.

Number	Description
1	Commercial available torque spanner
2	Swivel mounted extension
3	External Torx E14



- Position the suitable tool (1).

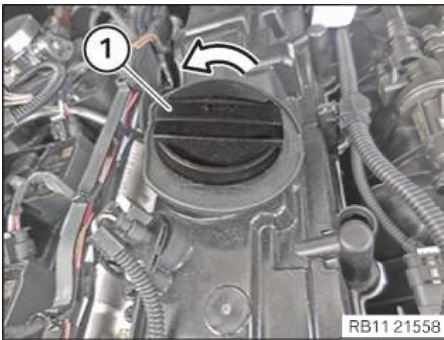


- Release screw (1) of the left engine mount with standard tool (2) sideways.



- Raise the engine by turning the special tool [2 361 506 \(00 6 103\)](#) (spindle) by 10 mm.

19 – Removing the oil filler cap



- Open the oil filler cap (1) in the direction of arrow.

20 – Remove front right wheel

► Removing the wheel



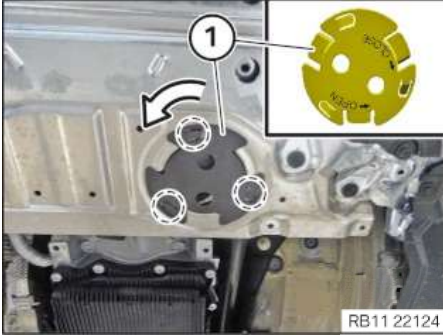
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This process is intended to prevent damage to the brake disc.



- If several wheels are removed simultaneously: Use a piece of chalk to mark on each tyre the axle and side on which the corresponding wheel is fitted.
- Release the wheel bolts (arrows) crosswise and remove the wheel.
- To release and tighten wheel bolts with a security code: Use a suitable adapter from the tool set .

21 – Opening the service flap in the underbody protection at the centre



- Push the service flap (1) upwards and unlock from the **marked areas** in the **direction of arrow**.
- Feed out service flap (1) and remove.

22 – Releasing the oil drain plug



WARNING

Hot fluids.

Risk of scalding!

- Conduct all work in the vehicle wearing appropriate personal protective equipment only.



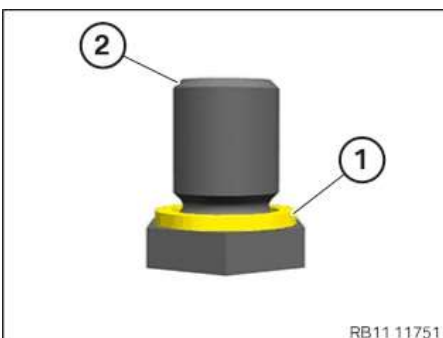
TECHNICAL INFORMATION

Catch and dispose of drained engine oil in a suitable collecting vessel. Observe country-specific waste disposal regulations.

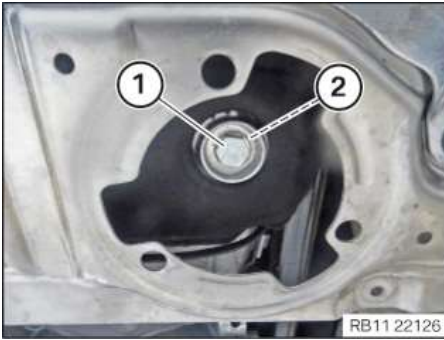


- Release oil drain plug (1).
- Feed out the oil drain plug (1) using sealing ring (2) and remove.
- Allow the engine oil to drain out fully.

23 – Tightening the oil drain plug



- Renew sealing ring (1) on the oil drain plug (2).
- Parts:** Sealing ring
- Guide in the sealing ring (1) on the oil drain plug (2) and install.

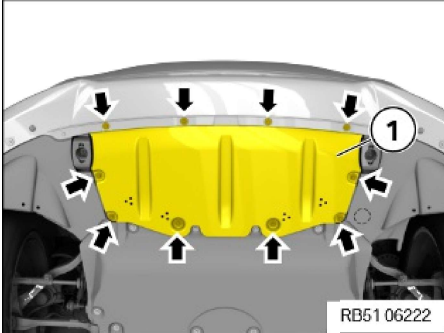


- Feed in the oil drain plug (1) with the sealing ring (2) and install.
- Tighten oil drain plug (1).

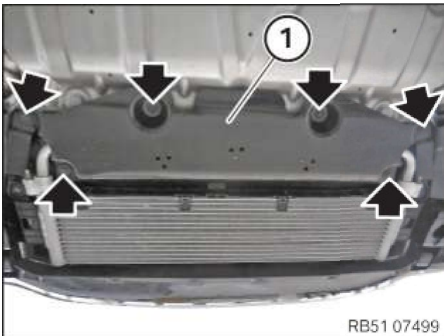
Oil drain plug

M12x16	Replace sealing ring.	Tightening torque	25 Nm
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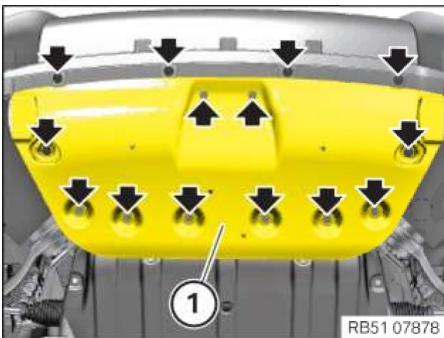
24 – Removing the front underbody protection



- **Version 1:**
Remove screws (arrows).
Feed front underbody protection (1) backwards out of the bumper panel.



- **Version 2:**
Remove screws (arrows).
Guide out front underbody protection (1) and remove it.



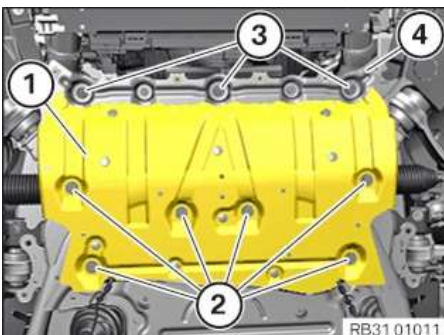
- **Version 3:**
Remove screws (arrows).
Guide out front underbody protection (1) and remove it.

25 – Removing the stiffening plate



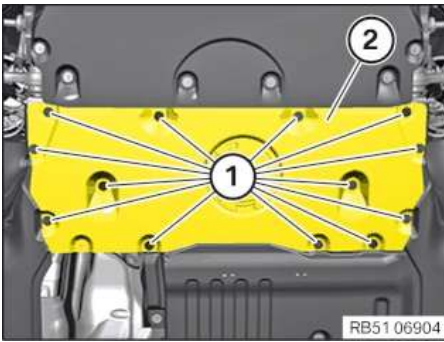
TECHNICAL INFORMATION

Driving without stiffening plate is not permissible.



- Loosen screws (3).
- Remove the holder of the underride protection (4).
- Loosen screws (2).
- Remove stiffening plate (1).

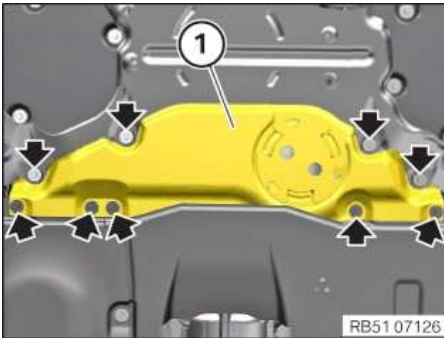
26 – Removing the centre underbody protection



- **Version with rear-wheel drive:**

Loosen screws (1).

Remove centre underbody protection (2) .

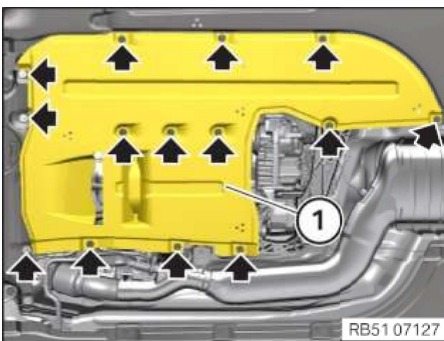


- **Version with all-wheel drive:**

Remove screws (arrows).

Feed out and remove the centre underbody protection (1).

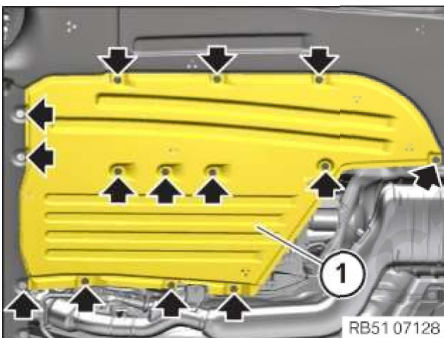
27 – Remove rear underbody protection



- **Version 1:**

Remove screws (arrows).

Feed out the rear underbody protection (1).



- **Version 2:**

Remove screws (arrows).

Guide out rear underbody protection (1) and remove it.

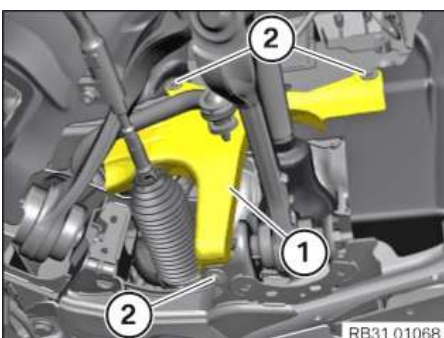
28 – Remove the cover of the steering assembly on the left and right



NOTICE

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

- **Remove the cover of the steering assembly**



- Loosen screws (2).

- Remove the cover (1).

29 – Removing the bottom left and right wheel arch cover

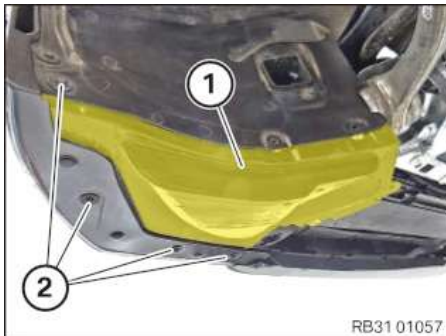


NOTICE

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

► Remove bottom wheel arch cover

- Loosen screws (2).
- Remove bottom wheel arch cover (1)



30 – Removing the front section of the front left wheel arch cover



NOTICE

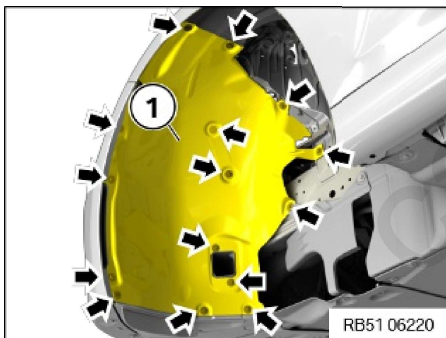
Perform the operations on the left and right side.

► Removing the front section of the front wheel arch cover



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.



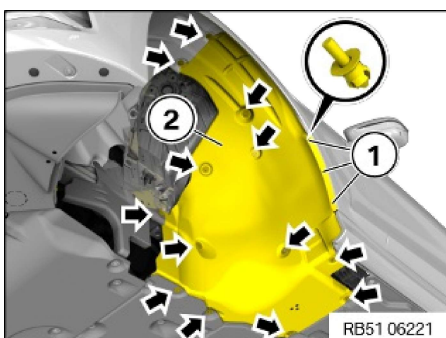
- Remove screws (arrows).
- Remove front section of the front wheel arch cover (1).

31 – Remove rear section of the front right wheel arch cover



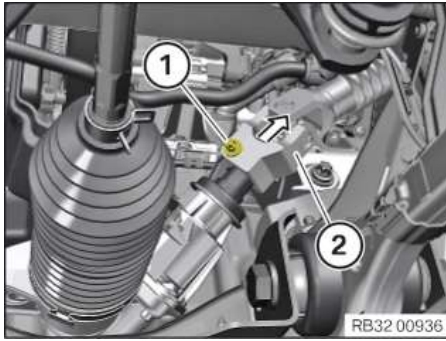
NOTICE

To provide a better overview: Schematic diagram with partially hidden components.



- Loosen the expanding rivet (1).
- Remove screws (arrows).
- Remove the rear section of the front wheel arch cover (2) .

32 – Releasing lower steering shaft from steering gear

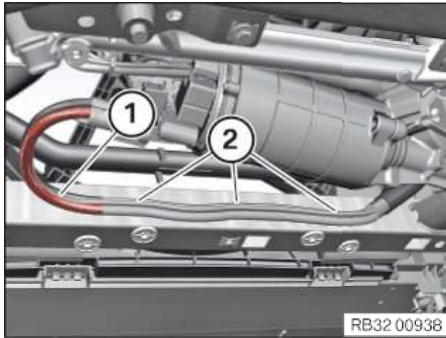


- Loosen screw (1).
- Pull off lower steering shaft (2) from steering gear in direction of arrow.

33 – Detach the wiring harness of the EPS from the front axle support

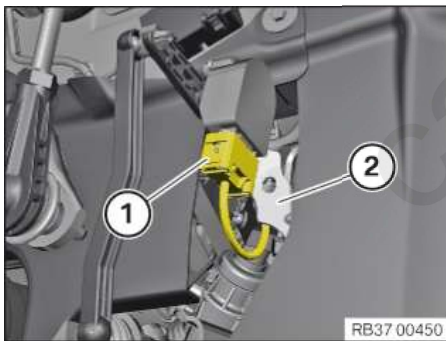


- Unlock and disconnect the plug connections (1) and (2).



- Loosen the holder (2).
- Place wiring harness (1) to one side.

34 – Detach the line connection of the ride height sensor



- Unlock plug connection (1) and disconnect.
- Unclip the line from holder (2).

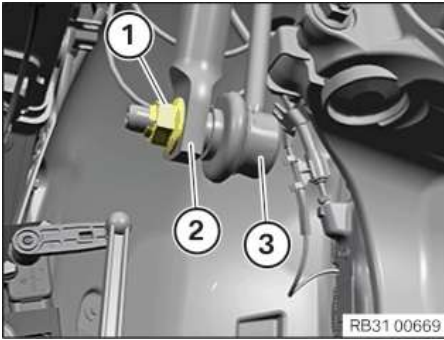
35 – Release the left and right anti-roll bar link from the anti-roll bar



NOTICE

Perform the operations on the left and right side.

- Loosening the anti-roll bar link from the anti-roll bar



- Loosen nut (1).

Note: Use the Torx socket for counter support.

- Loosen the anti-roll bar link (3) from the anti-roll bar (2).

36 – Removing the left and right brake air duct partially

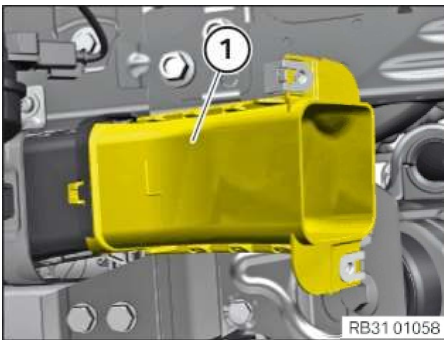


NOTICE

Perform the operations on the left and right side.

► Removing brake air duct partially

- Unclip and remove air duct (1).

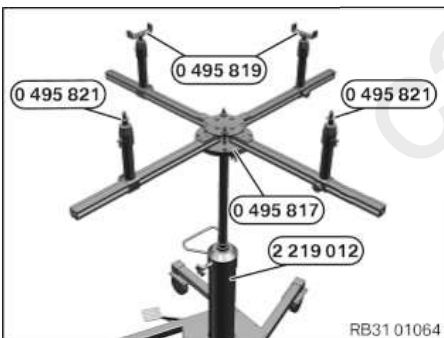


37 – Preparing the special tool



TECHNICAL INFORMATION

In a profile rail pair, two profile rails are connected to one another by gearing.



- Fit the special tool completely on the universal jack [2 219 012](#) with the help of an auxiliary person.
- Insert special tools in telescopic supports of a profile rail pair.
- Insert special tools in telescopic supports of other profile rail pair.

38 – Lower front axle support

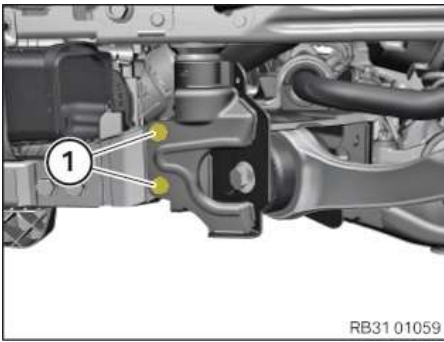


WARNING

Falling or tipping of a heavy component.

Danger! Life-threatening injuries!

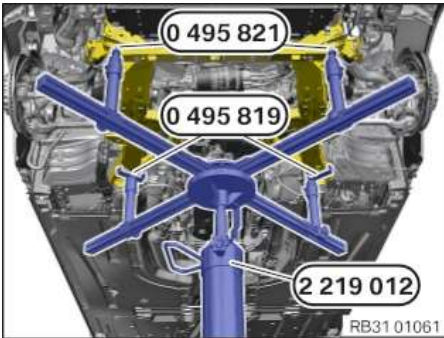
- Before lowering or removing the front axle: Secure the engine in mounting orientation.
- For additional information see: 11 00 670 Securing engine in installation position.



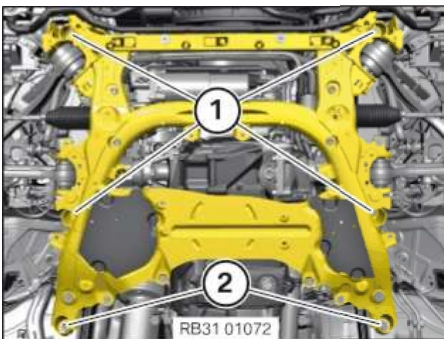
NOTICE

Perform the operations on the left and right side.

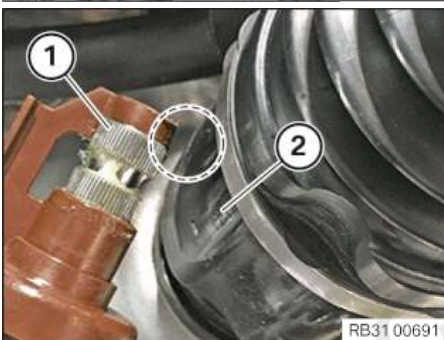
- Loosen screws (1).
- Position the universal jack [2 219 012](#) with the special tools [0 495 821](#) and [0 495 819](#) on the front axle support.
The centre of gravity of the front axle must be centred over the universal jack [2 219 012](#) !
- Support the front axle support with the universal jack [2 219 012](#).



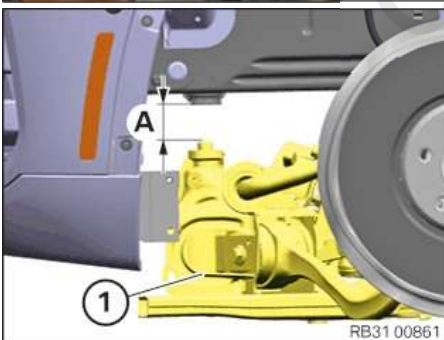
- Loosen screws (1) and (2).



- When lowering the front axle support, ensure sufficient distance between the steering gear (1) and the output shaft (2).



- Lower front axle support (1) using the universal jack by dimension (A).
Dimensions (A) = maximum 15 cm



MAIN WORK

39 – Removing the oil-level sensor



WARNING

Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.



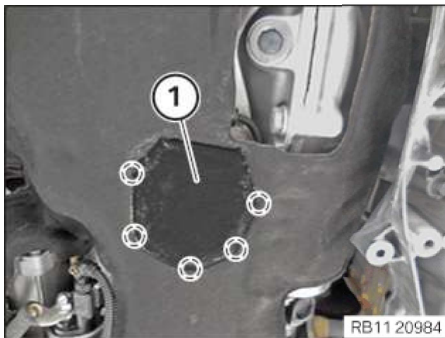
RISK OF DAMAGE



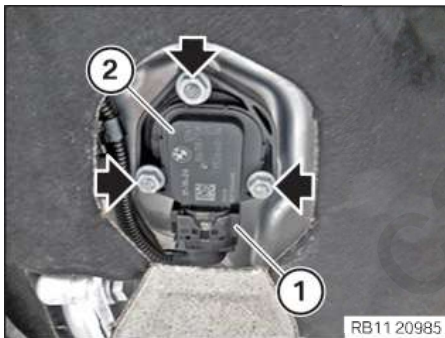
Electrostatic discharge.

Damage to or destruction of electrical components.

- Leave electrical components in original packaging until just before they are installed. Use the original packaging only for any return shipments. Always package removed components straight away.
- Read and comply with user information on using the associated special tool 12 7 060.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- Wear electrically conductive clothing and antistatic shoes (with ESD symbol).
- For additional information see: 61 35 Information on electrostatic discharge (ESD) protection.



- Release cover (1) in the **marked** area.



- Unlock plug connection (1) and disconnect.
- Unscrew the nuts (arrows).
- Feed out and remove the oil-level sensor (2).

40 – Installing the oil-level sensor

► Prepare the oil-level sensor

- Renew sealing ring (1).

Parts: Sealing ring



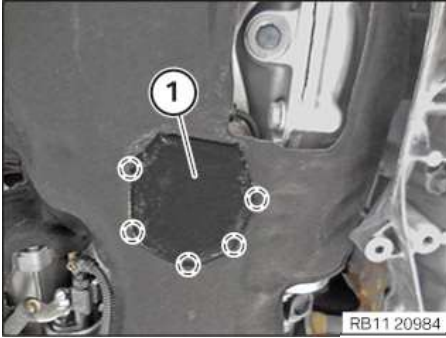


- Insert and install the oil-level sensor (2).
- Tighten the nuts (arrows).

Oil level sensor to oil sump

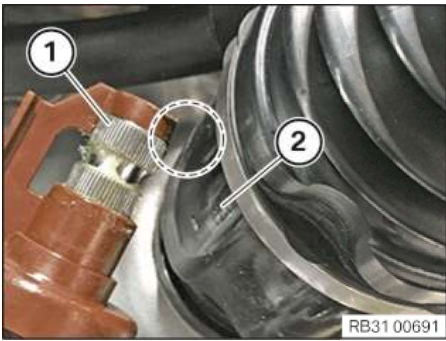
M6 hexagon nut		Jointing torque	2 Nm
		Tightening torque	8,5 Nm

- Connect and lock the connector (1).
The connector (1) must engage audibly.
- Guide in cover (1) in the **marked** area and install it.

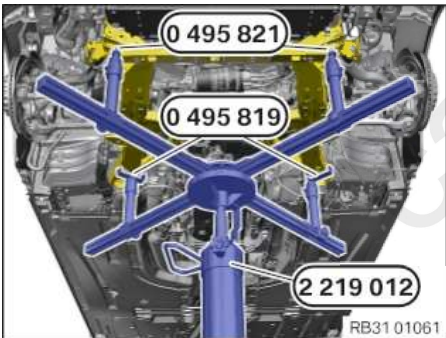


POSTPROCESSES

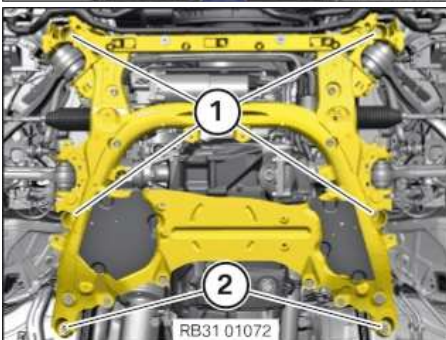
41 – Lift front axle support and fasten.



- When lifting the front axle support, ensure sufficient distance between the steering gear (1) and the output shaft (2).



- Carefully lift the front axle support with the universal jack [2 219 012](#) and position on the body.



- Replace the screws (1).

Parts: Bolts

- Tighten the screws (1).

Front axle support to front/centre of body

M12	Renew screws.	Jointing torque	108 Nm
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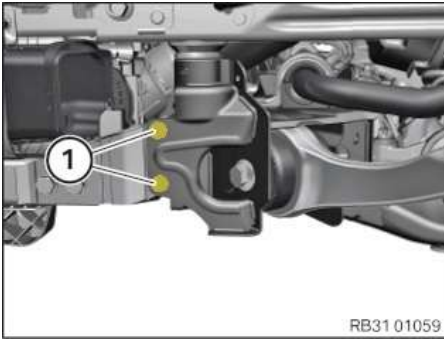
- Replace the screws (2).

Parts: Bolts

- Tighten the screws (2).

Front axle carrier to body, rear

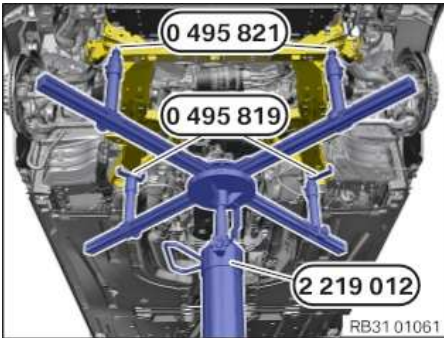
M14	Renew screws.	Tightening torque	175 Nm
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- Position the adapter for the front axle support on the front axle support .
- Tighten the screws (1).

Adapter, front axle support to front axle support

M8x70		Tightening torque	19 Nm
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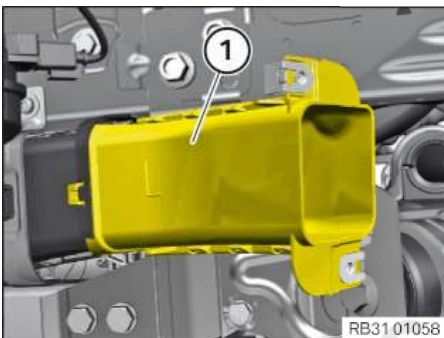
- Lower the universal jack [2 219 012](#) and place to one side.

42 – Partially installing the left and right brake air duct



NOTICE

Perform the operations on the left and right side.



► Installing the brake air duct partially

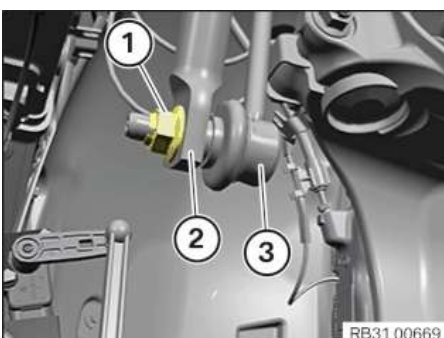
- Position and clip in air duct (1).

43 – Securing the anti-roll bar link to the left and right anti-roll bar



NOTICE

Perform the operations on the left and right side.



► Securing the anti-roll bar link to the anti-roll bar

- Position the anti-roll bar link (3) on the anti-roll bar (2).
- Renew nut (1).

Parts: Nut

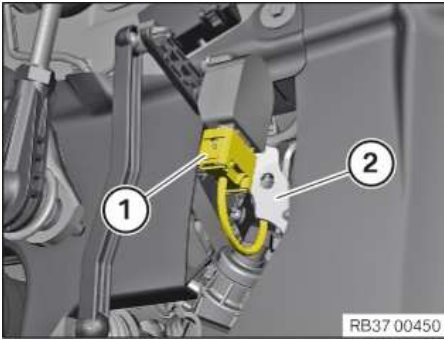
- Tighten nut (1).

Note: Use the Torx socket for counter support.

Front anti-roll bar link to anti-roll bar/spring strut

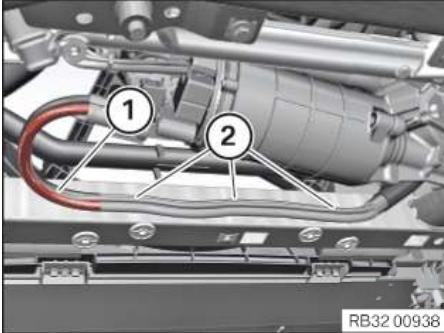
M10	Renew nut.	Tightening torque	56 Nm
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44 – Attach the line connection of the ride height sensor



- Position the line .
- Clip in line on holder (2) .
- Connect connectors (1) and lock.

45 – Secure the wiring harness for the EPS on the front axle support



- Position the EPS wiring harness (1) from the front axle support.
- Secure the holder (2).



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

46 – Securing the steering shaft at the bottom on the steering gear

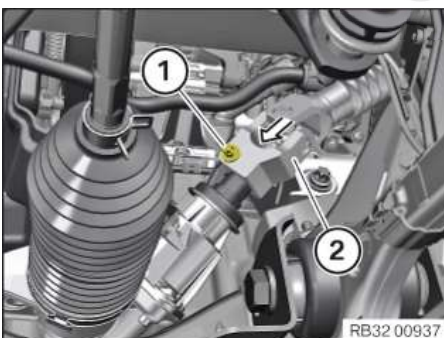


TECHNICAL INFORMATION

The universal joint can only be installed in one position.

The universal joint and the bottom steering gear and/or steering shaft are encoded with each other.

The clamping bolt must be positioned in the groove of the steering gear groove or the steering shaft.



- Clean the screw threads to remove all remnants of screw locking adhesive.
- Slide the lower steering shaft (2) onto the steering gear in the direction of the arrow.
- Renew the clamping bolt (1).
Parts: Clamping bolt
- Tighten the clamping bolt (1).

Universal joint to steering box

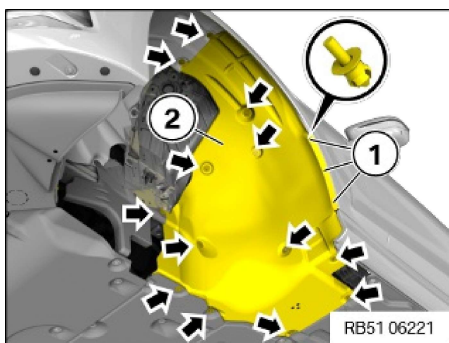
M8	Recut screw thread. Renew clamping bolt. No retorquing permitted!	Tightening torque	28 Nm
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47 – Install rear section of the front right wheel arch cover



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.



- Install therear section of the front wheel arch cover (2) .
- Tighten screws (arrows).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm
-----------------------------	--	-------------------	--------

- Secure expanding rivet (1).

48 – Installing the front section of the wheel arch cover on the front left and right



NOTICE

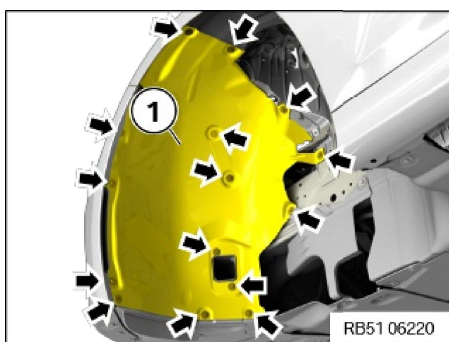
Perform the operations on the left and right side.

► Install the front section of the front wheel arch cover



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.



- Install the front section of the front wheel arch cover (1).
- Tighten screws (arrows).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm
-----------------------------	--	-------------------	--------

49 – Installing the bottom left and right wheel arch cover



NOTICE

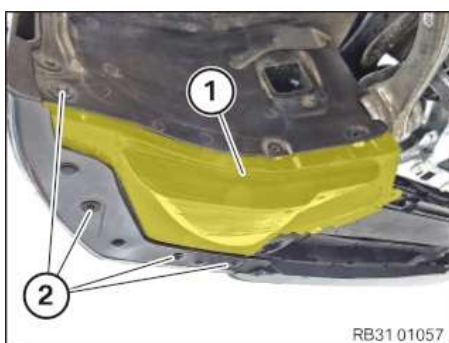
Description is for left component only. Procedure on the right side is identical.

► Installing the bottom wheel arch cover

- Position the bottom wheel arch cover (1).
- Tighten the screws (2).

Cover, front bottom on side

Hexagon screw for thermoplastic		Tightening torque	3 Nm
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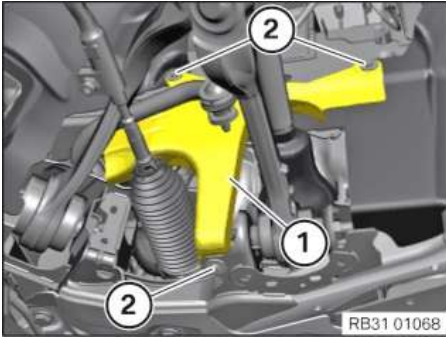


50 – Install the cover of the steering assembly on the left and right



NOTICE

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



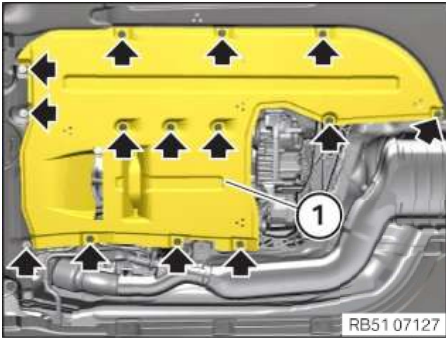
► Install the cover of the steering assembly

- Position the cover (1).
- Tighten the screws (2).

Cover, steering unit

Screw	Tightening torque
	3 Nm

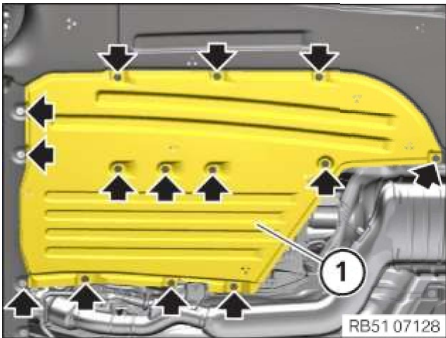
51 – Installing underbody protection at rear



- **Version 1:**
Insert and install the rear underbody protection (1).
Tighten screws (arrows).

Underbody protection

Hexagon screw	Tightening torque
	3 Nm

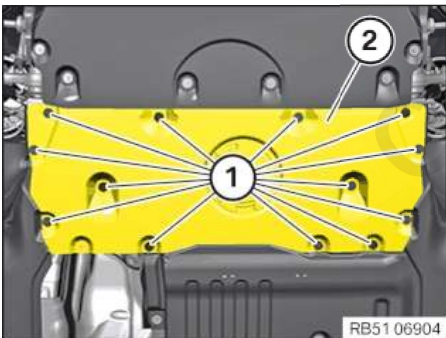


- **Version 2:**
Insert and install the rear underbody protection (1).
Tighten screws (arrows).

Underbody protection

Hexagon screw	Tightening torque
	3 Nm

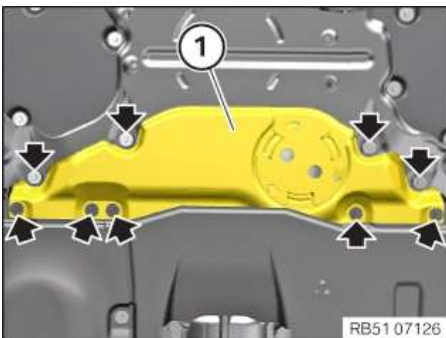
52 – Installing the centre underbody protection



- **Version with rear-wheel drive:**
Position central underbody protection (2).
Tighten the screws (1).

Underbody protection

Hexagon screw	Tightening torque
	3 Nm

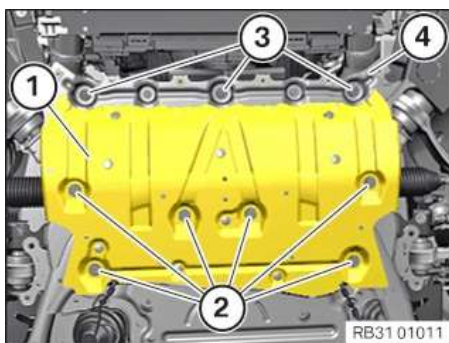


- **Version with all-wheel drive:**
Guide in and install the centre of underbody protection (1).
Tighten screws (arrows).

Underbody protection

Hexagon screw	Tightening torque
	3 Nm

53 – Installing the stiffening plate

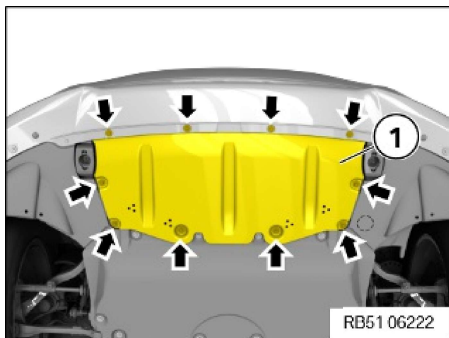


- Position stiffening plate (1).
- Screw screws (2) in.
- Position holder of underide protection (4).
- Screw screws (3) in.
- Tighten down screws (2) and (3).

Stiffening plate to front axle support

M10		Tightening torque	56 Nm
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54 – Installing the front underbody protection



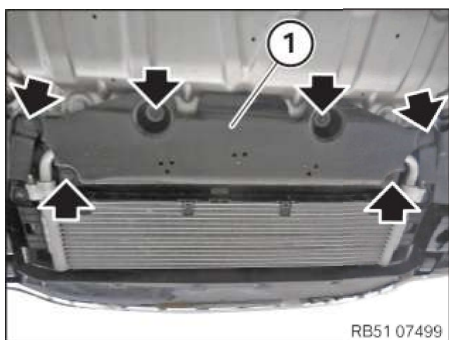
• Version 1:

Feed in the front underbody protection (1) towards the front under the bumper panel and position.

Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm



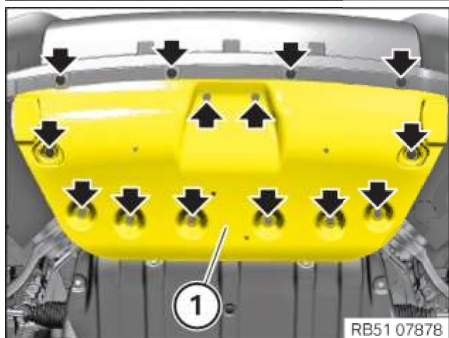
• Version 2:

Feed in and position the front underbody protection (1).

Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm



• Version 3:

Feed in and install front underbody protection (1).

Tighten screws (arrows).

Underbody protection front

Hexagon screw for thermoplastic		Tightening torque	2,6 Nm
Hexagon screw M6x20		Tightening torque	8 Nm

55 – Installing the front right wheel



► Mounting the wheel



TECHNICAL INFORMATION

The contact surface between the brake disc and the wheel rim must be clean and free from oil and grease. There is otherwise a risk of the wheel becoming loose at a later time.

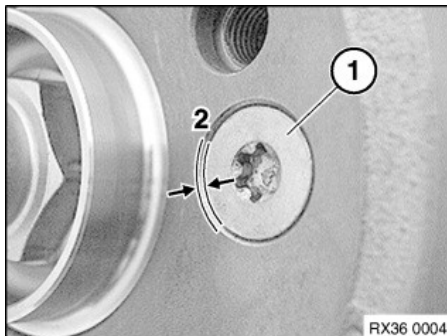
- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool [2 344 011](#).
Do not operate special tool [2 344 011](#) with an impact screwdriver.
- Degrease the contact surfaces with the universal cleaner (see BMW Group Parts).
- In the event of grease residue in the area of the wheel bolt holes, remove and clean the brake disc.



- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool [2 344 011](#).

Do not operate special tool [2 344 011](#) with an impact screwdriver.

- Degrease the contact surfaces with the universal cleaner (see BMW Group Parts).



- Check that the mounting bolt (1) for the brake disc is securely seated.

The mounting bolt (1) for the brake disc may not protrude under any circumstances on the contact surface (2) between the brake disc and the wheel rim.

Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm
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Brake disc to rear wheel hub

M8	Renew screw.	Tightening torque	16 Nm
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- Thinly grease the wheel centring (1) in the wheel rim.

Expendable materials

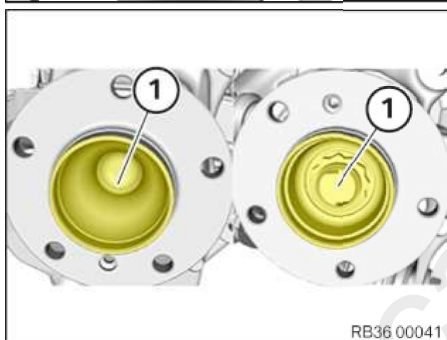
Brake block paste	3 g, Bag	83192158851
* TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	100 g, Tube	83192158852
	5 g, TU*	83230140233



- Lightly grease the front and rear wheel hubs in this area (1) to protect from corrosion.

Expendable materials

Brake block paste	3 g, Bag	83192158851
* TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	100 g, Tube	83192158852
	5 g, TU*	83230140233



- In vehicles with M Carbon ceramic brake: The wheel assembly jack must be used to install the wheel (see workshop equipment).

This process is intended to prevent damage to the brake disc.



TECHNICAL INFORMATION

Never use impact screwdrivers or electric screwdrivers to screw in and tighten the wheel bolts.

The wheel rim must rest uniformly against the brake disc.

In the case of non-original BMW wheel bolts/wheel rims, it may be necessary to retighten the wheel bolts on account of setting properties (refer to the documentation from the manufacturer).

Do not apply oil to new wheel bolts.

- Renew corroded wheel bolts.

Parts: Wheel bolts

- Clean the wheel bolts.
- Check wheel bolts and threads for damage, renew the wheel bolts if necessary.
- Join and tighten the wheel bolts (arrows).

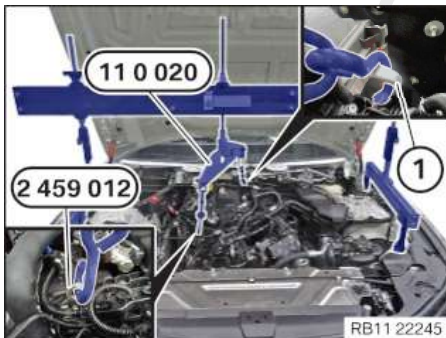
Wheel bolts

M14 / SW17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim.	Tightening torque	140 Nm
	Tighten wheel bolts to the prescribed tightening torque with a calibrated torque wrench in a crosswise sequence.	Check	140 Nm
	Check all the wheel bolts in the same order or retighten to the prescribed tightening torque again.		

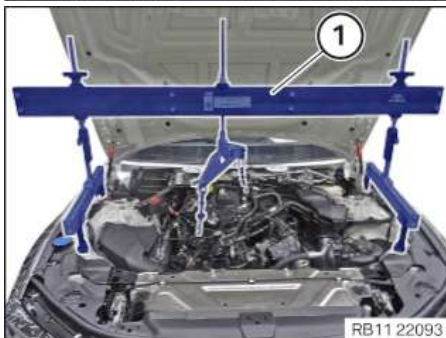
56 – Loosen the attachment of the engine in installation position



- Lower engine by turning the spindle [2 361 506 \(00 6 103\)](#) until the engine lies completely on the engine supports.



- Feed out special tool [0 490 567 \(11 0 020\)](#) on the special tool and set aside.
- Feed out special tool [0 490 567 \(11 0 020\)](#) on the engine mounting bracket (1) and set aside.



TECHNICAL INFORMATION

Conduct the following operation with the assistance of a second person.

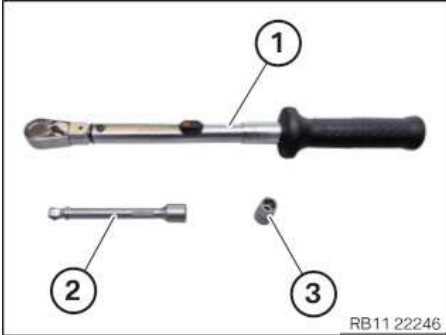
- Remove the engine bridge (1) with an auxiliary person.



- Tighten bolt (1) of the right engine mount from the top using a standard tool.

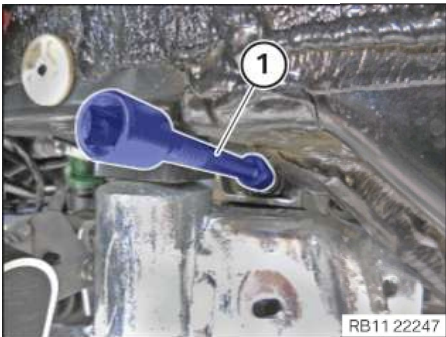
Engine mount to engine mounting bracket

M12		Tightening torque	100 Nm
-----	--	-------------------	--------

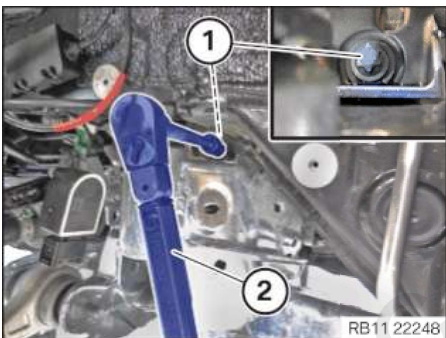


- Have all suitable tools available.

Number	Description
1	Commercial available torque spanner
2	Swivelling extension
3	External TorxE14



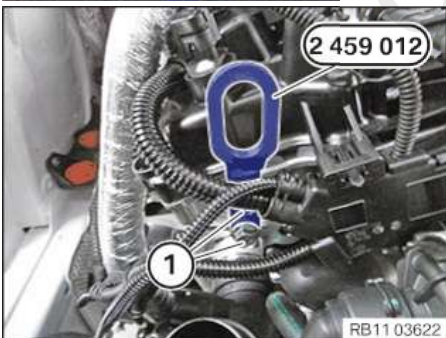
- Position suitable tools (1).



- Tighten bolt (1) of the left engine mount using a standard tool (2) sideways.

Engine mount to engine mounting bracket

M12		Tightening torque	100 Nm
-----	--	-------------------	--------



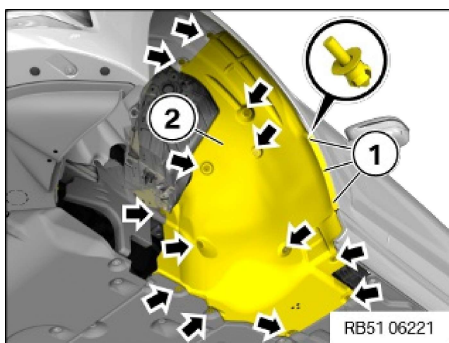
- Unscrew the bolts (1) of the special tool .
- Feed out the special tool at the cylinder head and remove.

57 – Install the rear section of the front wheel arch cover



NOTICE

To provide a better overview: Schematic diagram with partially hidden components.



- Install the rear section of the front wheel arch cover(2) .
- Tighten screws (arrows).

Wheel arch trim panel, front

Thermoplastic hexagon screw		Tightening torque	2,6 Nm
-----------------------------	--	-------------------	--------

- Secure expanding rivet (1).

58 – Attaching the front left wheel



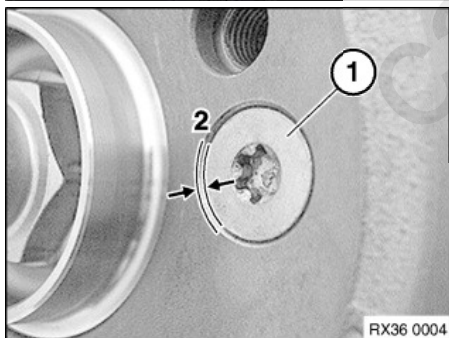
► Mounting the wheel



TECHNICAL INFORMATION

The contact surface between the brake disc and the wheel rim must be clean and free from oil and grease. There is otherwise a risk of the wheel becoming loose at a later time.

- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool [2 344 011](#).
Do not operate special tool [2 344 011](#) with an impact screwdriver.
- Degrease the contact surfaces with the universal cleaner (see BMW Group Parts).
- In the event of grease residue in the area of the wheel bolt holes, remove and clean the brake disc.
- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool [2 344 011](#).
Do not operate special tool [2 344 011](#) with an impact screwdriver.
- Degrease the contact surfaces with the universal cleaner (see BMW Group Parts).



- Check that the mounting bolt (1) for the brake disc is securely seated.
The mounting bolt (1) for the brake disc may not protrude under any circumstances on the contact surface (2) between the brake disc and the wheel rim.

Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm
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Brake disc to rear wheel hub

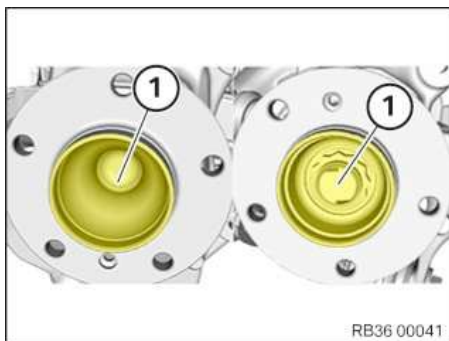
M8	Renew screw.	Tightening torque	16 Nm
----	--------------	-------------------	-------

- Thinly grease the wheel centring (1) in the wheel rim.

Expendable materials

Brake block paste * TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.	3 g, Bag	83192158851
	100 g, Tube	83192158852
	5 g, TU*	83230140233





RB36 00041

- Lightly grease the front and rear wheel hubs in this area (1) to protect from corrosion.

Expendable materials

Brake block paste

* TU = Trade Unit. TU numbers cannot be ordered! For invoicing purposes only.

3 g,
Bag

83192158851

100 g,
Tube

83192158852

5 g,
TU*

83230140233



P04 04 001

- In vehicles with M Carbon ceramic brake: The wheel assembly jack must be used to install the wheel (see workshop equipment).

This process is intended to prevent damage to the brake disc.



RB36 00039



TECHNICAL INFORMATION

Never use impact screwdrivers or electric screwdrivers to screw in and tighten the wheel bolts.

The wheel rim must rest uniformly against the brake disc.

In the case of non-original BMW wheel bolts/wheel rims, it may be necessary to retighten the wheel bolts on account of setting properties (refer to the documentation from the manufacturer).

Do not apply oil to new wheel bolts.

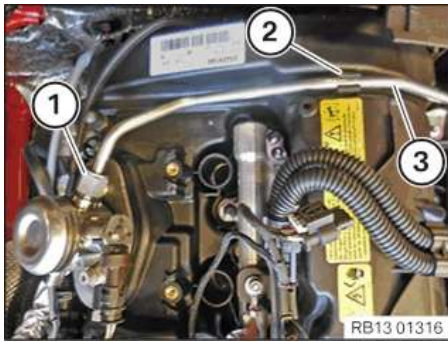
- Renew corroded wheel bolts.

Parts: Wheel bolts

- Clean the wheel bolts.
- Check wheel bolts and threads for damage, renew the wheel bolts if necessary.
- Join and tighten the wheel bolts (arrows).

Wheel bolts

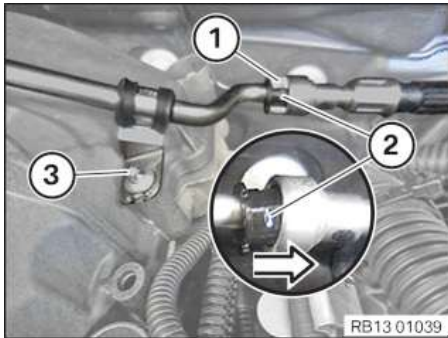
M14 / SW17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim.	Tightening torque	140 Nm
	Tighten wheel bolts to the prescribed tightening torque with a calibrated torque wrench in a crosswise sequence. Check all the wheel bolts in the same order or retighten to the prescribed tightening torque again.	Check	140 Nm



- Guide the fuel delivery line (3) in and install.
- Install rubber damper (2).
- Check the rubber damper (2) for the correct fit.
- Tighten the union nut (1) hand-tight.
- Tighten union nut (1).

Fuel delivery line to high pressure pump

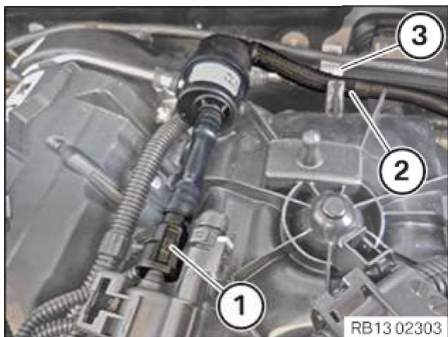
M14		Tightening torque	31 Nm
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- Slide in and lock the fuel feed line in the direction of the arrow in the snap fastener (2).
The fuel feed line must be audibly engage in the snap fastener (2).
- Secure clamps (1).
- Tighten down screw (3).

Fuel line to cylinder head cover

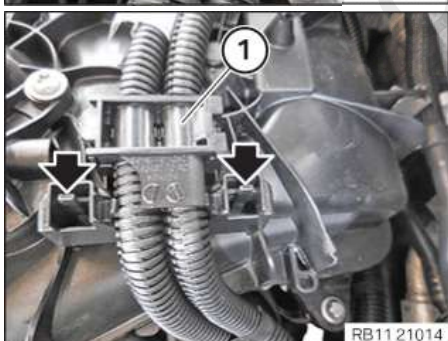
6x18		Tightening torque	6,5 Nm
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- Insert and install the tank ventilation line (2).
- Lock (1) must engage audibly.
- Secure the tank ventilation line (2) to the clamp (3).



- Insert and install wiring harness section (2) for injectors and ignition coils.
- Secure clamps (1).



- Insert and install wiring harness section (1) for injectors and ignition coils.
- The locks (arrows) must engage audibly.

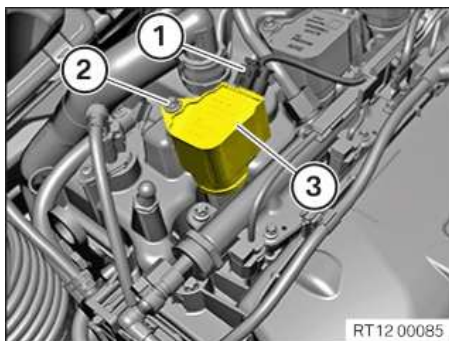
60 – Install all ignition coils



NOTICE

The description is for one component only. The procedure is identical for all further components.

- Install ignition coil.

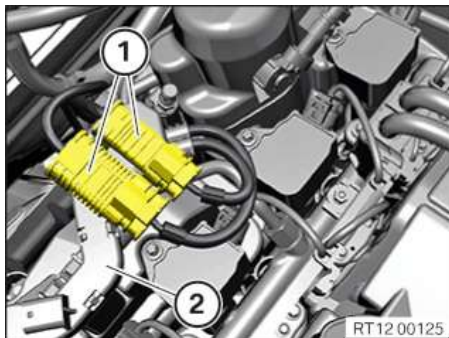


- Install ignition coil (3).
- Tighten down screw (2).

Ignition coil

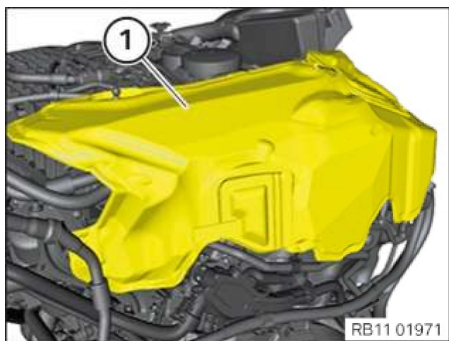
Screw	Tightening torque	8 Nm
-------	-------------------	------

- Connect connectors (1) and lock.
The connector (1) must engage audibly.



- Connect the connector (1) of the front oxygen sensor and the monitoring oxygen sensor on the cable shaft (2).

61 – Installing acoustic cover at rear

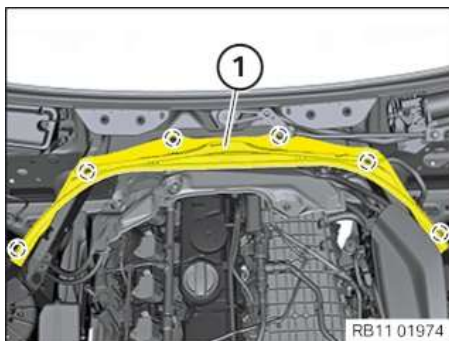


- Make sure the acoustic cover (1) is correctly positioned on the rear side of the engine.



- Install the acoustic cover (1) from the top and clip it in into the marked areas.

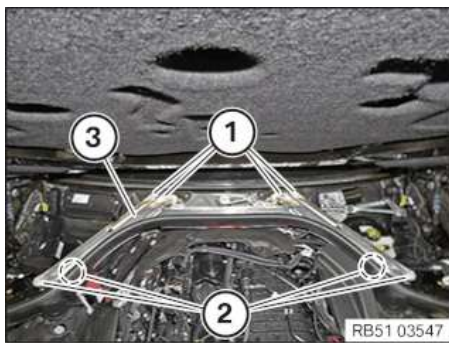
62 – Installing the centre bulkhead upper part



- Position the centre bulkhead upper part (1).
- Tighten the bolts in the marked areas.

Bulkhead upper part to bottom bulkhead

Tightening torque	3 Nm
-------------------	------



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

Tension strut on bulkhead

M10x25 screw		Tightening torque	56 Nm
--------------	--	-------------------	-------

- Renew screws (2).

Parts: Bolts

- Tighten the screws (2).

Tension strut to spring strut dome

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

63 – Installing cowl panel cover

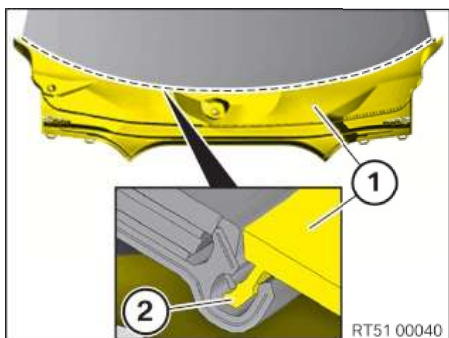


RISK OF DAMAGE

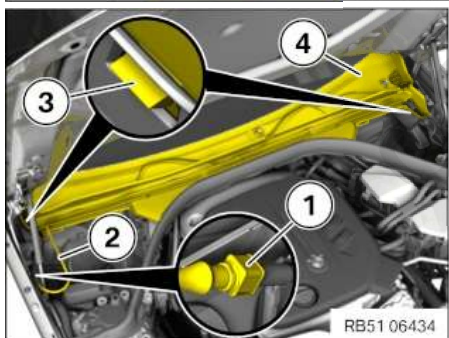
Damage caused by water ingress into the vehicle.

Water ingress into the vehicle may result in damage to components, malfunctions and corrosion.

- Ensure correct installation of the components.
- Only use undamaged components.



- Push the cowl panel cover (1) into the latch mechanism (2) beginning on the side.



- Clip cowl panel cover (4) in by means of the latch mechanisms (3).
- Position windscreen wash hose (2) and connect windscreen wash hose (1) quick lock.

64 – Installing both wiper arms



NOTICE

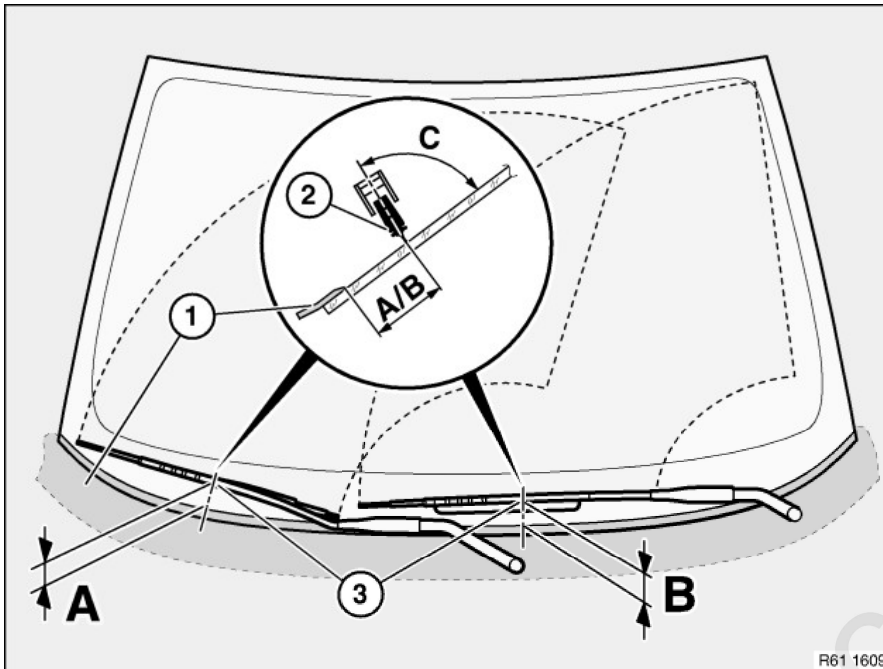
Description is for left component only. Procedure on the right side is identical.

- **Install the wiper arm**

The wiper system must be in zero position.

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

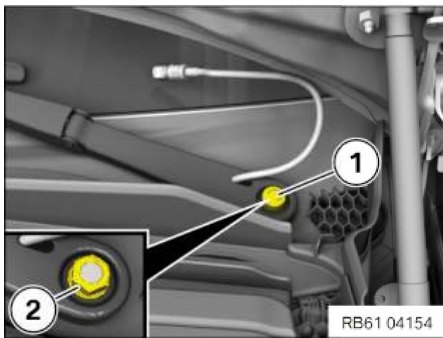
Activate the wiper system once to ensure that it has the correct installation position.



- Connect the wiper arm (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)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

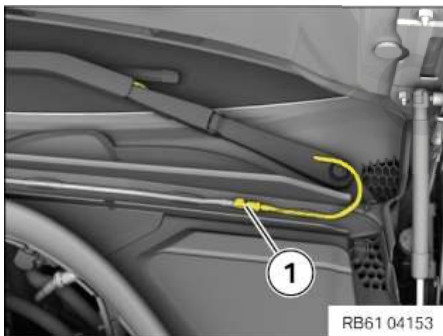


- Tighten nut (2).

Windscreen wiper arm

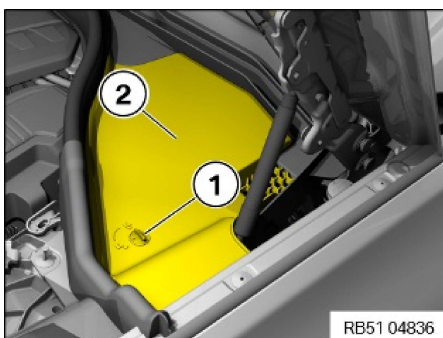
Combination hexagon nut	Tightening torque	35 Nm
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- Connect the protective cap (1).



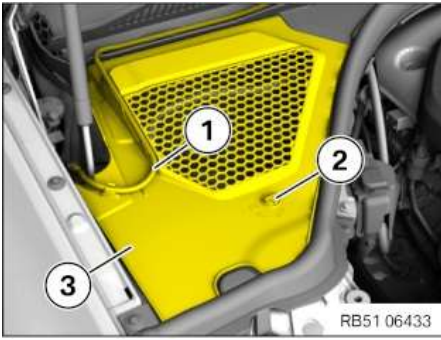
- Insert windscreen wash hose (1) into the cowl and connect at the separating point.

65 – Install the cover of the engine compartment on the rear left



- Position the engine compartment cover at the rear left (2).
- Close lock (1).

66 – Install the rear right engine compartment cover



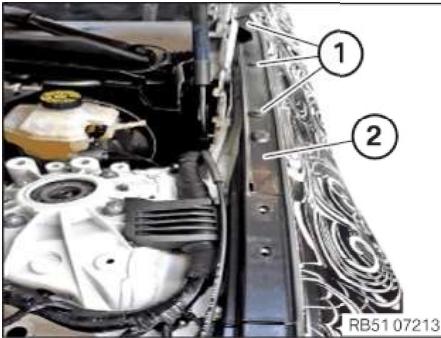
- Position the cover of the engine compartment on the rear right (3).
- Close lock (2).
- Insert washer fluid hose (1) into the guides.

67 – Install the seal for the bonnet



- Press the rear bonnet seal (2) into the guide.
- Feed in cable (1) into the brackets.
- Check that the rear bonnet seal (2) and the cable (1) are seated correctly.

68 – Installation of side panel sealing.



NOTICE

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

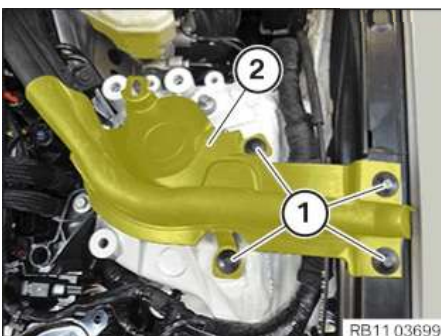
- Guide the sealing (2) in and install it.
- Mount the expanding rivets (1).

69 – Install side bonnet seals



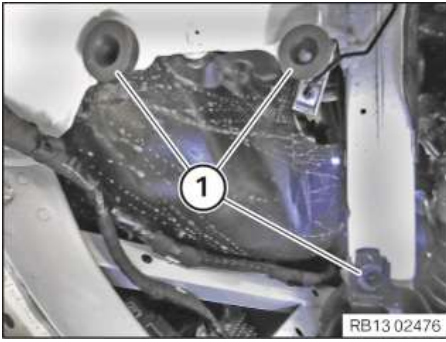
NOTICE

Perform the operations on the left and right side.



- Position the side bonnet seal (2) on the spring strut dome.
- Secure the rivet (1).

70 – Installing intake silencer housing



- Check the rubber mount (1) for correct fit.



- Feed the intake filter housing (3) in and engage it in the rubber mounts.
- Tighten clamp (2).

Clean air pipe to upper section of intake filter housing

Clamp	Tightening torque
	3 Nm

- Connect connectors (1) and lock.
The connector (1) must engage audibly.

71 – Disconnecting all battery earth leads



- See additional information.

72 – Topping up the engine oil



RISK OF DAMAGE

Damage to the petrol particulate filter.

Vehicles equipped with a petrol particulate filter must be operated with low-ash engine oil only.

- Use [BMW Longlife-04](#) , [BMW Longlife-12 FE](#) or [BMW Longlife-17 FE+](#) engine oils or engine oils approved by BMW matching the same specifications only.
- For additional information see: Overview of approved engine oils for BMW Group engines.



RISK OF DAMAGE

Engine damage caused by excessively filling the engine with engine oil.

Filling an excessive quantity of engine oil may cause engine damage.

- Observe the exact engine oil filling capacity.
- Drain the engine oil.

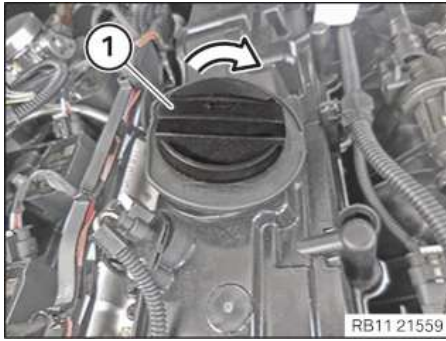
- Pour in engine oil.

Engine oil B58B30M1/B58B30O1

Filling capacity, engine oil change with oil filter element	6,50 l
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Engine oil: Technically suitable engine oils for BMW Group engines

73 – Installing the oil filler cap



- Close oil filler cap (1) in direction of arrow.
- Make sure that the sealing cap (1) engages audibly.

74 – Check engine oil level

- Park vehicle on a horizontal surface.
- In the case of automatic transmission, shift to selector lever position N or P.
- Accelerator pedal is not pressed.
- Engine is running and is at operating temperature.
- Read off the engine oil level in the instrument cluster (KOMBI) or on the control display.
- Top up engine oil if necessary.

75 – Install acoustic cover

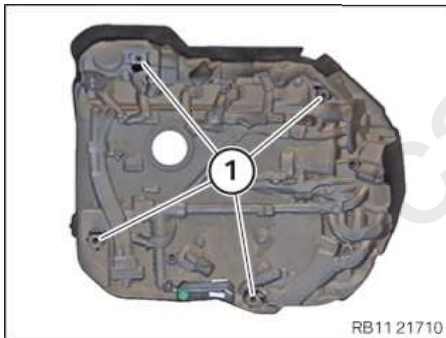


RISK OF DAMAGE

Damage to the acoustic cover.

Jerky movements during disassembly and excessive application of force during installation may result in breakage of the acoustic cover.

- Disassemble or mount the acoustic cover carefully.
- Disassemble or mount snap-lock couplings of the ball pivots one after the other.
- Disassemble or mount acoustic cover only at temperatures $>20^{\circ}\text{C}$.
- Use only distilled water as an auxiliary material during installation, no lubricants.

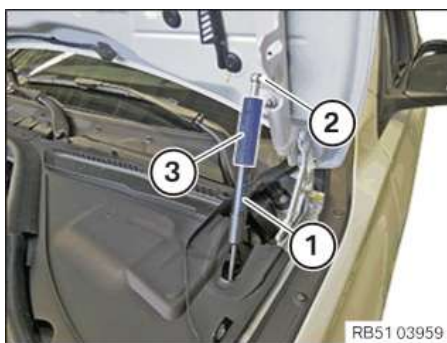


- Check the rubber mount (1) for correct fit in the acoustic cover.

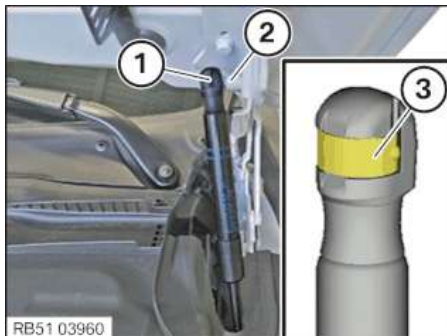


- Install acoustic cover (1) and fix in the rubber mounts (marks).

76 – Take bonnet out of the service position



- Support the bonnet by hand.
- Remove the special tool (3) from the ball pin (2).
- Pull off the special tool (3) from the gas pressure spring (1).
- Continue to support the bonnet and repeat the operation on the other side of vehicle.



CAUTION

Shutting bonnet or tailgate.

Danger of injury!

- Support bonnet/tailgate in fully open position with the aid of a suitable device.

- Check the clamp (3) is fitted correctly.
- Connect ball socket (1) to ball pin (2).
- Continue to support the bonnet and repeat the operation on the other side of vehicle.

Additional Information

Overview of Tightening Torques

Special tool to cylinder head

Used in step 18

M8		Tightening torque	21,5 Nm
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Oil drain plug

Used in step 23

M12x16	Replace sealing ring.	Tightening torque	25 Nm
--------	-----------------------	-------------------	-------

Oil level sensor to oil sump

Used in step 40

M6 hexagon nut		Jointing torque	2 Nm
		Tightening torque	8,5 Nm

Front axle support to front/centre of body

Used in step 41

M12	Renew screws.	Jointing torque	108 Nm
-----	---------------	-----------------	--------

Front axle carrier to body, rear

Used in step 41

M14	Renew screws.	Tightening torque	175 Nm
-----	---------------	-------------------	--------

Adapter, front axle support to front axle support

Used in step 41

M8x70		Tightening torque	19 Nm
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Front anti-roll bar link to anti-roll bar/spring strut

Used in step 43

M10	Renew nut.	Tightening torque	56 Nm
-----	------------	-------------------	-------

Universal joint to steering box

Used in step 46

M8	Recut screw thread. Renew clamping bolt. No retorquing permitted!	Tightening torque	28 Nm
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Wheel arch trim panel, front

Used in step 47/48/57

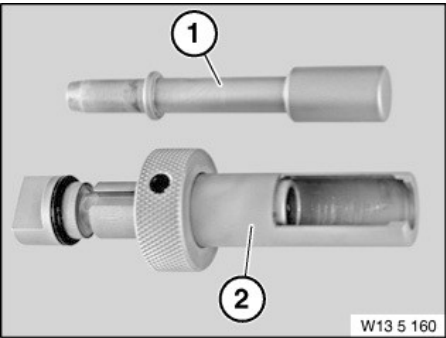
Thermoplastic hexagon screw		Tightening torque	2,6 Nm
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Cover, front bottom on side			Used in step	49
Hexagon screw for thermoplastic		Tightening torque		3 Nm
Cover, steering unit			Used in step	50
Screw		Tightening torque		3 Nm
Underbody protection			Used in step	5152
Hexagon screw		Tightening torque		3 Nm
Stiffening plate to front axle support			Used in step	53
M10		Tightening torque		56 Nm
Underbody protection front			Used in step	54
Hexagon screw for thermoplastic		Tightening torque		2,6 Nm
Hexagon screw M6x20		Tightening torque		8 Nm
Brake disc to front wheel hub			Used in step	5558
M8	Renew screw.	Tightening torque		16 Nm
Brake disc to rear wheel hub			Used in step	5558
M8	Renew screw.	Tightening torque		16 Nm
Wheel bolts			Used in step	5558
M14 / SW17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim.	Tightening torque		140 Nm
	Tighten wheel bolts to the prescribed tightening torque with a calibrated torque wrench in a crosswise sequence.	Check		140 Nm
	Check all the wheel bolts in the same order or retighten to the prescribed tightening torque again.			
Engine mount to engine mounting bracket			Used in step	56
M12		Tightening torque		100 Nm
Fuel delivery line to high pressure pump			Used in step	59
M14		Tightening torque		31 Nm
Fuel line to cylinder head cover			Used in step	59
6x18		Tightening torque		6,5 Nm
Ignition coil			Used in step	60
Screw		Tightening torque		8 Nm
Bulkhead upper part to bottom bulkhead			Used in step	62
		Tightening torque		3 Nm
Tension strut on bulkhead			Used in step	62
M10x25 screw		Tightening torque		56 Nm
Tension strut to spring strut dome			Used in step	62
Screw	Renew screws.	Jointing torque		56 Nm
		Angle of rotation		90 °
Windscreen wiper arm			Used in step	64
Combination hexagon nut		Tightening torque		35 Nm

Clamp		Tightening torque	3 Nm
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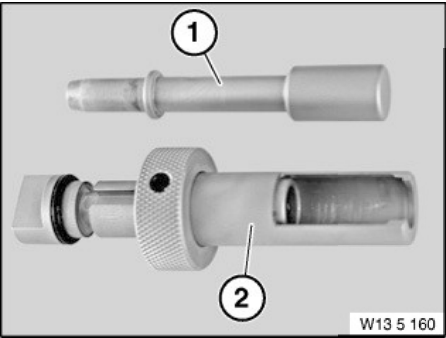
Overview of Special Tools

0 496 567 (13 5 161) Fastener



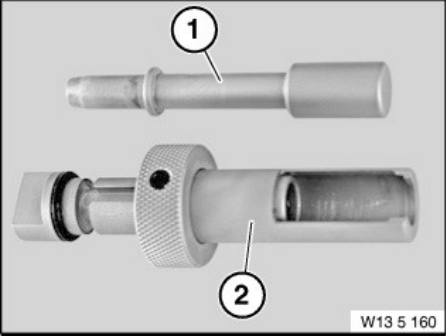
Common		Used in step 14
Usage	(Cap (2 piece)) For sealing the quick connectors Deletion, only available via tool set	
Included in the tool or work	0 496 565	
Storage location		
Replaced by		
In connection with		
SI-Number		

0 496 568 (13 5 162) Fastener



Common		Used in step 14
Usage	(Cap (2 x)) To close off the fuel lines. Discontinued, can only be ordered using complete tool	
Included in the tool or work	0 496 565	
Storage location		
Replaced by		
In connection with		
SI-Number		

0 496 565 (13 5 160) Fastener



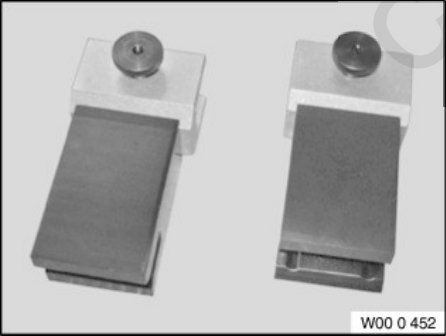
Common Used in step 14

Usage	(Caps (2x)) To close off the fuel lines when removing and installing the engine.
Included in the tool or work	
Storage location	B26
Replaced by	
In connection with	
SI-Number	01 22 08 (498)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 496 567 (13 5 161)		Fastener (Cap (2 piece)) For sealing the quick connectors Deletion, only available via tool set	
2	0 496 568 (13 5 162)		Fastener (Cap (2 x)) To close off the fuel lines. Discontinued, can only be ordered using complete tool	

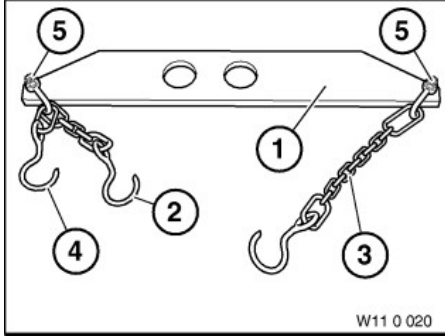
0 495 850 (00 0 452) Upholstery



Common Used in step 18

Usage	(Pads (2 x)) Series: E70 Replaced by 00 6 042
Included in the tool or work	
Storage location	
Replaced by	
In connection with	
SI-Number	01 22 06 (307)

0 490 567 (11 0 020) Lifting gear



Common

Used in step 1856

Usage	For removing and installing the engines. 08/2011 only available as a complete set. Delivered with TÜV inspection certificate and operating instructions. No delivery of separate parts.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 13 94 (888)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
5	0 490 572 (11 0 029)		Shackle (Shackle) 2 pieces As of 08/2011, only available as a complete set via 11 0 020 = 0490567. Delivered with TÜV inspection certificate and operating instructions.	
1	0 490 568 (11 0 021)		Lifting gear (Cross member) As of 08/2011, only available as a complete set via 11 0 020 = 0490567. Delivered with TÜV inspection certificate and operating instructions.	
2	0 490 569 (11 0 022)		Chain (Chain) As of 08/2011, only available as a complete set via 11 0 020 = 0490567. Delivered with TÜV inspection certificate and operating instructions.	
3	0 490 570 (11 0 023)		Chain (Chain) Version: long As of 08/2011, only available as a complete set via 11 0 020 = 0490567. Delivered with TÜV inspection certificate and operating instructions.	
4	0 490 571 (11 0 024)		Chain (Chain) Version: short As of 08/2011, only available as a complete set via 11 0 020 = 0490567. Delivered with TÜV inspection certificate and operating instructions.	

2 361 506 (00 6 103) Spindle



Common		Used in step	1856
Usage	Spindle (central spindle) for Traverse 00 6 100.		
Included in the tool or work	0 496 852		
Storage location			
Replaced by			
In connection with			
SI-Number	01 17 10 (659)		

2 219 012 Hydraulic lifter



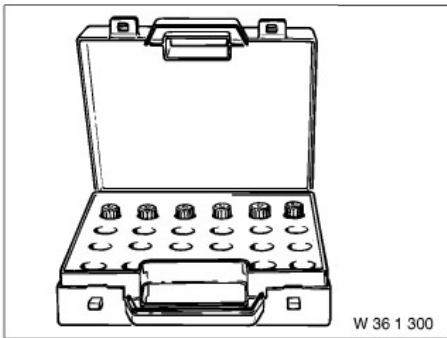
Common		Used in step	373841
Usage	For raising and lowering various vehicle components.		
Included in the tool or work			
Storage location			
Replaced by			
In connection with			
SI-Number	01 05 90 (207)		

2 344 011 Tool



Common		Used in step	5558
Usage	Tool (wheel hub grinder) for cleaning the connection of the wheel rim (wheel contact face) to the wheel hub.		
Included in the tool or work			
Storage location			
Replaced by			
In connection with			
SI-Number	08 08 12 (872)		

Replacement tools:
0 495 221 (36 1 323) Wheel stud



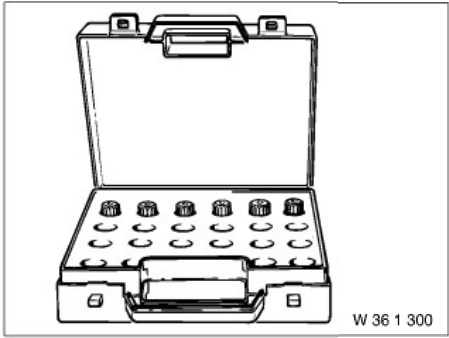
Common		Used in step	1620
Usage	(Code 30) Code 39 available separately, (see EPC) under 36 13 1 181 259		
Included in the tool or work	0 492 518		
Storage location			
Replaced by			
In connection with			
SI-Number			

0 495 224 (36 1 326) Wheel stud



Common		Used in step 1620
Usage	(Code 33) With centring bore available separately, (see EPC) under 36 13 6 765 546	
Included in the tool or work	0 492 518	
Storage location		
Replaced by		
In connection with		
SI-Number		

0 495 225 (36 1 327) Wheel stud



Common		Used in step 1620
Usage	(Code 34) With centring bore available separately (see EPC) under 36 13 6 765 547	
Included in the tool or work	0 492 518	
Storage location		
Replaced by		
In connection with		
SI-Number		

0 495 226 (36 1 328) Wheel stud



Common		Used in step 1620
Usage	(Code 35) With centring bore available separately, (see EPC) under 36 13 6 762 340	
Included in the tool or work	0 492 518	
Storage location		
Replaced by		
In connection with		
SI-Number		

0 495 227 (36 1 329) Wheel stud



Common		Used in step	1620
Usage	(Code 36) With centring bore available separately (see EPC) under 36 13 6 762 341		
Included in the tool or work	0 492 518		
Storage location			
Replaced by			
In connection with			
SI-Number			

0 495 228 (36 1 331) Wheel stud



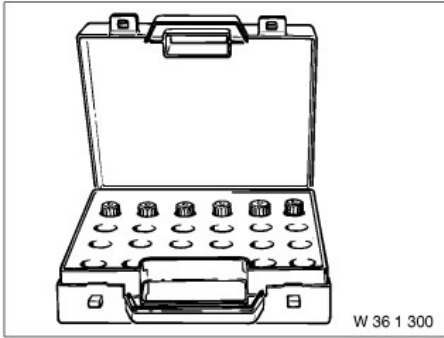
Common		Used in step	1620
Usage	(Code 37) With centring bore available separately (see EPC) under 36 13 6 762 342		
Included in the tool or work	0 492 518		
Storage location			
Replaced by			
In connection with			
SI-Number			

0 495 229 (36 1 332) Wheel stud



Common		Used in step	1620
Usage	(Code 38) With centring bore available separately (see EPC) under 36 13 6 762 343		
Included in the tool or work	0 492 518		
Storage location			
Replaced by			
In connection with			
SI-Number			

0 495 230 (36 1 333) Wheel stud



Common

Used in step 1620

Usage	(Code 40) With centring bore available separately (see EPC) under 36 13 6 762 344
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

Overview Technical Data

Distance from window pane edge to wiper blade

Used in step 64

Wiper arm right (A)	57,5 ± 5 mm
Wiper arm left (B)	63,3 ± 4 mm

Engine oil B58B30M1/B58B30O1

Used in step 72

Filling capacity, engine oil change with oil filter element	6,50 l
Engine oil: Technically suitable engine oils for BMW Group engines	

Links

Repair instructions

Used in step

61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	171
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	171
61 20 900 Disconnecting and connecting battery earth lead	171
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61 20 900 Disconnect and connect battery earth lead (Plug-in Hybrid Electric Vehicle)	171
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61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting the battery earth lead (all battery earth leads)	171

61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting battery earth lead	171
61 20 900 Disconnecting and connecting battery earth lead	171
61 35 ... Notes on ESD protection (Electro Static Discharge)	1339
11 00 670 Securing engine in installation position	
00 ... Raising the vehicle using a vehicle hoist	

Operating materials

Used in step

3.0 Technically appropriate engine oils for BMW Group engines	72
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