16 00 005 Draining and filling fuel tank

1 – Drawing off the fuel tank

WARNING

Contact with hazardous fluids.

Hazardous to health!

- Note and follow safety information on containers.
- Conduct all work in appropriate personal protective equipment only.

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.



- Open fuel filler cap.
- Insert special tool into fuel filler neck.

  The special tool has two different diameters for petrol and diesel vehicles.
- Push the suction hose (1) of the extractor unit through the special tool and into the fuel filler neck. If necessary, slightly turn the suction hose.

  For the extractor unit: see BMW service workshop equipment.

  The insertion length of the suction hose is 135 cm.
- Start engine and allow to run, so that the electric fuel pump is running.

  This will ensure that the fuel is pumped by the suction jet pump from the left-hand side of the fuel tank to the right hand-side.
- Draw off fuel with the extractor unit as far as possible. In the process, track the drawing off of the fuel on the fuel gauge in the instrument cluster.

2 – Filling the fuel tank



- Insert special tool into fuel filler neck.

  Special tool has two different diameters: for petrol and for diesel fuel.
- Slide the suction hose (1) of the extractor unit about 40 cm into the fuel filler neck. If necessary, slightly turn the suction hose.
- Fill fuel from suction extractor unit.
- After completing the work and before starting the engine for the first time: Fill the fuel tank by the fuel filler neck with a minimum of 5 l of fuel.

Additional Information

Overview of Special Tools

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16 11 030 Removing and installing fuel tank

Prerequisite

- Vehicles without stationary heating!

PRELIMINARY WORK

1 – Drawing off the fuel tank

WARNING

Contact with hazardous fluids.

Hazardous to health!

- Note and follow safety information on containers.
- Conduct all work in appropriate personal protective equipment only.

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.
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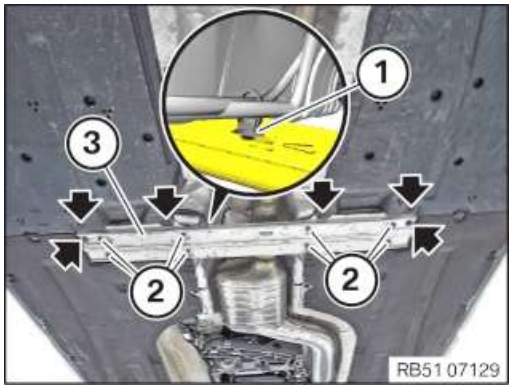
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- Draw off fuel with the extractor unit as far as possible. In the process, track the drawing off of the fuel on the fuel gauge in the instrument cluster.

2 – Remove the connecting support from the tunnel



- Remove screws (arrows).
- **If installed:** Loosen clamp (1).
- Loosen screws (2).
- Guide out and remove connecting support (3) on the tunnel.

3 – Remove complete exhaust system

WARNING

Hot surfaces.

Risk of burning!

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

CAUTION

Component with heavy weight.

Danger of injury!

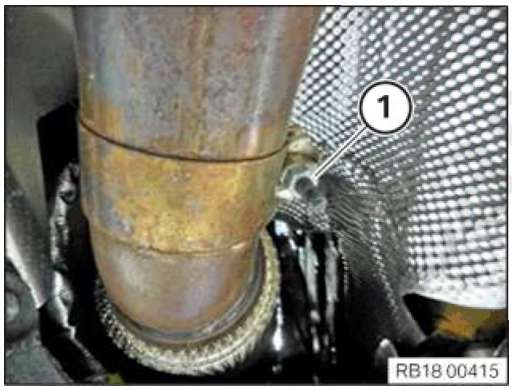
- Note component's centre of gravity.
- Support component using a jack.
- Secure component against falling off the jack.

CAUTION

Heavy component.

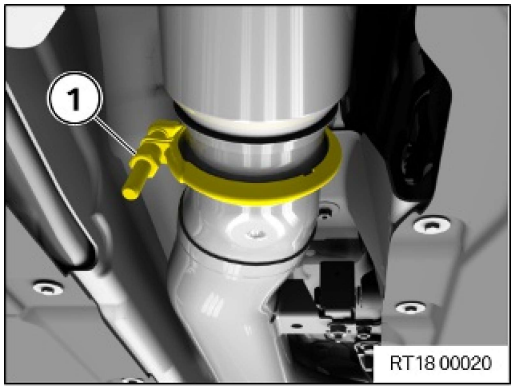
Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.



- **Equipment specification 1 (ribbon clamp)**

  Detach the ribbon clamp (1).

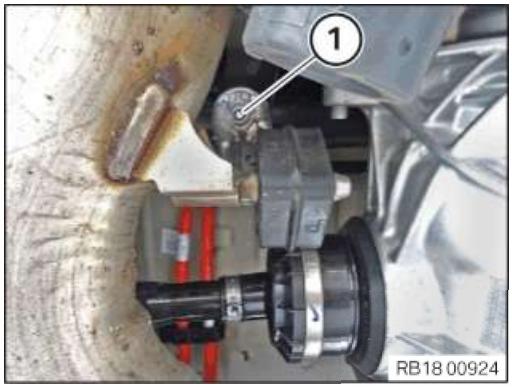


- **Equipment specification 2 (V-clips)**

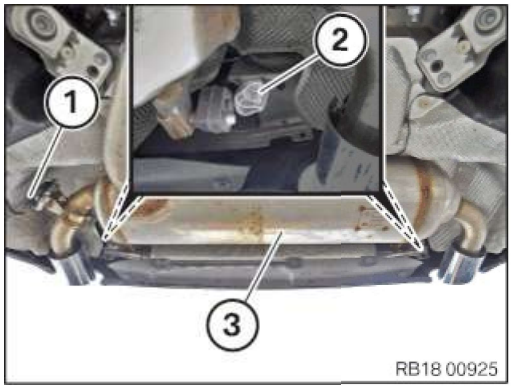
  Unfasten clamp (1).



- Loosen nut (1).

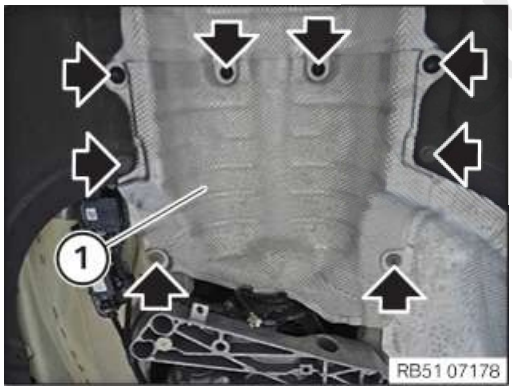


- Release nut (1) on the rear axle support.

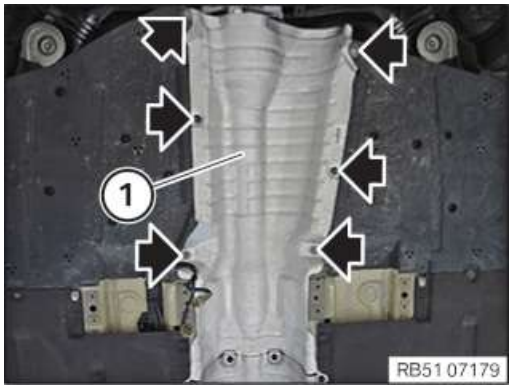


- Unlock plug connection (1) and disconnect.
- Loosen nuts (2).
- Lower and remove the exhaust system (3) with the assistance of a second person.

4 – Remove heat shields

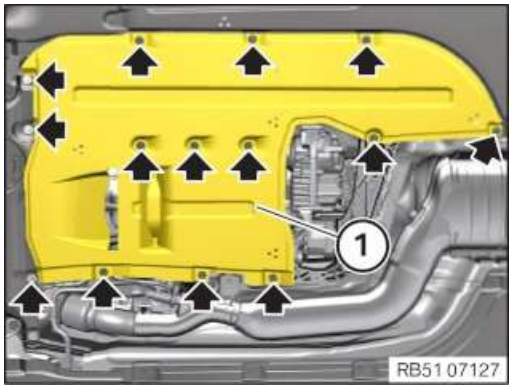


- Loosen bolts and nuts (arrows).
- Remove heat shield (1).



- Loosen bolts and nuts (arrows).
- Remove heat shield (1).

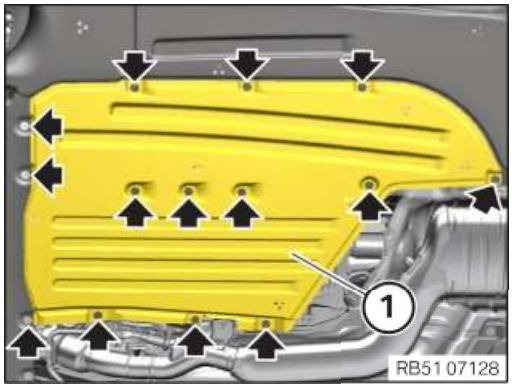
5 – Remove rear underbody protection



- **Version 1:**

  Remove screws (arrows).

  Feed out the rear underbody protection (1).

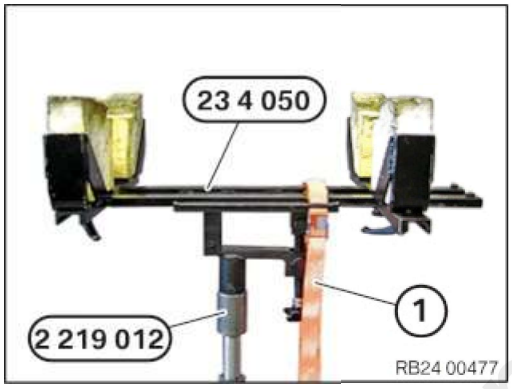


- **Version 2:**

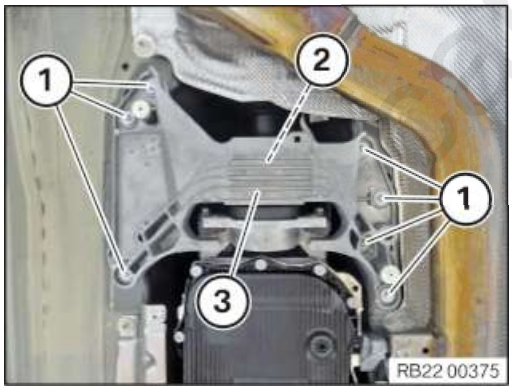
  Remove screws (arrows).

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

6 – Remove transmission cross member.



- Support the transmission using special tools 0 495 498 (23 4 050) and 2 219 012.
- Secure the transmission with the tensioning strap (1).



- Loosen screws (1).
- Loosen screw (2).
- Remove transmission cross member (3) and lower the transmission slightly.

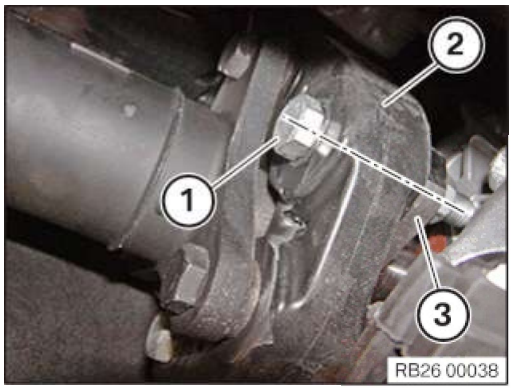
7 – Completely removing the propeller shaft (plug-in - rear flexible disc)

RISK OF DAMAGE

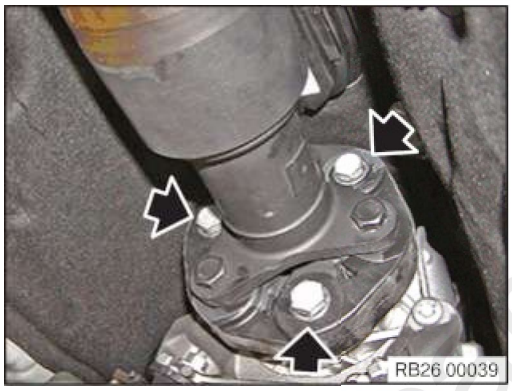
Damage to propeller shaft during removal.

Non-observance of the removal guidelines for the propeller shaft on the rear axle differential may cause severe damage.

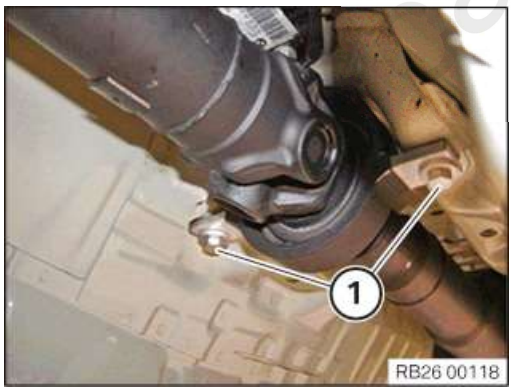
- Do not disassemble the three-hole flange, flexible disc and propeller shaft. The three-hole flange to the rear axle differential is balanced with the flexible disc and propeller shaft.
- Loosen the recessed nut against the direction of travel in clockwise direction. The propeller shaft must be loosened on the recessed nut only and exclusively in the direction of rotation otherwise the anti-twist lock of the bi-hexagonal flange nut is damaged.
- In the event of a damaged anti-twist lock on the bi-hexagonal flange nut: Replace the rear axle differential.



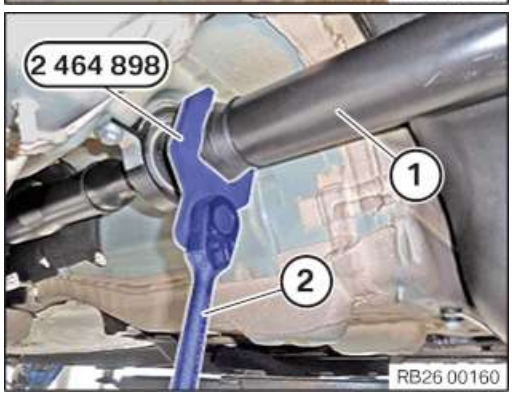
- In order to avoid a humming noise of the drivetrain after reinstalling the propeller shaft:
  - The flexible disc connection (1) on the front at the propeller shaft **must** be marked in one plane with the flexible disc (2) and the three-bolt flange (3) before loosening.
  - During installation the three-bolt flange (3) must be forced back together again with the flexible disc (2) in the same position.



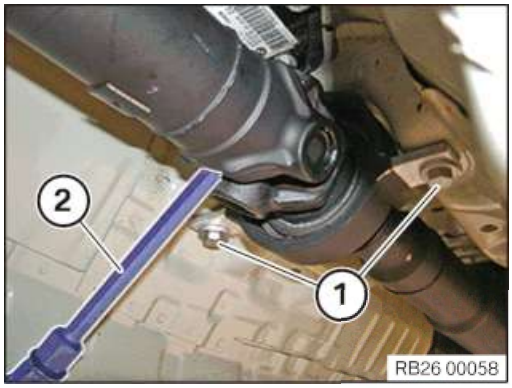
- Remove screws (arrows).



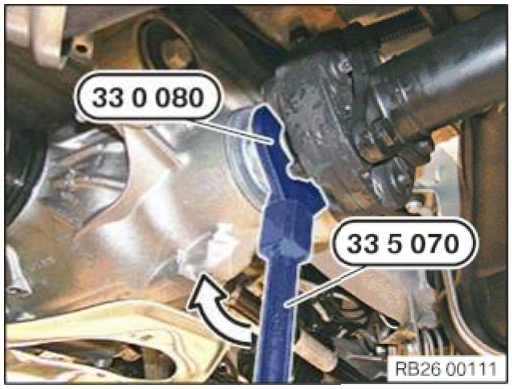
- Loosen screws (1).



- **Vehicles with a narrow universal joint:**
- Using the special tool 2 464 898 and a suitable tool (2), secure the propeller shaft (1) to the centre universal joint against twisting.



- **Vehicles with a broad universal joint:**
- Secure the propeller shaft against twisting at the central universal joint using a suitable tool (2).
- Do not remove the bolts (1) of the centre mount completely until the recessed nut has been opened.



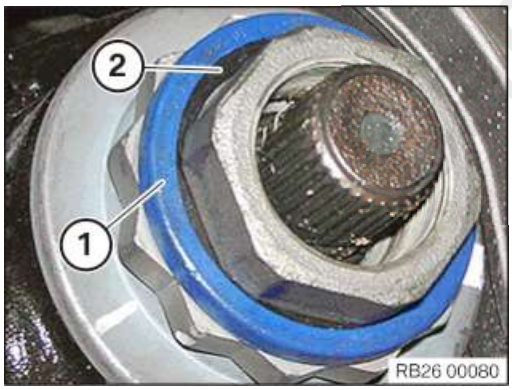
RISK OF DAMAGE

Damage to rear axle differential.

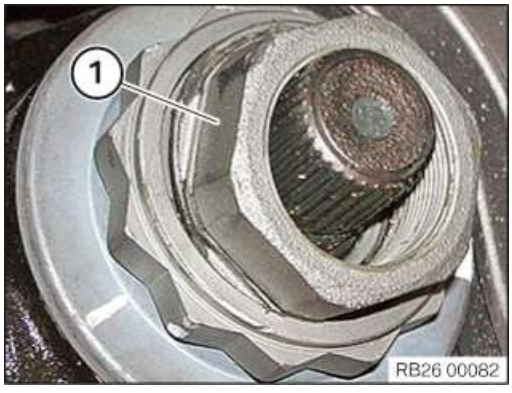
Non-observance of the removal and installation guidelines may cause severe damage to the rear axle differential.

- Do not use the double hexagon head flange nut as counter support.

- Loosen the recessed nut **in clockwise direction, see the direction of the arrow,** using special tools 0 495 554 (33 5 070) and .



- Remove mounting clip (1) and gasket (2).



- Remove recessed nut (1).

8 – Removing the rear right 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.

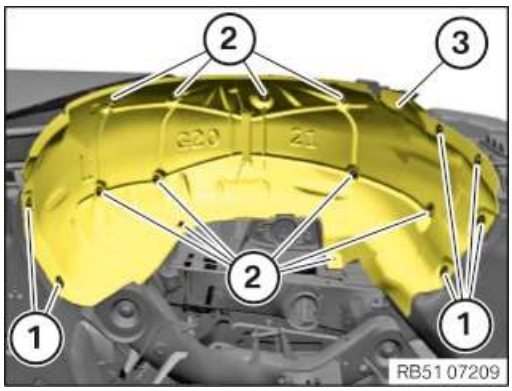


- If several wheels are removed simultaneously: Use a piece of chalk to mark on each tyre the axle and side on which the corresponding wheel is fitted.
- Release the wheel bolts (arrows) crosswise and remove the wheel.
- To release and tighten wheel bolts with a security code: Use a suitable adapter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

9 – Removing rear wheel arch cover

NOTICE

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



- Loosen screws (1).
- Loosen nuts (2).
- Guide the wheel arch cover (3) out.

10 – Removing seat bench

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- Disengage the seat bench (1) in area (2) in an upward direction.
- Feed out the seat belt buckle (3) from the seat bench.



- Pull the seat bench (1) further forward.
- Release screw (2) on the end fitting and guide out belt (3).

Note: If there is a belt lock on the belt, the screw on the end fitting must not be released.

- If necessary, disconnect the present plug connections.
- Lift the seat bench (1) out of the vehicle.

11 – Lock delivery unit (vehicles without parking heater)

WARNING

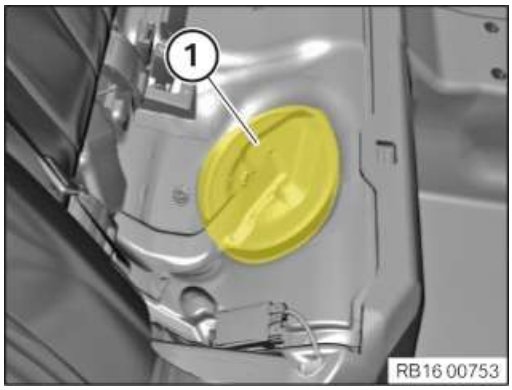
Working on fuel system.

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.

TECHNICAL INFORMATION

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

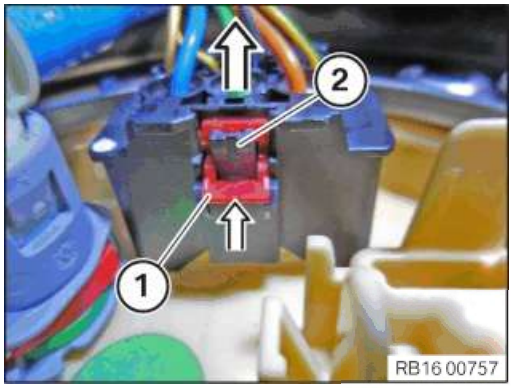


- Expand the floor trims in the area (1) in direction of arrow.

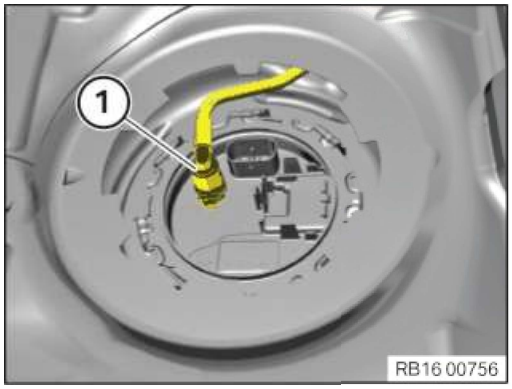
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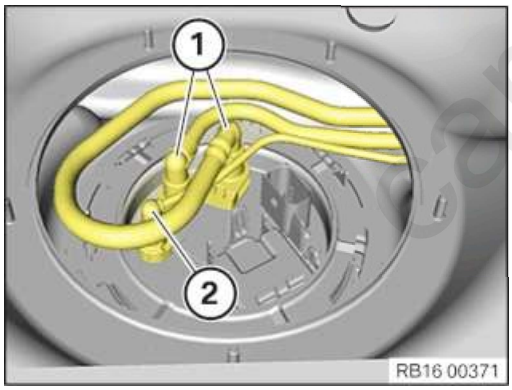
- Turn the sealing cap (1) in the direction of arrow (anti clockwise).



- Unlock the locking tab (1) in the direction of the arrow.
- Operate the tab (2)and pull off the connector housing.



- Unlock and pull off snap fastener (1).



- **Equipment specification with optional equipment 1AK (external fuel filter).**

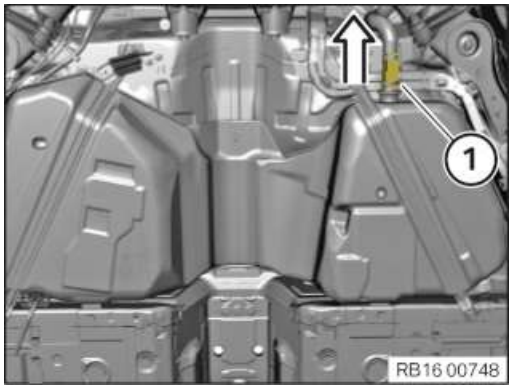
  Unlock and pull off the snap fasteners (1).

  If necessary, unlock and disconnect the snap fastener (2) for the auxiliary heater.

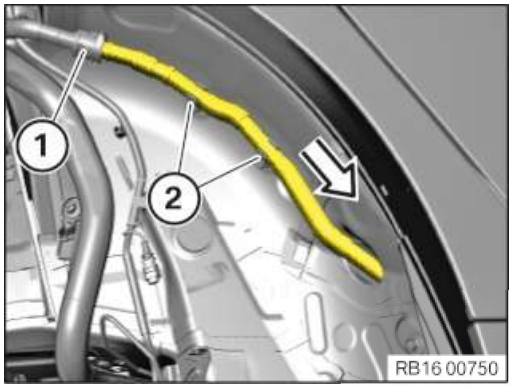
MAIN WORK

12 – Remove fuel tank

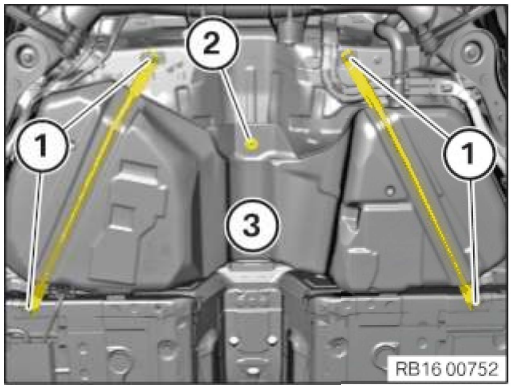
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- Loosen hose clamp (1).
- Pull off rubber hose from fuel tank in direction of arrow.

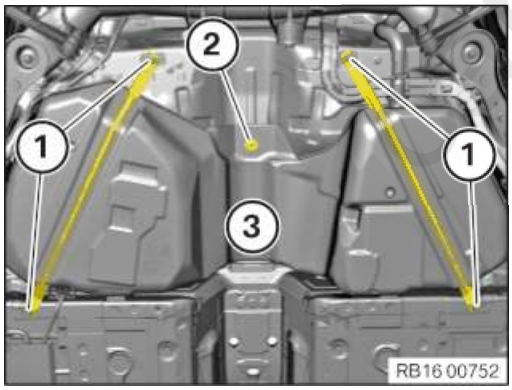


- Unlock and disconnect snap fastener (1).
- Detach the fuel filler neck breather pipe from the bracket (2).
- During lowering of the fuel tank: Feed the fuel filler neck breather pipe through the body n the direction of the arrow.



- **Heavily support fuel tank**(3).
- Unscrew the screws (1) and remove the retaining straps.
- Unscrew the nut (2) and lower the fuel tank (3).

13 – Install fuel tank



- Raise the fuel tank (3) while feeding the fuel filler neck breather pipe through the rear axle support.
- Guide the fuel filler neck breather pipe through the body into the wheel arch.
- Raise the fuel tank (3) to the installation position while paying attention to the installation position of the fuel filler neck breather pipe.
- Renew nut (2).

  Parts: Nut
- Fit nut (2) and tighten.

Fuel tank to body

Nut M8	Renew nut.	Tightening torque	19 Nm

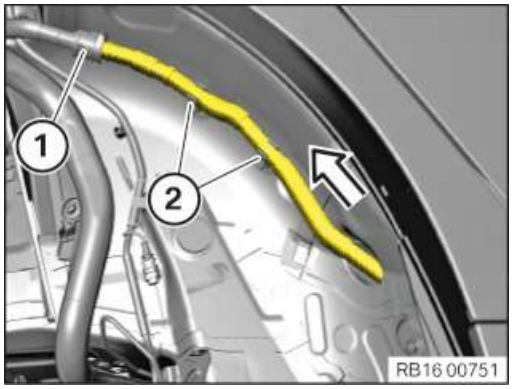
- Renew screws (1).

  Parts: Bolts
- Mount the retaining straps and position and tighten the screws (1).

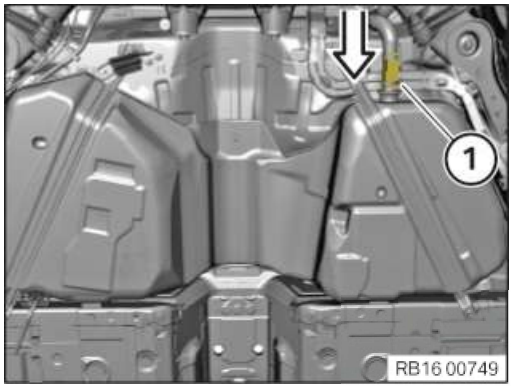
Fuel tank retaining strap to body

M8 screw	Renew screws.	Tightening torque	19 Nm

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- Attach the fuel filler neck breather pipe in the brackets (1).
- Position snap fastener (2) and lock.



- Mount rubber hose on fuel tank in direction of arrow.
- Renew the hose clamp (1).

  Parts: Hose clamp
- Position hose clamp (1) and tighten.

Filling hose on fuel tank

Hose clamp	Replace hose clamp.	Tightening torque	4 Nm

POSTPROCESSES

14 – Connecting delivery unit (vehicles without stationary heating)

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.

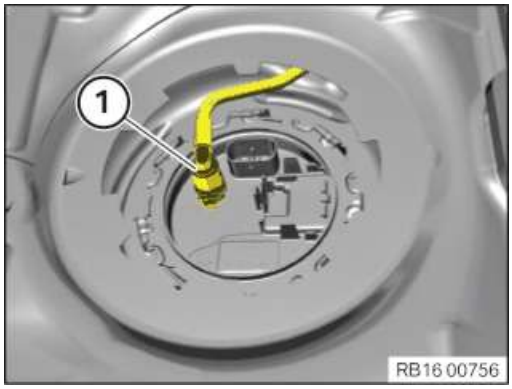
TECHNICAL INFORMATION

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

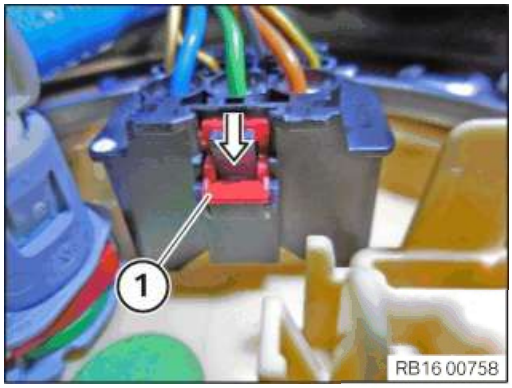
TECHNICAL INFORMATION

All new delivery units are delivered with the stationary heating system in the equipment specification.
For these vehicles, the connection on the flange lid must be closed with a locking coupling.
Locking coupling must be ordered separately, see Electronic Parts Catalogue.

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- Position snap fastener (1) and lock.
- Connect the plug connection (2).



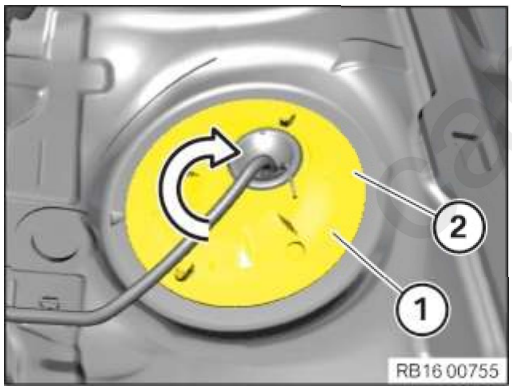
- Fit the plug connection and latch it.
- Lock retaining tab (1) in the direction of the arrow.



- Renew the sealing cap of the floor panel.

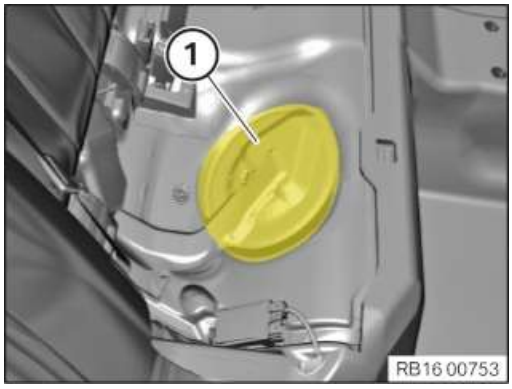
  Parts: Sealing cap of the floor panel

  There is a risk of leakage if the sealing cap of the floor panel is reused.
- Coat gasket in area (1) using Carbaflo KSP 105 lubricant (see Electronic Parts Catalogue).



- Latch sealing cap (1) up to the limit position in the direction of the arrow.

  Mark (2) must point to the front in the direction of travel.



- Lock the carpet in area (1).

15 – Installing rear seat bench



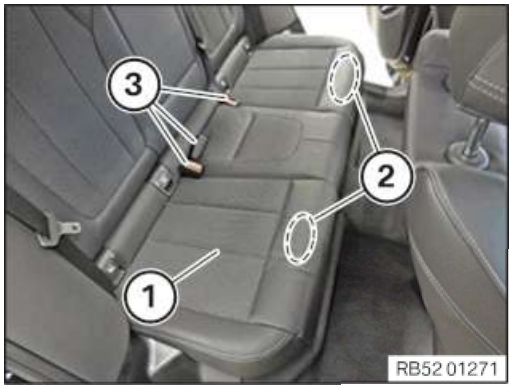
- Lift the seat bench (1) into the vehicle.
- Insert the seat belt (3).
- Renew the screw (2).

  Parts: Screw
- Tighten down screw (2).

Rear upper seat belt to bottom body

Screw	Renew screw.	Tightening torque	42 Nm

- Connect available connectors.

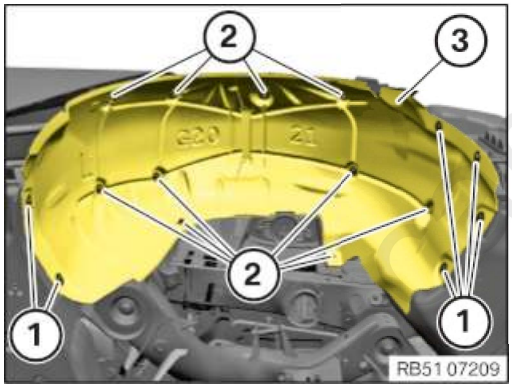


- Insert seat bench (1).
- Thread seat belt buckles (3) into the seat bench.
- Engage the seat bench (1) in the area (2).

16 – Removing the rear wheel arch cover

NOTICE

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



- Guide the wheel arch cover (3) in.
- Tighten the screws (1).
- Tighten nuts (2).

17 – Mounting the rear 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.

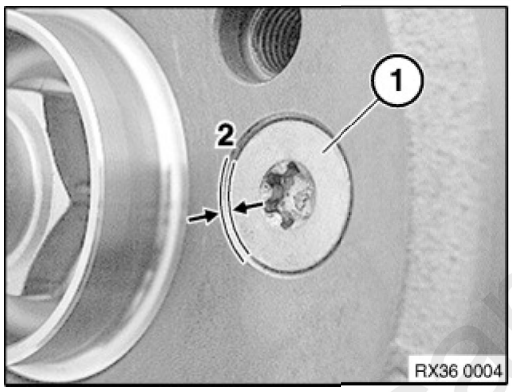
- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool 2 344 011.

  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.

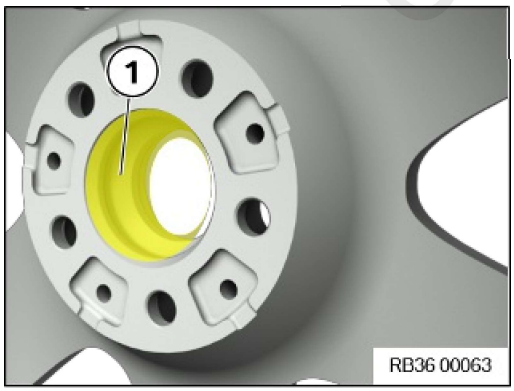
  The mounting bolt (1) for the brake disc may not protrude under any circumstances on the contact surface (2) between the brake disc and the wheel rim.

Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm

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

catalagn.com



- 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



- 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.

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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. 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.	Tightening torque Check	140 Nm 140 Nm

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18 – Completely installing the propeller shaft (plug-in - rear flexible disc)

RISK OF DAMAGE

Damage to the propeller shaft during installation.

Non-observance of the installation guidelines for the propeller shaft on the rear axle differential may cause severe damage.

- Always renew the recessed nut on the rear axle differential. Screw locking must be available.
- Strictly observe a minimum hardening time of two hours after having screwed in the recessed nut. The hardening time may be longer at lower temperatures.

- Observe following installation sequence:
  - Position propeller shaft on transmission.
  - Position the propeller shaft at the rear axle differential.
  - Position centre mount.
- Observe the following screwing sequence:
  - Insert nut
  - Flexible disc to transmission
  - Centre mount



- Check the centering (arrow) for damage, renew if required.

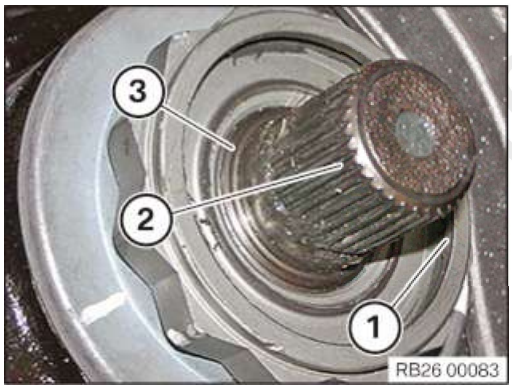


- Apply a thin coat of grease to the soft centring (1), if necessary.

Expendable materials

Lubricating grease Olistamoly 2 LN 584 LO	100 g, Tube	83 19 0 447 919

- Hard centring (2) must **not** be greased.



- Clean all residue from the insert collar (1) of the flange nut and the gearing on the bevel pinion (2) and degrease them.
- Top up the collar insert (1)with grease.

Expendable materials

Lubricating grease Optitemp HT 1 LF	50 g, Tube	83230417754

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RISK OF DAMAGE

Damage to the output flange.

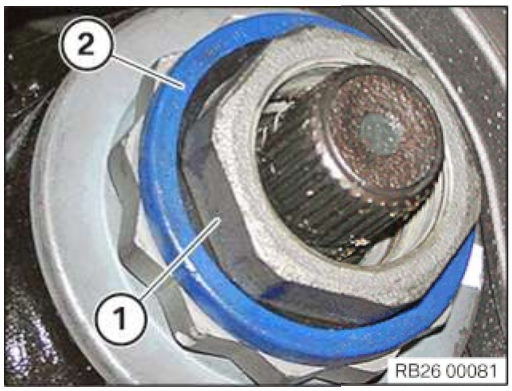
Failure to observe the greasing specifications may lead to damage on the output flange.

- Do not contaminate the thread of the output flange with grease.

- Clean thread (1) of flange off adhesive residue.
- Clean gearing (2).
- Grease gearing (2).

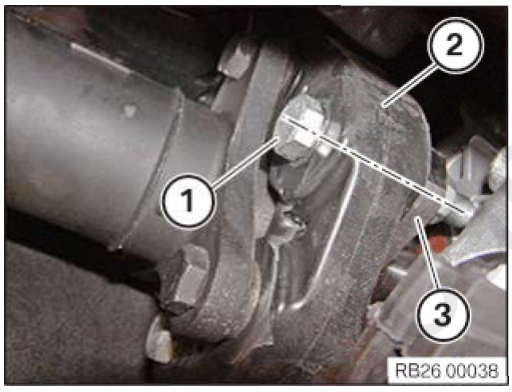
Expendable materials

Lubricating grease Optitemp HT 1 LF	50 g, Tube	83230417754



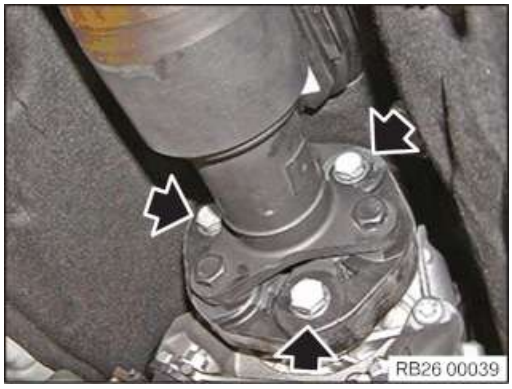
- Renew the seal, recessed nut (1) and the mounting clip (2).

  Parts: Seal, recessed nut and mounting clip
- Insert recessed nut (1) including gasket into collar insert of the flange nut.
- Install the mounting clip (2).



- In order to avoid a humming noise of the drivetrain after reinstalling the propeller shaft: It is essential to reassemble the three-hole flange (3) with the flexible disc (2) in the same position.
- Renew ZNS screws and the self-locking nuts (1).

  Parts: ZNS screws, self-locking nuts

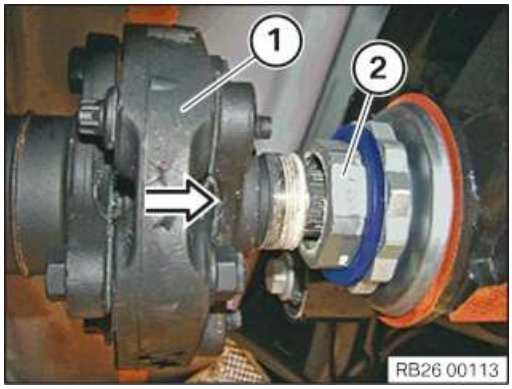


- Position the screws and nuts (arrows).
- Tighten the screws.

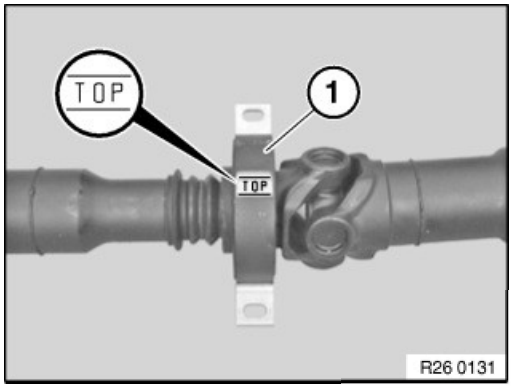
Front flexible disc to propeller shaft

M12	Renew screws. Comply with jointing torque and angle of rotation. Tightening via screw.	Jointing torque Angle of rotation	55 Nm 90 °

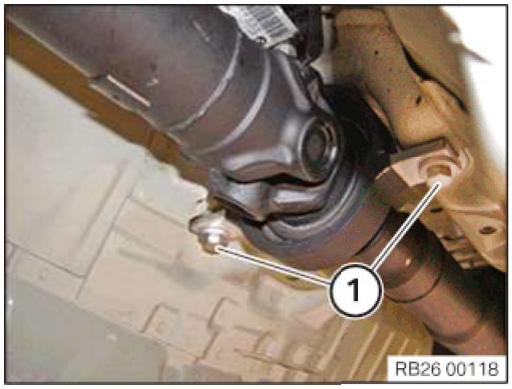
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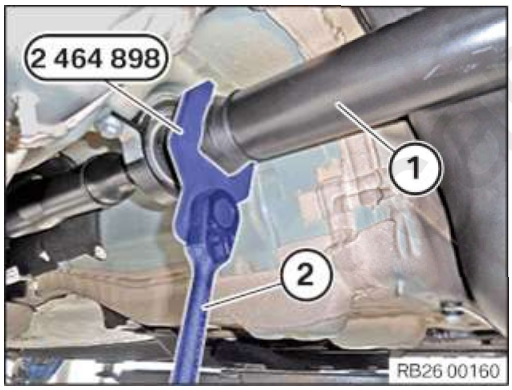
- Push the propeller shaft (1) in the direction of the arrow against the recessed nut (2) up to the limit position.
- Manually screw on and tighten the recessed nut (2) onto the propeller shaft (1) by a minimum of two threads.



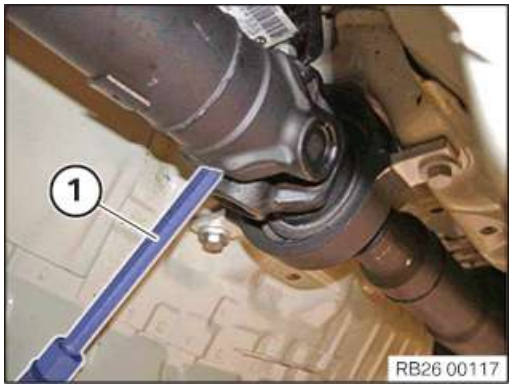
- **Centre mount with TOP marking:**
- The centre mount (1) must be installed with the TOP marking at the top in the gearbox tunnel.



- Position centre mount.
- Position screws (1).



- **Propeller shaft with a narrow universal joint:**
- Using the special tool 2 464 898 and a suitable tool (2), secure the propeller shaft (1) to the centre universal joint against twisting.



- **Propeller shaft with a broad universal joint:**
- Secure the propeller shaft against twisting at the central universal joint using a suitable tool (1).

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RISK OF DAMAGE

Damage to the flange nut.

Failure to observe the installation specifications may lead to serious damage to the flange nut and the rear axle differential.

- Do not use the double hexagon flange nut as counter support.
- Screw in the recessed nut within 5 minutes.

- Screw in the recessed nut **counter-clockwise, see direction of arrow** with special tools 0 495 554 (33 5 070) and .

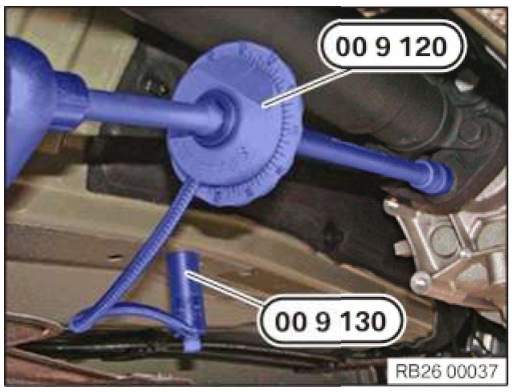
  The recessed nut must be screwed in within 5 min .

Propeller shaft on the rear axle differential

Insert nut		Tightening torque	100 Nm

- **After the propeller shaft is installed and the recessed nut is screwed in, strictly observe a hardening time of minimum 3 hours.**

  Do not move or push the vehicle during this time!

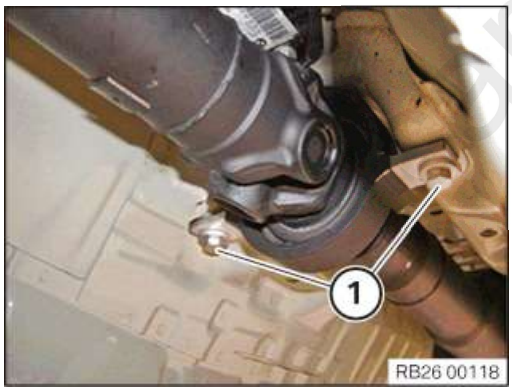


- Brace mounting bolts of flexible disc on nut and tighten by screw.

Rear flexible disc to three-hole flange

M12	Renew screws. Jointing torque and angle of rotation must be observed without fail. Tightening via screw.	Jointing torque Angle of rotation	55 Nm 90 °

- Secure the special angle of rotation tool 0 490 504 (00 9 120) with the magnets to the vehicle underbody and screw it further depending on the angle of rotation.

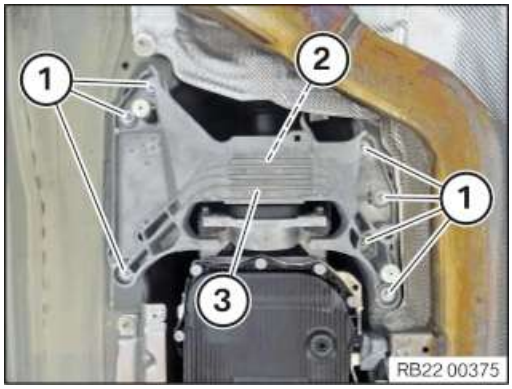


- Tighten the screws (1).

Centre mount to body

M8		Tightening torque	19 Nm

19 – Install transmission cross member.



- Install the transmission cross member (3).
- Insert screw (2) and tighten until hand-tight.
- Tighten the screws (1).

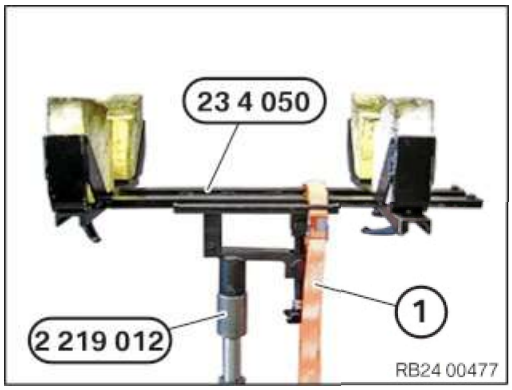
Transmission cross member to body

M8	Renew screws.	Tightening torque	19 Nm

- Tighten down screw (2).

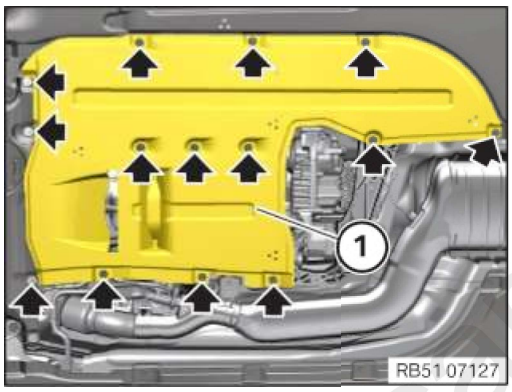
Transmission cross member to rubber mounts

M12		Tightening torque	100 Nm



- Loosen the tensioning strap (1) from the transmission.
- Remove the special tools 0 495 498 (23 4 050) and 2 219 012 from the transmission.

20 – Installing underbody protection at rear



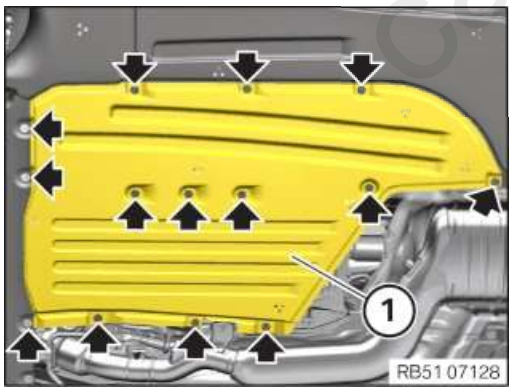
- **Version 1:**

  Insert and install the rear underbody protection (1).

  Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm



- **Version 2:**

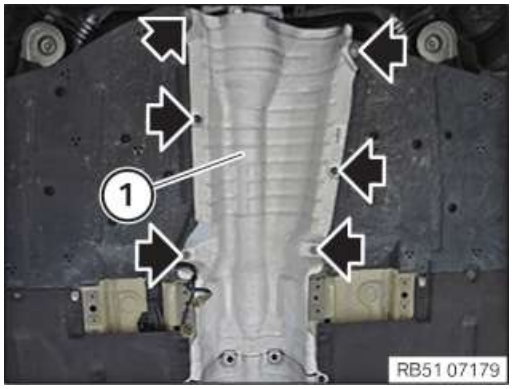
  Insert and install the rear underbody protection (1).

  Tighten screws (arrows).

Underbody protection

Hexagon screw		Tightening torque	3 Nm

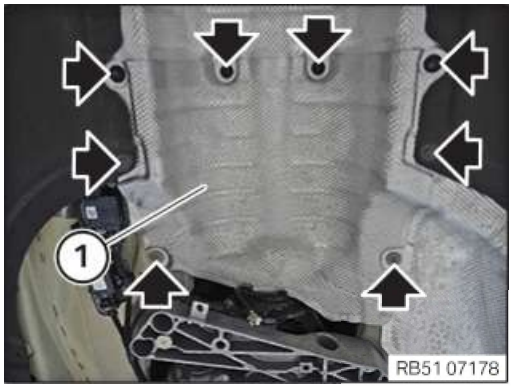
21 – Install the heat shields



- Install heat shield (1).
- Tighten the nuts and bolts (arrows).

Heat shield to vehicle underbody

Screws and nuts		Tightening torque	3 Nm



- Install heat shield (1).
- Tighten the nuts and bolts (arrows).

Heat shield to vehicle underbody

Screws and nuts		Tightening torque	3 Nm

22 – Installing the complete exhaust system

CAUTION

Component with heavy weight.

Danger of injury!

- Note component's centre of gravity.
- Support component using a jack.
- Secure component against falling off the jack.

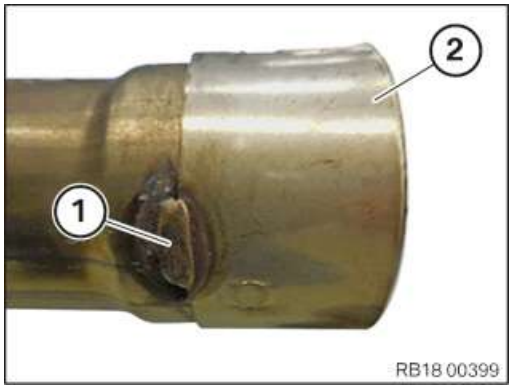
CAUTION

Heavy component.

Heavy components can lead to injury or damage.

- Remove and install heavy components with the aid of another person/other persons.

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CAUTION

Swarf resulting from sawing or grinding components.

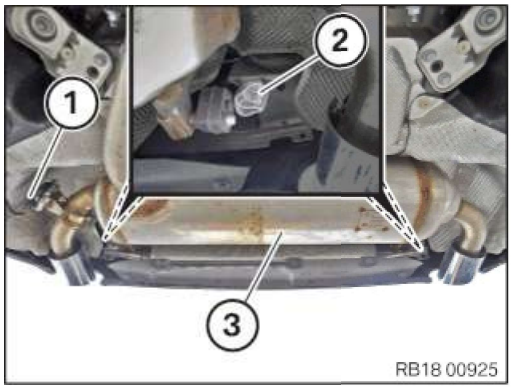
Danger of injury!

- Conduct all work in appropriate personal protective equipment only.
- Wear safety goggles and protective gloves.

- **Equipment specification 1 (ribbon clamp)**

  Open the weld seam (1) with a conventional tool.
- Remove ribbon clamp (2).
- Renew the (2) ribbon clamp.

  Parts: Ribbon cable clamp



- Feed in and install the exhaust system (3) with a second person.
- Renew nuts (2).

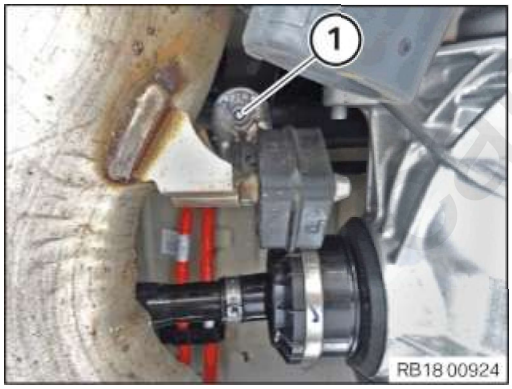
  Parts: Nuts
- Tighten nuts (2).

Rear silencer to body / bumper support

M8	Replace nuts.	Tightening torque	19 Nm

- Connect connectors (1) and lock.

  The connector (1) must engage audibly.



- Renew nut (1).

  Parts: Nut
- Tighten the bolt (1) on the rear axle support.

Exhaust system to rear axle carrier

Nut M8	Renew nut.	Tightening torque	19 Nm



- Renew nut (1).

  Parts: Nut
- Tighten nut (1).

Front silencer / petrol particulate filter on transmission bracket

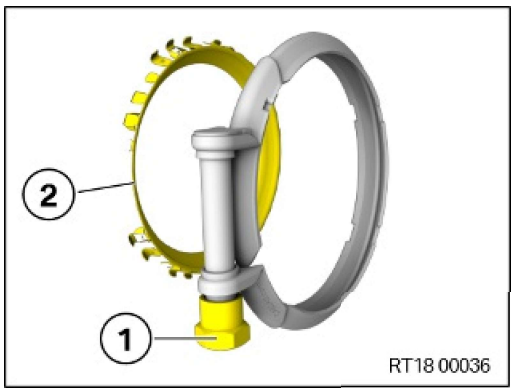
M8	Renew nut.	Tightening torque	19 Nm



- Tighten the ribbon clamp (1).

Exhaust system to catalytic converter

Ribbon cable clamp	Renew flat band clip.	Tightening torque	26 Nm

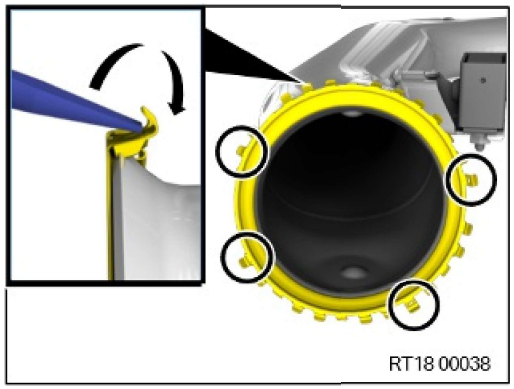


- **Equipment specification 2 (V-clips)**

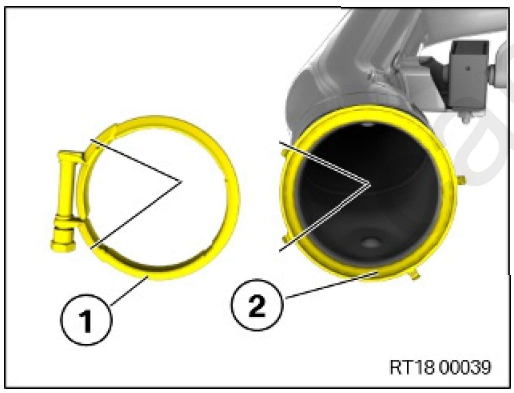
  Renew V-band clamp.

  Parts: V-band clamp

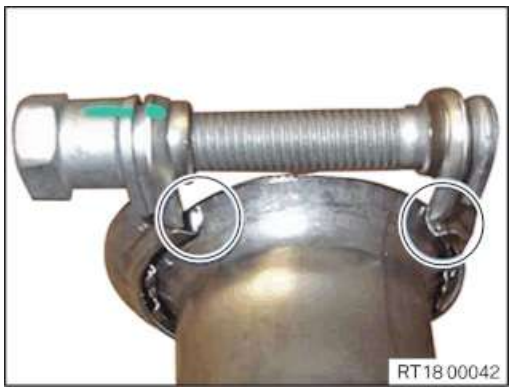
  Unscrew the nut (1) and remove the sealing ring (2).



- Bend all sheet metal tabs over with a suitable tool, except those in the marked areas.

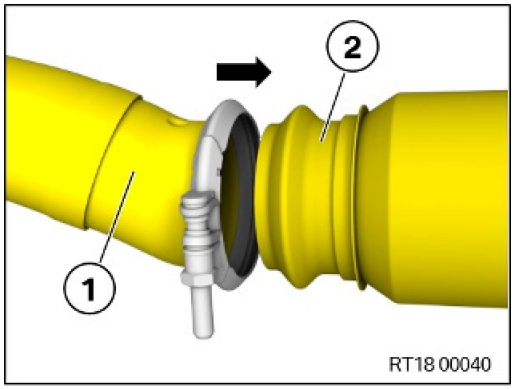


- Mount the V-clip (1) on the sealing ring (2).
- Make sure that the V-clip (1) is positioned correctly on the sealing ring (2).

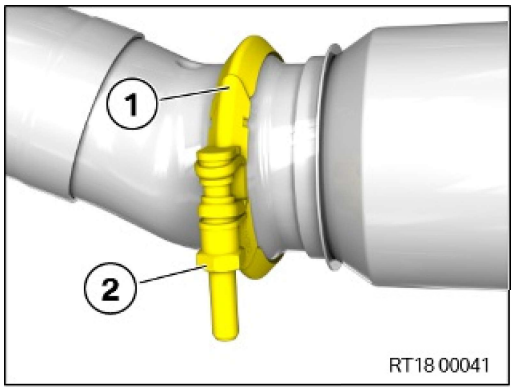


- Ensure that the V-clip rests against the sheet metal tabs in the marked areas after mounting.

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- Connect the exhaust system (1) with the catalytic converter (2) and position it correctly (arrow).

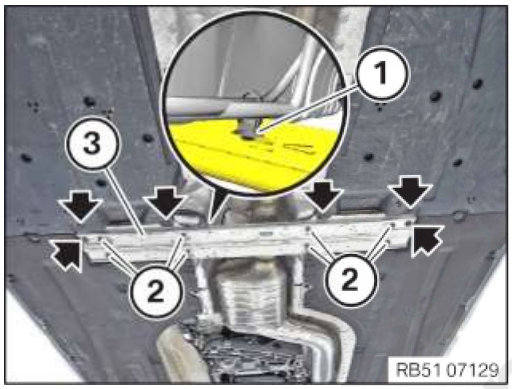


- Make sure that V-clip (1) is fitted correctly.
- Tighten down screw (2).

V-clip to catalytic converter

V-band clamp	Renew V-band clamp.	Tightening torque	22 Nm

23 – Install the connecting supports on the tunnel



- Guide in and install connecting support (3) on the tunnel.
- Tighten the screws (2).

Connecting support to tunnel

M8x25 screw		Tightening torque	20 Nm
Screw		Tightening torque	3 Nm

- Tighten screws (arrows).

Connecting support to tunnel

M8x25 screw		Tightening torque	20 Nm
Screw		Tightening torque	3 Nm

- **If installed:** Secure clamps (1).

24 – Filling the fuel tank



- Insert special tool into fuel filler neck.

  Special tool has two different diameters: for petrol and for diesel fuel.
- Slide the suction hose (1) of the extractor unit about 40 cm into the fuel filler neck. If necessary, slightly turn the suction hose.
- Fill fuel from suction extractor unit.
- After completing the work and before starting the engine for the first time: Fill the fuel tank by the fuel filler neck with a minimum of 5 l of fuel.

Additional Information

Overview of Tightening Torques

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Overview of Tightening Torques

Fuel tank to body — Used in step 13

Nut M8	Renew nut.	Tightening torque	19 Nm

Fuel tank retaining strap to body — Used in step 13

M8 screw	Renew screws.	Tightening torque	19 Nm

Filling hose on fuel tank — Used in step 13

Hose clamp	Replace hose clamp.	Tightening torque	4 Nm

Rear upper seat belt to bottom body — Used in step 15

Screw	Renew screw.	Tightening torque	42 Nm

Brake disc to front wheel hub — Used in step 17

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to rear wheel hub — Used in step 17

M8	Renew screw.	Tightening torque	16 Nm

Wheel bolts — Used in step 17

M14 / SW17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim. 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.	Tightening torque Check	140 Nm 140 Nm

Front flexible disc to propeller shaft — Used in step 18

M12	Renew screws. Comply with jointing torque and angle of rotation. Tightening via screw.	Jointing torque Angle of rotation	55 Nm 90 °

Propeller shaft on the rear axle differential — Used in step 18

Insert nut		Tightening torque	100 Nm

Rear flexible disc to three-hole flange — Used in step 18

M12	Renew screws. Jointing torque and angle of rotation must be observed without fail. Tightening via screw.	Jointing torque Angle of rotation	55 Nm 90 °

Centre mount to body — Used in step 18

M8		Tightening torque	19 Nm

Transmission cross member to body — Used in step 19

M8	Renew screws.	Tightening torque	19 Nm

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Transmission cross member to rubber mounts — Used in step 19

M12		Tightening torque	100 Nm

Underbody protection — Used in step 20

Hexagon screw		Tightening torque	3 Nm

Heat shield to vehicle underbody — Used in step 21

Screws and nuts		Tightening torque	3 Nm

Rear silencer to body / bumper support — Used in step 22

M8	Replace nuts.	Tightening torque	19 Nm

Exhaust system to rear axle carrier — Used in step 22

Nut M8	Renew nut.	Tightening torque	19 Nm

Front silencer / petrol particulate filter on transmission bracket — Used in step 22

M8	Renew nut.	Tightening torque	19 Nm

Exhaust system to catalytic converter — Used in step 22

Ribbon cable clamp	Renew flat band clip.	Tightening torque	26 Nm

V-clip to catalytic converter — Used in step 22

V-band clamp	Renew V-band clamp.	Tightening torque	22 Nm

Connecting support to tunnel — Used in step 23

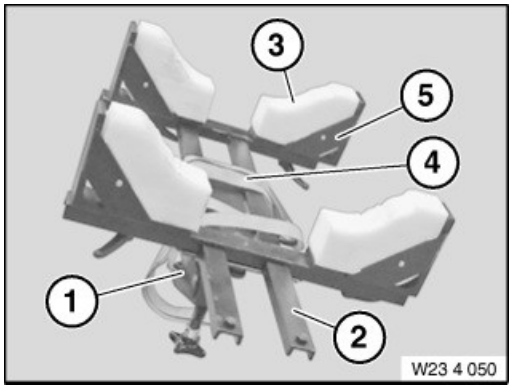
M8x25 screw		Tightening torque	20 Nm
Screw		Tightening torque	3 Nm

Overview of Special Tools

0 495 498 (23 4 050) Support

Used in step 619

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Common

Usage	(universal gearbox holder) Support for removing and installing manual gearboxes and automatic transmissions for BMW & RR.
Included in the tool or work	
Storage location	Individual
Replaced by	
In connection with	
SI-Number	01 07 06 (256)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
3	0 495 549 (23 4 053)		**Insert** (Foam material insert (1 set = 4 pieces)) deleted, can be ordered only via tool set	
1	0 495 547 (23 4 051)		**Joint** Available only as a complete tool set 23 4 050 (83 30 0 495 498) - as of 16.07.12.	
2	0 495 548 (23 4 052)		**Frame** (Basic frame) Available only as a complete tool set 23 4 050 (83 30 0 495 498) - as of 16.07.12.	
4	0 495 550 (23 4 054)		**Belt** (Tensioning strap) Available only as a complete tool set 23 4 050 (83 30 0 495 498) - as of 16.07.12.	
5	0 496 018 (23 4 055)		**Support** (Fixture for foam insert) Available only as a complete tool set 23 4 050 (83 30 0 495 498) - as of 16.07.12.	

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2 219 012 Hydraulic lifter



Common	Used in step 619
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)

2 464 898 Open-end spanner



Common	Used in step 718
Usage	Open-end spanner SW50 for disassembly and installation of the propeller shaft on rear axle differential. The silhouette foil is included in the delivery specification.
Included in the tool or work	
Storage location	A7
Replaced by	
In connection with	
SI-Number	01 19 18 (579)

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0 495 554 (33 5 070) Extension



Common

Used in step 718

Usage	Pull-out extension for 33 5 040, 33 5 050, 33 5 060.
Included in the tool or work	
Storage location	A18
Replaced by	
In connection with	
SI-Number	01 21 06 (300)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 495 592 (33 5 071)		**Extension** (Extension (1 item)) discontinued, can only be ordered using complete tool	

2 344 011 Tool



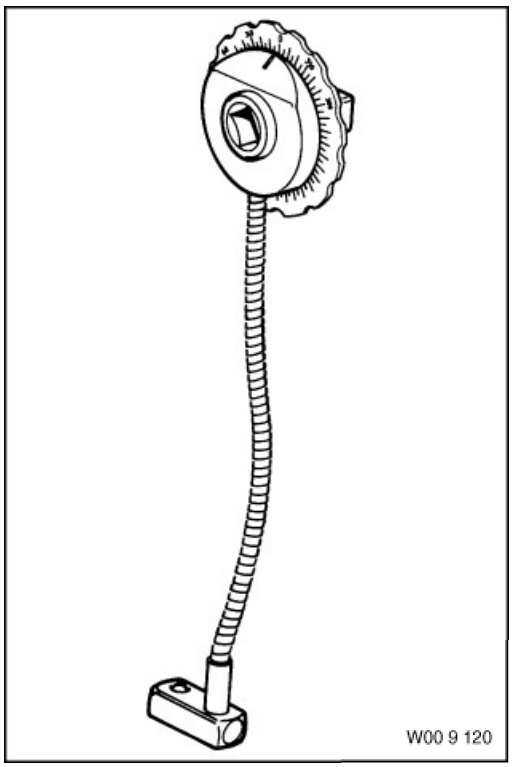
Common

Used in step 17

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)

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0 490 504 (00 9 120) Torque angle measuring dial

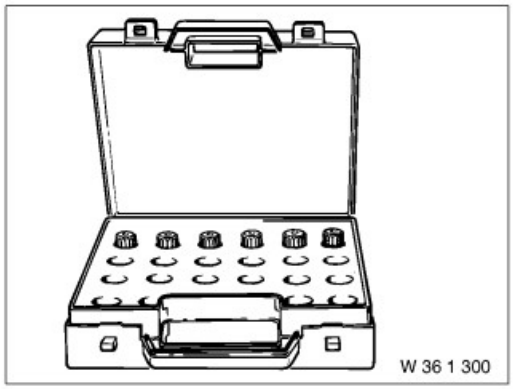


Common	Used in step 18
Usage	For torsion angle adjustment of cylinder head bolts (all engines) And reinforcement plate front axle support E46
Included in the tool or work	
Storage location	A4
Replaced by	
In connection with	
SI-Number	

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Replacement tools:

0 495 221 (36 1 323) Wheel stud



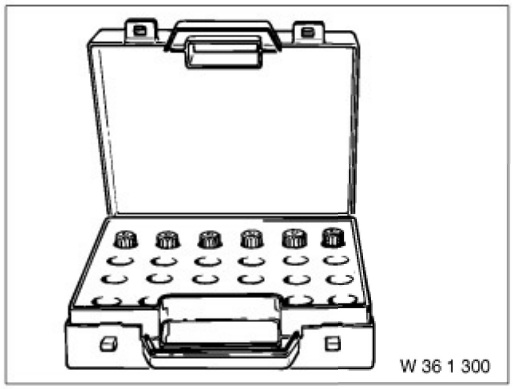
Common	Used in step 8
Usage	(Code 30) Code 39 available separately, (see EPC) under 36 13 1 181 259
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 224 (36 1 326) Wheel stud



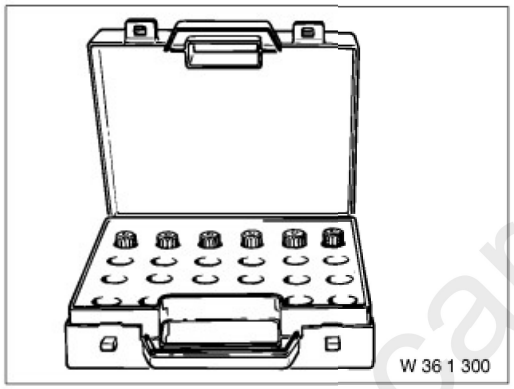
Common	Used in step 8
Usage	(Code 33) With centring bore available separately, (see EPC) under 36 13 6 765 546
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 225 (36 1 327) Wheel stud



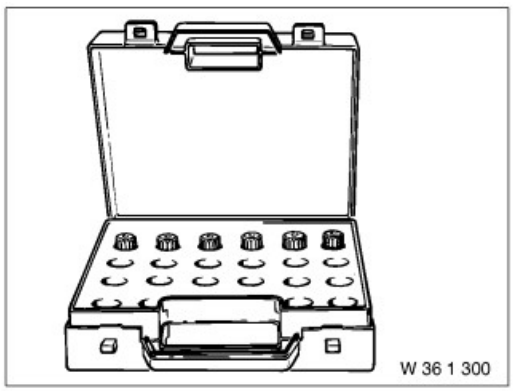
Common	Used in step 8
Usage	(Code 34) With centring bore available separately (see EPC) under 36 13 6 765 547
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 226 (36 1 328) Wheel stud



Common	Used in step 8
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 8
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	

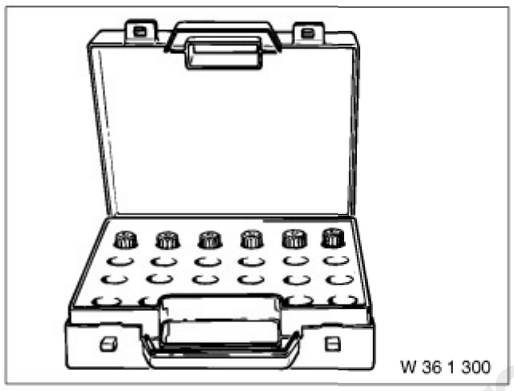
cardiagn.com

0 495 228 (36 1 331) Wheel stud



Common	Used in step 8
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 8
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



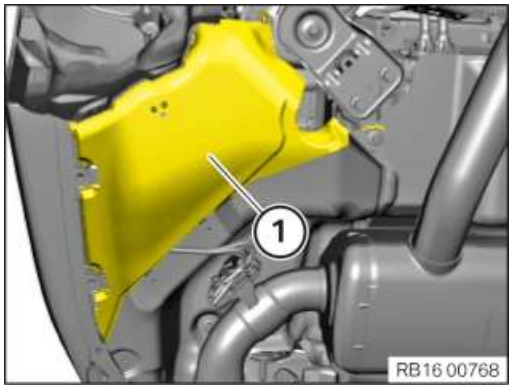
Common	Used in step 8
Usage	(Code 40) With centring bore available separately (see EPC) under 36 13 6 762 344
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

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16 12 010 Removing and installing or replacing carbon canister

PRELIMINARY WORK

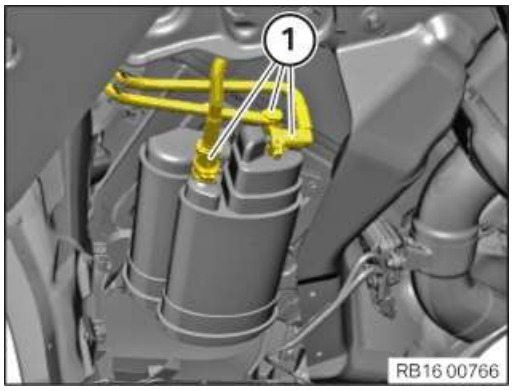
1 – Remove cover for carbon canister



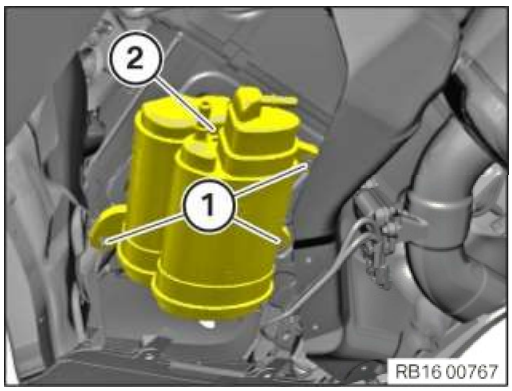
- Remove the cover (1).

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2 – Removing the carbon canister (European version)

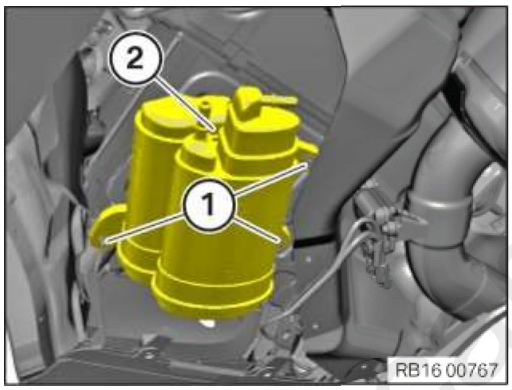


- Unlock and pull off the snap fasteners (1).



- Loosen the nuts and screws (1) and remove the carbon canister (2).

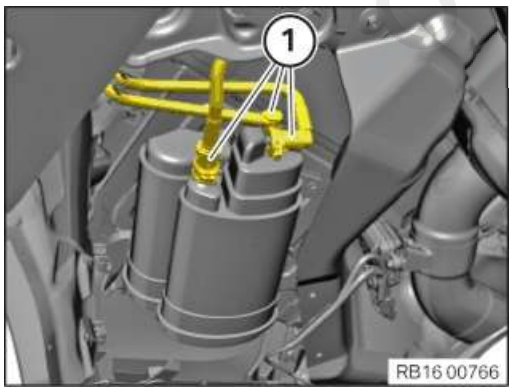
3 – Installing the carbon canister (European version)



- Position carbon canister (2).
- Fix and tighten nuts and screws (1).

Carbon canister to body

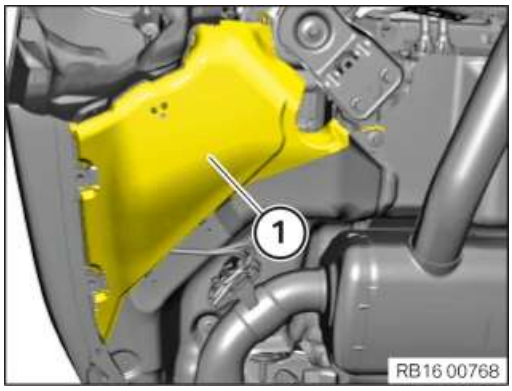
Renew screws / nuts.	Tightening torque	8 Nm



- Fit and lock snap fasteners (1).

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4 – Installing the carbon canister cover



- Install the cover (1) .

Additional Information

Overview of Tightening Torques

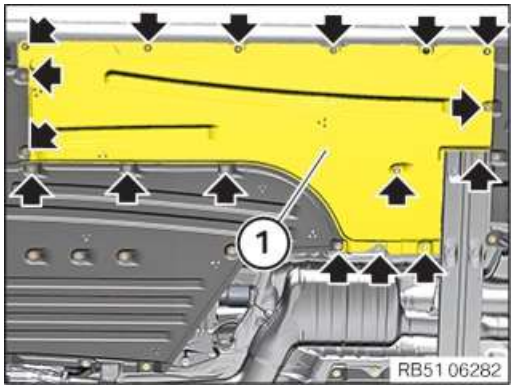
Carbon canister to body		Used in step 3
Renew screws / nuts.	Tightening torque	8 Nm

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16 12 200 Removing and installing/replacing the external fuel filter

PRELIMINARY WORK

1 – Removing the underbody panelling on the left-hand side



- Unscrew all bolts and nuts (arrows).
- Remove the underbody panelling (1).

MAIN WORK

2 – Remove the external fuel filter

WARNING

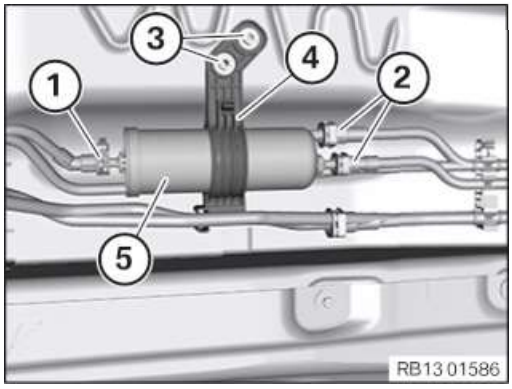
Working on fuel system.

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.

TECHNICAL INFORMATION

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



- Unlock and release fuel line (1).
- Unlock and loosen fuel lines (2).
- Loosen nut (3).
- Unlock the lock on the holder (4).
- Guide out and remove holder (4).
- Guide out and remove fuel filter (5).

3 – Install the external fuel filter

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WARNING

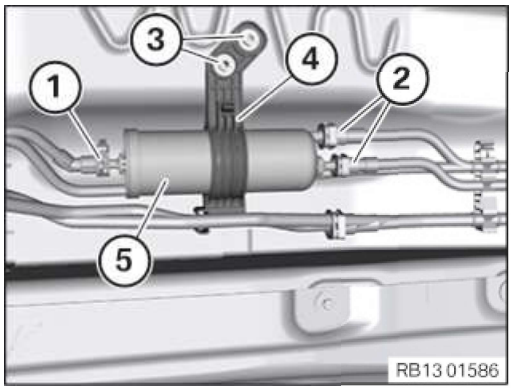
Working on fuel system.

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.

TECHNICAL INFORMATION

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



- Insert and install the new fuel filter (5).
- Install the holder (4) and secure it with the lock.
- Tighten nut (3).

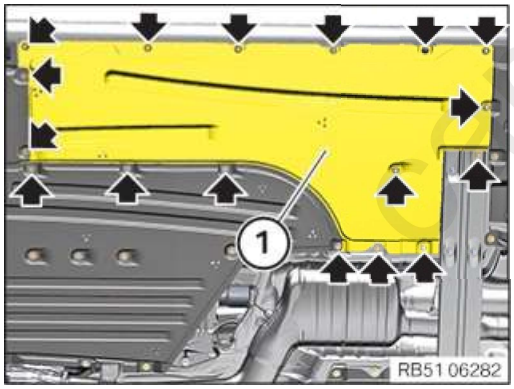
Fuel filter on vehicle underbody

M6		Tightening torque	6 Nm

- Connect and audibly lock the fuel lines (2).
- Connect and audibly lock the fuel lines (1).

POSTPROCESSES

4 – Installing the underbody panelling on the sides on left



- Insert the underbody panelling (1).
- Tighten all bolts and nuts (arrows).

Underbody panelling, side

Hexagon screw		Tightening torque	2,6 Nm
Plastic nut		Tightening torque	2,6 Nm

Additional Information

Overview of Tightening Torques

Fuel filter on vehicle underbody Used in step 3

M6		Tightening torque	6 Nm

Underbody panelling, side Used in step 4

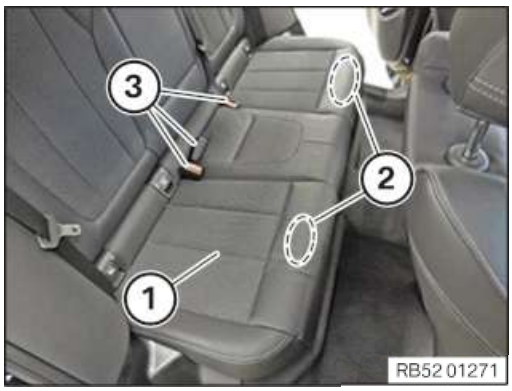
Hexagon screw		Tightening torque	2,6 Nm
Plastic nut		Tightening torque	2,6 Nm

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16 13 522 Removing and installing/replacing temperature sensor for Natural Vacuum Leak Detection (NVLD) (after vehicle diagnosis)

PRELIMINARY WORK

1 – Removing seat bench



- Disengage the seat bench (1) in area (2) in an upward direction.
- Feed out the seat belt buckle (3) from the seat bench.

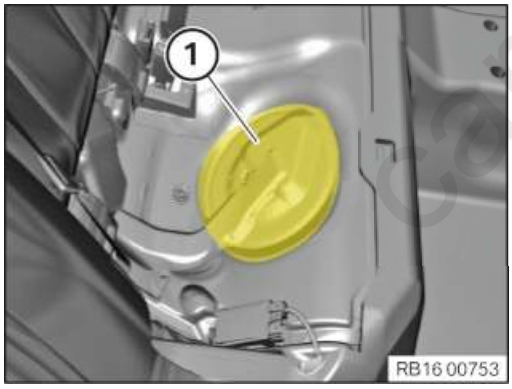


- Pull the seat bench (1) further forward.
- Release screw (2) on the end fitting and guide out belt (3).

Note: If there is a belt lock on the belt, the screw on the end fitting must not be released.

- If necessary, disconnect the present plug connections.
- Lift the seat bench (1) out of the vehicle.

2 – Open service opening



- Expand the floor trims in the area (1) in direction of arrow.

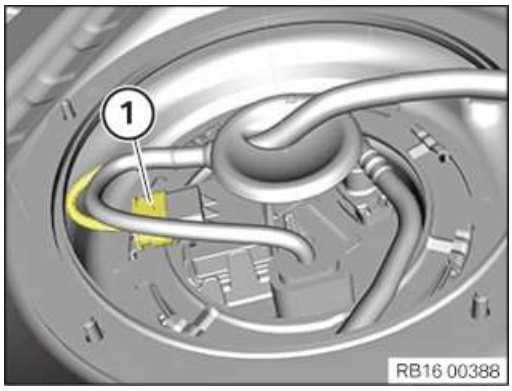


- Turn the sealing cap (1) in the direction of arrow (anti clockwise).

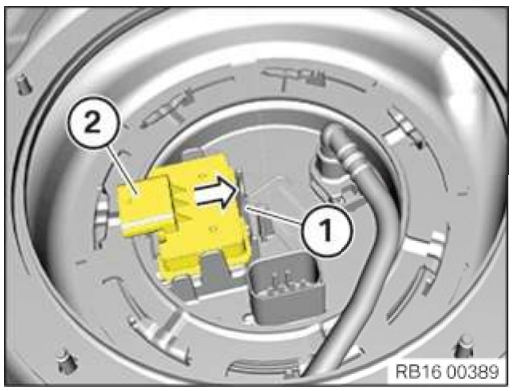
cardiagn.com

MAIN WORK

3 – Remove temperature sensor

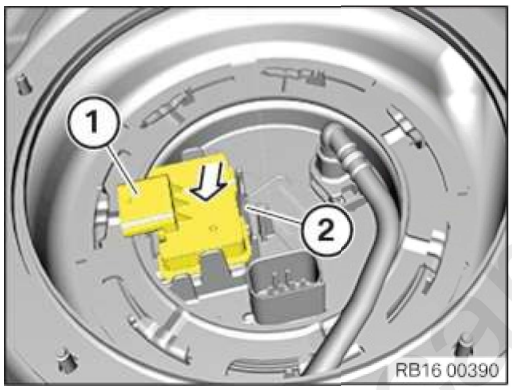


- Disconnect plug connection (1).

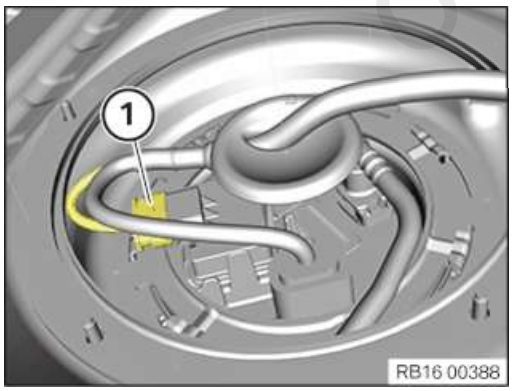


- Carefully press the tab (1) in the direction of the arrow.
- Remove the temperature sensor (2) towards the top.

4 – Install temperature sensor



- Insert the temperature sensor (1) from the top.
- Make sure the retaining tab (2) is correctly engaged with the latch mechanism.



- Connect the plug connection (1).

POSTPROCESSES

5 – Closing the service opening

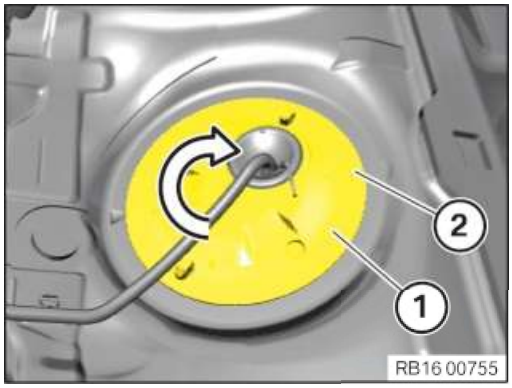
mercardiag.com



- Renew the sealing cap of the floor panel.

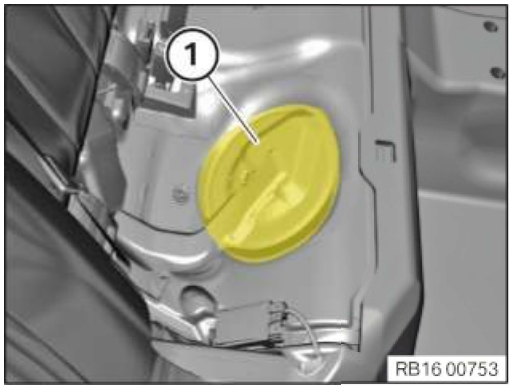
  Parts: Sealing cap of the floor panel

  There is a risk of leakage if the sealing cap of the floor panel is reused.
- Coat gasket in area (1) using Carbaflo KSP 105 lubricant (see Electronic Parts Catalogue).



- Engage sealing cap (1) in direction of arrow up to the limit position.

  Mark (2) must point forwards in the direction of travel.



- Seal carpet in area (1).

6 – Installing rear seat bench



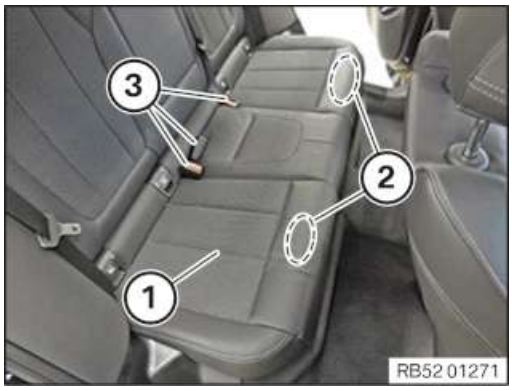
- Lift the seat bench (1) into the vehicle.
- Insert the seat belt (3).
- Renew the screw (2).

  Parts: Screw
- Tighten down screw (2).

Rear upper seat belt to bottom body

Screw	Renew screw.	Tightening torque	42 Nm

- Connect available connectors.



- Insert seat bench (1).
- Thread seat belt buckles (3) into the seat bench.
- Engage the seat bench (1) in the area (2).

rdiagn.com

Additional Information

Overview of Tightening Torques

Rear upper seat belt to bottom body Used in step 6

Screw	Renew screw.	Tightening torque	42 Nm

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16 14 500 Removing and installing or replacing control unit for electric fuel pump

RISK OF DAMAGE

Electrostatic discharge.

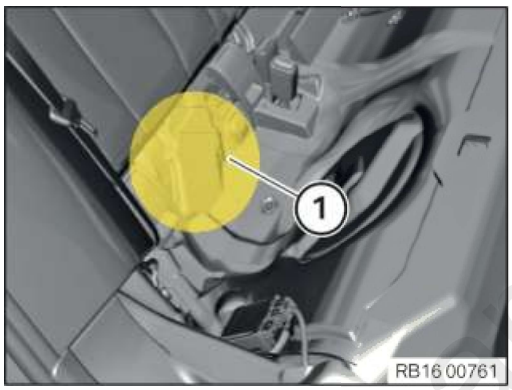
Damage to or destruction of electrical components.

- 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.

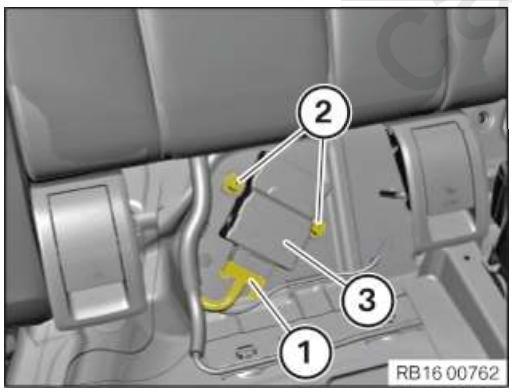
PRELIMINARY WORK

MAIN WORK

1 – Remove the control unit for the fuel pump control electronics



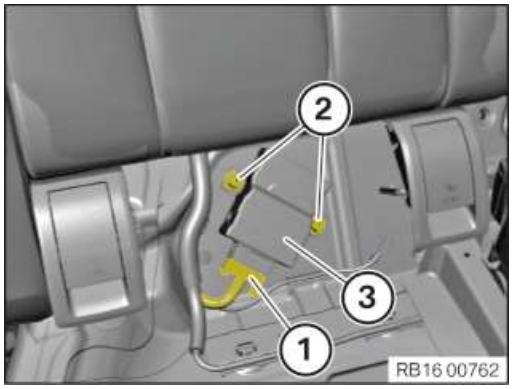
- Expose floor trim in the area (1).

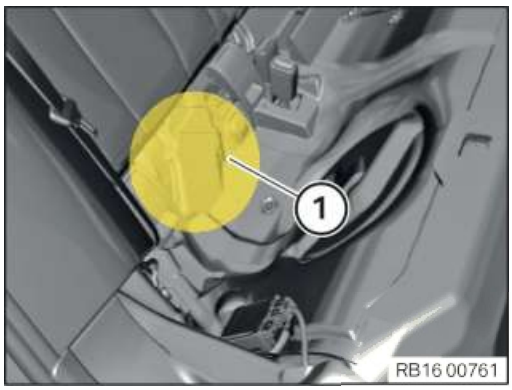


- Disconnect plug connection (1).
- Release plastic nuts (2) and remove control unit (3).

2 – Install the control unit for the fuel pump control electronics

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- Install the control unit for the fuel pump control electronics (3).
- Renew the plastic nuts (2).

  Parts: Plastic nuts.

  Position and tighten the plastic nuts (2).

Control unit for electrical fuel pump control on body

	Renew plastic nut.	Tightening torque	4 Nm

- Connect connector (1).
- Close the floor trims in the area (1).

POSTPROCESSES

3 – Putting fuel pump control electronics into operation



- Connect diagnosis and information system.
- Perform fuel pump control electronics start-up.

Additional Information

Overview of Tightening Torques

Control unit for electrical fuel pump control on body Used in step 2

	Renew plastic nut.	Tightening torque	4 Nm

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16 14 090 Removing and installing/replacing delivery unit

PRELIMINARY WORK

1 – Drawing off the fuel tank

WARNING

Contact with hazardous fluids.

Hazardous to health!

- Note and follow safety information on containers.
- Conduct all work in appropriate personal protective equipment only.

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.



- Open fuel filler cap.
- Insert special tool into fuel filler neck.

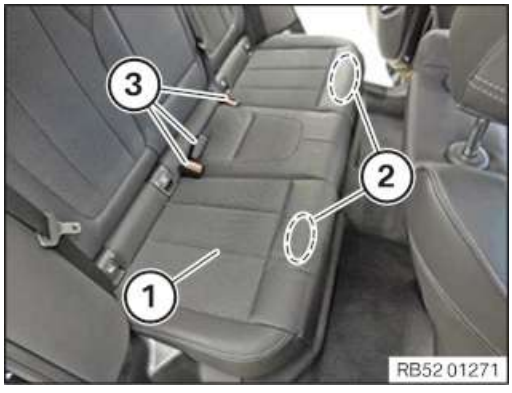
  The special tool has two different diameters for petrol and diesel vehicles.
- Push the suction hose (1) of the extractor unit through the special tool and into the fuel filler neck. If necessary, slightly turn the suction hose.

  For the extractor unit: see BMW service workshop equipment.

  The insertion length of the suction hose is 135 cm.
- Start engine and allow to run, so that the electric fuel pump is running.

  This will ensure that the fuel is pumped by the suction jet pump from the left-hand side of the fuel tank to the right hand-side.
- Draw off fuel with the extractor unit as far as possible. In the process, track the drawing off of the fuel on the fuel gauge in the instrument cluster.

2 – Removing seat bench



- Disengage the seat bench (1) in area (2) in an upward direction.
- Feed out the seat belt buckle (3) from the seat bench.

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- Pull the seat bench (1) further forward.
- Release screw (2) on the end fitting and guide out belt (3).

Note: If there is a belt lock on the belt, the screw on the end fitting must not be released.

- If necessary, disconnect the present plug connections.
- Lift the seat bench (1) out of the vehicle.

3 – Opening the locking ring (vehicle without auxiliary heating)

WARNING

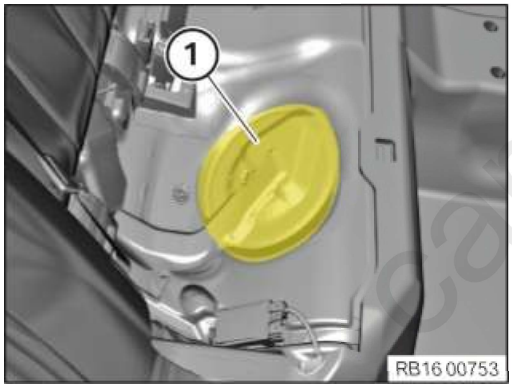
Working on fuel system.

Risk of fire! Danger of explosion!

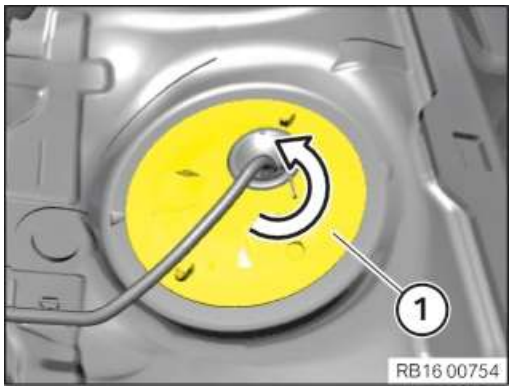
- When working on the fuel system, make sure that the workbay is sufficiently ventilated, e.g. using extraction unit.
- Tightly seal off open lines and connections; collect any escaping fuel directly at the point of exit.
- No fire, sparks, open flames or smoking.

TECHNICAL INFORMATION

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

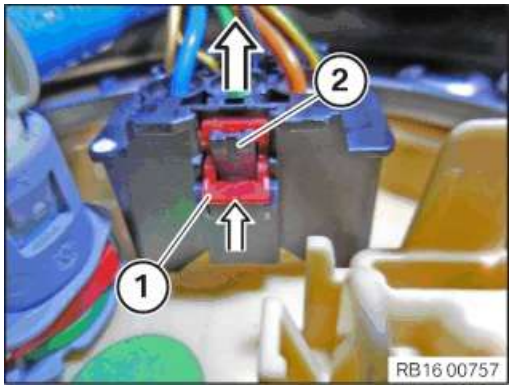


- Expand the floor trims in the area (1) in direction of arrow.

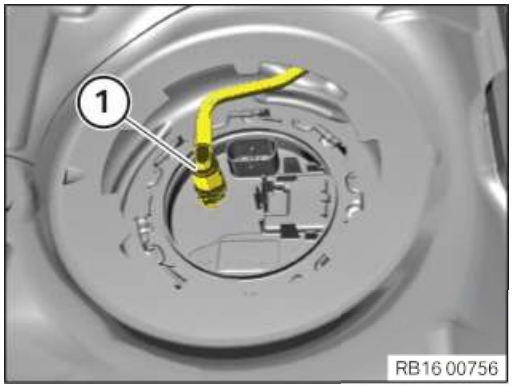


- Turn the sealing cap (1) in the direction of arrow (anti clockwise).

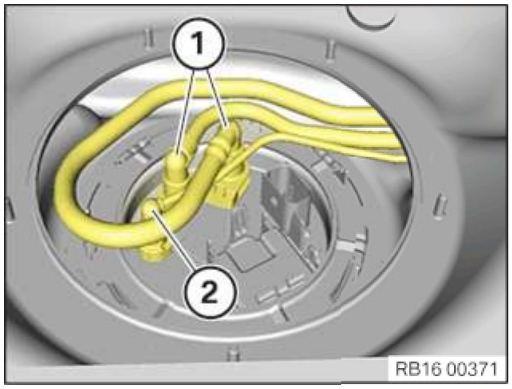
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- Unlock the locking tab (1) in the direction of the arrow.
- Operate the tab (2)and pull off the connector housing.



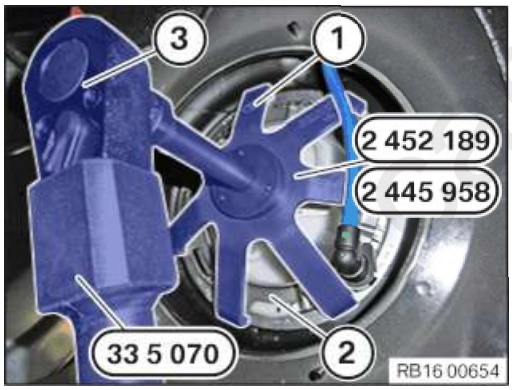
- Unlock and pull off snap fastener (1).



- **Equipment specification with optional equipment 1AK (external fuel filter).**

  Unlock and pull off the snap fasteners (1).

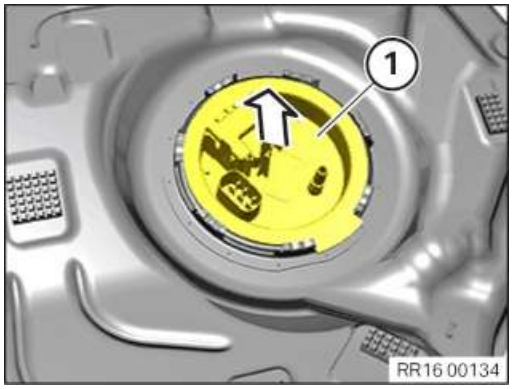
  If necessary, unlock and disconnect the snap fastener (2) for the auxiliary heater.



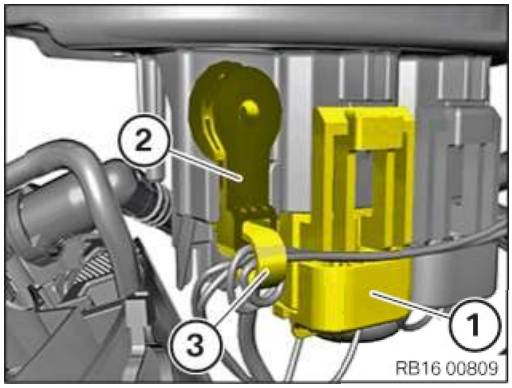
- Fit the special tool 2 452 189 or (1) on the locking ring (2).
- Connect the special tool 0 495 554 (33 5 070) to a 1/2 inch reversible ratchet head (3) and fit it on the special tool 2 452 189 .
- Release locking ring (2) in counterclockwise direction.

MAIN WORK

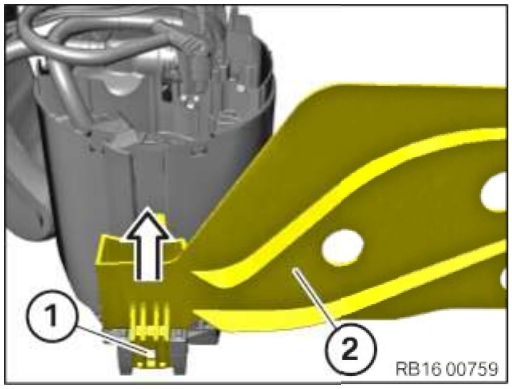
4 – Remove delivery unit



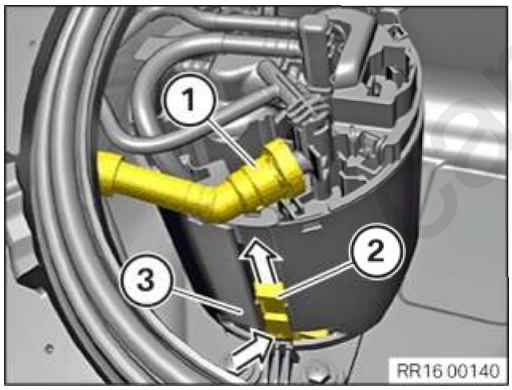
- Lift flange lid (1) in direction of arrow.



- Disconnect plug connection (1).
- Remove cable holder (2) and sever cable tie (3).

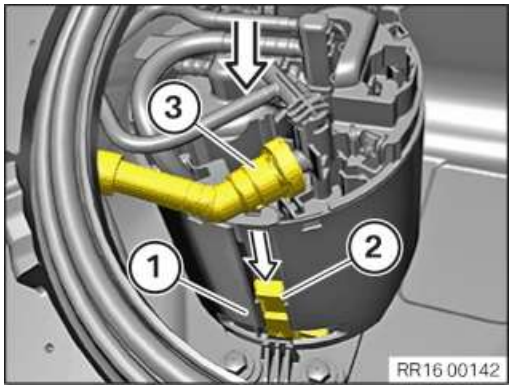


- Unlock the tab (1) and remove the slosh side (2) towards the top.



- Unlock and pull off snap fastener (1).
- Unlock lock (2) in direction of arrow from the top.
- Slightly push delivery unit (3) in direction of arrow and feed out to the top.

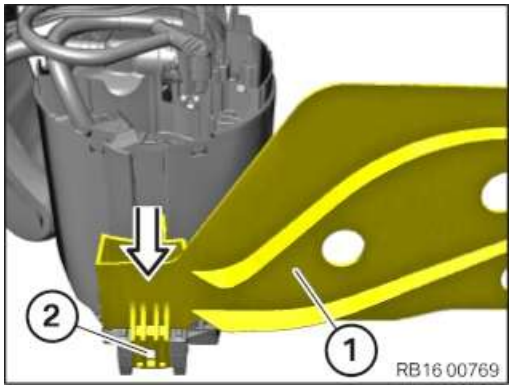
5 – Install delivery unit



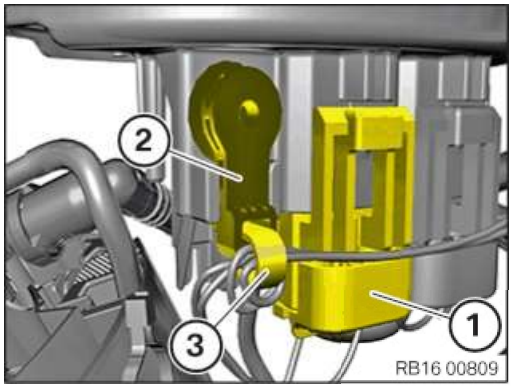
- Feed in delivery unit (1) in direction of arrow from the top and lock.

  Ensure the delivery unit is properly locked in the mounting!
- Lock the lock (2) in direction of arrow to the bottom.
- Position snap fastener (3) and lock.

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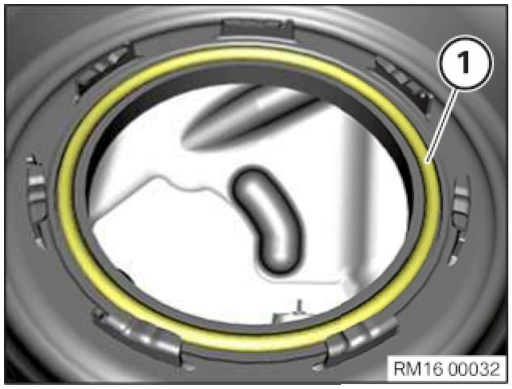


- Insert splash wall (1) from the top and lock tab (2).



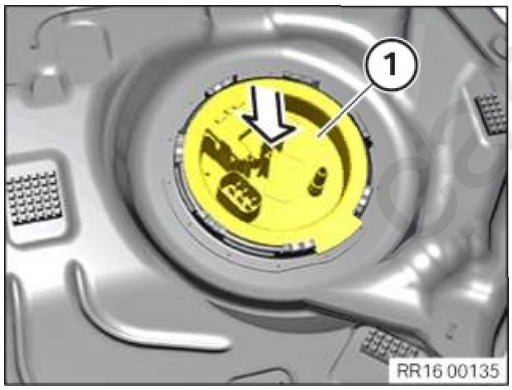
- Connect the plug connection (1).
- Renew cable holder (2) and cable connector (3).

  Parts: Cable holder, cable connector
- Attach cable to the brackets .



- Renew sealing ring (1).

  Parts: Sealing ring



- Mount flange lid (1) in direction of arrow.

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POSTPROCESSES

6 – Closing locking ring (vehicles without stationary heating system)

WARNING

Working on fuel system.

Risk of fire! Danger of explosion!

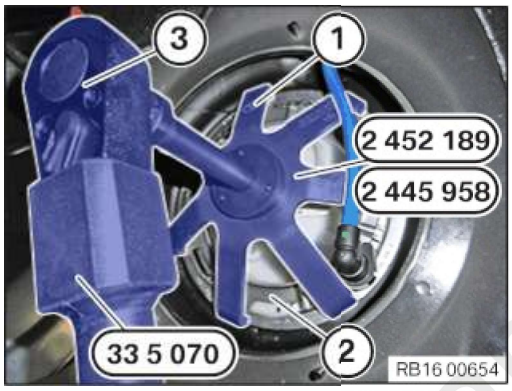
- When working on the fuel system, make sure that the workbay is sufficiently ventilated, e.g. using extraction unit.
- Tightly seal off open lines and connections; collect any escaping fuel directly at the point of exit.
- No fire, sparks, open flames or smoking.

TECHNICAL INFORMATION

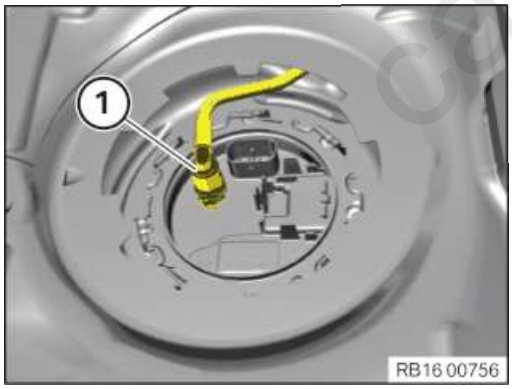
Collect and dispose of emerging fluids. Observe country-specific waste disposal regulations.

TECHNICAL INFORMATION

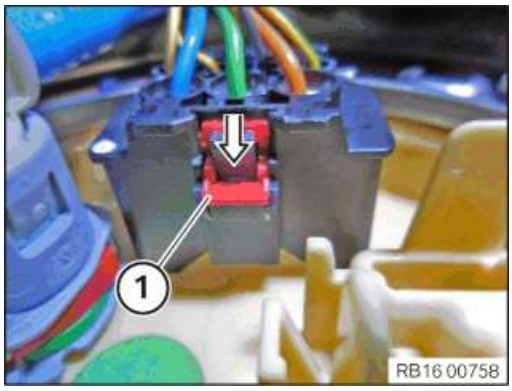
All new delivery units are delivered with the stationary heating system in the equipment specification.
For these vehicles, the connection on the flange lid must be closed with a locking coupling.
Locking coupling must be ordered separately, see Electronic Parts Catalogue.



- Fit the special tool 2 452 189 or (1) on the locking ring (2).
- Connect the special tool 0 495 554 (33 5 070) to a 1/2 inch reversible ratchet head (3) and fit it on the special tool 2 452 189 .
- Tighten locking ring (2) in clockwise direction.
- Make sure that the locking ring to the fuel tank is engaged correctly.



- Position snap fastener (1) and lock.
- Connect the plug connection (2).



- Fit the plug connection and latch it.
- Lock retaining tab (1) in the direction of the arrow.

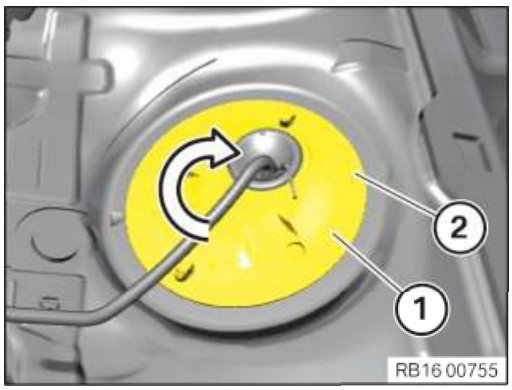
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- Renew the sealing cap of the floor panel.

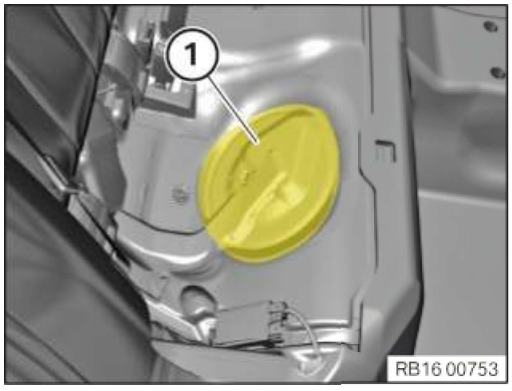
  Parts: Sealing cap of the floor panel

  There is a risk of leakage if the sealing cap of the floor panel is reused.
- Coat gasket in area (1) using Carbaflo KSP 105 lubricant (see Electronic Parts Catalogue).



- Latch sealing cap (1) up to the limit position in the direction of the arrow.

  Mark (2) must point to the front in the direction of travel.



- Lock the carpet in area (1).

7 – Installing rear seat bench



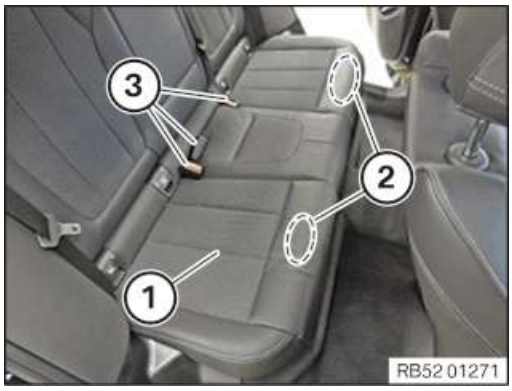
- Lift the seat bench (1) into the vehicle.
- Insert the seat belt (3).
- Renew the screw (2).

  Parts: Screw
- Tighten down screw (2).

Rear upper seat belt to bottom body

Screw	Renew screw.	Tightening torque	42 Nm

- Connect available connectors.



- Insert seat bench (1).
- Thread seat belt buckles (3) into the seat bench.
- Engage the seat bench (1) in the area (2).

? – Filling the fuel tank

rdiagn.com

ŏ – Filling the fuel tank



- Insert special tool into fuel filler neck.

  Special tool has two different diameters: for petrol and for diesel fuel.
- Slide the suction hose (1) of the extractor unit about 40 cm into the fuel filler neck. If necessary, slightly turn the suction hose.
- Fill fuel from suction extractor unit.
- After completing the work and before starting the engine for the first time: Fill the fuel tank by the fuel filler neck with a minimum of 5 l of fuel.

Additional Information

Overview of Tightening Torques

Rear upper seat belt to bottom body — Used in step 7

Screw	Renew screw.	Tightening torque	42 Nm

Overview of Special Tools

2 452 189 Wrench



Common — Used in step 36

Usage	Tank unlocking key large as replacement for 0496321; SWZ applies to ALL derivatives up to mid-year 2017
Included in the tool or work	
Storage location	C5
Replaced by	
In connection with	
SI-Number	01 03 17 (478)

0 495 554 (33 5 070) Extension



Common — Used in step 36

Usage	Pull-out extension for 33 5 040, 33 5 050, 33 5 060.
Included in the tool or work	
Storage location	A18
Replaced by	
In connection with	
SI-Number	01 21 06 (300)

Consisting of

Pos	BMW Order number	Replaced by	Designation	In Connection with
1	0 495 592 (33 5 071)		**Extension** (Extension (1 item)) discontinued, can only be ordered using complete tool	

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16 14 065 Removing and installing/replacing dust filter for Natural Vacuum Leak Detection (NVLD)

PRELIMINARY WORK

1 – Removing the rear right 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.



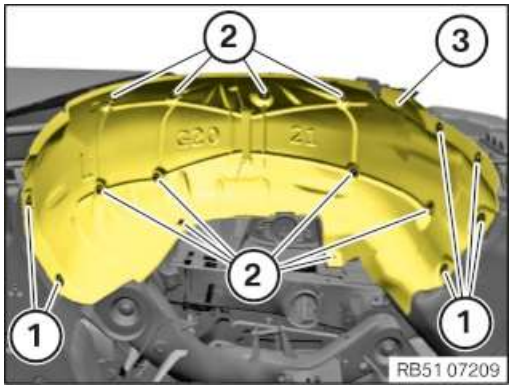
- If several wheels are removed simultaneously: Use a piece of chalk to mark on each tyre the axle and side on which the corresponding wheel is fitted.
- Release the wheel bolts (arrows) crosswise and remove the wheel.
- To release and tighten wheel bolts with a security code: Use a suitable adapter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

2 – Removing rear wheel arch cover

NOTICE

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

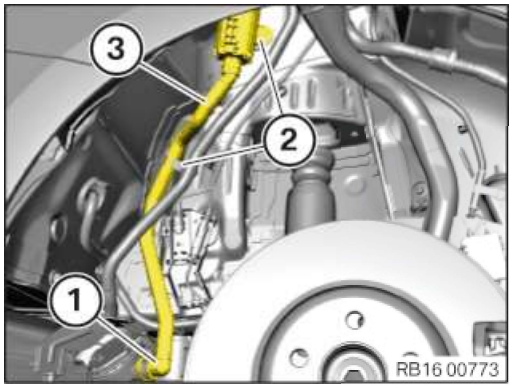
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- Loosen screws (1).
- Loosen nuts (2).
- Guide the wheel arch cover (3) out.

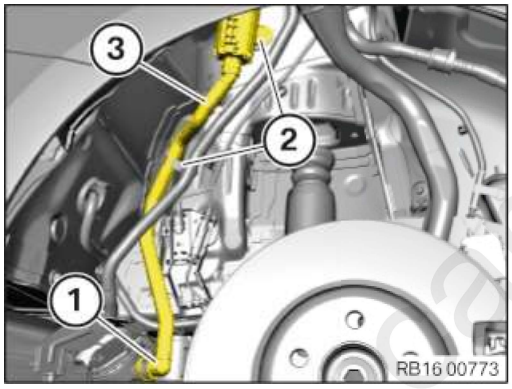
MAIN WORK

3 – Removing dust filter Natural Vacuum Leak Detection (NVLD)



- Unlock and disconnect snap fastener (1).
- Detach the holders (2) and remove dust filter(3) with line.

4 – Installing dust filter Natural Vacuum Leak Detection (NVLD)



- Install the dust filter (3) with line in the holders (2).
- Position snap fastener (1) and lock.

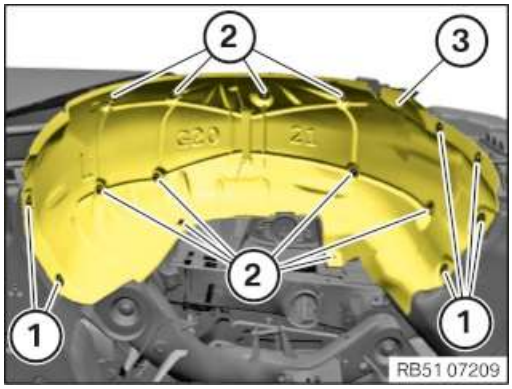
POSTPROCESSES

5 – Removing the rear wheel arch cover

NOTICE

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

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- Guide the wheel arch cover (3) in.
- Tighten the screws (1).
- Tighten nuts (2).

6 – Mounting the rear 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.

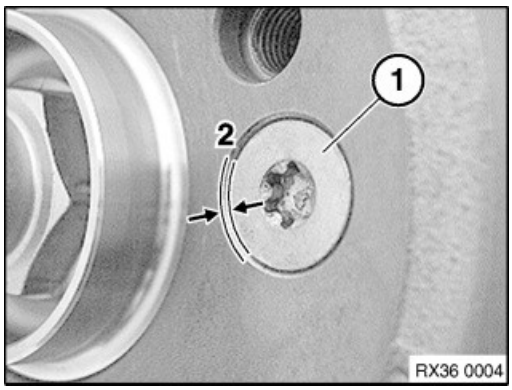
- Remove dirt, grease residues and corrosion from the contact surface with a drill and the special tool 2 344 011.

  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.

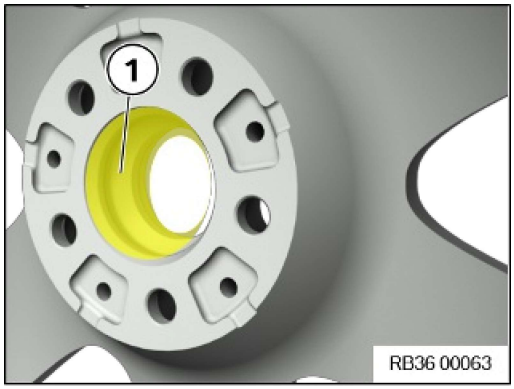
  The mounting bolt (1) for the brake disc may not protrude under any circumstances on the contact surface (2) between the brake disc and the wheel rim.

Brake disc to front wheel hub

M8	Renew screw.	Tightening torque	16 Nm

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



- 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



- 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.

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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. 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.	Tightening torque Check	140 Nm 140 Nm

Additional Information

Overview of Tightening Torques

Brake disc to front wheel hub — Used in step 6

M8	Renew screw.	Tightening torque	16 Nm

Brake disc to rear wheel hub — Used in step 6

M8	Renew screw.	Tightening torque	16 Nm

Wheel bolts — Used in step 6

M14 / SW17	Screw in wheel bolts and evenly tighten crosswise by hand in order to centre the wheel rim. 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.	Tightening torque Check	140 Nm 140 Nm

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Overview of Special Tools

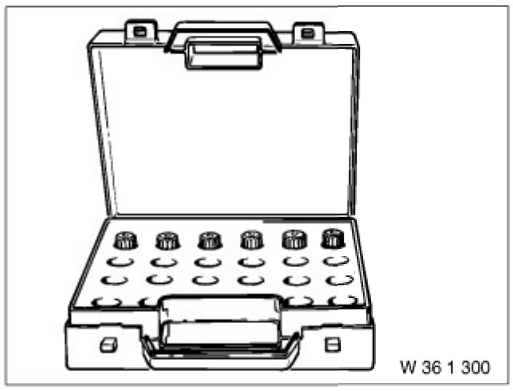
2 344 011 Tool



Common	Used in step 6
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)

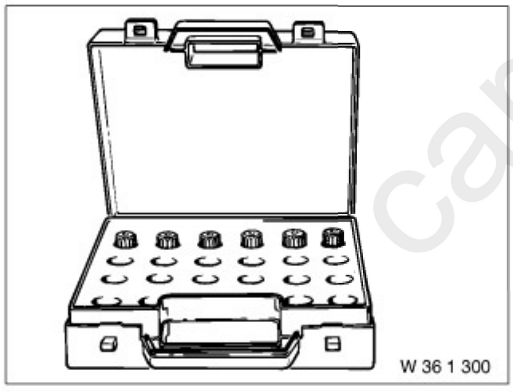
Replacement tools:

0 495 221 (36 1 323) Wheel stud



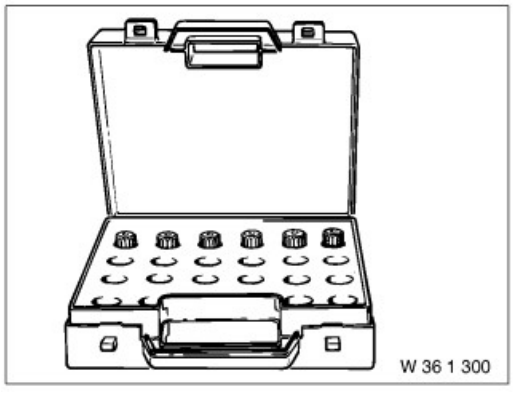
Common	Used in step 1
Usage	(Code 30) Code 39 available separately, (see EPC) under 36 13 1 181 259
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 224 (36 1 326) Wheel stud



Common	Used in step 1
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 1
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	

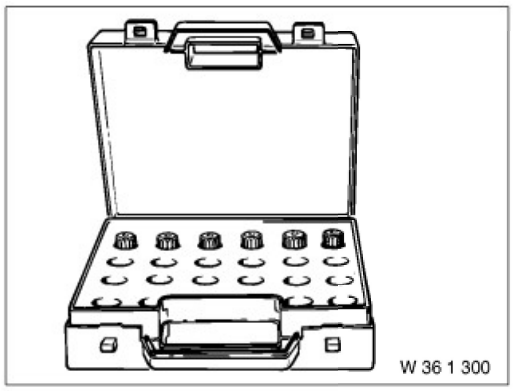
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0 495 226 (36 1 328) Wheel stud



Common	Used in step 1
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



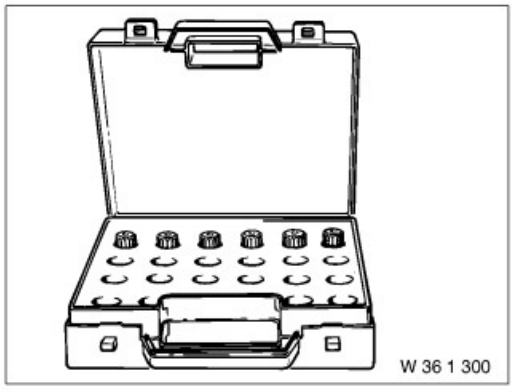
Common	Used in step 1
Usage	(Code 36) With centring bore available separately (see EPC) under 36 13 6 762 341
Included in the tool or work	0 492 518
Storage location	
Replaced by	
In connection with	
SI-Number	

0 495 228 (36 1 331) Wheel stud



Common	Used in step 1
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 1
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	

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0 495 230 (36 1 333) Wheel stud



Common Used in step 1

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	

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64 00 ... Information on using cleaning agent/paints (personal protection equipment)



Warning!

Use of cleaning agents/paints not compliant with instructions can cause serious injuries or burns!

Handling cleaning agents/paints can trigger allergic skin and respiratory reactions!



Important!

Observe following instructions:

- Store cleaning agents/paints only in a secure cabinet.
- Keep cleaning agents/paints away from naked flames and other sources of ignition.
- Protect cleaning agents/paints from high temperatures and direct sunlight.
- Always keep an eye douche on hand, change the water regularly (once a month).



Important!

Observe following instructions before use:

- Manufacturer's instructions (on container/packaging)
- Hazard warnings (on container/packaging)
- Manufacturer's instructions on package insert
- Material safety data sheet of manufacturer
- Product information in EPC
- National market regulations



Important!

Observe following instructions during use:

- Do not eat, drink or smoke while working with these products.
- Avoid direct contact with skin and eyes.
- Wear personal protective clothing/equipment.
- Ensure that all enclosed areas are well ventilated or extract fumes directly.
- Immediately change working clothes soiled with cleaning agent/paint.
- After finishing work, wash your hands and apply protective skin cream.



Important!

Follow hazard warnings and wear personal protection equipment!

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First Aid:

- If product comes in contact with eyes, immediately flush with running water for about 10 - 15 minutes. Seek the advice of eye specialist.
- In the event of skin contact and where applicable an allergic skin reaction, clean the affected areas immediately with soap and water and then apply silicone-free skin cream. Seek advice of physician.
- If an adhesive product is swallowed, rinse mouth/parts of mouth thoroughly with running water. Drink 1-2 glasses of water. Do not induce vomiting. Consult a doctor.
- After inhaling vapours ensure ample supply of fresh air. Keep calm, keep respiratory tracks clear and call doctor.



Recycling:

Dispose of cleaning agents/paints in a professional manner!

Observe national/country-specific disposal regulations.

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