BMW Group
Dealer: 32711/06
Model: M2
Development code: G87
Model code: 13DM
Lead type: 13DM

Removing and installing / replacing rear left or right coil spring »

WARNING

Vehicle may slip off the vehicle hoist if the vehicle hoist is handled incorrectly.

Danger! Immobilization period-threatening injuries!

- Observe safety instructions on raising the vehicle using a vehicle hoist.
- For additional information see: 00 ... Raise the vehicle using a vehicle lift.

CAUTION

Spring preload.

Injury hazard!

- The use of the specified special tool (tool) is mandatory.
- Carry out the described steps properly.

Preliminary work

Remove rear left or right wheel

Further information is available.

▶ Removing the wheel

Further information is available.

TECHNICAL INFORMATION

A wheel lifter is recommended for easier wheel removal and installation without exertion (see Dealer Equipment Catalog).

- In vehicles with M Carbon ceramic brake: It is essential to use the wheel lifter to remove the wheel.

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

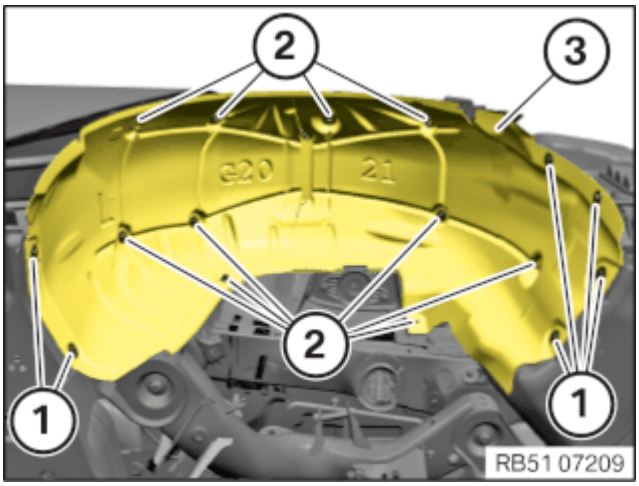
- If several wheels are removed simultaneously: Use a piece of chalk to mark on each tire the axle and side on which the corresponding wheel is fitted.
- Release the lug bolts (arrows) crosswise and remove the wheel.
- For releasing and tightening lug bolts with the security code: Use the correct adapter from the set of special tools 0 492 518 (36 1 300).

◀

Removing rear wheel arch cover

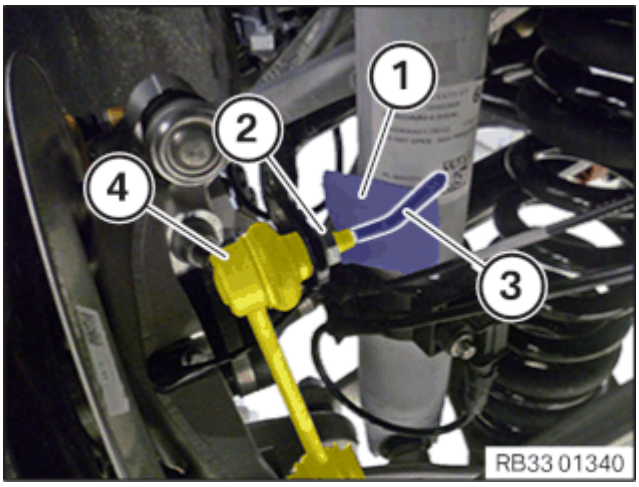
NOTE

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

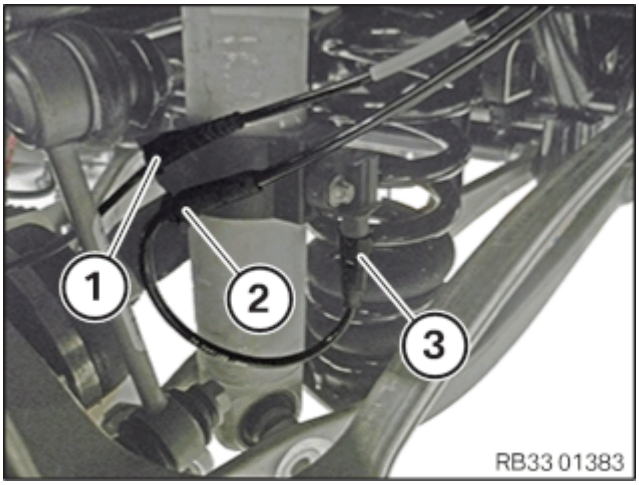


- Loosen screws (1).
- Loosen nuts (2).
- Guide the wheel arch cover (3) out.

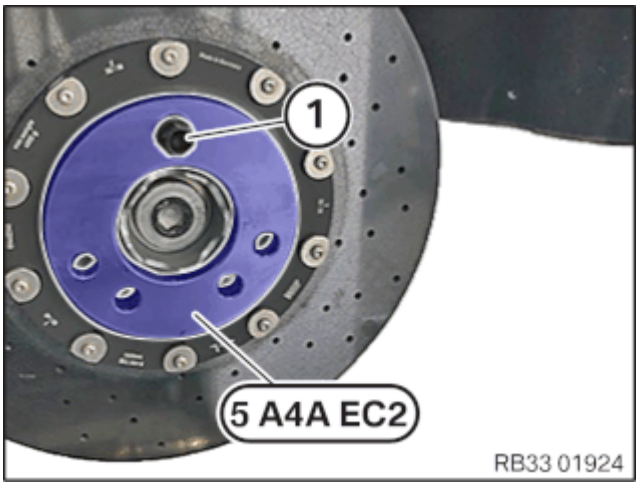
Removing the shock absorber



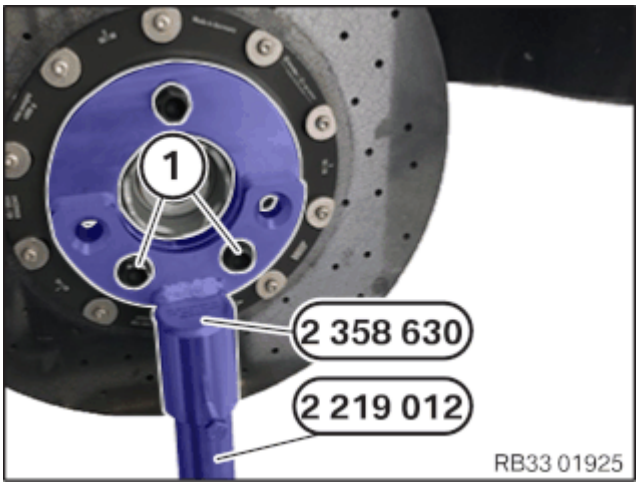
- Protect the shock absorber from damage with a cloth (1).
- Release nut (2). Counter support with a Torx socket (3) while doing so.
- Release the anti-roll bar link (4) from the anti-roll bar.



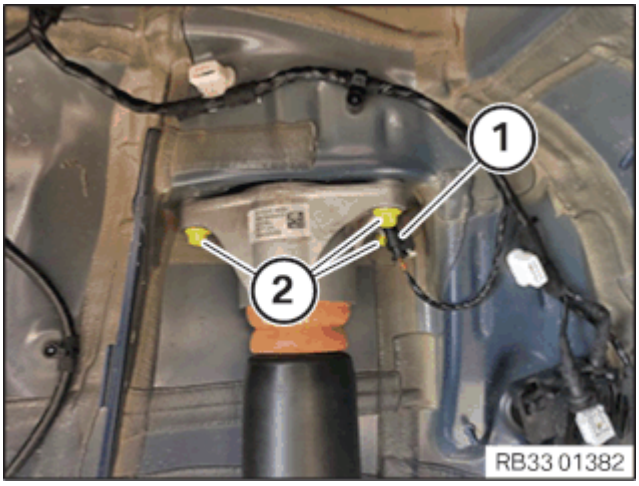
- Release the cable (1) and (2) from the holder.
- Unlock plug connection (3) and disconnect.



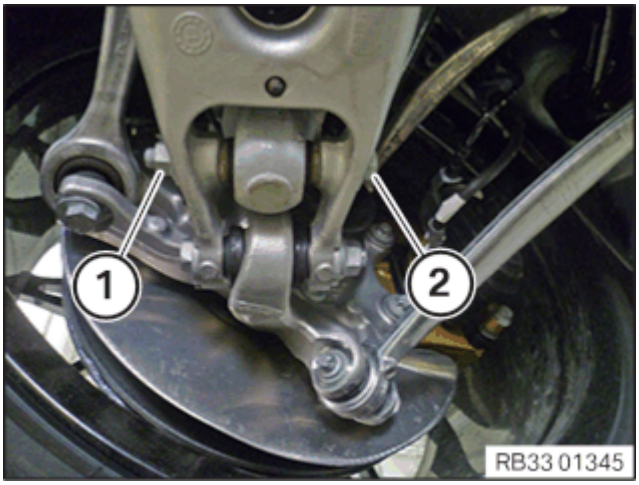
- For CFRP brake disks, position the special tool 5 A4A EC2 .
- Hand-tighten the lug bolt (1).



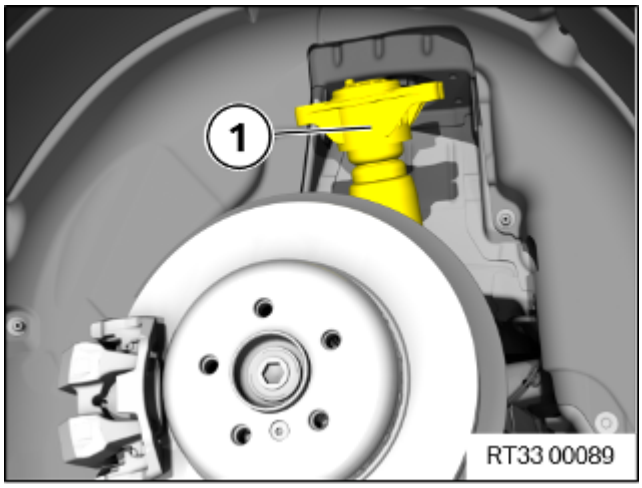
- Position special tool 2 358 630 .
- Turn lug bolts (1) until hand-tight.
- Support the wheel carrier with special tool 2 219 012 . When doing so, do not press against the spring force of the coil spring.



- Unlock plug connection (1) and disconnect.
- Loosen screws (2).
- Empty special tool 2 219 012 and set it aside.



- Release nut (1).
- Pull out the screw (2).



- Compress the shock absorber (1), feed it out and remove it.

Main Works

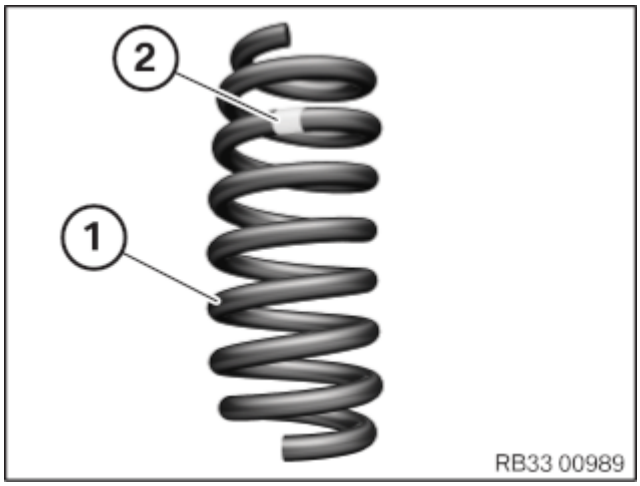
Remove coil spring

⚠ CAUTION

Spring preload.

Injury hazard!

- The use of the specified special tool (tool) is mandatory.
- Carry out the described steps properly.



i TECHNICAL INFORMATION

Incorrect assembly is possible. Ensure correct installation position.

- The installation position of the coil spring (1) is marked with a label (2).

  The label (2) is attached to the upper coil spring end.

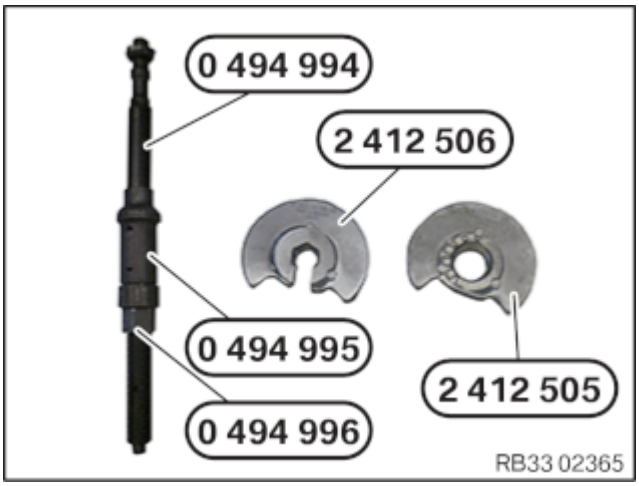
- Check the coil spring (1) for the presence of the label (2).

  If label (2) on the installed coil spring (1) is missing and if the coil spring needs to be installed again after the repair, the installation position of coil spring (1) must be marked.

Note

Mark the installation position of the coil spring by affixing an adhesive tape on the top spring end.

▶ Prepare special tool (not G80 CS)



- Spindle = special tools 0 494 994 (33 5 013), 0 494 995 (33 5 014) and 0 494 996 (33 5 015)

  Upper spring plate = special tool 2 412 506

  Lower spring plate = special tool 2 412 505

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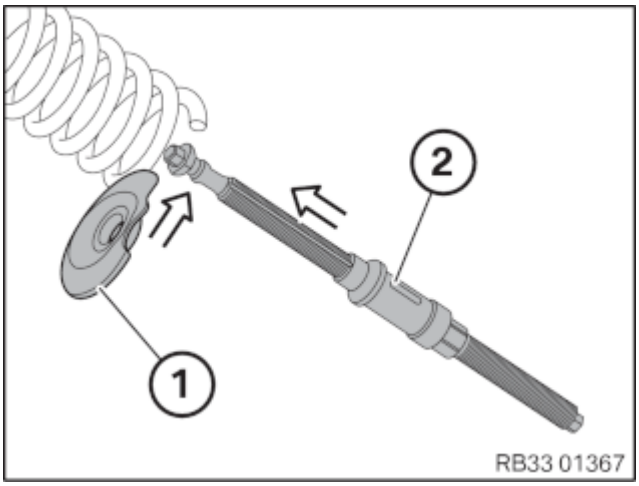
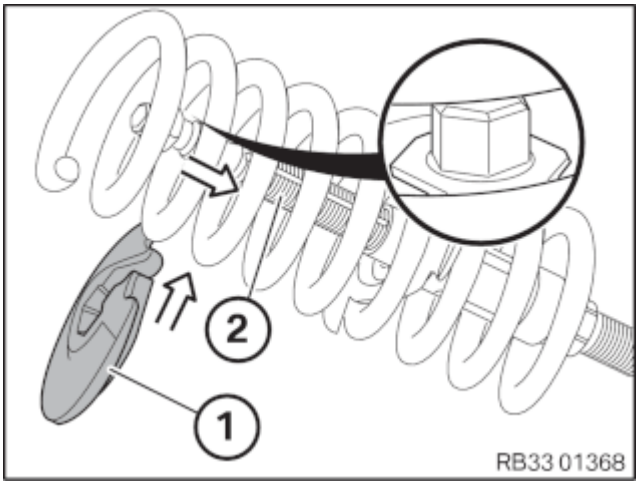
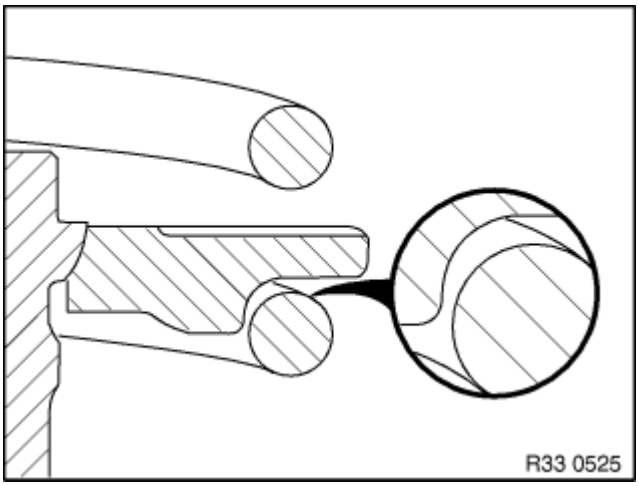


- Insert the bottom spring plate (1) sideways in arrow direction into the coil spring and turn it up to the lowest coil.
- Feed in the spindle (2) from below in arrow direction through the camber control arm and the bottom spring plate (1).

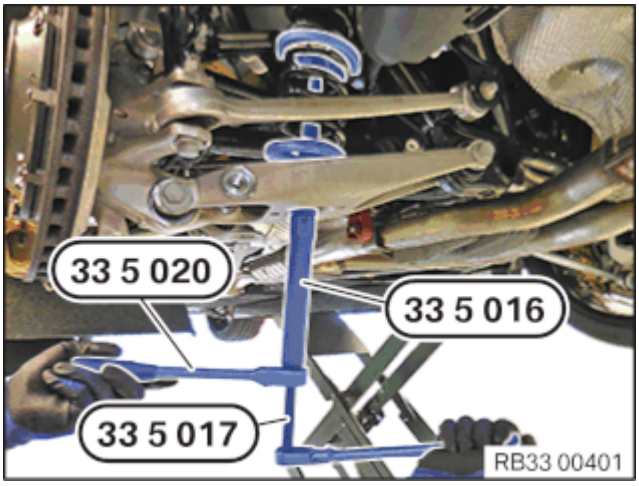


- Insert the top spring plate (1) sideways in arrow direction into the coil spring, feed in at the spindle (2) and turn it upwards as far as possible.

  Check the position of the spindle (2) with the hexagon head in the top spring plate (1), correct if necessary.
- Pull down the spindle (2) in arrow direction.



- Check the position of the spring plate in the coil spring at the top and bottom and, if necessary, correct it.



RISK OF DAMAGE

Clamping the coil spring on the block.

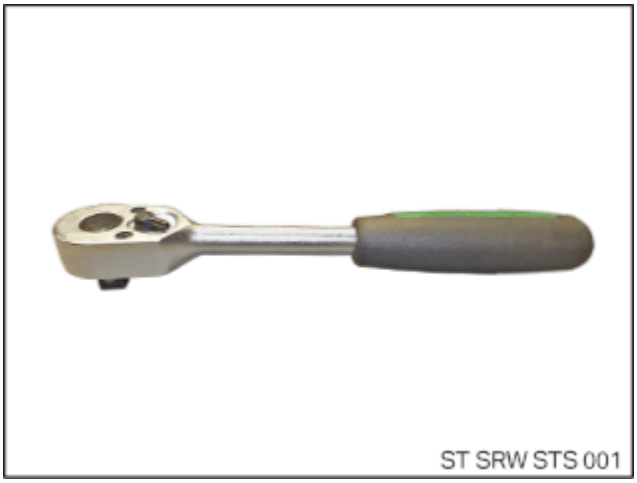
Damage of the coil spring.

- Do not clamp the coil spring on the block.
- Mind the distance between the spring coils.

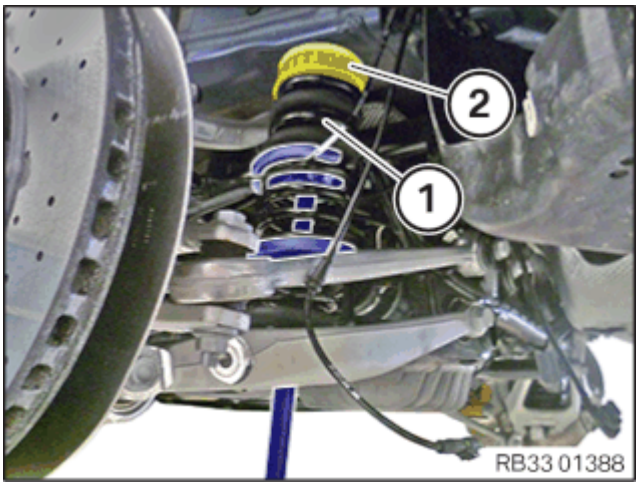
- To achieve the largest possible contact surface on the coil spring, align the spindle centrally with the upper spring plate and the lower spring plate.
- Tension the coil spring using special tools **0 494 997 (33 5 016)** and **0 494 934 (33 5 020)**. Provide counter support to the spindle using special tool **0 494 998 (33 5 017)** and standard tool in the process.

Standard tool: 3/8" reversible ratchet

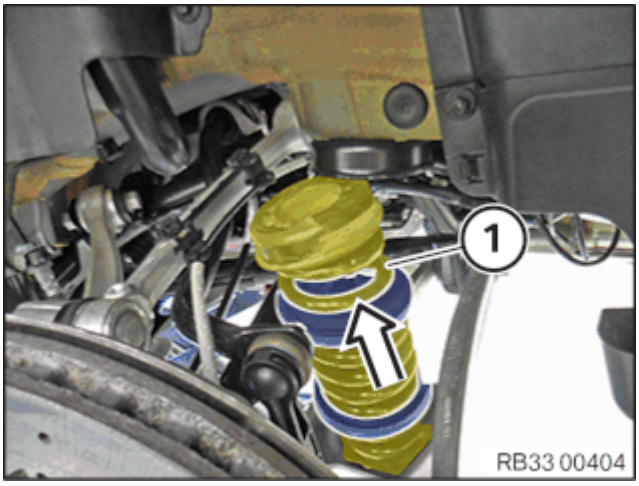
3/8" reversible ratchet



3/8" reversible ratchet

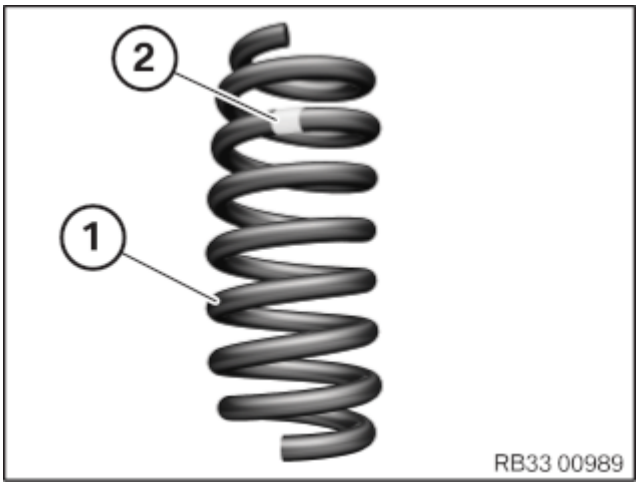


- Feed out the coil spring (1) at the top spring pad (2).
- Remove the top spring pad (2).



- Guide out and remove coil spring (1) upwards in the arrow direction.

Replacing the coil spring

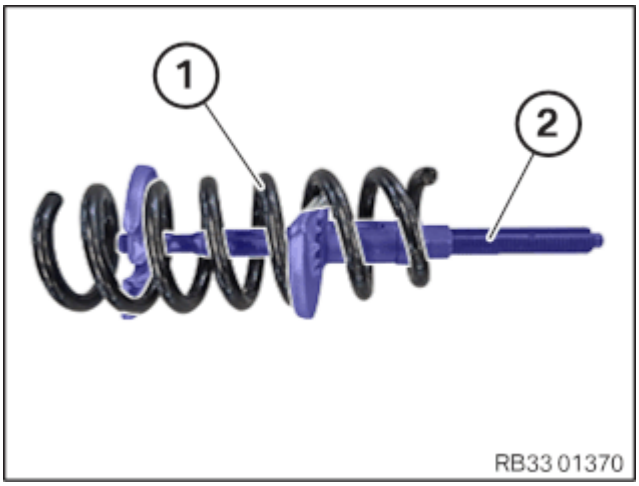


TECHNICAL INFORMATION

Incorrect assembly is possible. Ensure correct installation position.

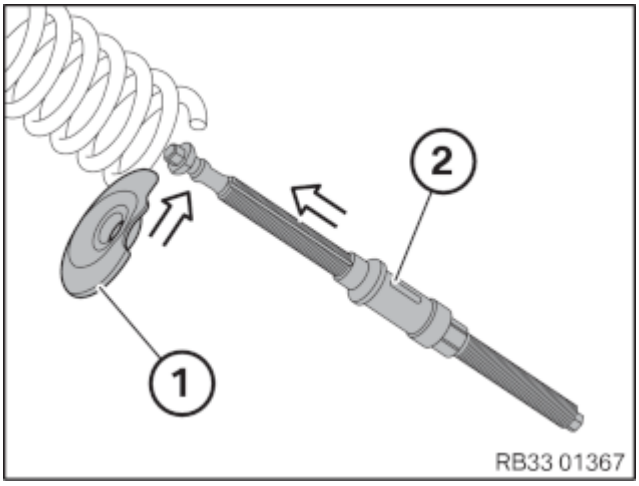
- The installation position of the coil spring (1) is marked with a label (2).

  The label (2) is attached to the upper coil spring end.

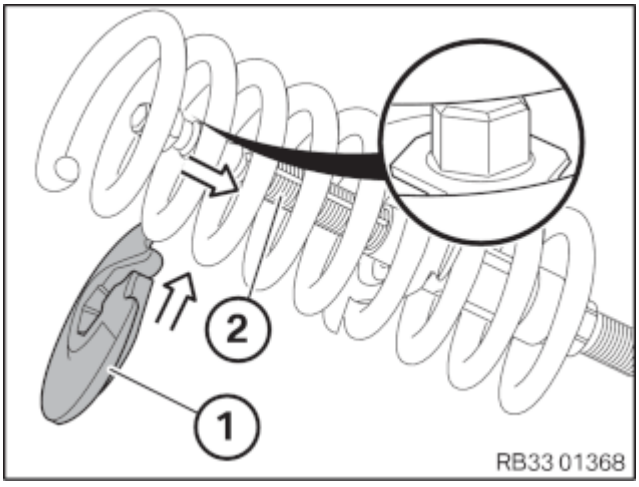


- Relieve the coil spring (1) by releasing the spindle (2).
- Renew coil spring (1).

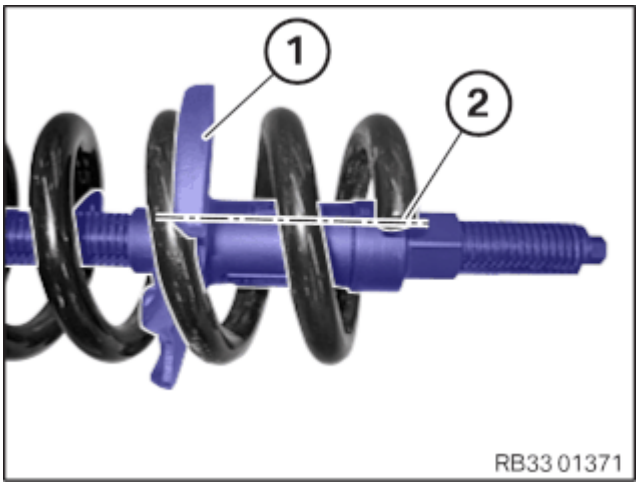
  Parts: Coil spring



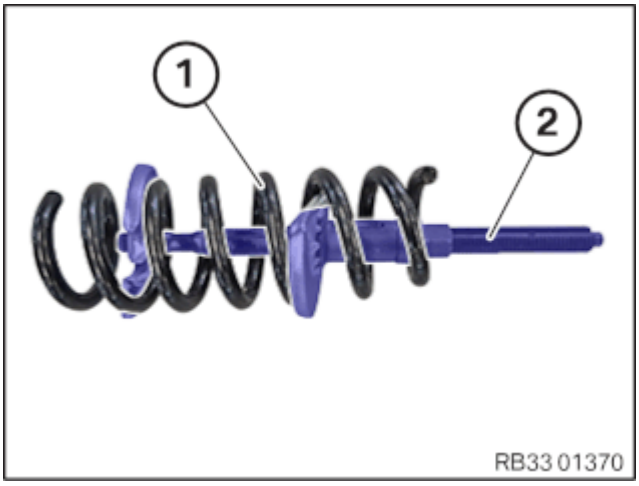
- Insert the bottom spring plate (1) sideways in arrow direction into the coil spring and turn it up to the lowest coil.
- Insert the spindle (2) in the arrow direction through the bottom spring plate (1).



- Insert the top spring plate (1) sideways in the coil spring, feed it in at the spindle (2) and turn to the top as far as possible.
- Check the position of the spindle (2) with the hexagon head in the upper spring plate (1) and correct it if necessary.
- Pull down the spindle (2) in arrow direction.



- Align the lower spring plate (1) with the opening for the lower coil spring end (2).

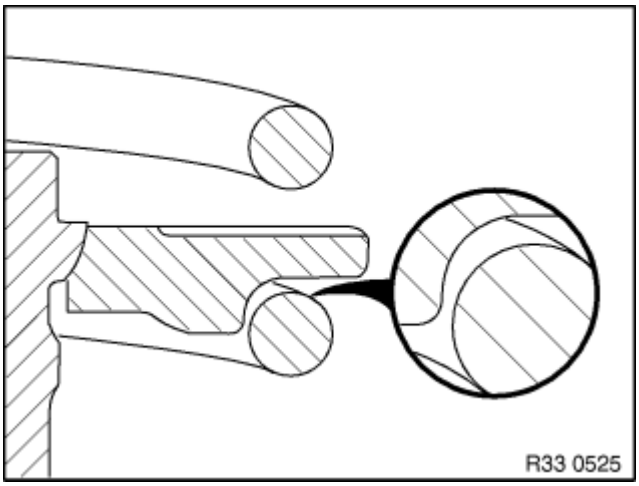


RISK OF DAMAGE

Clamping the coil spring on the block.
Damage of the coil spring.

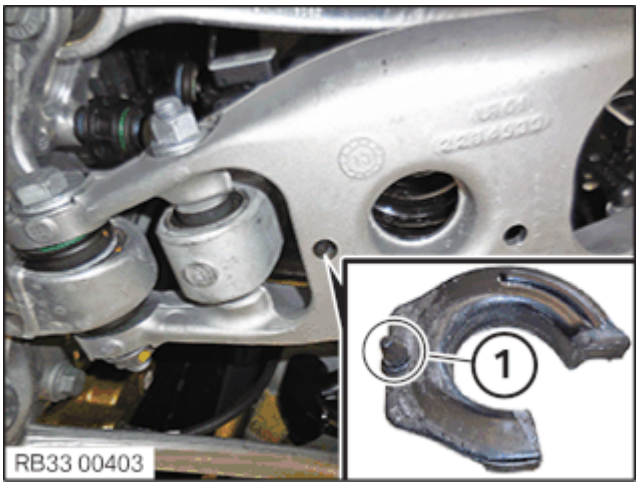
- Do not clamp the coil spring on the block.
- Mind the distance between the spring coils.

- Tension the coil spring (1) using the spindle (2).

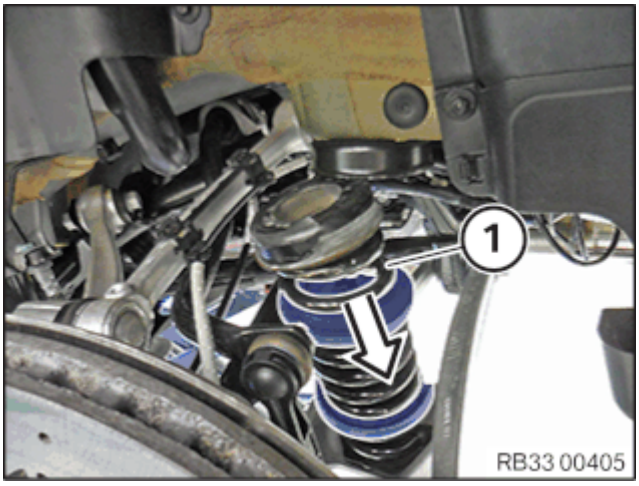


- Check the position of the spring plate at the top and bottom in the coil spring and, if necessary, correct it.

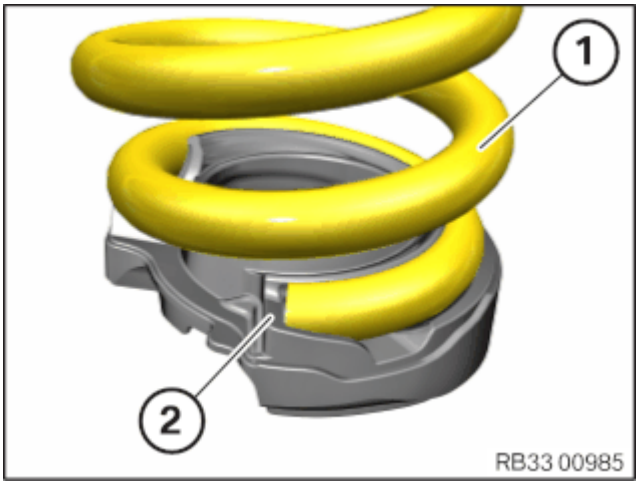
Install the coil springs



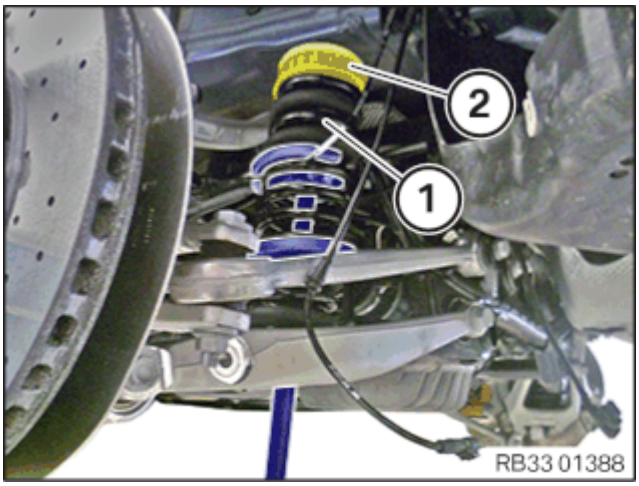
- Check bottom spring pad for damage and, if necessary, renew it.
- Check position of the bottom spring pad with the plastic tab (1) in the outer bore on the camber control arm and correct if necessary.



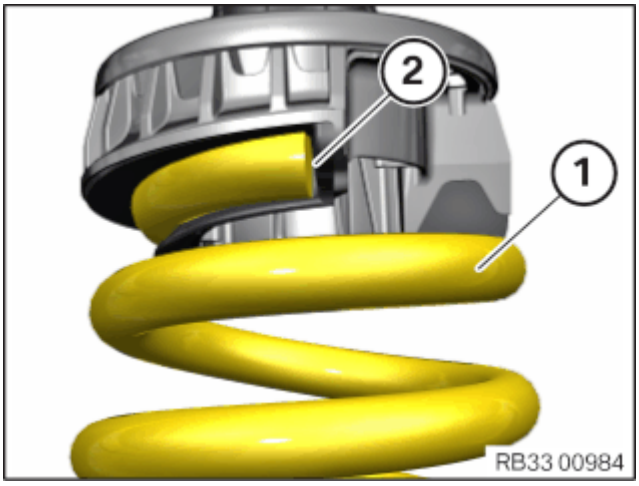
- Insert and position the coil spring (1) from above in the arrow direction.



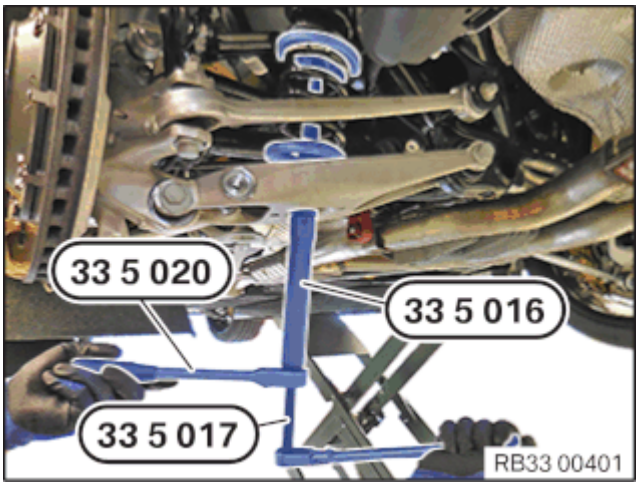
- Position the coil spring (1) in such a way that the lower coil spring end is in form-fit contact with the lower spring pad (2).



- Position the top spring pad (2).
- Feed in the coil spring (1) at the top spring pad (2).



- Position the top spring pad on the coil spring (1) in such a way that the coil spring end (2) is on form-fit contact with the top spring pad.



- Position the coil spring in the middle.

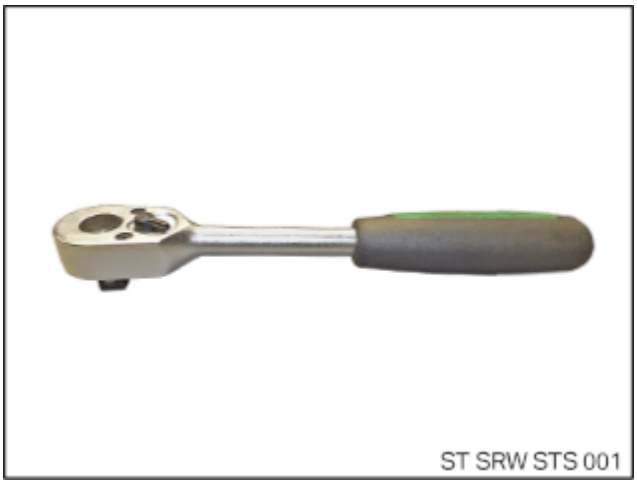
  The special tool 0 494 997 (33 5 016) must not touch the camber control arm.

- Slacken the coil spring with the special tools 0 494 997 (33 5 016) and 0 494 934 (33 5 020).

  Provide counter support to the spindle using special tool 0 494 998 (33 5 017) and standard tool.

  Standard tool: 3/8" reversible ratchet

  3/8" reversible ratchet

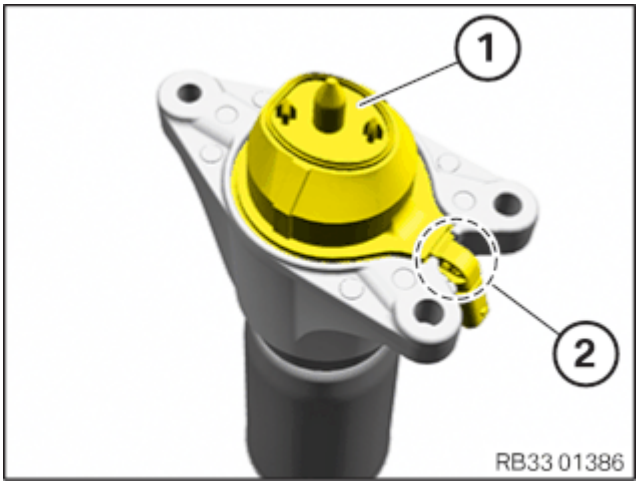


3/8" reversible ratchet

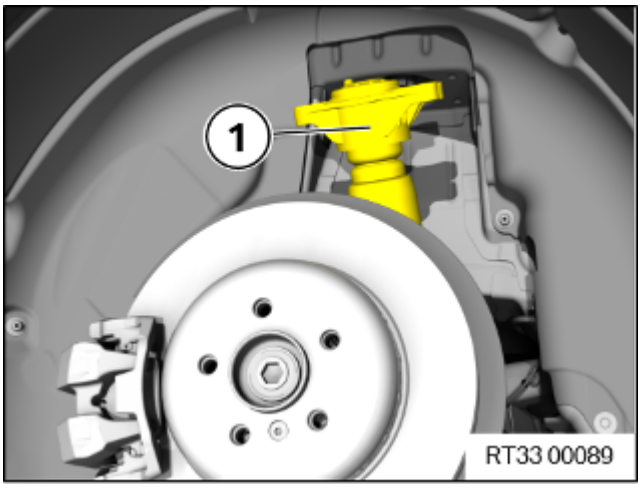
- Check the installation position of the coil spring, correct if necessary and remove the special tools.

Follow-up works

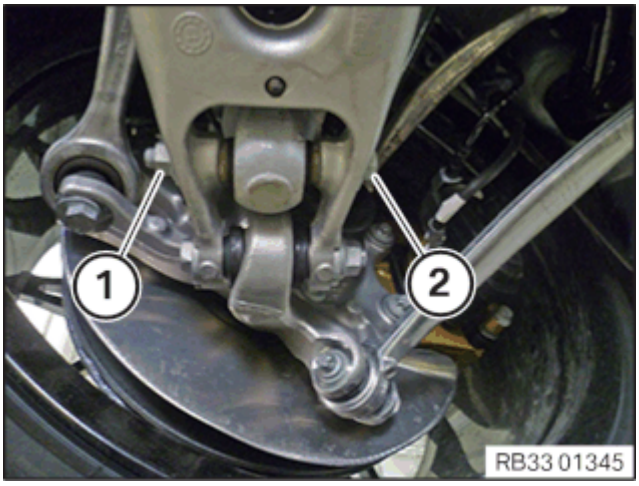
Installing the shock absorber



- Check the position of the centering cap (1) and the adapter lead (2), correct if necessary.



- Compress the shock absorber (1) and feed it into the wheel well.



TECHNICAL INFORMATION

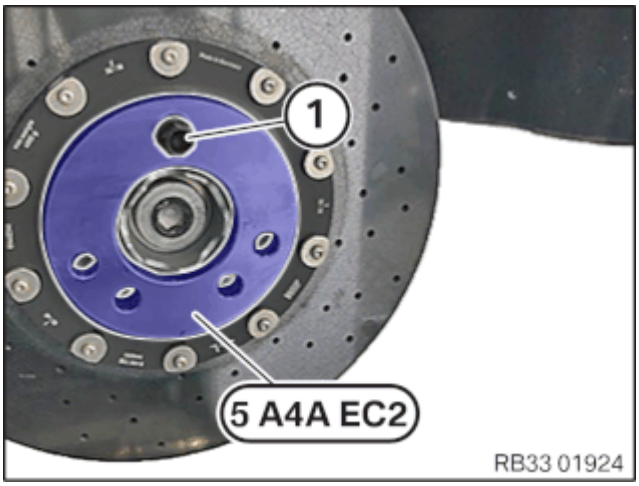
Incorrect assembly is possible. Ensure correct installation position.

TECHNICAL INFORMATION

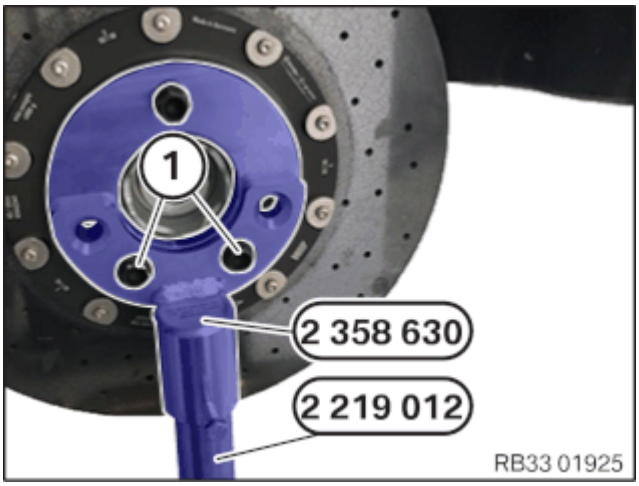
The screw connection is tightened later in the normal position with the torque wrench.

- Position the shock absorbers on the camber control arm.
- Renew the screw (2) and the nut (1).

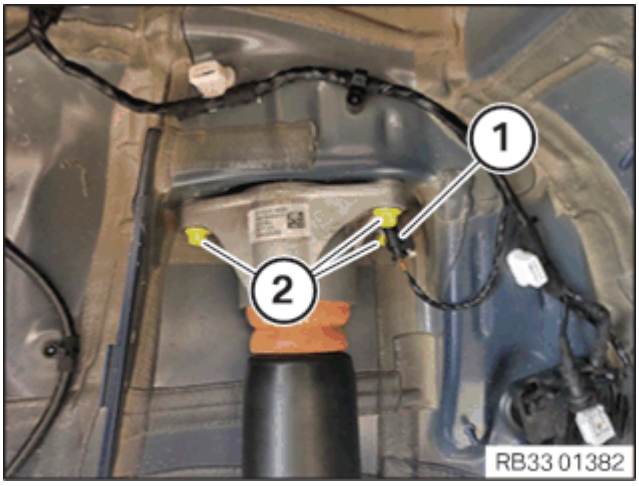
  Parts: Bolt, nut
- Insert the screw (2) and hand-tighten the nut (1).



- Position the special tool 5 A4A EC2 for CFRP brake disks.
- Hand-tighten the lug bolt (1).



- Position special tool **2 358 630** .
- Turn lug bolts (1) until hand-tight.
- Slightly lift the wheel carrier with the special tool **2 219 012** and position the support bearing on the body. **Do not press against the spring force of the coil spring.**



- Renew screws (2).

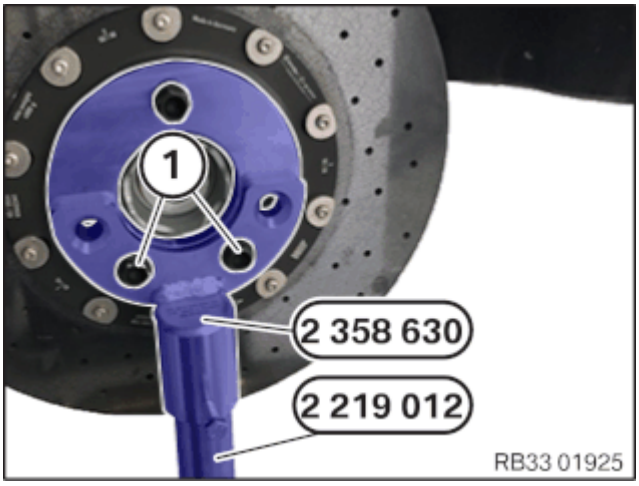
  Parts: Screws
- Tighten the screws (2).

Tightening torques

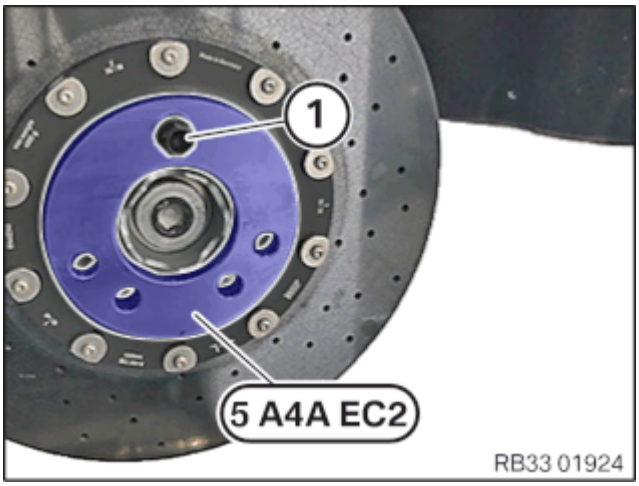
Nut and locknut/self-locking nut

M8x40 Renew screw.	**Tightening torque** 28Nm

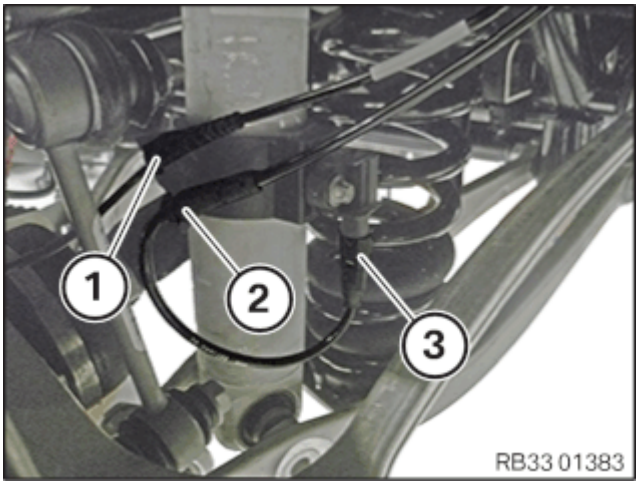
- Connect connectors (1) and lock.



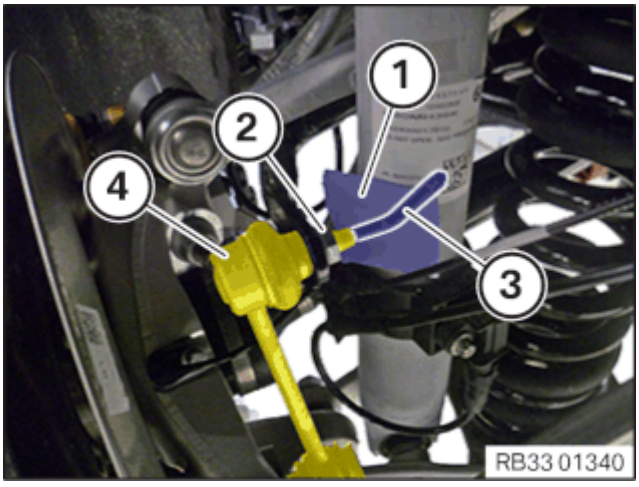
- Empty special tool **2 219 012** and set it aside.
- Release the lug bolts (1).
- Remove special tool **2 358 630** .



- Release the lug bolt (1) for CFRP brake disks.
- Remove special tool 5 A4A EC2 .



- Fasten the cable (1) and (2) to the holder.
- Connect connectors (3) and lock.



- Position the anti-roll bar link (4) on the anti-roll bar.
- Protect the shock absorber from damage with a cloth (1).
- Renew nut (2).

  Parts: Nut
- Tighten nut (2). Counter support with a wrench (3) with Torx socket.

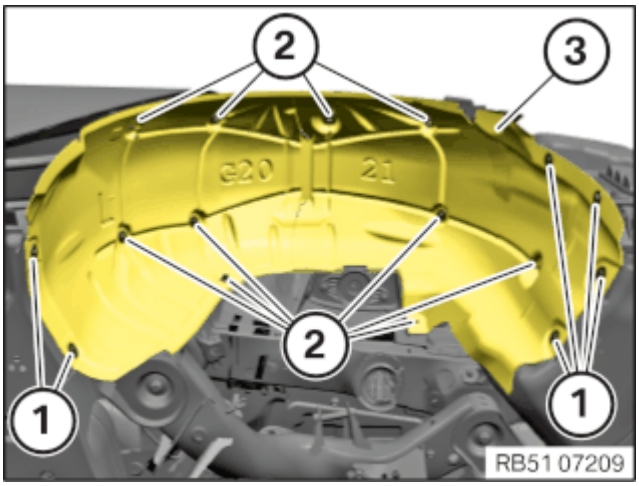
Tightening torques

Rear anti-roll bar link on anti-roll bar	
M10 Renew nut.	Tightening torque 56Nm

Removing the rear wheel arch cover

NOTE

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



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

Tightening torques

Wheel arch cover

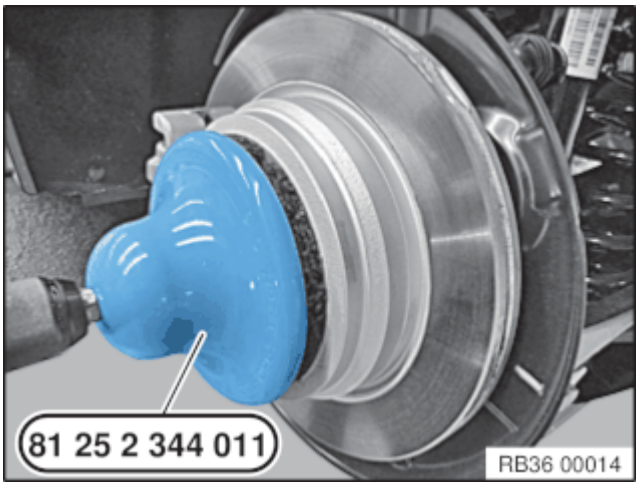
screw	3Nm
Plastic nut	2,6Nm

Install rear left or right wheel

Further information is available.

▶ Mounting the wheel

Further information is available.



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.

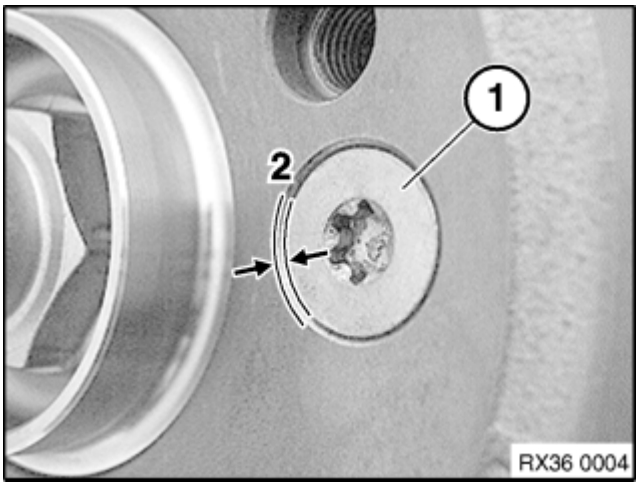
- Degrease the contact surfaces with the universal cleaner (see BMW Group Parts).

- In the event of grease residues in the area of the wheel bolt holes, remove and clean the brake disk.

- 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 if the mounting bolt (1) has been fitted correctly for the brake disk.

  The mounting bolt (1) for the brake disk **cannot** protrude on the contact surface (2) between the brake disk and the rim.

Tightening torques

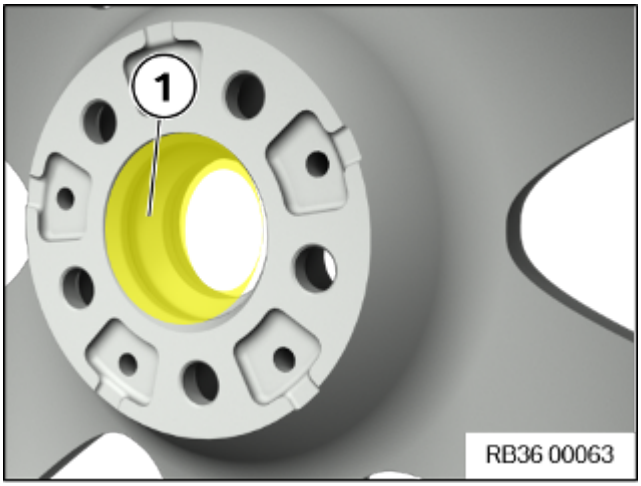
Brake disc to front wheel hub

M8	tightening torque 16Nm

Tightening torques

Brake disc to rear wheel hub

M8	tightening torque 16Nm



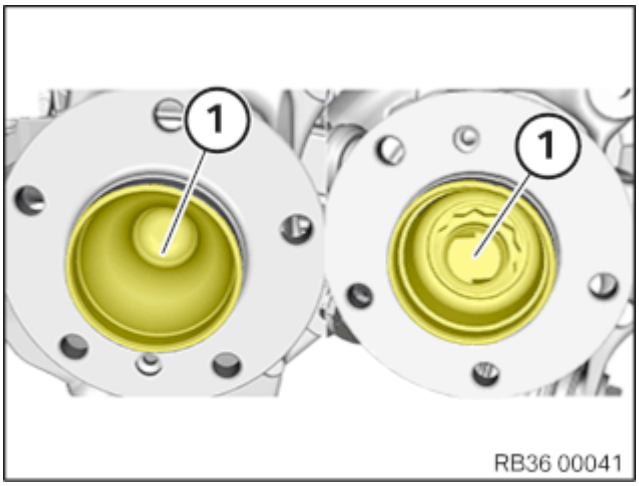
TECHNICAL INFORMATION

Do **not** grease the wheel hubs and wheel centering in models G80, G82 and G83.

- Lightly grease the wheel centering (1) in the rim.

Consumable

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



TECHNICAL INFORMATION

Do **not** grease the wheel hubs and wheel centering in models G80, G82 and G83.

- Apply a thin layer of grease to the front and rear wheel hubs (1) to protect against corrosion.

Consumable

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

TECHNICAL INFORMATION

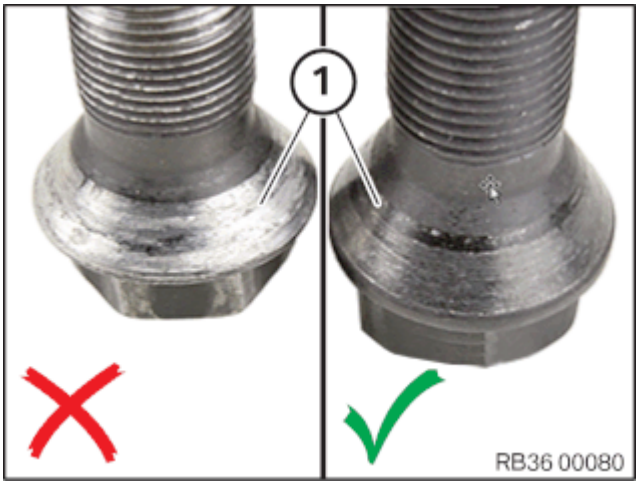
A wheel lifter is recommended for easier wheel removal and installation without exertion (see Dealer Equipment Catalog).

- In vehicles with M Carbon ceramic brake: The wheel lifter must be used to install the wheel.

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

Check

- Check lug bolts for wear.



Result

» Spots (> 30%) of the bearing surface (1) of the taper on the screw head show silvery wear.

Measure

- Replace wheel bolts.

TECHNICAL INFORMATION

Never use an impact screwdriver or electric screwdriver to apply and tighten the lug bolts.

The rim must rest evenly against the brake disc.

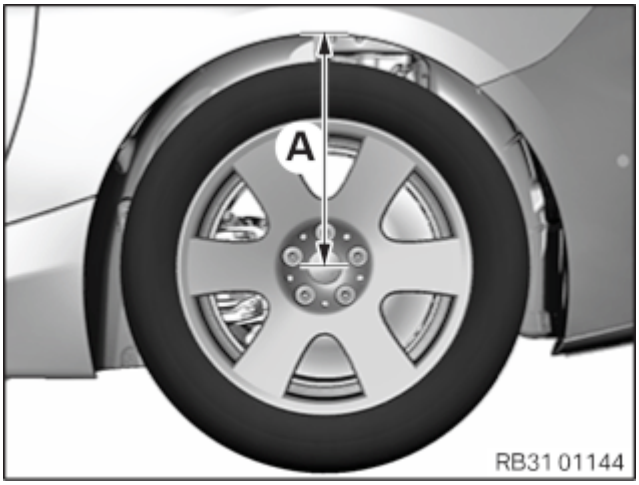
In the case of non-original BMW lug bolts/wheel rims, it may be necessary to retighten the lug bolts on user account of setting properties (refer to the documentation from the manufacturer).

Do not apply oil to new lug bolts.

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

◀

Measuring the ride height of the rear axle and setting the normal position



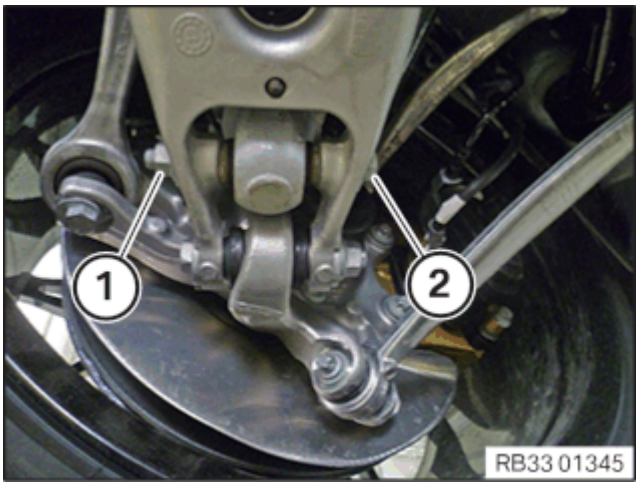
- Set the vehicle on the wheels (e.g. workshop pit or vehicle lift for Kinematics Diagnosis System).
- Measure the ride height (A).
- Load or unload the vehicle until the ride height (A) is within the tolerance.

Technical data

G87 rear wheel drive, standard suspension

	Dimension A	
Measured from centre of wheel hub to lower edge of wheel arch	379 +10 -10	mm

Tightening the screw connection of the camber link to the shock absorber



- Slacken the nut (1) by a turn and tighten it. Provide counter support to screw (2) in the process.

Tightening torques

Rear shock absorber to the camber control arm

M12 Renew screw and nut. Tighten in the normal position. Tightening via nut.	**Tightening torque** 100Nm **Angle of rotation** 90°