



How to change front coil
springs on **BMW E46**
touring – replacement
guide

VIDEO TUTORIAL

** Important!**

This replacement procedure can be used for:

BMW 5 Saloon (E39) 525tds 2.5, BMW 3 Saloon (E46) 328i 2.8, BMW 3 Saloon (E46) 320d 2.0, BMW 3 Saloon (E46) 323i 2.5, BMW 3 Saloon (E46) 320i 2.0, BMW 3 Coupe (E46) 323Ci 2.5, BMW 3 Coupe (E46) 328Ci 2.8, BMW 5 Touring (E39) 525tds 2.5, BMW 3 Touring (E46) 320i 2.0, BMW 3 Coupe (E46) 320Ci 2.0, BMW 3 Touring (E46) 328i 2.8, BMW 3 Touring (E46) 320d 2.0, BMW 3 Saloon (E46) 330d 2.9, BMW 3 Touring (E46) 330d 2.9, BMW 3 Convertible (E46) 323Ci 2.5, (+ 22)

The steps may slightly vary depending on the car design.

**REPLACEMENT: COIL SPRINGS – BMW E46 TOURING.
TOOLS YOU MIGHT NEED:**



- Wire brush
- WD-40 spray
- Copper grease
- Combination spanner #17
- Combination spanner #19
- Combination spanner #21
- Drive socket # 13
- Drive socket # 18
- Drive socket # 21
- HEX bit no.H6
- HEX bit no.H7
- Wheel impact socket #17
- Shock absorber socket
- Ball joint puller
- Ratchet wrench
- Torque wrench
- Tap wrench
- Crow bar
- Hydraulic strut spring compressor
- Hydraulic transmission jack
- Fender cover
- Wheel chock

BUY TOOLS

Replacement: coil springs – BMW E46 touring. Tip from AUTODOC:

- Both coil springs of the front suspension should be replaced simultaneously.
- The replacement procedure is identical for the left and right coil springs of the front suspension.
- Please note: all work on the car – BMW E46 touring – should be done with the engine switched off.

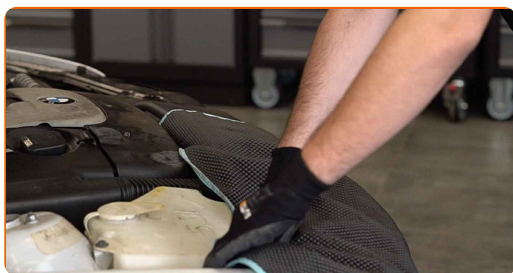
CARRY OUT REPLACEMENT IN THE FOLLOWING ORDER:

1

Open the bonnet.

**2**

Use a fender protection cover to prevent damaging paintwork and plastic parts of the car.



3 Loosen the upper fastener of the shock strut mount. Use a drive socket #13. Use a ratchet wrench.



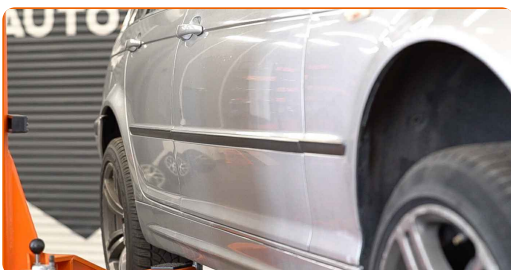
4 Secure the wheels with chocks.



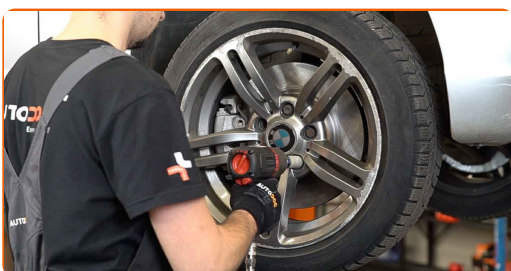
5 Loosen the wheel mounting bolts. Use wheel impact socket #17.



6 Raise the front of the car and secure on supports.



7 Unscrew the wheel bolts.



AUTODOC recommends:

- Warning! To avoid injury, hold the wheel while unscrewing the fastening bolts.
BMW E46 touring

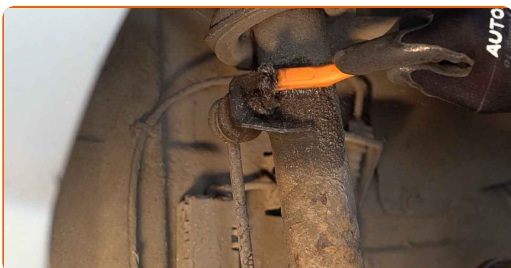
8

Remove the wheel.



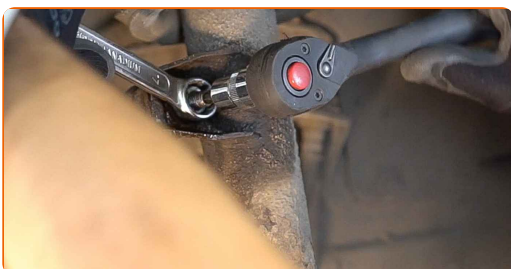
9

Clean the stabiliser link fasteners. Use a wire brush. Use WD-40 spray.



10

Unscrew the nut and remove the stabilizer rod from the shock strut. Use HEX No.H7. Use a combination spanner #17. Use a ratchet wrench.



11

Treat the retaining bracket that secures the brake hose and the wiring harness. Use WD-40 spray.



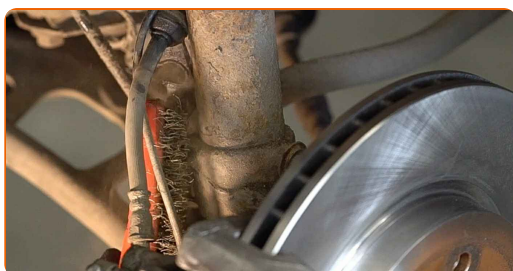
12

Disconnect the wiring and the brake hose from the bracket on the shock strut.



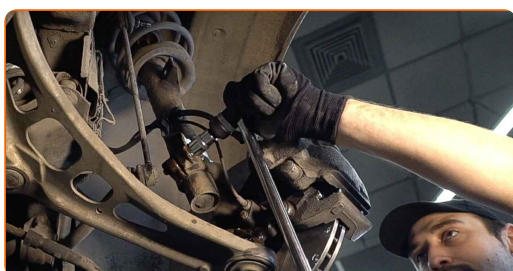
13

Clean the fasteners connecting the shock strut to the steering knuckle. Clean the fastener connecting the ball joint to the steering knuckle. Use a wire brush. Use WD-40 spray.

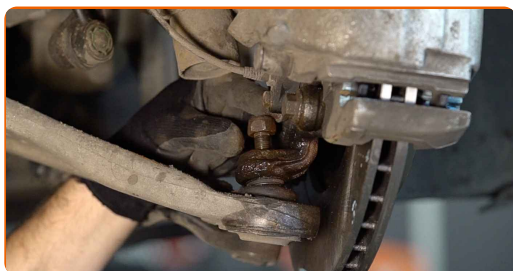


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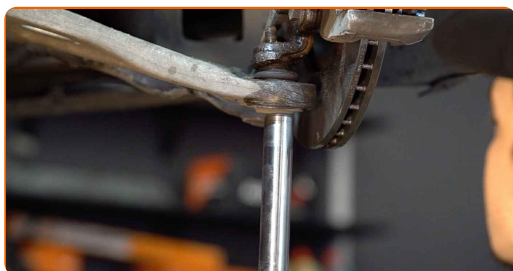
Unscrew the lower fastener connecting the shock strut to the steering knuckle. Use a drive socket #18. Use a tap wrench.



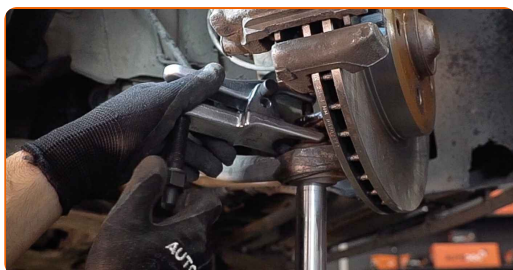
15 Unscrew the ball joint fastening to the steering knuckle. Use a combination spanner #19.



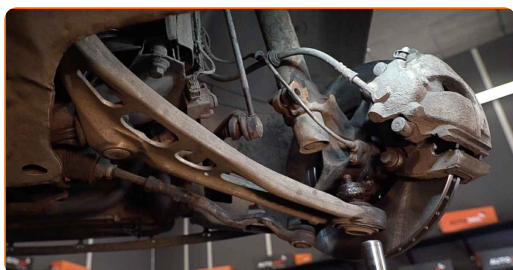
16 Support the arm. Use a hydraulic transmission jack.



17 Disconnect the ball joint from the steering knuckle. Use a ball joint puller.



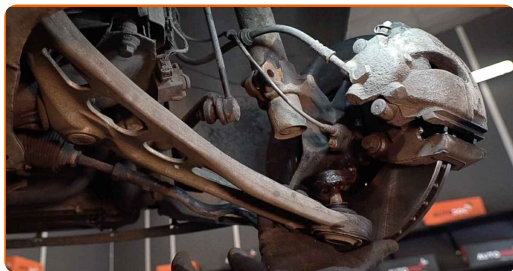
18 Lower the hydraulic transmission jack by 10-15 cm.



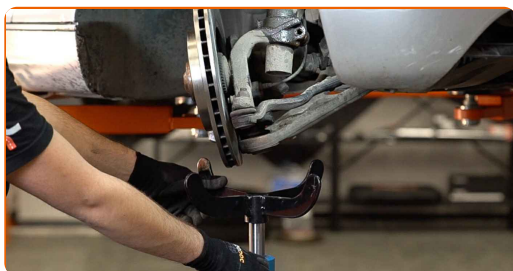
AUTODOC recommends:

- Replacement: coil springs – BMW E46 touring. Lower the transmission jack smoothly, without jerks, to avoid damaging components and mechanisms.

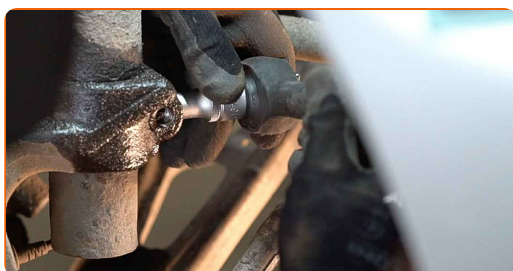
19 Disconnect the lower arm from the steering knuckle.



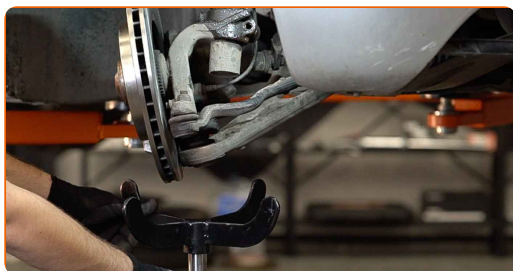
20 Prop up the steering knuckle. Use a hydraulic transmission jack.



21 Release the lower fastener connecting the shock strut to the steering knuckle. Use a special drive socket to remove the shock absorber.



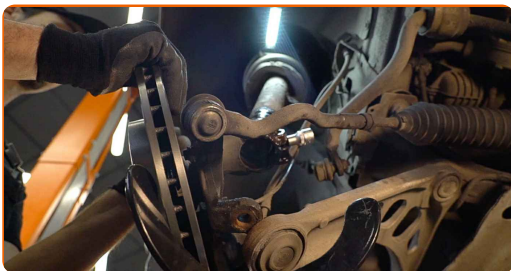
22 Lower the hydraulic transmission jack by 10-15 cm.



AUTODOC recommends:

- BMW E46 touring – Do not lower the transmission jack sharply to avoid damaging components and mechanisms of the car.

23 Disconnect the steering knuckle from the shock absorber strut.



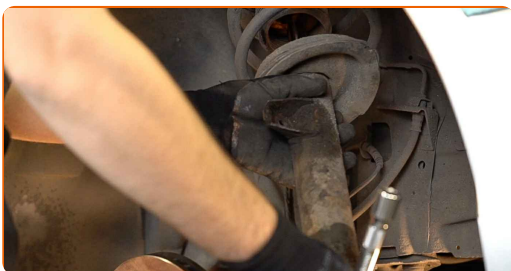
24 Unscrew the top fastening of the shock strut mount. Use a drive socket #13. Use a ratchet wrench.



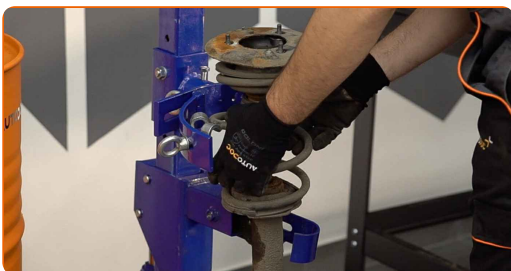
AUTODOC recommends:

- BMW E46 touring – To avoid injury, hold the suspension strut while unscrewing the fastening bolts.

25 Remove the suspension strut.



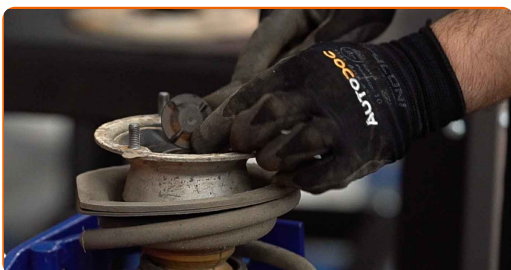
26 Set the shock absorber strut on the spring compressor tool.



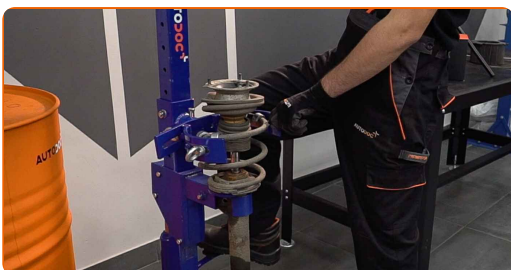
Replacement: coil springs – BMW E46 touring. Tip from AUTODOC:

- Note that when using a spring compressor, spring coils need to be securely gripped, compressing the spring on the opposite sides.
- Ensure the correct position of the spring in the retainer.
- Make sure that the spring coils tightly entered the lock handles.

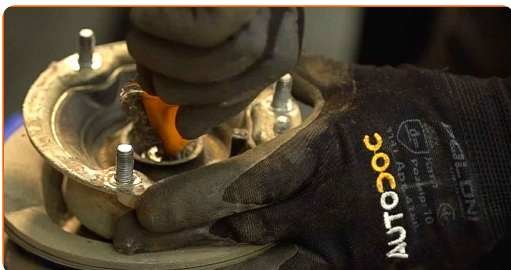
27 Remove the shock strut mount cap. Use a crowbar.



28 Compress the spring.



29 Treat the shock strut rod. Use a wire brush. Use WD-40 spray.

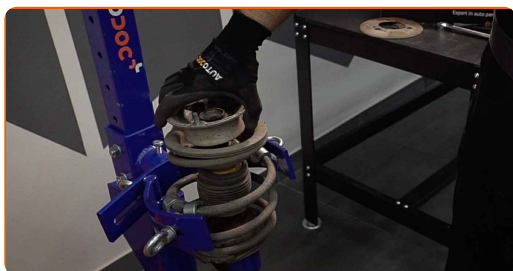


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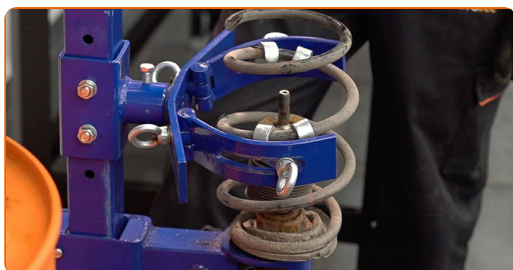
Remove the strut piston rod nut. Use a combination spanner #21. Use HEX No.H6. Use a ratchet wrench.

**31**

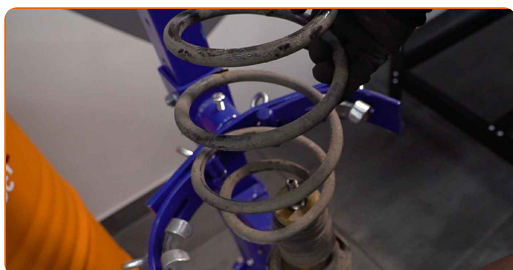
Remove the top strut mount. Use a crowbar.

**32**

Release the coil spring.

**33**

Remove the spring.

**34**

Remove the shock absorber dust cap and the bump stop.

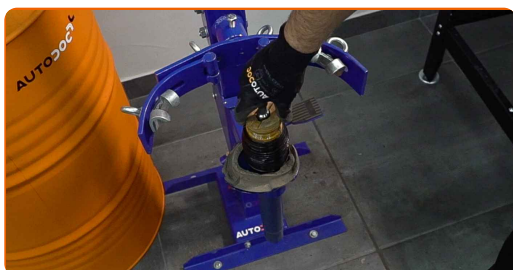


AUTODOC recommends:

- Replacement: coil springs – BMW E46 touring. Carefully inspect the mount, the boot, and the bump stop of the shock absorber. Replace if necessary.

35

Install the boot and a bump stop onto the shock absorber.



36

Install the spring on the shock absorber.



37

Compress the spring.



38

Install the upper strut mount and the strut mount bearing.



- 39 Tighten the shock strut piston rod nut. Use a drive socket #21. Use HEX No.H6. Use a torque wrench. Tighten it to 64 Nm torque.



AUTODOC recommends:

- Check to make sure the spring is positioned correctly. Avoid its misalignment.

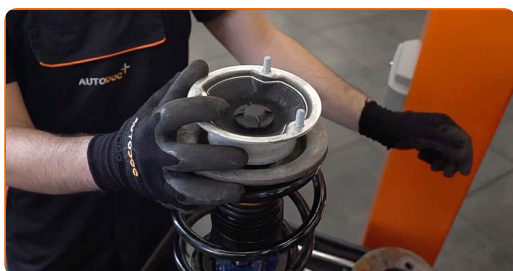
- 40 Decompress the spring.



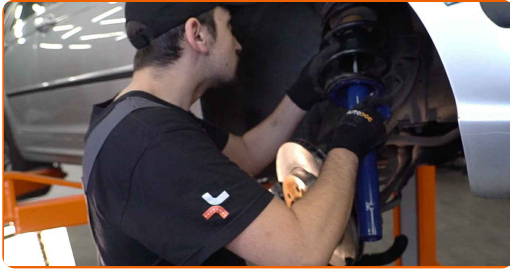
- 41 Remove the assembled shock strut.



- 42 Install the shock strut mount cap.



43 Install the shock strut into the wheel arch.



44 Screw the top fastening of the shock strut mount. Use a drive socket #13. Do not tighten it.



Replacement: coil springs – BMW E46 touring. Professionals recommend:

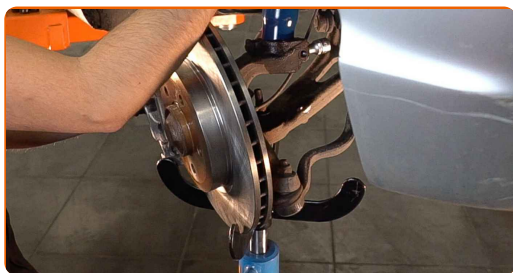
- To avoid injuries, hold the shock strut when screwing the fastening bolts in.

45 Treat the shock strut mounting seat on the steering knuckle. Use a wire brush. Use WD-40 spray.



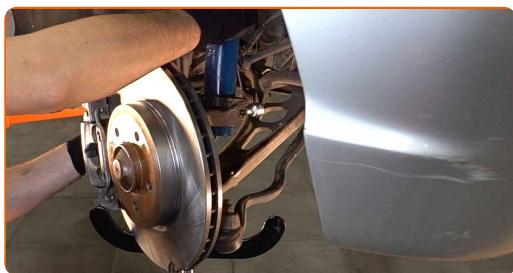
46

Prop up the steering knuckle. Use a hydraulic transmission jack.



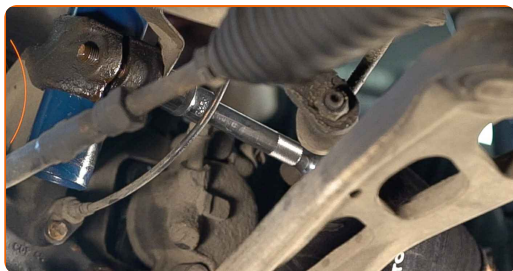
47

Fix the shock absorber strut on the steering knuckle.



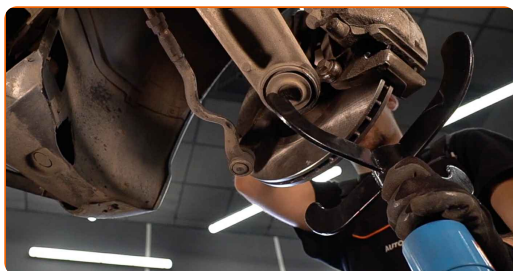
48

Install and tighten a new bolt of the steering knuckle.



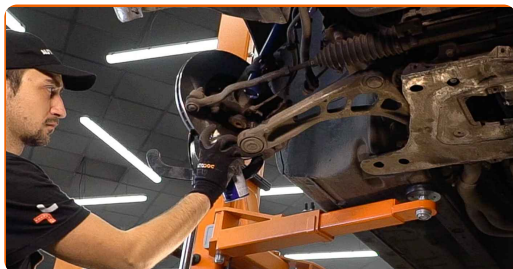
49

Tighten the lower fasteners connecting the shock strut to the steering knuckle. Use a drive socket #18. Use a torque wrench. Tighten it to 80 Nm torque.



50

Remove the support from under the steering knuckle.

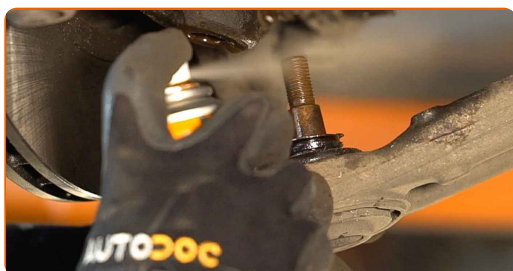


AUTODOC recommends:

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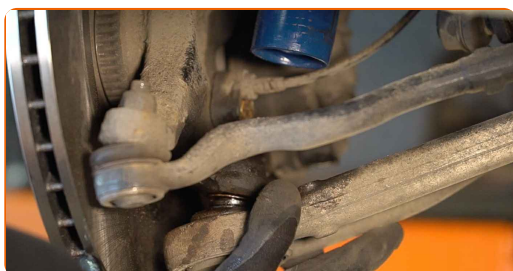
51

Clean the ball joint mounting seat. Use a wire brush. Use WD-40 spray.

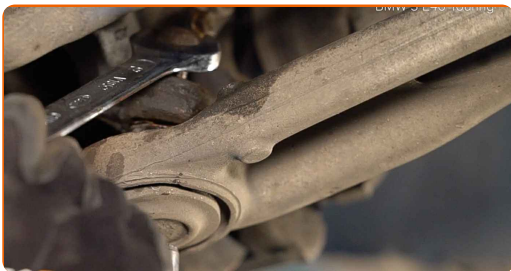


52

Treat the fasteners connecting the control arm to the steering knuckle. Use copper grease.



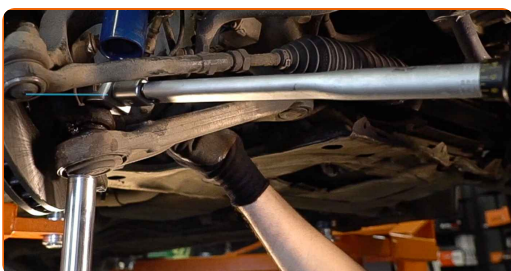
53 Connect the lower arm to the steering knuckle. Install the control arm fasteners.



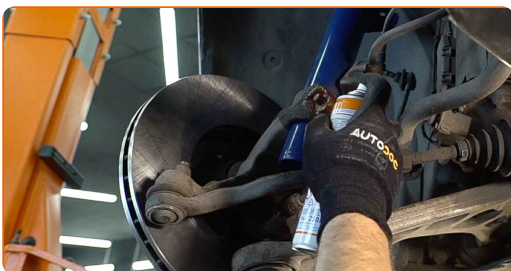
54 Support the arm. Use a hydraulic transmission jack.



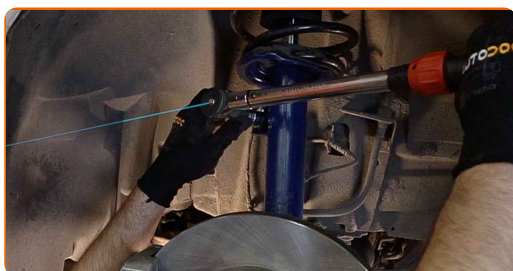
55 Screw the fastener connecting the ball joint to the steering knuckle. Use a combination spanner #19. Use a torque wrench. Tighten it to 65 Nm torque.



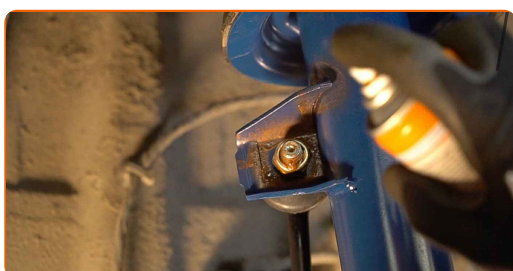
56 Treat the shock strut fasteners. Treat all joints of the arm. Use copper grease.



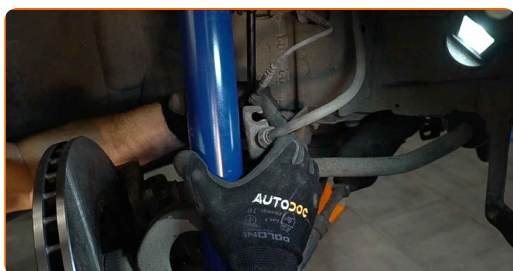
- 57** Secure the stabilizer link on the suspension strut. Use HEX No.H7. Use a combination spanner #17. Use a torque wrench. Tighten it to 55 Nm torque.



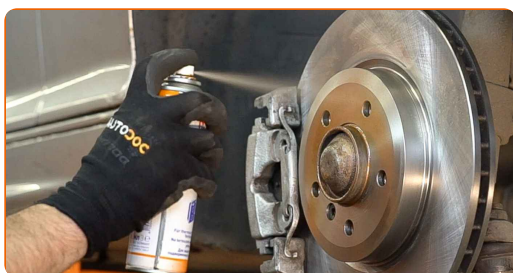
- 58** Treat all joints of the stabiliser link. Use copper grease.



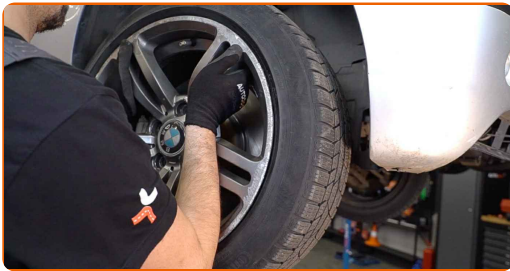
- 59** Fasten the brake hose on the strut. Connect the fastener of the ABS sensor cable to the shock absorber strut.



- 60** Clean the wheel rim mounting seat. Use a wire brush. Treat the contacting surface. Use copper grease.



61 Install the wheel.



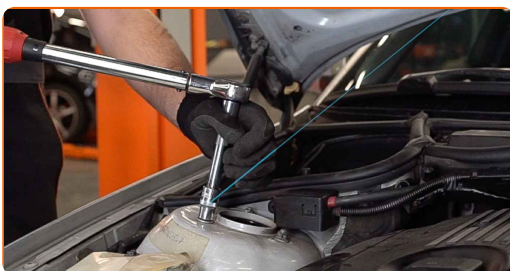
AUTODOC recommends:

- Warning! To avoid injury, hold the wheel while screwing in the fastening bolts on the car. BMW E46 touring

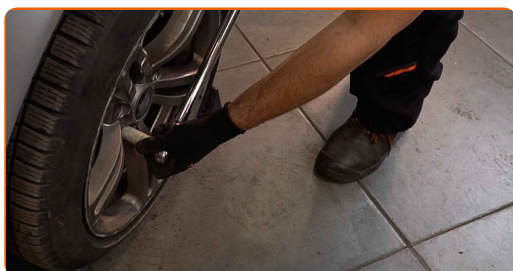
62 Screw in the wheel bolts. Use wheel impact socket #17.



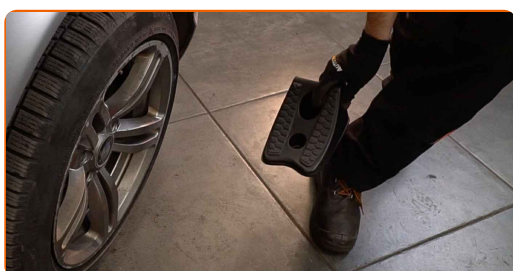
63 Tighten the upper fastener of the shock absorber strut mount. Use a drive socket #13. Use a torque wrench. Tighten it to 34 Nm torque.



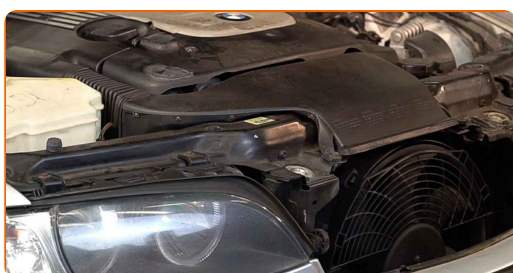
64 Lower the car and working in a cross order, tighten the wheel bolts. Use wheel impact socket #17. Use a torque wrench. Tighten it to 120 Nm torque.



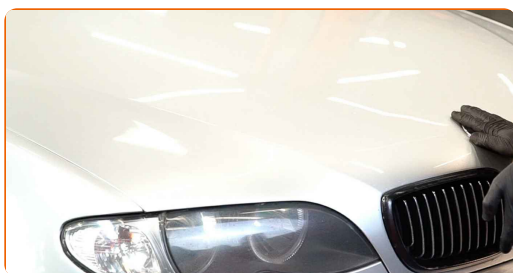
65 Remove the jacks and chocks.



66 Remove the fender protection cover.



67 Close the hood.



WELL DONE! 

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