



How to change rear
suspension strut on
BMW E39 – replacement
guide

VIDEO TUTORIAL



ⓘ Important!

This replacement procedure can be used for:

BMW 5 Saloon (E39) 525tds 2.5, BMW 5 Saloon (E39) 523i 2.5, BMW 5 Saloon (E39) 528i 2.8, BMW 5 Saloon (E39) 540i 4.4, BMW 5 Saloon (E39) 535i 3.5, BMW 5 Saloon (E39) 525td 2.5, BMW 5 Saloon (E39) 530d 3.0, BMW 5 Saloon (E39) 520i 2.0, BMW 5 Saloon (E39) 520d 2.0, BMW 5 Saloon (E39) 525d 2.5, BMW 5 Saloon (E39) 520i 2.2, BMW 5 Saloon (E39) 525i 2.5, BMW 5 Saloon (E39) 530i 3.0

The steps may slightly vary depending on the car design.

REPLACEMENT: SUSPENSION STRUT – BMW E39.
TOOLS YOU NEED:



- Wire brush
- WD-40 spray
- Brake cleaner
- Copper grease
- Combination spanner #16
- Combination spanner #22
- Drive socket # 10
- Drive socket # 13
- Drive socket # 16
- Drive socket # 21
- Drive socket # 22
- Wheel impact socket #17
- Ratchet wrench
- Torque wrench
- Shock absorber socket #DD6
- Tap wrench
- Crow bar
- Phillips screwdriver
- Plastic trim tool
- Hydraulic strut spring compressor
- Hydraulic transmission jack
- Wheel chock

BUY TOOLS

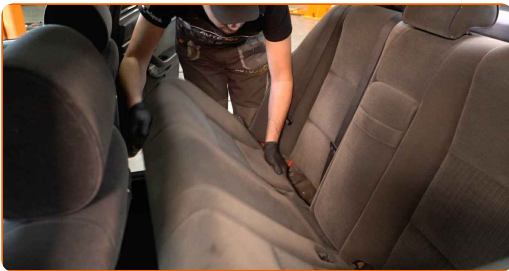
Replacement: suspension strut – BMW E39. Tip from AUTODOC experts:

- Both shock struts of the rear suspension should be replaced simultaneously.
- The replacement procedure is identical for the left and right shock struts of the rear suspension.
- All work should be done with the engine stopped.

REPLACEMENT: SUSPENSION STRUT – BMW E39. TAKE THE FOLLOWING STEPS:

1

Remove the lower part of the rear seat.



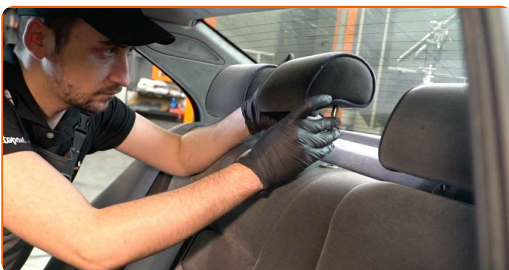
2

Unscrew the fasteners of the rear seat backrest. Use a drive socket #10. Use a ratchet wrench.

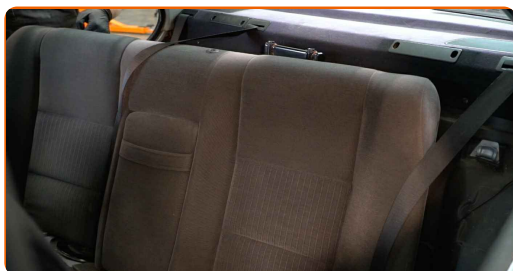


3

Remove the rear seat headrests.



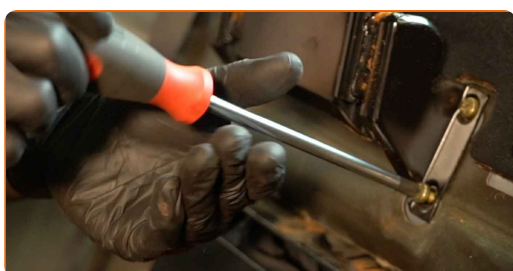
4 Remove the rear seat backrest.



5 Remove the side plastic cover. Use a plastic trim tool.



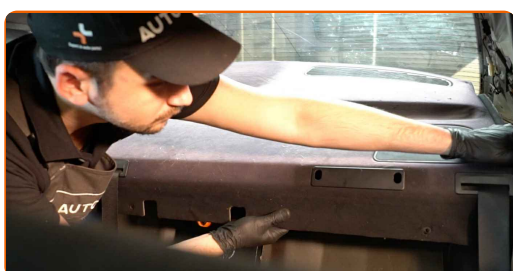
6 Unscrew the rear seat headrest bracket. Use a Phillips screwdriver.



7 Remove the clips from the parcel shelf.



8 Detach the parcel shelf.



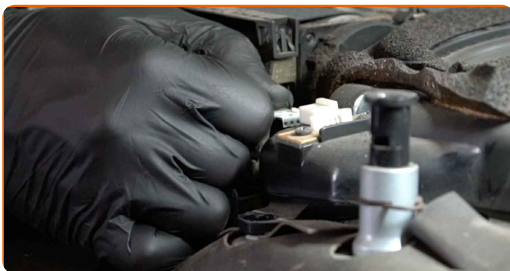
9

Unscrew the fasteners of the speakers. Use a Phillips screwdriver.



10

Detach the speaker connector.



11

Remove the speakers.



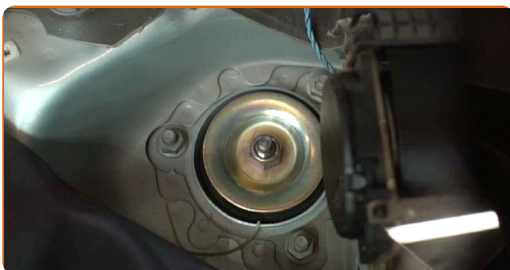
12

Bend the interior sound insulation upwards.



13

Remove the shock strut mount cap.



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



15 Secure the wheels with chocks.



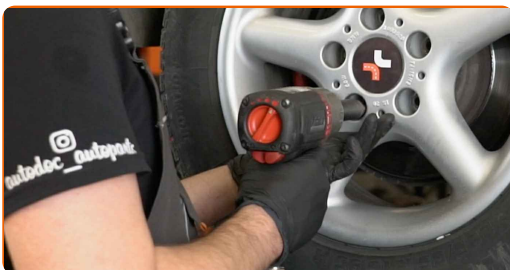
16 Loosen the wheel mounting bolts. Use wheel impact socket #17.



17 Raise the rear of the car and secure on supports.



18 Unscrew the wheel bolts.



Replacement: suspension strut – BMW E39. Tip from AUTODOC:

- To avoid injury, hold up the wheel when unscrewing the bolts.

19

Remove the wheel.



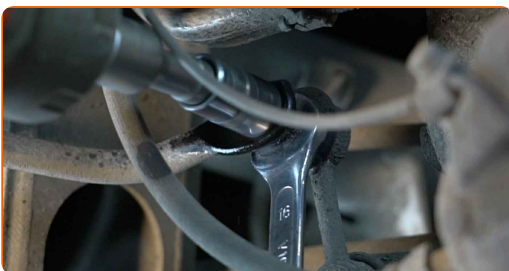
20

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



21

Unscrew the fastener connecting the stabilizer link to the stabilizer bar. Use a combination spanner #16. Use a drive socket #16. Use a ratchet wrench.



22

Remove the stabilizer rod.



23

Disconnect the brake pads wear sensor. Use a crowbar.

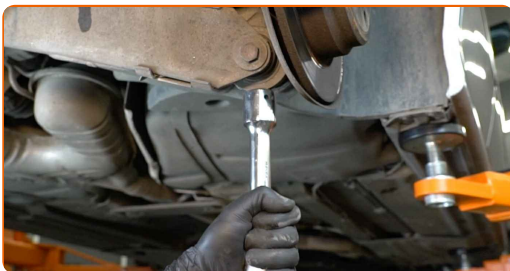


Please note!

- Some cars are not equipped with the brake pad wear sensor.

24

Support the arm. Use a hydraulic transmission jack.



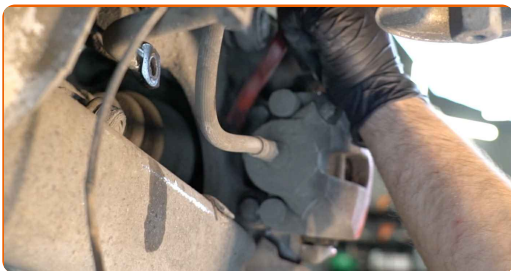
25

Spread the brake pads. Use a crowbar.



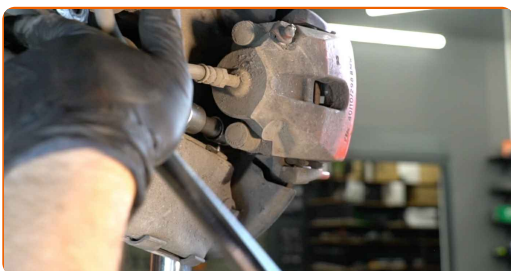
26

Clean the brake caliper bracket fasteners. Use a wire brush. Use WD-40 spray.



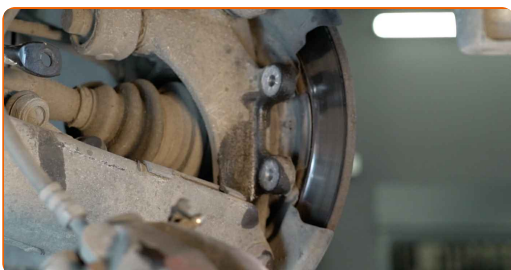
27

Unscrew the caliper bracket fastening. Use a drive socket #16. Use a tap wrench.



28

Remove the brake caliper together with its bracket.



AUTODOC recommends:

- Tie the caliper to the suspension or to the body with a wire without disconnecting from the brake hose to prevent depressurization of the brake system.
- Make sure that the brake caliper is not hanging on the brake hose.
- Don't press the brake pedal after the brake caliper has been removed. As a result, the piston can fall out from the brake cylinder, and brake fluid leakage and depressurization of the system may occur.

29

Remove the support from under the arm.

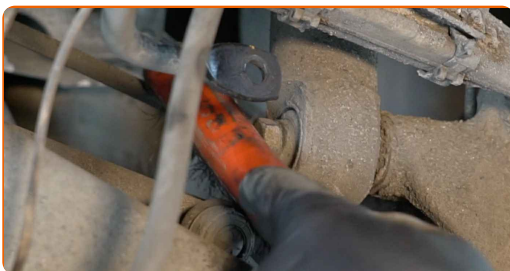


AUTODOC recommends:

- Replacement: suspension strut – BMW E39. Lower the transmission jack smoothly, without jerks, to avoid damaging components and mechanisms.

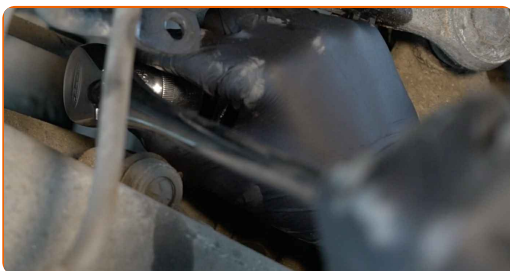
30

Clean the shock strut fasteners. Use a wire brush. Use WD-40 spray.



31

Unscrew the lower fastener of the shock absorber strut. Use a drive socket #21. Use a tap wrench.



32 Clean all joints of the arm. Use a wire brush. Use WD-40 spray.



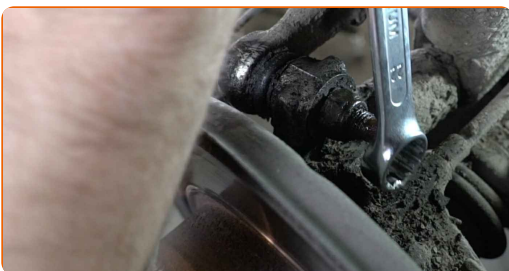
33 Disconnect the ABS sensor wiring.



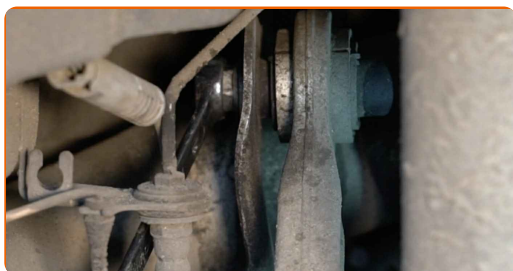
34 Clean all joints of the arm. Use a wire brush. Use WD-40 spray.



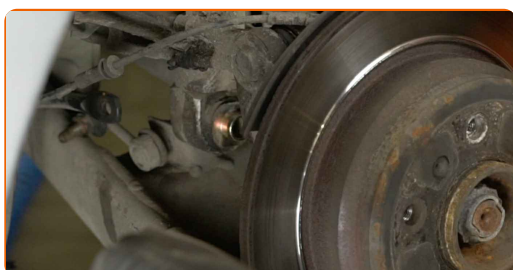
35 Unscrew the fastener connecting the control arm to the rear knuckle. Use a combination spanner #22. Use a drive socket #10. Use a ratchet wrench.



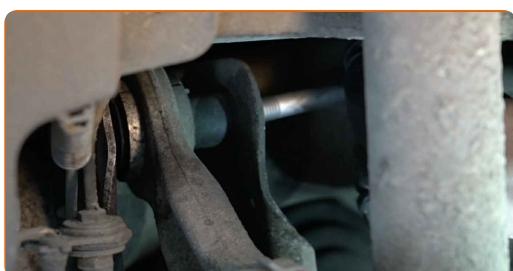
36 Unscrew the arm fastening to the beam. Use a combination spanner #16.



37 Detach the bottom part of the shock strut. Use a crowbar.



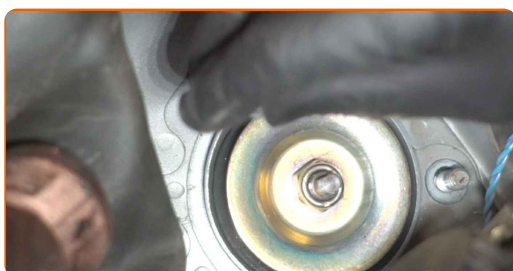
38 Remove the fastening bolt.



39 Remove the arm.



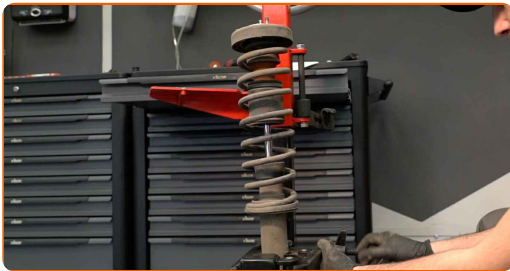
40 Unscrew the top fastening of the shock strut mount.



41 Remove the suspension strut.



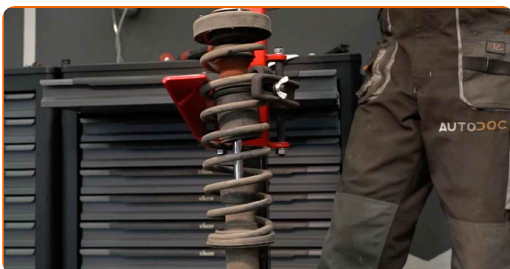
42 Set the shock absorber strut on the spring compressor tool.



Replacement: suspension strut – BMW E39. AUTODOC experts recommend:

- 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.

43 Compress the spring.



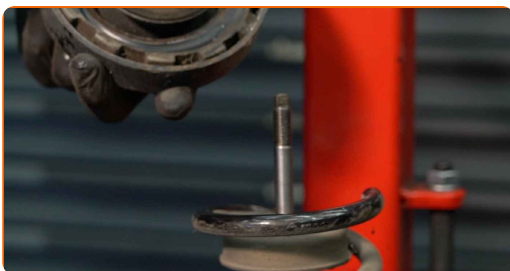
44 Treat the shock strut rod. Use a wire brush. Use WD-40 spray.



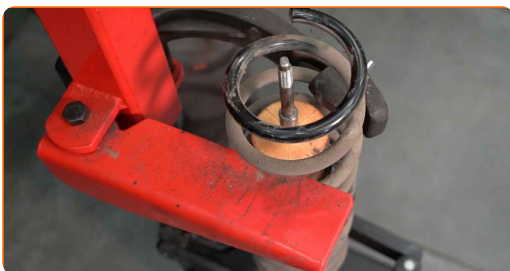
45 Remove the strut piston rod nut. Use a shock absorber socket DDN#6. Use a drive socket #16. Use a ratchet wrench.



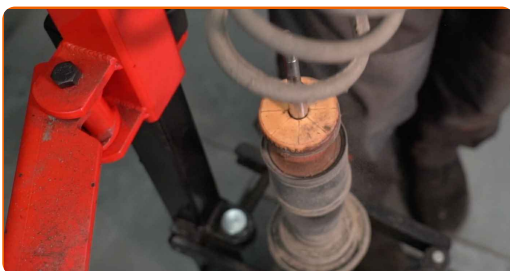
46 Remove the top strut mount.



47 Release the coil spring.



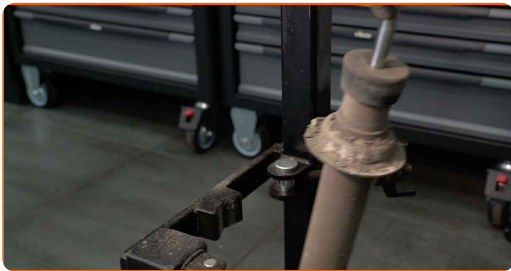
48 Remove the spring.



49 Remove the shock absorber dust cap and the bump stop.



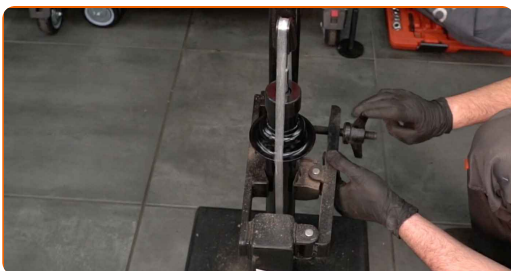
50 Remove the old shock absorber from the hydraulic coil spring compressor.



Replacement: suspension strut – BMW E39. AUTODOC recommends:

- Thoroughly examine the shock absorber mount, dust boot, bump stop. Replace them if necessary.
- Before installing a new shock absorber you should pump it manually 3-5 times.

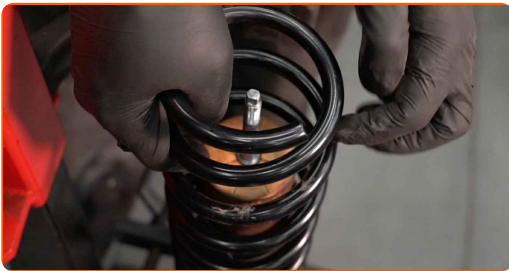
51 Install the new shock absorber on the hydraulic coil spring compressor.



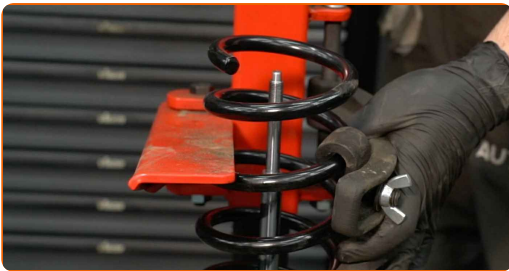
52 Install the spring on the shock absorber.



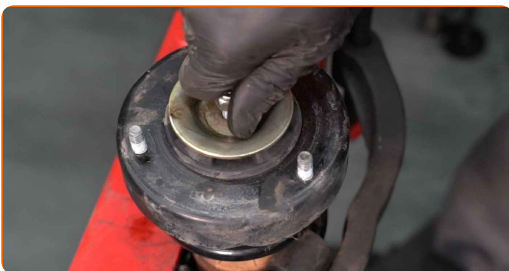
53 Install the dust sleeve and the bump stop on the new shock absorber.



54 Compress the spring.



55 Install the upper strut mount and the strut mount bearing.



56 Tighten the shock strut piston rod nut. Use a shock absorber socket DDN⁶. Use a drive socket #16. Use a torque wrench. Tighten it to 27 Nm torque.



Replacement: suspension strut – BMW E39. Professionals recommend:

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

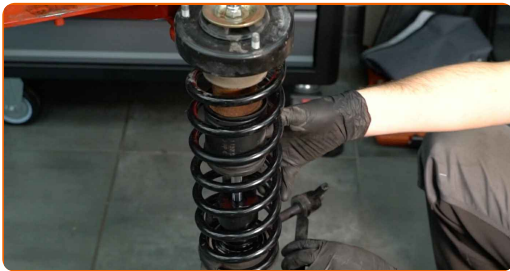
57

Decompress the spring.



58

Remove the assembled shock strut.



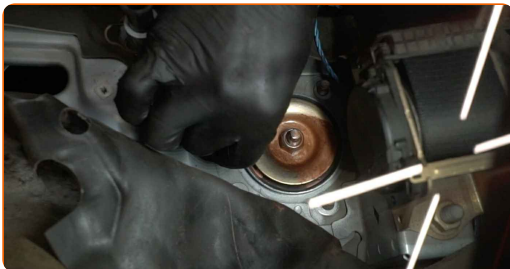
59

Install the shock strut into the wheel arch.



60

Screw the top fastening of the shock strut mount. Do not tighten it.



AUTODOC recommends:

- Important! Hold the suspension strut while screwing in the fastening bolts. BMW E39

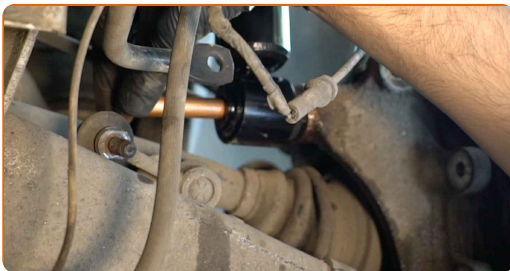
61

Clean the mounting seats of the shock strut. Use a wire brush. Use WD-40 spray.



62

Attach the bottom part of the shock strut.



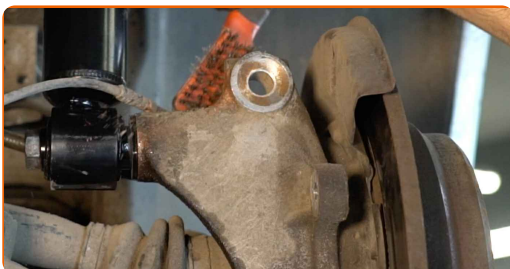
63

Tighten the lower fastening of the shock absorber. Use a drive socket #21. Use a torque wrench. Tighten it to 127 Nm torque.



64

Clean the mounting seats and the thread of the suspension arm. Use a wire brush. Use WD-40 spray.



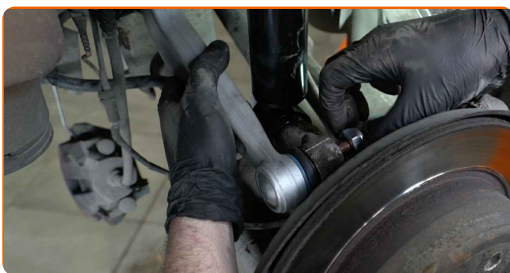
65 Reinstall the control arm.



Replacement: suspension strut – BMW E39. Tip:

- Do not damage the ball joint cover.

66 Install the fastening bolt.



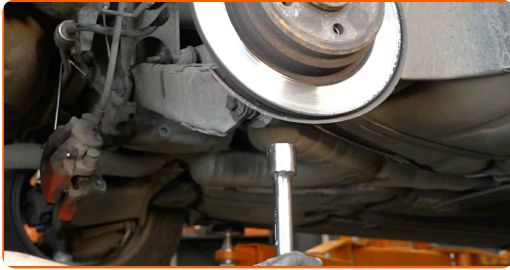
67 Screw in the fastener that connects the control arm to the rear knuckle. Use a combination spanner #22. Use a drive socket #10. Use a ratchet wrench.



68 Tighten the fastener connecting the suspension arm to the rear knuckle. Use a drive socket #22. Use a torque wrench. Tighten it to 142 Nm torque.



69 Support the arm. Use a hydraulic transmission jack.



70 Screw in the fastener connecting the control arm to the subframe. Use a combination spanner #16.



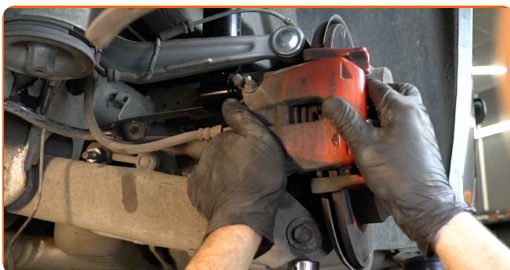
71 Tighten the arm fastening to the beam. Use a drive socket #16. Use a torque wrench. Tighten it to 110 nm torque.



72 Connect the ABS sensor wiring.



73 Install the brake caliper together with its bracket.



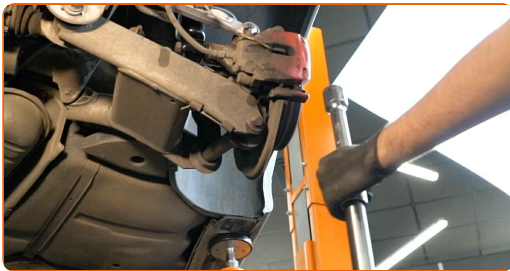
74 Tighten the brake caliper bracket. Use a drive socket #16. Use a torque wrench. Tighten it to 65 Nm torque.



75 Connect the brake pads wear sensor.



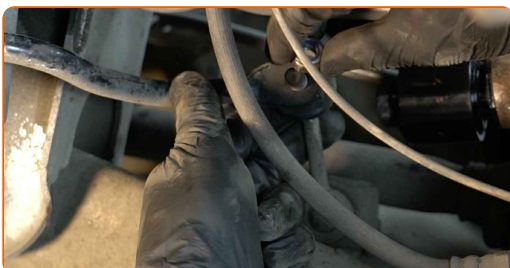
76 Remove the support from under the arm.



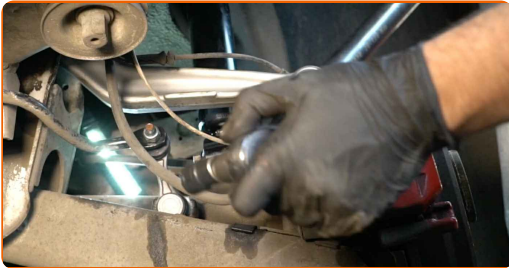
AUTODOC recommends:

- Lower the hydraulic transmission jack smoothly, without jerks, to avoid damaging assemblies and mechanisms.

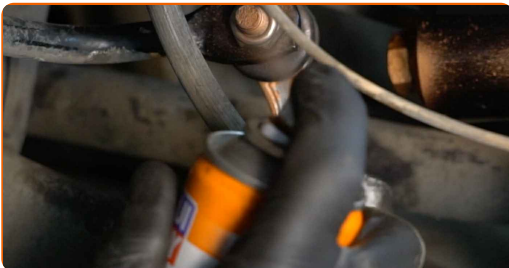
77 Install the transverse stabilizer link.



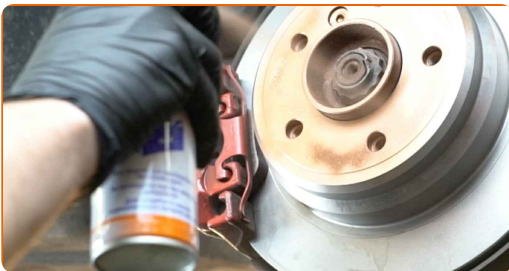
- 78** Tighten the fastener connecting the stabilizer link to the stabilizer bar. Use a combination spanner #16. Use a drive socket #16. Use a torque wrench. Tighten it to 60 Nm torque.



- 79** Treat all joints of the arm. Treat the shock strut fasteners. Use copper grease.



- 80** Treat the surface where the brake disc contacts the wheel rim. Use copper grease.



- 81** Clean the brake disc surface. Use a brake cleaner.

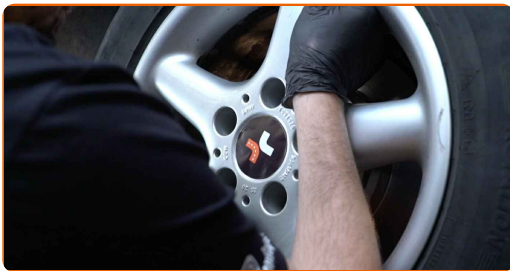


AUTODOC recommends:

- Replacement: suspension strut – BMW E39. After applying the spray, wait a few minutes.

82

Install the wheel.

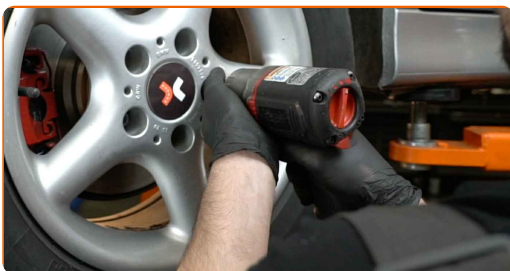


AUTODOC recommends:

- Important! Hold the wheel while screwing in the fastening bolts. BMW E39

83

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



84

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.



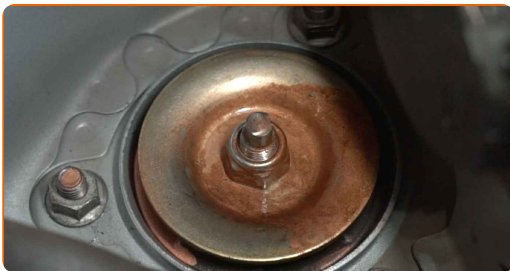
85 Remove the jacks and chocks.



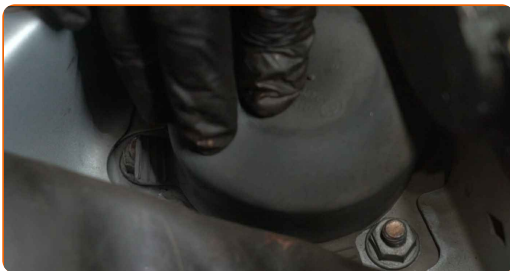
86 Tighten the upper fastener of the shock absorber strut mount. Use a drive socket #13. Use a torque wrench. Tighten it to 24 Nm torque.



87 Treat the fasteners of the shock strut mount. Use copper grease.



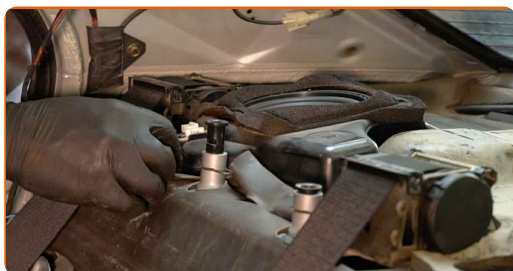
88 Install the shock strut mount cap.



89 Reinstall the interior sound insulation.



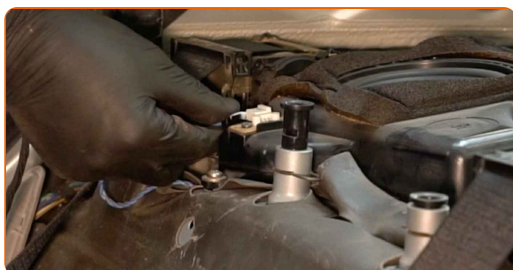
90 Reinstall the speakers.



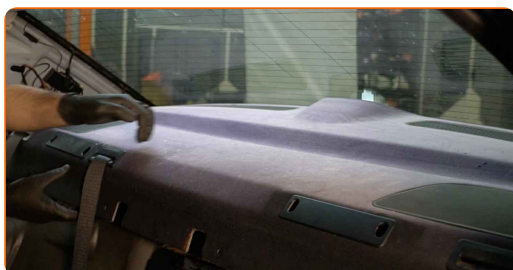
91 Screw in the fasteners of the speakers. Use a Phillips screwdriver.



92 Attach the speaker connector.



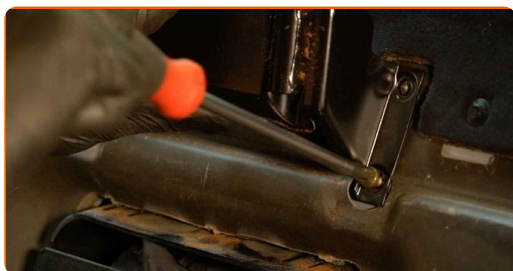
93 Reinstall the parcel shelf.



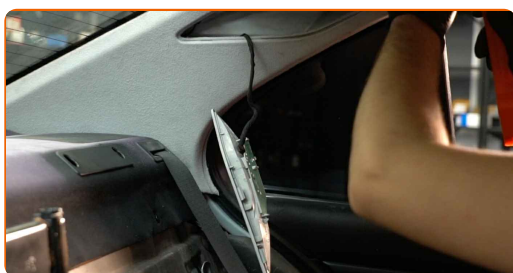
94 Reinsert the parcel shelf clips.



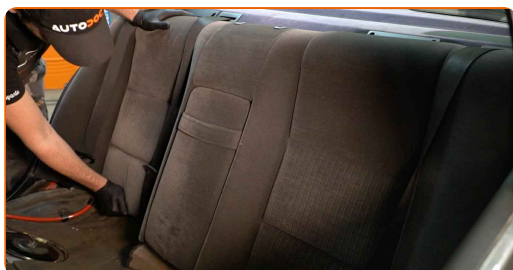
95 Screw in the rear seat headrest bracket. Use a Phillips screwdriver.



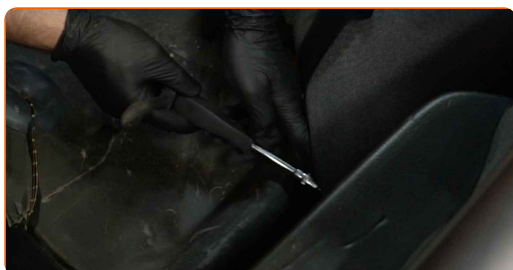
96 Install the side plastic panel. Use a plastic trim tool.



97 Reinstall the rear seat backrest.



98 Screw in the fasteners of the rear seat backrest. Use a drive socket #10. Use a ratchet wrench.

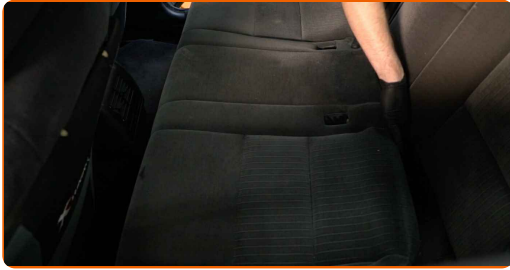


99 Reinstall the rear seat headrests.



100

Reinstall the lower part of the rear seat.



Replacement: suspension strut – BMW E39. Tip from AUTODOC experts:

- Without starting the engine, press the brake pedal several times until you feel significant resistance.

WELL DONE! 👍

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